AN ENVIRONMENTAL HISTORY OF NAGALAND WITH REFERENCE TO WATER RESOURCES 1881-2005

A Thesis
Submitted in fulfillment of the requirements for the Degree of

DOCTOR OF PHILOSOPHY

BY

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CERTIFICATE

Certified that the subject matter of this Thesis is the record of work done by Ms Eunice Alinger, and the contents of this Thesis did not form a basis of the award of any previous degree to her, or, to the best of my knowledge, to anyone else, and that the Thesis had not been submitted by her for any research degree in any other University.

In habit and character Ms Eunice Alinger is a fit and proper person for the degree of Doctor of Philosophy.

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CANDIDATE'S DECLARATION

I do hereby declare that the thesis entitled "**An Environmental History of Nagaland with reference to Water Resources 1885-2005**" submitted for the award of the Degree of Doctor of Philosophy in History is a bonafide record of research done by me under the guidance and supervision of Dr. Y. Ben Lotha, Associate Professor, Department of History & Archaeology, Nagaland University, Meriema Campus, Kohima, during the period 2007-2014. This work has not been submitted either in full or in part to any other university or institution for the award of any Degree.

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To
my most beloved
late brother Moa Alinger
who said in the midst of his illness,

"God will give you grace to finish your thesis"

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A special thanks to Alemsong, my sister in law and my two nephews, Toshimeren and baby Maongka, who light up my world.

Finally, to God, ‘For in him we live and move and have our being’ Acts 17:28.

Eunice Alinger

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State : Nagaland

WETLAND MAP

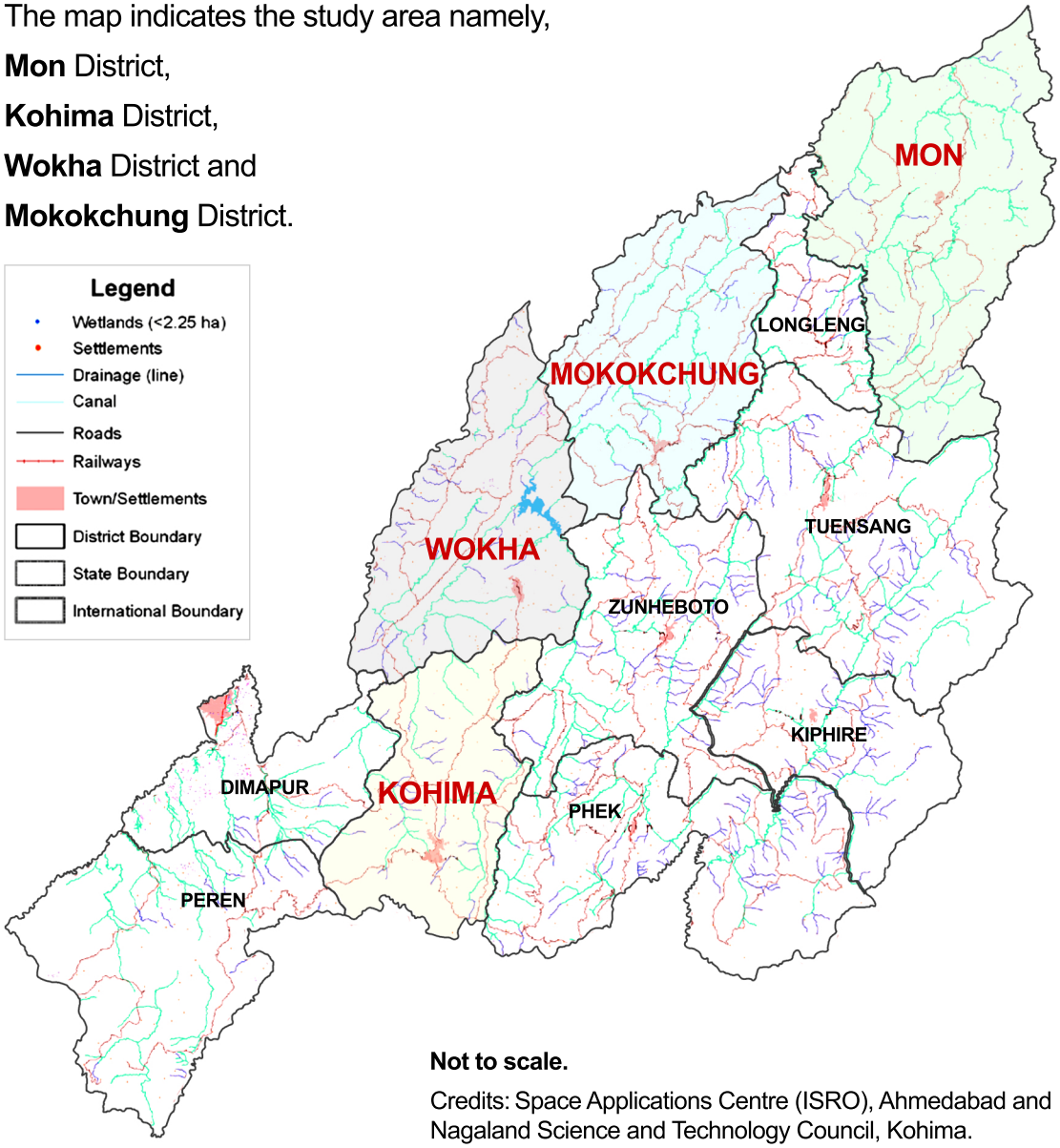
The map indicates the study area namely,

Mon District,

Kohima District,

Wokha District and

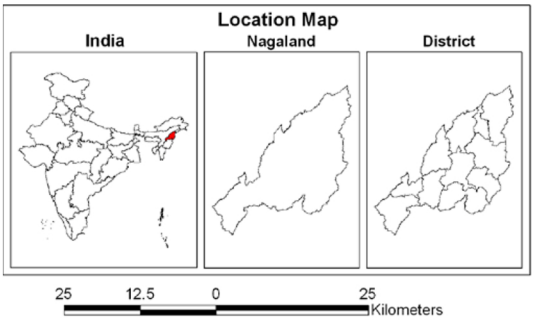
Mokokchung District.



Not to scale.

Credits: Space Applications Centre (ISRO), Ahmedabad and Nagaland Science and Technology Council, Kohima.

Symbol	Typecode	Level I	Level II	Level III
		Inland Wetlands		
			Natural	
	1101			Lakes/Ponds
	1102			Ox-bow lakes/ Cut-off meanders
	1103			High altitude wetlands
	1104			Reverine wetlands
	1105			Waterlogged
	1106			River/Stream
			Man-made	
	1201			Reservoirs/Barrages
	1202			Tanks/Ponds
	1203			Waterlogged
	1204			Salt pans
		Coastal Wetlands		
			Natural	
	2101			Lagoons
	2102			Creeks
	2103			Sand/Beach
	2104			Intertidal mud flats
	2105			Salt marsh
	2106			Mangroves
	2107			Coral reefs
			Man-made	
	2201			Salt pans
	2202			Aquaculture ponds



Data Source:
IRS LISS III data (Pre-monsoon and Post-monsoon Season 2006-07)

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INTRODUCTION

The emerging significance of environmental history to human affairs cannot be overlooked. In its initial stages the study of environmental history appeared to be a plan to stir public consciousness to environmental crisis identified by the scientists, engaged in diverse branches of environmental science and ecology. However, it is increasingly being acknowledged now that the recent environmental crisis calls for a new and independent role of the historians to develop a new paradigm for the future including studies of the interactions and activities of man and the environment; the significant role of man as both the maker and the unmaker of nature.[1] This study is therefore, a modest attempt to address a relatively new area of research namely the environmental history of Nagaland with reference to water resources.

Environmental history continues to evolve and share an undefined perimeter with other social histories and various other disciplines such as economic histories, history of science and technology, disease history etc. Whatever the approach, the complexity and unpredictability of nature and human societies are inescapable themes in environmental history. Environmental history is thus of growing interest and value to many other disciplines, to policy makers, restoration ecologists, and a variety of cultures and societies around the world.[2] The formation of the American Society for Environmental History in 1977 marked the birth of environmental history as a formal discipline. Since the 1970's an explosion of scholarship on United States environmental history has taken place. In Europe the Annals School (a group of French historians who published in the journal Annales) examined environmental changes in Europe, such as forest clearing and wetland drainage in response to population fluctuations. [3] It has been noted currently that the academic centre of gravity has shifted firmly away from North America and Europe to South and South East Asia and Africa.[4] Anil Agarwal and Sunita Narain's, *(1985) The State of India's Environment* and Richard P. Tucker and John F. Richard's, *(1983) Global*

[1] D. Arnold, & R. Guha, (eds.).*Nature, Culture and Imperialism: Essays on the environmental History of South Asia,* p.3.

[2] S. Krech, J.R. McNeill, C. Merchant, *Encyclopedia of World environmental history, Vol.1 A-E,* p.XI.

[3] *Ibid*.

[4] R. H. Grove, *Ecology, Climate and Empire, the Indian legacy in Global Environmental History, 1400-1940,* p.4.

Deforestation and the Nineteenth-Century World Economy are considered as the launching points for an environmental history of South and South East Asia.[5] Despite the interest in the promising growth of environmental history in the region; pioneers of the ecological history of India, such as David Arnold and Ramchandra Guha, have however remarked that South Asia as well as in India, environmental history is by and large under-developed.[6] It has only been in last few past decades that we have seen a proliferation of writings by scholars in almost all aspects of environmental history. Interest in the subject has increased double fold due to scarcity of resources, affecting both social and political syndromes within the nation state and also across national frontiers. Alarming developments all over the world have compelled serious scholars to voice their concerns and examine some critical features of this problem.

In this scenario, as a subject Water History has gained significant attention of environmental historians in recent years although conflicts over the control and use of water have existed historically, and continue to exist across local, institutional and international boundaries. It occupies a vital place in the scientific debate relating to conservation and the management of nature with concern to human societies across the world and the complex patterns of their interaction with the environment. In India the subject itself has had much impetus from the writings of individuals some of them who have had started off their careers as environmental activists. This interest has prompted a large body of research works to be written primarily on the relationship between water and humankind; illuminating the multifarious processes shaping water resource use, and reveal interrelated aspects or historical contingencies and precedents. However, it is true that in actuality due to its nascent nature, literature on environmental history, in general and Naga Hills in particular, is scanty.

This research work is a modest attempt to address the issue in relation to the title, 'The Environmental History of Nagaland with reference to Water Resources 1881-2005 '. The study generally highlights the traditional management of water resources in Nagaland in the pre-Colonial period, and the degree of shift in the Colonial and Post-Colonial Period and the response of the natives towards these developments. The

[5] *S. Krech, J.R. McNeill, C. Merchant, op.cit., p. XI.*

[6] *D. Arnold, & R. Guha, (eds.) op.cit., p.3-4.*

case studies were restricted to four districts namely Kohima district, Mon district, Mokokchung district and Wokha district.

It is noted that conservation and forest regulations of the Colonial Government started with the establishment of an all India Forest Department in 1865. Furthermore the earliest British statutory water law in India was introduced roughly around 130 years ago.[7] This initiation led to measures covering all aspects of the environment including forests, land, and water resources. A major objective of this study therefore is to critically examine the degree of transition and complexity of changes involved in the environmental history of the Nagaland, formally known as Naga Hills, a district of Assam from its formation in 1866. However, this research work localized in character; in order to attend to the specificities of the issues involved will engage within a timeframe delineated from the beginning of effective administration, and work from 1881 as regular British administration was introduced in the Naga Hill District from this year only.

In order to further elucidate the topic undertaken, the study is divided into five chapters. The first chapter is 'Conceptualization', whereby an attempt has been made to analyze the subject not just from an ecological standpoint but also from popular perceptions and experience based on Naga folk traditions and religious beliefs.

The second chapter 'Traditional management of water' defines the traditional method of management of water resources, besides defining water rights and ownership of various Naga tribes; their use by local communities, the continued existence of people dependent on the land and water, the degree of control by the individual community, village, khel, clan and family.

The third chapter 'Colonial Government and water resources' highlights the series of measures adopted by the Colonial state and studies the action and motives of the colonists on conservation of forests and particularly water resources. This study would address the issue of how the early development of conservatism and environmentalism was largely dependent on the diffusion of desiccationist and endemist discourse. It will attend to the all important question of the scientific debate

[7] Water Law in lndia (ed.) Chhatrapati Singh, ILI (1992). Annexure I of Siddiqui's, '*History of Water Laws in India'* places the earliest water law enactment at 1864.

on whether the series of measures adopted by the Colonial state on conservation of forests and its resources, had a deeper motive more complex than that of conservation and other regulations.

The fourth chapter 'Commodification of water during Colonial and Post-Colonial period' deals with the imposition of Colonial legislations which first focused on the regulation of water for economic reasons for instance, through the development of legislation concerning irrigation and navigation. It also addresses the issue of commodification and contestation of water. It will underline the key role played by the Colonial laws in India (including regulation of irrigation, fisheries, electricity, canal and drainage) to dictate regulation of major aspects of water bodies thereby demonstrating that the Crown had extended its control over all aspects of water, types of water and sources of water. An action which led to an un-hindered forcible substitution of old values and principles of community based forest and water laws developed over a long period of time; suggesting that Colonial laws and statutes are invariably superior to tried and time tested indigenous ones. The study will take into account the fact that invariably the people most affected by the sweeping changes made by both Colonial and the post-Colonial Government in India, have usually been the tribals and other forest dwellers who have traditionally kept a balance between human needs and ecological imperatives and preserved forests as a resource of posterity. [8]

The fifth chapter 'Management of water resources' concerns the central part of the study; it evaluates the post colonial environmental and water policies and laws, and makes an appraisal of the socio- economic impact still felt in the country made by the policies and laws of a foreign British Government. This study will deal with the nature of the integrated environmental and water policies and laws imposed on a colonized India by a foreign British Government which continues to play a dominant role in academic debates; more so because of the lingering socio- economic impact still felt in the country. The study concludes with the final 'conclusion', a write up in which the whole study is summarized.

[8] Fernandes has dealt extensively on the symbiotic relationship of the tribal's and forest, and the related cosmology. W. Fernandes, *'Forests and Tribal's: Informal Economy, Dependence and Management traditions',* (eds.) Mrinal Miri, Continuity and change in tribal society.

STATEMENT OF THE PROBLEM

A distinguishing feature of the traditional Naga Society is the unique well-developed social structure with mature, resilient, egalitarian and heterogeneous networks that underpin and sustain community activities. The Naga Villages usually claimed unrestricted right over forests and resources. Each tribe had rights over well defined areas of forest, hunting grounds and fishing spots. Networks of social interaction were created and reinforced through the activities of everyday life and cultural rituals, creating interpersonal ties and affirming community boundaries. For instance, perennial natural springs were considered as something more or less magical, with therapeutic value, and therefore associated with exceptional purity. These springs which had religious connotations also, are still an important part of traditional purification rituals during local festivals.

With the coming of the Colonial Government, the Village communities were no longer left to manage their affairs without direct or indirect supervision. The Government meddled in petty issues of all types. For example, the Government forbade the felling of alders in Jhum fields and ordered their preservation in the Pollarded form. In another instance, the administration forbade fishing with cast nets in the Doyang and Bagti rivers. The transplanted regulations created a totally new dimension in forest laws for the Naga Villages, as it carried both the old and new elements.

An endeavor of this study will be to explain the traditional management of water resources. It will define interpretations of water rights and ownership of various Naga tribes, issues leading to water conflicts; the changing economic and social ties and relationships emerging from the water policies and projects of the Government during both the Colonial and Post Colonial period. The later changes brought about by Colonial intervention in the unrestricted right of Nagas over water and other resources have been a continual focus of the study. It will help to understand how the statute laws and state control imposed in the arena of forest and water management reinforced each in their development and growth of an intrusive state; thereby undermining indigenous and community based systems of water rights and management over its resources. In order to determine as to what generated the interest of the Colonial State towards the apparent steps for conservation and forestry

regulations; a variety of questions to be analyzed in the backdrop of social, economic, political and administrative context of the pre colonial and colonial Naga Hills District are: Was their motive simply for 'Civilizing' a peoples group hitherto known for their wild, savage ways or was their motive of a more complex nature. Just how far did the Colonial administration and its policies undermine the native social and cultural superstructure all built on the forest base? Did the promises of reformative polity and a cohesive society and resources usually prove to be illusory? Coupled with these is the question of whether, simply, the target levels of benefits had ever been achieved uniformly all over Naga Hills? Most importantly, it will attempt to explain the response of the natives towards these developments and also the degree of shift from the traditional management of water resources in both the Colonial and Post Colonial Period. It would take into consideration how the Naga villages were compelled to make new adjustments to their traditional authority over water resources. It will also address the issue of whether commodification and contestation of water began when traditional rights of the clan, tribe, and village over the water resources were disturbed by the Colonial Government.

REVIEW OF LITERATURE

Although, globally speaking, environmental history may be said to have come to age in recent years, in South Asia it remains by and large in its adolescence. Environmental history in this region has yet to develop a firm intellectual base, a solid scholarly foundation. Since this study attempts to deal with a variety of key issues, such the role of forest and water resources in shaping the history of Nagaland; for the purpose of understanding the exhaustive nature of the subject, a wide variety of published literature has been consulted as a useful source of information on historical, political and administrative matters, and the society and culture of the Nagas. Archival sources have also been consulted, where necessary. In view of the fact that in the context of Nagaland, practically no work devoted to environment history exists; information and statistics required for the study have been acquired as a result of consulting a large number of official reports and documents.

Global literature

For a comprehensive view of environmental history and to taper it down specifically to the India context, a wide range of works by eminent environmental historians have been consulted. Hughes, J. D. **(**2001). *An Environmental History of the World: Humankind's Changing Role in the Community of Life.* J. Donald Hughes writes extensively on nature's role in the unfolding of human events. This book places humans within the community of life and views the correlation between humans and the environment. He emphasizes the importance of environmental history and argues for its importance in understanding the present state of the world's ecological problems. Since the field's inception in the early 1970s, both in the US and Europe the focal point of most environmental histories has been on regional or national issues. This book exhaustively deals with how natural forces and resources have shaped societies on a global extent and about the reciprocal relationship shared by people and the environment. He specially points out the giving and taking between the two elements, but often in imbalanced amounts. While numerous studies tend to emphasize either human impacts on the environment, or environmental influences on social behavior, Hughes depicts a tidy interrelationship between the two.

Krech, S., Mcneill, J. R., and Merchant, C. (eds.) (2004). *Encyclopedia of World Environmental History, 3 Vols*. The three-volume set is an analytical handbook of natural phenomena and events and their impact on human societies. Many articles in the encyclopedia are written in a spirit of commonality with environmentalism, but without dogmatic commitment to any one specific school of environmentalism, therefore it is useful both for environmentalist and environmental historians since it offers a chronological overview of extensive and authoritative historical coverage on how human beliefs and actions have altered the natural world, but also covers the latest advancement in the field.

Simmons, I.G. (2008). *Global Environmental History*. Simmons follows a multidisciplinary approach and with a humanistic perspective furnishes an enormous amount of details, theoretical concepts, and trends. With a time frame ranging from 10,000 BCE to the modern day to present, he brings under consideration how human technological evolution changes over the years have affected the natural world and goes on to assess the response to conditions such as climate change. By putting

today's environmental preoccupations into a long-term perspective, Simmons reveals the history of some current anxieties. The book provides an incredibly rich and deep time overview of how we have come to our current state of ecological crises.

Grove, R**.** (1996). *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860 (Studies in Environment and History).* This is an extremely important work as it documents the origins and early history of environmentalism with a focus especially on its hitherto unexplained colonial and global aspects. The writer perceives the course of environmentalism as a two-way process, and makes the scrutiny from a colonial perspective but in addition sees it in terms of how that perspective was shaped by the diverse climates along with ecological regimes encountered by the colonizers. This book is an important source as the author diverts environmentalism from its modern North American focus by locating it in the colonial experience and by reminding the readers that environmental and conservation issues are not new but that some modern ideas have historical antecedents far back in the past. It is a book which gives detailed attention to other parts of the globe, in particular to those whose history has been shaped by imperialism.

Radkau, J. (2008). *Nature and Power: A Global History of the Environment*. Radkau, a German historian, writes this book on environmentalism from a predominantly European approach but its reach is truly global as it covers an astonishingly rich outline of many of the central themes of environmental history. His strength is in his approach to the theme of environmental history made somewhat with skepticism and some apprehension about grand generalizations on large scale projects and their exaggerated assertions and sometimes stereotypical conclusions. The key argument that he puts up is that human ecological behavior and thought has been shaped in profound ways by the scale on which human relations with the environment are managed, a subject whose historiographical and political significance is becoming more and more evident. Another one of the author's fundamental theme is that sometimes the solutions created the greatest dangers. In subtle approach this theme of the perils of sustainability is present all through. He argues that human ecological behaviors are often most destructive when best aligned with the cycles and rhythms of the natural world. He makes a contrast between the North American environmental

historians who have been fascinated by the idea of abundance in the wilderness, unlimited resources and spaces not yet touched by humans and open to exploitation (or protection), and German historians who have focused their scholarship on a more anthropogenic and more limited 'natural' world in which the problem of sustainability was always present. Another, distinctively German quality of the book is its sensitivity at every point to the politics of environmental issues. One of the main focal point elucidated by the work is that human relations with the environment are mediated by power relations.

McNeill, J. R. (2001). *Something New Under the Sun: An Environmental History of the Twentieth-Century World (The Global Century Series)*. McNeill reconstructs the environmental history of the world over the past hundred years by stressing on the synthesis of humanity's relationship to and modification of the environment during the 20th century. The history he presents is one of causes and consequences; he interprets the human impact on the earth politically, economically, and socially, noting the influence of history and ecology on each other. His claims are substantiated by alarming evidence he presents in this comprehensive and balanced survey. His arguments are important because it reiterates the role and development strategies of humanity as having a massive impact on ecosystems, a key contributor in making the environment ecologically unsustainable thereby perpetuating environmental disturbance. He contends that these strategies may be extremely damaging in the long run to the ecology. The book is also important to have a reference point to comprehend within a capsule history of the environmental movement, gauging its successes and influence.

Beinart, W. & Hughes, L. (2009). *Environment and Empire.* W. Beinart and L. Hughes writes a pioneering work on the environmental history of the British Empire, with ample attention on the former British Empire's interactions with different environments in locations such as Africa and India. A case they underline is that Imperialism was inseparable from the history of global environmental change. The writers illustrate various environmental themes in the history of the British Empire stating that the social and political issues were related to environmental change. But the fundamental theme of the book is the tension between exploitation and conservation; stating that the British colonists sought to regulate natural resources and

at the same time commodify items. This book is significant as it highlights the adaptation of key issues like conservatism, commodification, in the context of the natural resources of British colonies. This study concludes with a focus on political reassertions by colonised peoples over natural resources. The authors in a post-imperial age have found a new voice, reformulating ideas about nature, landscape, and heritage and challenging, at a local and global level, views of who has the right to resources.

Boomgaard, P. (*e*d.) (2007). *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories.* This book contains essays representing a wide range of approaches to the study of Southeast Asia with water as the central premise. It symbolizes water as a means of change and as an element playing a most significant role shaping the history of Southeast Asia, and its cultures, societies, and economies. The importance of this work is its special focus on water, especially in the context of South East Asia. Although the case of India is not captured specifically in the essays, it gives examples of other Southeast Asian countries having a commonality in multifaceted water issues such as Water rights and conflicts, Privatization of water, environmental and water pollution, *Water* hazard and society, waterborne diseases etc. This study is a good precursor to understand the historical ecology and culture of Southeast Asia, from 1600 A.D. till modern times.

Indian Literature

In the all India context several pioneering publications on environmental history are listed below. Guha, R. (1989). *The Unquiet Woods: ecological change and peasant resistance in the Himalayas.* This is a pioneering work and sets the agenda for literature on the environment as a critique of colonial policies. Guha painstakingly documents the nature of peasant society and aspirations found in the Chipko movement in the Himalayas against commercial forestry which dates from the earliest dates of state intervention, i.e. the closing decades of the nineteenth century. His work although on the conflict between state forestry and the peasantry who lost their traditional rights over the surrounding forests, also casts a reflection on similar issues played out (with variations) in other regions of the subcontinent as well.

Guha, *R.* (2000). *Environmentalism: A Global History*. *Guha* mentions the various facets of the environmental movement worldwide and three districts schools within the movement. This has been helpful to understand how the environmental historians of India have certain themes in preference to others in writing environmental history.

Gadgil, M. & Guha, R. (1992). *This Fissured Land: An Ecological History of India*, in its third chapter, specifically reflects on the ecological change and social conflict in India brought about by British conquest and control and the evolving environmental debate which begun as a result of the British attempt to assert state monopoly through the imposition of the Indian Forest Act of 1865 and the revised and more comprehensive and stringent legislations that followed over the years. This point is important to note because the protagonists of the earlier debate put forth arguments strikingly similar to those advanced by participants in the contemporary debate about the environment in India.

Gadgil, M. & Guha, R. (2000). *The Use and Abuse of Nature* in its omnibus edition, has Ecology and Equity, a book which is important in that it speaks of the resource use and abuse in a post colonial India; it explores the history of Indian economic development in terms of the contest over resources between socio-ecological classes. It addresses the environmental movement in India which begun in the early seventies, having a dominant debate on the forest related conflicts. However, the significant aspect of the book is that it also brings to attention prominent movements in the 1980's and 1990's, such as the Narmada Bachao Andolan and the Kerala fisherfolk struggle which brought the question of appropriate uses of water and fish to centre stage. The authors provide a mapping of resource conflicts in contemporary India: conflicts over water, fish, forests, minerals and so on. Moving beyond protest, the book explores the activities of groups and communities that have been engaged in ecological restoration.

Arnold, D. & Guha, R. (eds.) (1995). *Nature, Culture, Imperialism*. David Arnold and Ramachandra Guha, introduces reflective essays by eminent historians on the role of both forests and water which has played an important role in shaping of South Asian history. In their own different ways, virtually all the essays in this book examine and address the significance of the state as a leading, often, the principal, actor in the environmental history of South Asia. The essays also highlights the

powerful influence of colonial and post colonial states in environmental change by formulating legislation pertaining to, and assuming control over resources which were earlier under more informal and decentralized systems of management; by developing and implementing technologies that have dramatically altered the physical environment, as in irrigation works and dam construction; and by creating a transport and communications network that, in aiding the process of commodification, has greatly increased the spatial scale of resource flows.

Grove, R.H., Damodaran, V. and Sangwan, S. (eds.) (1998). *Nature and the Orient: The Environmental History of South and South-east Asia.* Richard Grove, Vinita Damodaran and Satpal Sangwan launches a series of essays by eminent environmental historians who seriously examines the development of colonial discourses about nature, risk and control of natural resources such as forests, soil, water and animal management. Similarly, it also presents an appraisal of the indigenous response to changing patterns of environmental control, both under colonialism and post-colonial period.

Tucker, R.P. (2012). *A Forest History of India.* Tucker describes the history of forest use in India in a collection of articles. The author documents Indian forest history from the colonial era to the post-independence legacy. The main highlight of the book is to stress first, the tension between the subsistence needs of the local population and the commercial needs of the local population and the commercial needs of the colonial state, and second, the clash between the forest department, which sought to preserve and manage forests, and the revenue department, which was driven by the need to expand agriculture and industry. It contributes significantly to the understanding of the colonial legacy for post-Independence management of India's natural resources.

McNeill, J. R., Padua, J.A., Rangarajan, M. (eds.) (2010). *Environmental History*. This collection presents writings on ecological economics and environmental history. It answers questions of environmental historians as to when and how humans have reshaped the earth and in turn how nature has influenced human choices. It addresses concerns as how economic and ecological processes are inseparable.

Mahesh, R. & Sivaramakrishnan, K. **(**Eds.) (2011). *India's Environmental History*, (Vol. 1 & 2). Mahesh Rangarajan, and K. Sivaramakrishnan, is a competently written colossal work covering India's Environmental history within a two volume set. It is academically sound and being ambitious in its approach, wide in scope covering a chronological time period from India's ancient past to Colonial times. The first volume From Ancient Times to the Colonial Period, pertaining mostly with India's ancient ecological history starting from the Harappan civilization closes with the coming of the East India Company. The second volume Colonialism, Modernity and the Nation, holds more recognizable and current issues. The two very distinct features are the relentless documentations of colonial deforestation, and the impact of this deforestation on the people of India. Thus, these two volumes are essential as it provides critical inputs to those concerned about land management, forests, forest rights and climate change.

Gadgil, M.and Guha, R. (1989). *State Forestry and Social Conflict in British India: A Study in the Ecological Basis of Social Protests, Past and Present*, Gadgil, M. (1989). *Deforestation: Problems and Prospects, 'Towards an ecological history of India', (Economic and Political Weekly, XX 1985):* Shiva, V. (1985). *'Afforestation in India: Problems and strategies.'* All these works treat the subject within the same frame work.

Joy, K.J., Gujja, B., Paranjape, S., Goud, V. and Vispate, S. (eds.) (2008). *Water Conflicts in India: A Million Revolts in the Making.* The book provides an important contribution to a new discourse on water in general, and water conflicts and water resolution in particular. It gives numerous specific examples of between uses and users at different levels, ranging from individual systems to sharing of waters among riparian in interstate and international river basins. They highlight the varied nature of the conflicts between uses and users and between beneficiaries of projects and those adversely affected. It gives the various reasons for scarcity and numerous conflicts, including growing demand and changing composition, overestimation of water availability, defective project design compounded by poor water management, deterioration in water quality, and mining of sand from river beds. The papers also gives an idea of the ways in which conflicts at different levels are attempted to be resolved, and the fact that these are far from being effective. An important

contribution is found in chapter eight where the focus is on privatization and commodification of water in India.

Cullet P. and Koonan, S. (eds.) (2011). *Water law in India*. Philippe Cullet and Sujit Koonan, brings the various segments of key legislative instruments and policy documents, to provide an overarching picture of the legal regime and regulations related to water in India. Besides discussing the policy framework for the use of water in India, It also brings out the complexity in the structure of laws due to variations at the levels of their implementation. It covers a wide range of issues such as centre-state relations, management appropriation, and control of water; irrigation; sanitation; drinking water; ground water; pollution; and other such issues.

Water Management across Space and Time in India by Naz, F., Saravanan V. and Subramanian, attempts to give a spatial and temporal overview of water management in India. It traces how people and the successive regimes made choices across space and time from a wide range of water control and distribution technologies. The water management in India is divided into four periods: (i) the traditional system of water management before colonial times; (ii) response from the colonial rulers to manage the complex socio-ecological system; (iii) large scale surface water development after independence; and (iv) the small-scale community and market-led revolution. Hence it describes the water management over the four periods, which has transformed the irrigation and water management scenario in India. Moreover it shows how development of water management and its practices are linked with the social, religious, economic development with the rise and fall of the ruling regime.

Gaurav, D., Rehmat, Dharmadhikary, S. (2002). *Water: Private, Limited. Issues in privatization, corporatization and commercialism of water sector in India*. This deals with issues in Privatisation, Corporatisation and Commercialisation of Water Sector in India. The work is important as it monitors the key trends and their implications. It also provides a framework and some data about water privatisation and commercialisation in India.

Despite the importance of the need to study the forest and environmental policy of the colonial period, available literature is scare and far in between. Since the colonists placed Naga Hills district under Assam province till 1881, it has been important to

trace the genesis of colonial interest in the region by consulting literature covering British policy in totality in Assam province. In important works such as Barpujari H.K., (eds.) (1993). *The Comprehensive history of Assam, Volume V.* no reference is made to the forest policy and administration of the British Colonial government. Other scholarly efforts include Bezbaruah, R. (1981).*The Pursuit of Colonial Interests in India's North East,* which endeavors to discover and scrutinize the under-currents that had shaped British Policy towards the peripheral areas of India's North- in the late nineteenth and early twentieth centuries'. The author makes an observation that colonialism bargained only with those who had the potential either to bestow benefits or inflict injury to its interest. However, no specific mention is made about environmental issues or policies in the region. Goswami, S. (1987). *Aspects of Revenue Administration in Assam*, in his work Shrutidev Goswami has made a noteworthy attempt to study the importance of forest as source of revenue for the British in Assam. Nonetheless this study, on revenue has not gone further than 1874.

It has only been in recent years that in Northeast region where such studies have been of a negligible nature, several historians have made significant contributions to environmental history of the region. Saikia, A. (2011). *Forest and Ecological History of Assam, 1826-2000,* deals exhaustively with the transformation of Assam's forests and ecology and it locates present day ecological conflicts in the colonial era when contests over forests, land and resource began to take new shape. The important detail about this book is that the author shows how imperial forestry practices led to changes in traditional resource utilization patterns. It also examines the political economy of conservation practices and argues how the making of forest policy in the post colonial period was defined by the complexities of the political matrix. A.C. Sinha in his book (2012). *Colonial Legacy and Environmental Crises in North East India* presents a historical and contemporary analysis of the environmental resources and examines the colonial legacy in forest management and identifies the contours of environmental crises in the Northeast India. In *British Forest Policy in Assam,* (2004). Rajib Handique makes an analysis of the British Forest Policy in Assam from 1864-1947. It traces the genesis and advances of the British Forest Policy and in addition examines the socio-economic and environmental impact of the policy on the people as well as the state as a whole.

B.B. Ghosh, J.B. Bhattacharjee, D.P. Chaudhury, B.B. Mishra have written extensively on the administrative history of the North East and Nagaland.

The existing literature on the Nagas is generally attributed to the colonial administrators, the missionaries and anthropologists of the late nineteenth and early twentieth centuries'. Most of the themes have focused on: British Policy and administrative measures, the society and culture of the Nagas, and the introduction of Christianity and its effects in Nagaland. Tour accounts were compiled by Verrier Elwin in (1969) *The Nagas in the Nineteenth Century*. Later J.H. Hutton published his seminal monographs, *The Angami Nagas,* (1921) and *The Sema Nagas,* (1921). J.P. Mills also published *The Lotha Nagas,* (1922) *The Ao Nagas*, (1926); *The Rengma Nagas* (1937). Although over the years more Indian and indigenous writers have added to the scholarship, their works do not exclusively deal with the concerned subject. Piketo Sema's (1991*) British Policy and Administration in Nagaland, 1881-1947,* gives a general description on British polity. Atola Changkiri's work on (1999) *The Angami Nagas and the British 1832-1947*, is a work on the relationship of the Angami Nagas with the British. Alemchiba Ao's work, (1970) *A Brief Historical Account of Nagaland* and Milada Ganguli's work, (1984) *A pilgrimage to the Nagas*, are of the descriptive type. In the context of Nagaland, books on environmental history are extremely rare to find as interest in the subject is a recent development only.

The only published book on the concerned subject is by Pushpanjali Deori on the (2005) *Environmental History of Naga Hills 1881-1947*. The author highlights the changes brought about by colonization and the evolution of the colonial discourse on deforestation and climatic change and the policies behind Colonial conservatism. Another aspect underlined is the Colonial Ecological hegemony and the popular tribal resistance, in the Indian context. Over all, the work is useful to have an overview of the particular subject but conceptually it is narrow in its scope as it misses out a wider focus on the symbiotic relationship shared by the Naga tribes with nature and the degree to which the local environment has been shaped, both by design and by accident. Since her focus is predominantly on forest history, except for a few fleeting mentions, water as a subject has generally been overlooked in her work.

Water has been commonly mentioned in works by geographers like Soyhunlo S. (2013) in *Geography of Nagaland* and in essays by a few environmental activists with focus on ecological preservation. Nevertheless, it is evident that there is a dearth of written works on the subject of water from Nagaland leaving the field wide open for researchers to fill in the gap by writing about the multiple facets of water, its changing value and the role water has played to influence and shape the history of the Naga tribes.

CONCEPTUAL FRAMEWORK

The scope of this study would require a method that can apply to several dimensions of the ownership and uses of forest resources by the Naga society. Desiccation, Deforestation, Conservation, Endemism are useful concepts for the study of the topic under consideration.

RESEARCH HYPOTHESES

The study adopted the following hypothesis:
Colonial intervention in the unrestricted right of Nagas over water and other resources had a deeper motive more complex than that of conservation and other regulations.

Contestation of water began when traditional rights of the clan, tribe, and village over the water resources were disturbed by the Colonial Government.

AREA OF STUDY

The study "An Environmental History of Nagaland with reference to water resources 1881-2005" is an attempt to cover the degree of transition and complexity of changes involved from the Pre-Colonial, the Colonial to the Post Colonial Period over water resources and management; and for this purpose case studies of Kohima, Wokha, Mokokchung and Mon districts has been carried out. In the four districts mentioned, the district headquarters as well as few important villages have been covered by the researcher in order to have a representative sample.

OBJECTIVES

The aim of the study is to evaluate the Environmental history of Nagaland particularly water resources, both in its material and perceptual sense. A typical village in Nagaland often had exclusive access to a particular species, resources or territory (including water resources), with this individual 'niches' usually having a limited overlap. An attempt has been made to analyze the subject not just from an ecological standpoint but also from popular perceptions and experience based on Naga folk traditions and religious beliefs.

1. To study the role of forest and water resources in shaping the history of Nagaland.
2. To study the traditional management of water resources.
3. To study the Colonial state intervention of traditional forest and water management.
4. To study the introduction of new Colonial forest regulations and legislation.
5. To explore the conflict and contestation of water resources after the Colonial intervention.
6. To analyze the water resources in the Colonial and post Colonial period with respect to their availability, accessibility and maintenance.

METHODOLOGY

This study consists of literature review in order to study and identify the importance of forest and water resources at the local, national and international level to acquire a general understanding of the general aspects which necessitated the need for this study. The study involved data collection: both primary and secondary sources besides archival and governmental records keeping in view the Aims and Objectives of the study. Primary sources of data were obtained by using questionnaire technique as the main research tool and other relevant methods according to the field situation. Primary information necessary for this study has been sourced out mainly from data collected and analyzed through various absorbing interviews and questionnaires from four main case studies of Kohima, Wokha, Mokokchung and Mon districts.

The collection of secondary data consists of the reviews of relevant literatures, books, journals and magazines, newspapers, research papers and survey conducted by various organisations, published and unpublished articles, and government records and through internet. It also includes data analysis and identification of planning and research issues. Apart from this, oral histories on water resources are reflected with other sources of information. Since the study was conducted to explore, examine and analyse the management of water resources against the backdrop of the colonial intervention, the approach throughout the study was analytical and evaluative.

Sampling Frame

Simple random sampling was used in this study and questionnaire was applied as a technique for collecting data. Here both open and closed ended questionnaires were used. The sample size consisted of 300 hundred respondents both male and female, covering four tribes namely Konyak, Lotha, Angami and Ao tribes. The sample was an adequately representative study of the universe, fair and balanced to be free from bias and prejudice.

CHAPTER 1
CONCEPTUALIZATION OF WATER

Water, together with land and air constitutes a matrix which is essential for the sustenance of all life forms. In the words of the United Nations Development Programme (UNDP), water is 'the stuff of life and a basic human right'.[1] For centuries, great Civilizations of the ancient world thrived on river banks which supplied perennial water to its plains, sustaining a growing population by increasing the acreage of land under irrigation. This age-old harmonious relationship between nature and man and the perception of an unlimited water resource has however been greatly disturbed in recent times.

In the 20th century, the advent of the industrial revolution and the subsequent dawn of Western materialism have led to a non-traditional commodity-based perception of natures resources. While water resources are finite, water demands are increasing dramatically, driven by the relentless growth of human activity in recent decades. Population growth and global warming have both played a major role in raising the demand for and availability of potable water. All aspects of human development-agriculture, industry, health and advancement of socio-cultural life-depend upon natural resources. According to a 2006 Human Development Report under UNDP, 1.1 billion people do not have access to water. Some parts of the world, including the breadbaskets of India and China, the cotton belt of Central Asia and swaths of the Middle East, are reaching the physical limits of their water supplies. Sub-Saharan Africa, the world's poorest region, has lacked the financial means to build dams and irrigation systems to get water to farms and homes in rural areas where most live.

In recent years, a realization has dawned that water resources constitute an indispensible support system, not only for human development but also for all living species on earth. Increasing populations and demographic pressures on the prevailing economic systems, rapid industrialization and urbanization – all these exert tremendous pressures on the already scarce water resources. As the water crisis

[1] United Nations Development Programme, Human Development Report 2006 – *Beyond Scarcity: Power, Poverty and the Global Water Crisis* (New York: UNDP, 2006). p.1.

intensifies in the local, national and international levels, traditional laws defining riparian rights are being challenged and governments worldwide are under pressure for commoditization and mass transport of water. Proponents of water privatization say that a market system is the only way to distribute water to the world's thirsty. But experience shows that selling water on the open market does not address the needs of poor, under-served people. On the contrary, privatized water is delivered to those who can pay for it, such as wealthy cities and individuals, agriculture and industries. Who owns water and how much they are able to charge for it will become the question of the century.

On another dimension, Social scientists are warning that global warming and the decline in drinking water sources will lead to an increase in conflict, violence and social unrest. Marc Levy of the Centre for International Earth Science Information Network at Columbia University's Earth Institute in New York makes a strong link between droughts and violent civil conflicts in the developing world. Levy and colleagues used decades of detailed precipitation records, geospatial conflict information and other data in a complex computer model that overlays all this onto a fine-scale map of the world. Levy is careful to say that droughts don't directly cause conflicts but are more likely triggers in regions where there are already tensions or low-level conflicts. Areas with a high risk of conflict in the year (2007) due to extremely dry conditions, according to his model, were Cote d'Ivoire, Sudan, Bangladesh, Haiti, and Nagaland and Manipur in India.

In the Indian sub-continent major river systems are so overused that fishermen and farmers are being forced to migrate as local authorities' battle over water rights. For instance in the Indus basin a series of grandiose schemes on the river, intended to boost production, have so damaged the water flow that the country (Pakistan) is now forced to import an increasing volume of grain to survive. According to official statistics, a shift is already occurring from water-intensive rice to cotton. Drought and rising population have worsened the problem. Cattle are now being replaced by camels.

There are more than 3,000 dams in India's Narmada River Valley. These dams flood vast areas and displace hundreds of thousands, mostly peasants and adivasi (tribal/indigenous) people, while promises of relocation and resources usually prove

to be illusory. Just one of the dams, Sardar Sarovar, could uproot as many as a half-million people.

Projects interlinking major rivers in India have also gained momentum in order to supply water to two or more states sharing the same water source. Territories and bioregions by diverting existing sources to artificial carriers have grave implications, resulting in the depletion and salinization of the river and devastating agriculture on the side of the river. Although, the programme of the Government is to provide an extensive irrigation system which will bring electricity and water to areas of the country suffering from drought: it cannot be denied that traditional economic and social practices have been disturbed radically. Submersion of traditional grazing grounds and the destruction of surrounding ecosystems are just the tip of the iceberg. Numerous social problems are emerging as indigenous farmers and peasants, with a set cultural and social interrelationship and distinct social ties and arrangements, are forced to desert their lands and migrate to other areas.

Even in the case of a relatively small state such as Nagaland, there are signs foretelling the likely scenario, as predicted by environmentalists and policy makers that water is sure to be one of the challenging issues in the immediate future. In view of these developments, it has been important in this chapter to focus on the ecological perspectives and its theoretical underpinnings; to develop a socio- anthropological understanding of the Naga tribal ways of interacting with water and other natural systems associated with it; and to understand the lives of the Naga tribes before colonization it has been found imperative to briefly describe the Physical features and topography of the lands and forests they inhabited, as it was during the period under study.

Physical Features and Topography

The chief abode of the early Naga tribes was the inaccessible jungles, hill-tract and fence land of the country occupied by them. Many diverse tribes inhabited the Naga Hills, immediately bordering the plains, comprising of a succession of long parallel ridges, generally being north-east and south west, divided from each other by streams or rivers, the hill ranges increasing in height from the low ranges bordering the plains, at not more than 2000 feet in height which at Saramati and other points attain a height

nearly 13,000 feet above sea level.[2] In the old maps of Assam, these are shown as divided into districts, or in the vernacular, 'Duars' and they were arbitrarily named by the Assam Rajahs as Dup-duar-ias, Pani-duar-ias, Hatogorias.[3] It forms an irregular plateau with the elevated ridges and peaks. The Barail approaching from the south-west, happen to break up by the influence of the meridonal axis of elevation which protrudes from the Arakan Yoma. The hills, a continuation of the Burma Arc joins with the Sub-Himalayan ranges in the north and stretches into the hills of Manipur. The central portion commands a view of the open rolling mountains but the eastern and south-western portions have a more complicated terrain, impassable at certain places.[4] The early Naga country was heavily wooded and the ranges were very narrow along the ridges, making ascents and descents very steep; yet they abounded in fascinating games, varied flora and fauna. There were also lower hills, almost entirely free of trees and covered with long grass or weeds. Near the plains on the western side were valleys. For instance, in the south is the valley of Ghaspani earlier covered mostly by forests, mid-west in the Lotha area are Baghty and Bhandari, both very fertile valleys; Merapani valley adjoining the Sibsagar plains of Assam, Lakhuni region in Ao country, and the thickly forested Tiru valley in the Konyak area, the northernmost region.

Area and boundaries

As early as 1841, in one of the first gazetteers on Assam, William Robinson, an educationalist, has mentioned of the Nagas, a border tribe, saying, "That large extent of mountainous country, bounded on the west by the Kopili river, the great southern bend of the Barak, and the eastern frontier of Tipperah, in nearly east longitude 83° on the north by the valley of Asam; on the east and the southeast by the hills dividing Asam from the Bor-Khamti country in longitude 97°, and the valley of the Kyendrens; and on the south by an imaginary line, nearly corresponding with the 23rd degree of north latitude, is inhabited by numerous tribes of highlanders, known to the Asamese, Bengalees, and the Manipuris, by the general name of the Nagas." [5] Later after the

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[2] V. Elwin, *The Nagas in the Nineteenth Century*, p.48.
[3] R.G. Wood Thrope, '*Notes on the wild tribes inhabiting the so called Naga Hills, on our North-East Frontier of India*', pp. 96-214.
[4] H. Bareh, *District Gazetteer of Nagaland, Kohima*, p.1.
[5] W. Robinson, *A Descriptive Account of Assam.* p. 380.

Colonial government formed the Naga hills district in 1866, the Naga Hills under Assam was taken as an area situated between 26 ˚ 31' 20" and 25 ˚ 14' 40" North latitude, and between 92 ˚ 45' 10" and 94 ˚ 15' 10" east longitude, containing an area, as estimated in 1876, of 5,300 square miles. On the north it was bounded by Nawgong; on the east by Sibsagar, the Dayanǵ River, and the Singpho and Abar country; on the south by the native state of Manipur and Cachar; and on the west the Nowgong and the Khasi and Jaintia Hills.

Rivers

The hills generally take the shape of a succession of steep ridges, but because the expanse of the hills being not very large, the few rivers and streams separating the deep valleys are generally small both in width and length. The main drainage system, Doyang, Dhansiri and Dikhu Rivers flows westward into the Brahmaputra. The Tizu River flows eastward and joins the Chindwin River in Myanmar.

A principal river in the east is the Tizu, which has its source from Suruhoto area in the Sema region. Entering the region from the north, it flows southwardly until the southern boundary is reached, from where it winds eastwardly and again northwardly to debouch for Tuensang; the river makes an eastwardly bend in southern Tuensang till it leaves the eastern frontier for Burma which is emptied, after a long course in Chindwin, a tributary of the Irrawaddy.[6]

Milak River the longest river flowing across the Ao area flows northward until it leaves the hills and turns westwards from the plains above Amguri and flows through Sibsagar district. Tsurang is an important tributary of the Milak River.

Dikhu River has its source near the Nurato Mountain in the Sema area. This river is known as Longa or Nanga by the Sema tribe and as Tsula by the Aos. The river flows westwards and enters the Ao area in the west of Longsa Village. It flows further northward forming a traditional boundary line between the Ao, Sangtam, Phom and the Konyak tribe. The river flows northward through the hills of the Konyak area and flows down the plain area near Naginimora. Nanung is the main tributary in the Langpangkong Range of the Ao area.

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[6] H. Bareh, *Op.cit.,* p.3.

North of the Doyang is the Disai, a principal stream and tributary of the Doyang. It is called Tsurang by the Ao tribe. It flows southward, cuts through the Ao area and the northern part of the Lotha area. It bends westwards and thence northward, further flowing northward until it leaves the hills for the plains of Changtang. Tsumok has its source from Changtongya area and flows through Asangma and Merangkong villages and joins the Milak River. The Menung River has its source at Minkong forest. It flows through various villages in the Ao area and joins the Milak.[7]

Dzulu River is a principal river which drains the central portion; it rises southeast of Kohima near the southern boundary and flows northwardly, when on leaving Kohima for the Mokokchung a region, it comes to be known as the Doyang (Diyung) or Tapu in the Wokha region and after travelling throughout the whole central portion it finally flows into the Brahmaputra River in Assam. Sidzu (Sidju) in southern Naga Hills is its main tributary. The Tsil River of the Rengma tribe is another tributary of the Doyang in the foothills.

Dhansiri (Temaki) receives all the western and northern drainage of southern Naga Hills, debouched from the North Cachar Hills, it bends in an eastwardly direction and flows past the Rangapahar-Dimapur plains, it flows northwardly and is joined by the Doyang near Golaghat in Assam until it falls unto the Brahmaputra.

With the exception of the Doyang, all the other rivers are mountain streams. Most of the rivers with the exception of the Dhansiri are rapids with high velocities or current, and are not navigable. At the time of formation of the Naga Hills District in 1866, the Dhansiri was made navigable by digging the banks, so as to widen the riverbed for the purpose of carrying transport from Golaghat upstream to Dimapur during the rainy seasons.[8]

There are no waterfalls of any significant size on any of the rivers, except the small waterfalls which appear during the rainy season and get dried up within a short time. Lakes are few in number, a natural lake is the Lachem in eastern Chakhesang, east of Meluri and the Dzudu and Chida lake both in Phek region, Awatsung lake, a historically important lake for the Ao tribe, in Mopungchuket village, and Amokmelu/

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[7] S. Soyhunlo, *Geography of Nagaland*, p.45.
[8] H. Bareh, *Op.cit.,* p.4.

Amoklushi lake in Chuchuyimpang village, both in the Ao country and the Totsu-Wozhu lake in the Phiro area of Lotha country.

Traditional boundaries like small streams, watersheds of ridges, or stone pillars often divided the villages. Rarely was a large stream taken as a boundary because, after land, water was the most precious resource and no village would want to share it with another village. In cases when perishable things like prominent trees were used as demarcating pillars and it decayed overtime, instances of disputes occurred between villages or tribes.

River Traffic

There are no rivers navigable by large boats throughout the year, but rivers like the Doyang and Dhansiri, were navigable by boats upto two ton weight in the rainy season. Very little cultivation was seen along the banks of any of the rivers in the Naga Hills; in most cases sense forest jungle grew down the water's edge. No village with a community living by river traffic was found. The trade carried on by means of water-carriage was comparatively petty, and consists chiefly in the importation of rice, salt, oil, cloth, beads, etc.; and the exportation of Manipuri and Naga cloth, bees-wax, cotton, and occasionally a little ivory. The Angami Nagas were the only inhabitants of the District who utilized the river water for irrigation purposes. These people cultivated their rice crops on the hill slopes, the sides of the hills being cut into terraces from base to summit. For the purpose of irrigating such terraces, water was often conducted along artificial channels for a considerable distance. No fisheries were leased in the Naga Hills, nor any rivers or marshes embarked for the purpose of cultivation. Along the marches were found reeds, canes, which grew spontaneously in the swamps and along the river beds throughout the district.[9]

Flora and fauna

In their natural state the hills were covered with dense evergreen forest; and where this forest had been cleared for cultivation, high grass reeds and scrub jungle sprung up in great profusion.[10] One of the earliest botanical observations was made in 1844

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[9] W.W Hunter, *A Statistical Account of Assam*, Vol. II. p. 176.

[10] B.C. Allen, E.A. Gait, C.G.H.Allen, H.F. Howard, *Gazetteer of Bengal and North-East India*, pp. 468-669.

by J.N. Masters, while passing over the portion of the first ranges of the Naga Hills, lying between the Dikhu and the Dhansiri Rivers.[11] He observed on the lower levels of the hills several species of plants common to Assam, but growing to a larger size in the hills, such as the Naga Bhe, Gordonia integrefolia, Roxb. In this region with tropical broad-leaf vegetation, some trees reached the top canopy in gigantic height. For instance, even the little ornamental flowering shrub called by the natives 'Phottiki' of 'Phootkola' (species of Melastomae) seen in the ravines of hills of 3,000 feet elevation assumed the character of small trees. On the higher levels, the Botanist observed the following plants. Mesua ferrea, Careyn arborea, Ficus elastic, F. Scabella Dillenia speciosa, Chaulmoogra odorata, Emblica Officinalis, Artocarpus integrifolius, A. Chaplasha, Xanthochymus Pictorius, Liristoma Assamica, Gaurea binectarifera, Calumus hostiles, two species of Gold fussia, Pladera, Beaumontia. Numerous trees common to Assam, besides, oak, fir, birch, larch, apple, and apricot, were found in a great variety. In 1845, Captain John Butler's discovery of indigenous tea plant while on a commercial mission brought great joy to the Colonial Government.[12] The Naga Hills in general resembled the sub-Himalayan type of vegetation, with different kinds of flora depending on the altitude of the forest belt. At 1000 to 4000 feet were found species such as chestnut (castanopsis spp), Michelia champaca, Schima wallichii, Gmelina arborea, Albizzia spp and members of meliaceae. Along the Rengma foothills adjoining the Sibsagar plains were found deciduous riverian canes and bamboo grooves. At an altitude of 3,000 to 4,000 ft. were found pine trees but in the south-eastern region only. Oak and rhododendron were also associated with it. On a 5,000 ft. altitude; Betula, Rhododendron, Magnolia, Juglans regia and Runus were the main species. The consistent attempts to discover the vegetation yielded some desired results for the British however they themselves admitted of their limited reach and knowledge by saying: "In so large an extent of mountainous country as that occupied by the Nagas, the useful vegetable and mineral substances that are produced in it, must undoubtedly be numerous; but our imperfect acquaintance with their territories will admit of out particularizing only a few." [13]

[11] J.A.S.B., 1844, Vol. XIII, Part II, p.707.
[12] For. Deptt. Pol-A, August 1844, no.34.
[13] W. Robinson, *Op. cit.,* p.391.

As regards the fauna of the Naga Hills, the major part of the region being covered by forest and jungles, there were plenty of animals, and birds. W.W. Hunter had listed upto 29 wild animals in his *A Statistical Account of Assam* and Major Godwin Austin in 1870-73 listed upto 51 birds found in the region.

Forest Products

In their natural state the Naga country was covered with evergreen forest, except for the occasional cultivation fields torched and denuded along the precipitous hill-sides for *jhum*[14]cultivation. Where there was no cultivation, the vegetation was both dense and varied. The forest products consisted of bee wax, several dyes, a variety of cinnamon, and several kinds of fibre called by the Nagas *labhe;* a description of nettle (*ganin*); and a sort of creeper (*lakui*).[15] In the jungle there were a variety of wild fruits, such as bananas, mangoes, crab apples, figs, limes, oranges, raspberries, strawberries, cherries and others. The Naga tribes depended on the forest produce primarily for food by way of cultivation, usage of trees and plants, animals and other livestock. They also used it for making traditional medicine, for fodder, for house building, for making implements.

Agriculture

Agriculture was carried on in a primitive manner by means of implements which consisted of a *dao* (a plain heavy machete) to cut the jungle and a hoe for digging. The principal crop grown in the Naga Hills was rice, which was of two varieties. *Kezi* rice is sown in the months of April and May and reaped in June and July. It is a coarse grain, consumed chiefly by the Nagas, and can be cultivated on any description of the land. *Thedi* or *chedi* rice was sown in June and July and reaped in October and November. This rice was much finer and of better flavour, and was generally preferred by the people of the plains. On the higher ranges the rice crops were grown in terraces, and the soil was well irrigated by artificial water channels. It was not uncommon to see a hill-side thus cultivated from top to bottom, the whole presenting an unbroken succession of steps covered with a luxuriant crop. On the lower ranges, cultivation was almost entirely restricted to *jhum* system, by which a patch of land

[14] Jhum cultivation involves a slash and burn type of shifting cultivation; forest land is burnt and cleared for cultivation.
[15] W.W. Hunter, *Op. cit.,* p. 177.

was cleared of jungle, and cultivated for two or three successive years until the soil was impoverished, when new land was selected and cleared, and the old clearing was allowed to relapse into jungle. The other crops raised in the Naga Hills were: Indian corn grown to a small extent; a small species of grain, called *suthe* and *kesithe* by the Nagas; a few vegetables, yams, chillies, ginger, garlic, a few cardamom plants and cotton. Cotton cultivation was restricted to the lower ranges lying north of the Barel and Rengma hills. The tea plant is indigenous to the Naga Hills, but large scale cultivation was not known. The Nagas made use of the fibres of the bark of a species of nettle, which they wove into strong, substantial sheets to be exported to neighbouring places. They also knew the art of dyeing and several dyes, yellow, black, blue, and one a brilliant scarlet, were extracted from the bark of various trees and creepers.[16]

Habitat

To establish a new village, several factors were put under consideration; the geographical topography of the new site and its picturesque view. A place having moderate climate, with plenteous of springs for water and vast forested land for cultivation was nearly always selected for a new village site. The fertile land and its resources enabled the tiny hamlets to live off its bounties and flourish. Living in a space represented by a confused assortment of magnificent mountains and forests and narrow valleys, watered by innumerable hill streams generally forming the boundaries of tribes; the Naga tribes had been left isolated by their unique culture, manners, language and a universal abhorrence for domination and thraldom. Its isolation magnified because of its dense verdant forest cover, impenetrable ridges, and often rain swollen river ways. Free from the intrusion of the outside world such a milieu, presented an opportunity to the various tribes to explore their habitation and to initiate a prolonged symbiotic relationship with the forest.

Early tribal political organization

The traditional Naga Society was a unique well-developed social structure with mature, resilient, egalitarian and heterogeneous networks that underpinned and sustained community activities. The various Naga tribes had their own traditional

[16] *Ibid.* p.192.

political organization. The tribes were broadly divided into two groups: those under the institution of chieftainship and those without it and naturally differences and some variations in customary practices were prevalent because of this division. It appears that the Nagas of the eastern hills, consisting of the present tribes of Changs, Phoms, Semas, Sangtams, Khiemnungans, Yimchungers and Konyaks were from the former group. For instance, the Konyak tribe had hereditary kingship/ chieftainship system and the king was called Ang. There was more than one Ang for the whole Konyak tribe. The Angs controlled and ruled over all the villages under their control. As such authority was vested in the Ang to settle disputes between villages or individuals, impose fines, or oust a criminal out of the village. Village elders also exercised some administrative powers in case the Ang became incompetent or had fallen to insignificance. In the non-chieftainship society no individual or group was recognized as a privileged class. For instance, other Naga tribes like the Ao's were administered by a system of *Putu Menden* which consisted of a council of elders, selected from each *khel* of the village.[17] Its main task was to lay down laws and regulations for political and social administration of the whole village. Each member of the *Putu Menden* served the council for one generation that is for twenty five years as generally was the case with the *Mongsen* phatry. In the case of the *Chungli* phatry, the members served for 30 years.[18] The Lotha tribe also had a similar organization called *ngti* consisting of representatives of the different *khels* and clans. The Angamis and the allied tribes such as the Chakhesang etc. did not have such village government but a system based on an extremely loose form of democracy.[19] The same form of political relations existed among some villages but this was more or less in the nature of peace treaty.

Each village was a social and political unit, but the most effective social unit was the clan. No clan had any recognized chief, but each was divided into *khels* (a term borrowed from the Afghan border), and exogamous sub-division of which there were several in each village.[20] Very elderly and wise people were selected by consensus of the village to perform important *gennas*. For instance a woman was selected to

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[17] *Khel* is a subdivision of the village.

[18] Mentioned in a booklet originally written in Ao local dialect by L. Imti Aier, with the title 'Ao *Naga Social and customary genealogy.'*

[19] W.W. Hunter, *Op. cit.,* p. 183.

[20] L. Atola, Changkiri, *The Angami Nagas and the British 1832-1947,* p.12.

perform *gennas* relating to cultivation and men for festivals and other things. Otherwise, the whole village acted together against any crises, natural calamity and external danger.

The Sema tribes were different from all other Naga tribes in respect of village organization. [21] They migrated frequently and several wealthy Sema's would venture out to set up a new village either within the Sema area or even in the territory of other tribes. The founder of the new village was considered to be the chief and the lord of the village and he was the government. Though he may have had some villagers advising him or consulting with him, officially there was no other village organization.[22] Most of the other Naga tribes also had their village administered by representatives of *khels*, selected by consensus and often of a hereditary nature.

Community life

The early Naga tribes essentially led a community life. Each tribe had rights over well defined areas of forest, hunting grounds and fishing spots. In the past the village was their country and its organization was their Government. The village was the primary social and political unit, but the most effective social unit was the clan. On all important matters the clan community as a whole functioned in a democratic manner and the elders presided over the meetings. Each clan member had certain duties towards the clan, according to age and ability. The clans were divided into *khels* and finally came the family unit. In some instances, there was great rivalry between the *khels*, which, prior to British occupation, led to bitter blood feuds.[23] However, such rivalries did not deter the village from coming together in case their security was threatened by other villages or tribes. An important social institution was the *morung.*[24] Each *khel* had its own *morung* and it was used to prepare young men for impartation of disciplinary training for manhood. Every *khel* occupied well demarcated areas and functioned as a homogenous socio-economic unit in perfect accord and fraternal spirit.

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[21] B.B. Ghosh, *History of Nagaland*, p. 219.

[22] *Ibid*., p. 220.

[23] B.C. Allen, E.A. Gait, C. G. H. Allen, H.F. Howard, *Op. cit.,* p.473.

[24] The *morung* was a bachelors hall or boys dormitory. The inmates of the *morung* were young boys assigned to perform certain menial duties for the community.

Networks of social interaction were created and reinforced through the activities of everyday life and cultural rituals centered on the forest, creating interpersonal ties and affirming community boundaries. The villagers would cultivate their fields, roam free in the forests and collect daily essentials to maintain their hearth in the village. With no restrictions imposed within their own village boundary, they freely collected firewood or food such as wild roots, fruits or leaves from the thickly covered forests. The residential site located on the ridge of a mountain spur was usually surrounded by small tracts of forests and bamboo grooves. Next to them were the *jhum* fields or the wet-rice terraced cultivation practiced in particular by the tribes on the southern part of the Naga Hills practiced side by side with *jhuming*. Beyond the cultivation fields were the deep forests. For both *jhum* and terrace type cultivation, villagers would go to the fields' together, *khel* –wise and work on these fields the whole day, returning only late in the evening.

Community and the forest

Traditionally since time immemorial tribals and other forests dwellers generally protect not only individual trees but also forests, and even their entire ecosystems because they have deep rooted vested interests in doing so. Such vested interests are usually institutionalized in the form of well established practices enforced by various social control mechanisms. This is because, for the tribals and many other forest dwellers, their forests are essential for their very survival.

According to traditional law, there is no land without an owner. But ownership of land, and therefore also of forests, is private and is vested with the village, *khels*, clans, and individuals.[25] Ownership rights of land as well as the forests in the Naga Hills were clearly recognized and protected by their own tribal customary law. Since the community control over the forests and water resources was complete, and clearly sanctioned by the traditional laws, for Naga tribes their usual claim for unrestricted right over forests and water resources, was totally justified and legitimate.

Each tribe had a well defined territory. Within the tribal territory, every village had a well demarcated territory. Further, the village territories were usually classified into

[25] A. D Souza, *Traditional systems of Forest Conservation in North East India, the Angami Tribe*. p. 26.

two areas: a) Primary or agricultural land (and forests) and b) subsidiary or building and reserve land. The village territory was again divided into four holdings.

1) Common Village land: The village land inclusive of forests was the joint property of the village and the right to use them rested with the village council.
2) Clan Land: Every clan had sites for construction of houses and also plots for cultivation within the forest. The eldest member of the clan was the custodian of the clan land and he exercised a titular right over the clan land. Every clan member had a right to use such land according to seniority of age with reference to the number of sites or plots available.
3) Linaege Land: There were certain lands in the village owned by a kin group, which neither can be termed as clan land nor as individual land.
4) Individual land: In all villages there was also some individual owned land either inherited or acquired. The individual had absolute right over his land. He had a right to a share of the produce of the land, to transfer holdings, to alienate and to grant rights of use to others.

In the case of chieftainship society, a good portion of the land within the village territory belonged to the Chief. It was his duty to see that plots were allotted to those persons in the village who had no plot for cultivation.[26]

The inert-village demarcations including forest and water resources were permanent and undisputable. As the Naga tribes regarded forest and water resources as a gift from God, they felt at ease to fiercely protect it and also to utilize and manage it for their own disposal and needs. The sanction enabled them to develop a culture that ensued a proper balance between human and ecological needs. Forests were treated as a renewable resource and as a life support system that had to be preserved.

The best part of the forest was considered as common property. For hunting; fishing and usage of water, there were no restrictions within the village forest. Occasionally the whole community would hunt or fish together. Community fishing occupied an

[26] M. Alemchiba Ao, (1976). A paper written on the *Proceedings of the seminar on Naga Customary Laws*. p.7.

important place in the village. Preparations for such events were made a few days before the actual date selected. The village elders selected a particular river to be poisoned. The next day the villagers went to the jungle to collect creepers, barks or fruits of some tree appropriate for poisoning fish. Even for such a practice, there were slight variations among the tribes. While some tribes allowed the whole family to collect the items required for poisoning the fish, the Ao tribe and some other tribes allowed only the male members to do so. Certain ceremonies were performed usually by an older man of the village before the pounding of the creepers, barks, or fruits to release the poison. In some villages the system was to make only one camp for the occasion but in some villages separate camps were constructed clan wise. Individual hunting was common; however the community also organized hunting expeditions in case of big game such as an elephant, tiger or bear. After spotting the hideout of the game, a day was fixed for hunting in which the entire *khel* or village or several villages participated together, depending on the size and number of the game. Even the hide of the wild animals killed on hunting expeditions were put into judicious use. 'They have a shield, or '*phor*' made of buffalo or boar skin, and often ornamented by goat's hair dyed scarlet, or by cowries. It figures in their war dances…the bunches of hair and feathers on the topi ś are all usually mounted on thin slips of buffalo horn exactly like the whale bones.'[27]

Other requirements such as fodder for animals, medicinal herbs from the forest, timber for implements and houses, fences for their fields were usually collected from their own *khel,* and clan forest within the village territory. If any individual wanted to cut down a tree which belonged to the other clans of the village, he had to take permission first and then use the resources.

Various mechanisms for preservation of ecosystems were applied as this link was seen as important for the continuity of the tribe, thus making the preservation of forests coincide with the conservation of their village or tribe. Khonoma village in the Angami country, started an alder tree (*Rupuo* in Angami) – based *jhum* system since their ancestral days and they perfected this practice overtime. Using this particular species of trees in the *jhum* cycle, enabled enhance crop yields and reduce soil

[27] S.E. Peal, *Notes on a Visit to the Tribes inhabiting the Hills South of Sibsagar, Asam.* pp. 331-332.

erosion. Though normally, a nine year *jhum* cycle enables two times cultivation of fields, the usage of alder enabled the Angami cultivator two harvests in two out of every four to five years. In addition to more productive agriculture, this system make possible for wood to be used in various domestic needs such as fuelwood, charcoal burning and timer for construction. Even the leaves shed were found useful as mulch and to add humus to the soil. There was no disturbance caused to the ancient forests as the 7-9 years cycle of rotation of cultivation and letting the area lay fallow permitted the soil to regain its fertility.

Thus, for the Naga Hill tribes, the forest and its resources formed the basis of all forms of communal cultural practices, including incessant inter-tribal territorial warfare in Naga Hills. All resources of the forests were used to protect their hamlets in the forests and also to prevent enemies go through their territories. John Butler, in his, '*Travels and Adventures in the Province of Assam'* written in 1855, makes mention of an expedition and foray by British soldiers into the Naga country and the breach made into strong embankments of the Naga village, compelling the natives to later desert it, but not without resistance. He mentioned: "The next day, after searching for the well dome distance from the village, when the whole party had partaken of the water they experienced very unpleasant effects, being afflicted with a dizzinesss and heaviness of the upper eyelids which made it difficult to keep them open. On examining the well or reservoir, it appeared that the enemy had bruised and steeped a poisonous root in the water. The Nagah prisoners said, that while the root was fresh its effects were what had been experienced; but, if allowed to rot, it would kill all who partook of it in three or four days."

This symbiotic relationship with the forests indicated their total dependence on the forest and its resources for their very existence and in turn the forests dependence on them for its preservation and continuity. For instance, in the Angami tradition, in a section of their history, is a legend describing their belief in the intimacy and affinity of the entire cosmos with man and nature; how 'a long time ago' when the world was young, gods, men and beasts dwelt in peace, and how a god, a man, a woman, and a tiger lived together.[28] In the broader milieu of this symbiotic relationship, it signifies

[28] J. Butler, *'Rough Notes on the Angami Nagas',* J.A.S., 1875, Vol. XLIV, No.4, p.295.

the tremendous value, both material and religious, attached to the land and the forest by the tribal people. Such bond arises out of the intimate relationship between indigenous and tribal people and their land, a relationship that is best described in the following words: "Indigenous peoples ancestral territories are not just their economic base, these lands are intimately bound up with their cosmologies and identities as communities, and as peoples. The landscape that they occupy is at once their home and the sacred abode of spiritual beings whose invisible presence explains the functioning of the invisible world. They see themselves as stewards holding the land of their ancestors in trust for future generations." [29]

Tribal religion and the forest

The early British explorers could not fathom the religious beliefs and practices of the Naga tribes, and hence many dismissed it with a casual abandon in their reports about the Naga tribes. 'The Nagas have no established form of worship; they have no temples erected in honour of their deities, and no ministers peculiarly consecrated to their service. They have the knowledge however of several superstitious ceremonies and practices handed to them by tradition; and to this they have recourse with a childish credulity, when roused by any emergence from their usual insensibility, an exited to acknowledge the power and to implore the protection of superior beings.'[30] R.G. Woodthorpe, remarked that, "the Nagas in general have very vague ideas of religion or of a future state." In the same paper again, Lieutenant Holcombe is quoted by Woodthorpe saying that the Naga tribes, "believe that in heaven they will have cultivation, houses and work; the poor will be better off they think; and although they have a name for God, they do not seem to worship a supreme being." [31] However, for the Nagas religious myths and traditions around nature, forests and water, linked to the very identity of the tribe led to their balanced use. Legends, fables, omens and beliefs, were all connected very closely to nature. They believed that forest was an abode of the spirits, and looked at it with certain unease and apprehension. Appeasing the spirits of the forest, was therefore of vital importance for them. The belief in the existence of spirits occupied the core of their religion. But the system of incantation

[29] M. Colchester, "Introduction" in MRG (ed.). *Forests and Indigenous Peoples of Asia*. pp 4-8.
[30] W. Robinson, *Op. cit.,* p.396.
[31] R.G. Wood Thrope, *Op. cit*., p 57.

and appeasement of the deified spirits varies from tribe to tribe and from village to village, as also from one household to another.

The traditional animistic religion practiced by the Nagas and its system of ceremonies, particularly of *gennas* illustrates how this traditional religion provided an abundance of spirits and gods of lakes, trees, and rocks. The pantheon comprises of both benevolent and malevolent spirits. Most tribes believed in a Creator who was seen as a benevolent spirit and the existence of creation was attributed to be the work of the Creator. The malevolent spirits were seen to have been more engaged in everyday life of the people, by inhabiting the village, sacred stones, lakes and streams, ranges, mountains and fields and forests. The goodwill of the spirits was, therefore, sought by offering necessary sacrifices on all important occasions for fear of being provoked into destroying the individual, his family or the entire village. Priests received special training for warding off evil spirits and for the conduct of ceremonies. Several practices were held to avert epidemics, believed to be a representation of an evil spirit's shadow, which in cases of failures of being appeased, had come to ravage the village. In cases of sickness pigs and fowls were sacrificed in large numbers, in order to appease the particular spirit to whose malign influence the sickness is supposed to be due.

Many Naga tribes believed in the existence of a group of spirits that inhabited the dense and foggy forests and man eaters who carry off the human being to unknown destinations, usually towards the rivers. The Angami tribe in common with the other tribes, believed in the supernatural but made no attempt whatever to produce in carving or picture the image of the deities (*terhoma*) or spiritual beings. Chief among them is the *Kepenopfü* or the *Ukepenopfü*. Among the legions of *terhoma,* a vast majority are unknown by name, unspecified, vague inhabitants of the invisible world. Among the pantheon, were several pertaining to the forests and water such as *Dzürawü* /*Dzüraü* who was goddess of fishing and *Chiehie* god of wild animals; *Kechi-ke-kho* the spirit or species of spirit, which inhabits stones and *Tekhu-rho*, a god of tigers held responsible for the loss of missing persons in the jungle, etc. He is also believed to avenge the death of tigers or leopards killed by men, if the dead animal is not prevented from telling him the name of the man who killed him. This may be done by wedging open the mouth of the dead tiger with a piece of wood and

putting the head into a running stream at some distance from the village. When the tiger tries tells the *Tekhu-rho* who has killed him, all that the spirit can hear is a meaningless gurgle in the water.[32] During hunting expeditions, *Tsükho* and *Dzürawü* two spirits, male and female, husband and wife, represented as dwarfs, who preside over all wild animals, were offered prayers such as; "In your name have I come out, and in hope of your aid, I pray that ye will discover and give unto me of the animals in your keeping." [33]

The Konyak tribe also had deities at the family, clan and village level. The Konyaks' view of the world of supernatural forces resembled the religious ideas of Naga tribes in the sense that they saw their environment as inhabited by innumerable spirits, partly friendly and partly hostile to man, but controllable by the performance of the appropriate rituals. Chief among their deities was *Gawang* who denoted not the spiritual essence of the universe but a deity of highly personal nature associated with the sky more than with the earth. Prayers and incantations were offered to appease *Gawang* for individual or collective blessings. As compared to *Gawang*, the spirits of the earth, the forests, and the rivers were not very important, though at times it was essential to placate them with offerings of chickens and pigs.

Among the Lotha Nagas, *Ronsi* was the name given to the many godlings. To every village and every man was attached a *Ronsi,* by whose favour the crops are good. Ritualistic prayers were chanted to the *Ronsi* for protection while fishing, hunting, and working in the fields etc; they believed that such acts of appeasement would lead the *Ronsi* of the hillside to come to their help. The Lothas also have a godling for streams and rivers in the person of *Tchüpvüo* ("water-master").

The Ao tribe also performed elaborate ceremonies and offered prayers to different Gods of nature, but they were commonly addressed as *Lijaba Tsungrem*. Since water sources were scarce people performed elaborate rain making ceremonies to bring down the welcome showers. A stream was "poisoned" or fished with due rites, or sacrifices offered to sacred stones scattered around the Ao country. Among *Chongli, Mongsen* and *Changki* clan of the Ao tribe and the subsequent subdivision of scores

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[32] J.H. Hutton, *The Angami Nagas*, p.182.
[33] *Ibid.,* p.196.

of phratries of these clans, the *Chami* phratry of the *Chongli* clan is regarded as specially connected to water. According to an Ao tradition certain duties in connection with water ceremonies are assigned to men of this phratry. Perennial natural springs were considered as something more or less magical, with therapeutic value, and therefore associated with exceptional purity by most of the Naga tribes. These springs which had religious connotations also, are still an important part of traditional purification rituals during local festivals.

For almost all the Naga tribes the landscape that they occupied was both their home and the sacred abode of spiritual beings whose invisible presence explained the functioning of both the visible and invisible world.

CHAPTER 2
TRADITIONAL MANAGEMENT OF WATER RESOURCES

The traditional method of water management among the Naga Hill tribes in the pre-colonial period, their use by local communities, the continued existence of people dependent on the land and water, the degree of control by the individual community, village, *khel*, clan and family; have been a continual focus in this chapter. The Naga tribes in general have more similarities than differences in traditional practices, customs and beliefs. Each tribe in the period mentioned above had a well defined territory and within that space permanent inter-village land demarcations except in a few instances, was a determining factor as how the water that was drawn naturally became in course of time the subject of all sorts of rights, rights of purchase, of custom and of inheritance. For this study, although emphasis has generally been on the Naga Hills as a whole, in depth focus is on traditional water management in four regions namely Mon District, Kohima District, Wokha and Mokokchung district taken as case studies.

In Nagaland, for defence purposes the earliest Naga Villages made settlements on top of high hills and ridges. In their natural state these hills were covered with evergreen forests. The first settlers selected this site both because of its strategic location on top of a ridge and also because of the availability of natural springs, other than just the rivers and streams flowing in the lower valleys. Usually the priest together with the inhabitants of the new village performed elaborate cleansing ceremonies for good fortune of the colonists. Water was regarded as a very valuable property. Since the land and the forest provided everything to them, villagers jealously protected the land of the forefathers from neighbouring villages and enemies' occupation.

A.W. Davis has stated that, "For tribes like the Angamis, Lhotas, and Aos, who live in permanent and large villages, and amongst whom land is none too plentiful, we find that the rights of individuals to property in land are well known and well recognized, and the rules as to inheritance and partition of such property settled by strict customary laws."[34] The general pattern of the traditional land holding, its locale and division among the various tribes and the diverse villages was correlated to the nature

[34] A.W.Davis, *Census of India, 1891, Assam, Vol. I.* p.250.

of water usage and ownership. Further intricacies such as kinship connections through tribe, village, *khel*, clan and family involved in a range of support, sharing of resources and expertise led to not just the interpretations of water rights and ownership of various Naga tribes' but with striking differences evident in the sphere of cultivation and the use of water.

Most of the tribes regarded rivers or streams flowing through their country as belonging to the very villages through whose territories the water flowed. The village considered it as common property and no individual rights could be established in such instances. Villagers without any restriction could access the forest of the village. They were allowed to hunt, fish, draw water from rivers or streams, make use of forest resource by collecting medicinal herbs or even cut down trees to be used as building materials for various uses. For domestic purposes, villagers dependent on pond water for cooking, washing, drinking, usually collected by women who carried the water on a bamboo vessel. Community labour was involved in the construction or repairing or improvement of bridle-paths through the forest connecting the village with other villages and paths leading to the rice fields. In the same way, village water tanks, and traditional water wells or ponds were repaired or maintained well. Every *morung* member took the responsibility for cleaning and use of the water source. If a person failed to join the community without reasonable excuse on that day he was fined accordingly.

The lands of each village were well defined, except in a few cases and fish-bearing streams were also well defined areas. Between different villages, sometimes there were disputes over the boundary and fishery cases. In an early case of conflict in the Ao country, 'the people of Mübongchoküt (Molodubia) village claimed absolute rights to the Mělăk River, for some forty miles, because that stream had its source near their lands.' [35] However, there were also instances where in some portions in a river two villages shared the river boundary. In such cases villagers from both villages could practice fishing without any conflict. About once each year a village will turn out as a whole to go fishing; and, several kinds of bark, roots, seeds, or nuts, pounded into a pulpy mass and mixed with mud, were dumped into the stream to poison the

[35] W.C. Smith, *The Ao Naga Tribe of Assam*, p.59.

water. The poison either killed the fish or stupefied the fish. To prevent the fish from floating away, a bamboo fence was built across the stream some distance down. Neighbouring villages were given pre-hand information before any communal fishing was organized.

Tribes such as the Aos, Lothas, Semas, and trans-Dikhu and Tizu tribes cultivated their fields by *jhuming*. The jungle growing on the hill-side is cut down, and the undergrowth is burned, the larger trees being left to rot where they lie. The ground is then lightly hoed over, and seeds of rice, maize, millet, Job's tears (Coix Lacryma), chillies and various kinds of vegetables dibbled in. The same plot of land is cropped for only two years in succession, and then allowed to lie fallow for eight to nine years. Further cropping would be liable to destroy the roots of *irka* and bamboo, whose ashes serve for manure when the land is next cleared for cultivation, while after the second harvest weeds spring up with such rapidity as to be a serious impediment to cultivation. Cotton crop was grown on the northern ridges, by the Lothas and the Aos.[36] The land left fallow, and which had been taken up again were defined with markers such as stone boundary, trees or other marks. Trespassing was dealt with seriously and no one cut wood or bamboo on the land of another.

However, those from southern part of Nagaland exhibited the wet-rice terraced cultivation, using an elaborate system of terracing and irrigation, connecting it to water sources by channels sometimes even measured in miles; but it is practiced side by side with *jhuming*. As early as 1840- 41, Robinson gave a description of agriculture in the Naga Hills thus, "every portion of cultivable land is most carefully terraced up the hills, as far as rivulets can be commended for the irrigation of the beds; in these localities." [37] From the rivulets and water splashes, the main source of irrigation, channels of enormous length were dug to carry water and overflow the terraces. Bamboo pipes sometimes served as supplementary irrigational means down the slopes where terraces are located.[38] There was no knowledge in the past of the use of the plough animals among the Naga tribes for wet cultivation. Difference in the

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[36] *B.C. Allen,* E.A. *Gait,* C. G. H. *Allen,* H.F. *Howard, Gazetteer of Bengal and North-East India*, p.476.
[37] W. Robinson, *A Descriptive Account of Assam*, p.390.
[38] H. Bareh, *Gazetteer of Nagaland*, *Kohima District*, p.100.

cultivation methods of the Naga tribes led to the evolution of water rights peculiar to their own country, sometimes leading to very complicated, litigious water affairs.

Cultivation of crops was dependent on rainfall; absence of enough rainfall foretold poor harvest for that year and therefore specific elaborate rain making ceremonies were performed by most tribes. For instance, the Ao tribe calls this ceremony *Tsükulemmong* which literally means 'water worship' ceremony. Prayers were offered to *Anungtsüngba*- the god of sky and rain, to send more rain for that period of scarcity. The Naga world was full of spirits, every tree, shrub, hillock or body of water in the forest, harboured a spirit or demon. The cause of all natural phenomena such as illness, rainfall, wind, thunderstorms was attributed to these spirits. Man was considered an integral part of this animated nature. Therefore it was essential to appease these spirits through various ceremonies, and rituals and to make amends, thus redressing the natural balance. The belief of the Nagas was such that a person did not view himself as standing outside nature but as dependent on it. Festivals were also divided into two broad categories: spring festivals at sowing stage involved purification and renewal and harvest festivals were performed in thanksgiving to the godlings at harvest time.

Mon District.

The Konyak Naga inhabits the country between the Brahmaputra valley on the north and the Patkoi Range bothering Burma. In the pre-colonial era, like most of the other Naga tribes, the Konyak villages were established on a hill top, mostly for defence purpose. The villages were encircled with bamboo fences and usually only one gate was used as entrance to the village. Each village had control over their own specific forest and river water resources. The traditional management of water resources was almost the same in the entire Konyak Naga region, with only a slight variation in some villages. Pongkong Village, Wanching Village, Totok Village, Tamlu Village, Longkei Village has been used as illustrations for Mon district. Important rivers flowing through its forest areas of the villages mentioned are the Dikhu River, Tesand and Teyüp rivers, Tapi River, and Tenang and Tesang rivers.

1. **Pongkong Village** shares boundaries with Tanhai, Langkei, Oking, Kongan and Namthai Village. These traditional boundaries permanently handed down from their ancestors shares boundaries with many villages. Even in such an instance, Pongkong Village had specific boundary demarcation for hunting, fishing and use of the forest and water.
2. **Wanching Village** shares boundaries with neighbouring villages like Wakching, Chingtung, Chingphoi, Tamlu, Kongan and some Phom Villages. Dikhu was the main source of water for the Wanching people and the village had large areas of forested area. Wanching villagers owned a large part of Dikhu River flowing through its forest and at the same time shared the river water with neighbouring villages for fishing purpose.
3. **Totok Village** shares boundaries with Chinglong, Chi, Langmeang, Chaozu and Sheanghati Tangten Village. Like all the other Konyak villages, the people of Totok Village settled on hill-top and mountain. Tapi is the main source of water for the villagers and they owned a large part of river flowing through its jurisdiction.
4. **Longkei Village** has a large expanse of forest and water resources under its control, which their forefathers had acquired while opening the Longkei Village. Tenang and Tesang are the two important rivers for the villagers where they get everything for their livelihood. Longkei Village shares boundaries with villages like Tanhai, Pongkong, Leangnyu and Hongphoi.
5. **Tamlu Village** shares boundaries with the Ao's, Phom's and some Konyak Villages. Dikhu River flows through Tamlu forest areas.
6. During the pre-colonial era, Tamlu as well as **Wakching village** shared fixed boundary demarcation with all the neighbouring villages.

During the ancestral past, forest and water resources defined power, wealth and fame of the village. No other village had the right to go for fishing, hunting or cut down trees in their forest area. Nokoi, a senior citizen from Longkei Village stated that, "Longkei village with a large expanse of forest and water resource under its control, acquired by the forefathers ever since the inception of the village, has both the Tenang and Tesang Rivers flowing through the area. The villagers depended wholly on their forest land and these two rivers. The Village had nine farming forest areas, and in

these areas, apart from Longkei villagers, no other villages have the right to use or farm on Longkei Land." [39] Boundary demarcations were fixed between villages. Within the village also, boundaries were fixed according to clans and this was further sub-divided to individual level. For instance, 'The territory of a village such as Wakching extended over a large area, and comprised virgin forest, cultivable land partly overgrown by secondary jungle, and wasteland unsuitable for economic use. Within that territory all members of the village community were entitled to hunt, irrespective of the rights of individuals to specific cultivable plots. Apart from the arable land which was privately owned, there were also some plots which belonged to particular men's houses, and such *morung* land was cultivated jointly by the members of the *morung*. A man's holdings were never contained in a compact block, but were scattered over the village territory. The richest men of Wakching owned 250 plots and even men considered poor owned land in several places.' [40] As common property forest and water resources were wholly controlled and looked after by the villagers themselves. For instance, according to Longmeth from Pongkong Village, "the Pongkong village comprised of three *morungs* and every *morung* member took the responsibility for cleaning and use of pond water." [41]

The village forest resources were shared among villagers and they privately owned and used the shared forest area for farming and growing food crops. The Konyak system of shifting cultivation made a dispersal of holdings necessary, for each year the village took a clearly defined and carefully chosen area under cultivation and within this tract each family owned land sufficient for its needs. Neighbouring villages were informed in advance before cutting or burning of jungle for cultivation. In the following year an adjoining are was cleared of jungle and cultivated alongside with that tilled the previous year. The result of this system of rotation was that each field was cultivated over a two-year period, and then left fallow for several years. As large stretches of land was available in the Konyak country, *jhum* cultivation was the mode they adopted as cultivation can alternate with long periods of fallow. 'In many areas slash-and-burn cultivation on frequently shifted fields is associated with a system of communal ownership of land and often also with a considerable instability

[39] Interview with Nokoi, 96 Years, Longkei Village, Mon District - 21st November 2013.
[40] C.V. Furer-Haimendorf, *'The Konyak Nagas'*, pp.127-130.
[41] Interview with Longmeth, 80 Years, Pongkong Village, Mon District - 25th November 2013.

of settlements. Ownership may be vested in a territorial group, a village, a clan, or a chief, who, though nominally the proprietor of the entire village land is under an obligation to distribute it for cultivation to his subjects. Tribes, such as the Aos, the southern neighbors of the Konyak, recognize private as well as communal rights in land.'[42] Water was not used for cultivation purpose as in the case of the tribes in southern part of Naga Hills. Its usage was mostly for domestic purpose, such as cooking, cleaning, washing etc. The villagers, usually the women folk collected water in a bamboo vessel known as *Yeangli* in Konyak dialect from the river, stream or pond located below the village. Since water, at least, had to be fetched even on feast days, women enjoyed far less leisure than men.

Villagers went for hunting and fishing together within the jurisdiction of the village. Inangam, Citizen Chairman from Tatok Village mentioned that, "Totok Village owned and controlled large part of Tapi River, but there were certain portions on the river which they shared with neighbouring village while fishing. Again, Tatok villagers were not allowed to go fishing at the Tapi River which flowed entirely through Langmeang forest area. But there were some portions in the river where both villages shared the river boundary and can practice fishing by both." [43] Neighbouring villages were given pre-hand information before going for fishing. In general, the Konyak villages respected and preserved their forest and water resources with great honour and dignity. In case of conflict, villages usually fought till victory in order to reclaim the disputed land/water areas; i.e., boundary, forest or river. For instance Nokloi, from Longkei village states that, "Longkei Village boundary and forest areas expands around Tenang and Teshang River/forest areas. Its forest and water resources were wholly controlled and looked after by the villagers. During the pre-colonial era, conflicts arose between Longkei and neighbouring villages over boundary, forest or river issues. In such cases, Angh and village elders tried to settle the dispute." The Anghs and the village elders were the final authority and judge in conflict situations and usually fines were imposed to the defaulting party. Thus, if a man accidentally set fire to a piece of forest, he had to pay a fine of one big basket of rice, or give a pig, which was consumed by the village councilors. The man whose forest got burned

[42] C.V. Furer-Haimendorf, *op.cit.*, pp.127-130.
[43] Interview with Inangam, 68 Years, Tatok Village, Mon District - 27th November 2013.

received no share in the fine and no compensation. However, when negotiations failed, war and head-hunting between villages was the final solution. As a head hunting tribe, conflict situations proved irresistible and villages fought to expand their territory and also to reclaim the disputed land or water spots.

Although many ritual practices were prevalent, those concerning water were mostly done during dry season or even during famine. If there was no rain for more that 3-4 months, then the village elders would perform ritual practice to appease the Mother Nature. The most important deity was *Gawang*, 'Earth-sky', to whom offerings were presented on all important occasions. Other deities of the forest, of the water, and the earth were also placated with various offerings through rituals. Inangam from Tatok village has cited a ritual practiced by their forefathers, "if there was no rainfall for three to four months, then villagers went to a nearby river and made a bamboo boat, on top of which they would make fire and ask for blessings and rainfall from Mother Earth." Nokloi, from Longkei village refers to another ritual from his village, "our forefathers used to dig the earth four to five feet deep and covered the hole with bamboo and other means. They would jump around the hole, and in return it would produce a thunder like sound, by which the villagers believed that the Mother Earth will hear and their cry and would provide rain for farming and other purposes." Villagers would present offerings, and perform various rituals/ *genna* and not work on that day and the whole day they showed their sadness and grief to the nature and asked for abundance blessings.

Kohima District

Mezoma, Phesama, Viswema, Jotsoma, Jakhama, Kigwema and Khonoma villages has been taken as illustration for this study. Most of the Angami villages, as of now, had at least a river or two in close vicinity while some obtained its supply of water from a spring outside the village. The use of forest and water resources differed from village to village. A big village would frequently have several water-holes, but in some villages the supply being scarce, the labour intensive work caused the people to apply economy in its use.[44] Thepfürülie Zutso, from Kigwema Village gave the example of his village stating that, "Kigwema was said to have migrated from

[44] J.H. Hutton, *The Angami Nagas*, pp.49-50.

Kezhakeno since time immemorial. Jakhama and Phesama are its neighbouring villages. Within the village there are five *khels*. Like the other villages, every *khel* had its own water tanks constructed below the village. The traditional well and the natural spring wells were used from forefathers' time. People would also go to field to wash and to take bath. The land was inherited and the forest and rivers were the main boundaries for the village between the clans or individuals. There was a story of two true friends in the village called *Seca* and *Pfükha*; such were their closeness that they even shared a common forest area." [45]

Initially the forest and its resources was all common property, later it was divided into parts i.e., clans and family to individual. Mhiesizokho Zinyü, from Khonoma Village elucidated, "Forest and water resources belonged to different *khels* in the past. In some small villages like Dzüleke or Menguju in Western Angami area, the entire forest as well as water resources belonged to the community, but in large villages like Mezoma, Khonoma and Jotsoma, ownership is claimed by different *khels*." [46] Krorovi Peseyie from Jotsoma Village further stated, "Villagers take the view that Jotsoma shares twelve boundaries with villages from Japfü to Tsiesema to Meriema till Mengujüma village and had no disputes land with neighbouring villages. Water and natural resources for the construction of canals was not prohibited and villagers who discovered ponds usually named it after themselves. Underground (spring) water was used in Jotsoma from the earlier period. In terms of ownership, there was some dissimilarity. Rivers had no ownership whereas ponds and lakes had ownership." [47]
People considered water as a free gift of nature and copious. Water was free of cost, it did not have a price however, and the water which flowed through a particular stretch of land was taken as belonging to the land owner. From Mezoma Village, Zapuvisie Lhousa highlighted the background of his village, articulating that "Mezoma is a village of '*kekuo krhie'* which means it has historical importance for the Angami Nagas. It comprises of three *khels* and every *khel* has its own morung. It has a river flowing through its forest and this river later joins with the Khonoma River and finally flows to Dzüda. People in the past days got water from the canals which were

[45] Interview with Thepfürülie Zutso, 55 years, Kigwema Village, Kohima District. - 22nd December 2013.
[46] Interview with Mhiesizokho Zinyü, 66 years, Khonoma Village, Kohima District. - 7th December 2013.
[47] Interview with Krorvi Peseyie, 77 years, Jotsoma Village, Kohima District - 19th December 2013.

brought from the river and every *khel* had one such provision. However, the most common place for easy access to water were ponds near the village or lakes. It is also said that villagers were advised to use water judiciously and not waste water as it was a precious commodity." [48] Pukron Kikhi from Viswema Village affirmed that, "There was freedom to access water anywhere in the village forest. Even in the case of scarcity, water was not sold, people could get it from within the village, sometimes even from another *khel*, free of cost." [49] As water was considered as common property, the people were not allowed to sell their property to people outside the village. An individual could only sell or exchange his forest (area) to anybody in case of poverty.

Water was used mainly for agriculture purpose. Rainfall being very heavy in the region, the Angamis and its neighbours in the north followed an elaborate system of terracing and irrigation. According to the local traditions, the Angami terrace system is as old as the tribe itself, the system believed to have been brought from its ancient home. The Angami Naga villages were surrounded by admirably constructed terrace fields cut up along the rugged hills sometimes high up to over 6,000 feet. It was built up with stone retaining walls at diverse levels, and irrigated by means of skillfully constructed channels, which distribute the water over each step in series. Terraces leaned up against the stone retaining walls at different levels get themselves protected from the soil erosion and facilitate regularize distribution of irrigation. This system of cultivation is believed to have extended northwards from Manipur and to have been adopted by the Angamis (as some would believe), partly from their desire for better kinds of grain than Job's tears and millet, as *jhum* rice does not thrieve well at elevations much exceeding 4,000 feet and partly from a scarcity of *jhum* lands.[50] H.H. Godwin Austin in his survey report, mentions about his astonishment at beholding the Angami countryside for the very first time, saying, "Where the steep rise in the slope commences, the spurs are at once more level, and are terraced for rice cultivation; not a square yard of available land has been left, and the system of irrigation canals is well laid out. I have never even in the better cultivated parts of the

[48] Interview with Zapuvisie Lhousa, 81 years, Mezoma Village, Kohima District- 21st December 2013.
[49] Interview with Pukron Kikhi, 83 years, Viswema Village, Kohima District - 20th December 2013.
[50] *B.C. Allen,* E.A. *Gait,* C. G. H. *Allen,* H.F. *Howard, op. cit.,* pp.476-477.

Himalayas seen terrace cultivation carried to such perfection, and it gives a peculiarly civilized appearance to the country." [51]

During his visit to the Angami country in 1936 with J.P. Mills, the Deputy Commissioner of the administered Naga Hills; Haimendorf described a fascinating scene of water tapping to irrigate the terraced fields,

> 'The water flows down from one terrace to the one below, and a complicated system of water rights governs the distribution of the precious liquid. The share in a spring can be bought in exactly the same way as a field. Nocturnal theft of water, by illegitimate tapping of the channels, often caused quarrels that ultimately came before the Deputy Commissioner's court in Kohima.' [52]

Channels of water from some stream or torrent, irrigated the terraced rice-fields sometimes measuring into miles which fed many fields on the way. Traditional ponds were dug for drinking purposes near the village. There was access to water anywhere in the village and villagers could go to any village spring to fetch and carry water in their clay pots. A village with vast land area used it more for *jhum* cultivation than wet-terrace type cultivation and such a village could even spare land for the neighbouring village to cultivate and earn their living. Water rights in an Angami village were made complicated by the fact that ownership of terraced fields was not communistic but strictly individual. The first man to dig a channel tapping some new stream claimed ownership to the water drawn from the channel to the exclusion of anyone else wishing to tap the stream higher up; the water which flowed in their land belong to them. However, certain large streams like the *siju* were regarded as common property. The water that was drawn naturally became in the course of time itself the subject of all sorts of rights, rights of purchase, of custom and of inheritance. Water is divided up, either by tapping the channels or by portioning them into two or more runnels, and rights of overflow, tapping, etc., may be transferred. It may thus happen that one man's fields will be dry while those immediately adjoining will be flooded, or a field at the end of one line is dry while that immediately above is full,

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[51] H.H. Godwin-Austin, *Report on the Survey Operations in the Naga Hills and Manipur during the Field Season 1872-3*, p.82.

[52] C.V. Furer-Haimendorf, *Return to the Naked Nagas, An Anthropologist's View of Nagaland 1936-1970*, p.11.

the water had to go right away round the spur of a hill and back again before the dry field gets its share.[53]

The forest and rivers were the main boundaries for the village between the clans or individuals. But there were no restrictions for hunting; fishing and water. Hunting rights were usually admitted to be conterminous within the land belonging to the village, subject to the right to pursue a wounded animal on to the land of another village, but there was no strict custom on the question. In the same manner rights of fishery were usually recognized as ending with the boundary of the village lands, streams flowing between two villages being fished in by both; but fishing did not play such an important role as the other tribes such as the Semas, Lothas or the Aos. Although the use of "poison" was very common with the other Naga tribes, the Angamis usually preferred to dam the river so as to leave half of it dry, when the fish are taken by hand and unlike the Lothas, the Angami women were allowed to come and participate in the community fishing. The fishing rights over wet rice terraces, which contained a number of small fishes, were even open to the village though the land was privately owned.

Pheluokhwe Kirha, from Jakhama Village stated, "There were eight khels in Jakhama village and each khel had a traditional well. The women would fetch water for household needs from these wells only in the morning. Water was fetched from a pot called *Meshü*." There was no scarcity of water in the village. The villages had clear cut demarcations and plenty of resources; therefore there was no fighting over forest and water. The villagers and the clans collectively construct water tanks where the land owner donates land for free. However, more common property was found in forests as compared to water resources."[54] If there were any conflicts within any village *khels* or between villages, it was usually settled through dialogue by elders of the villages with equal representatives from the various *khels*. The spot in question would be visited first before pronouncement of any kind of judgment. *Kenyü* which means taboo was strictly used in such cases. Fines imposed consisted of seven times (*se thenie*) of the item stolen (may be articles, or wood, or bamboo, or stone etc.).

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[53] J.H. Hutton, *op. cit*. pp.73-74.
[54] Interview with Pheluokhwe Kirha, 81 years, Jakhama Village, Kohima District – 22nd December 2013.

The Angamis were animists in the past and many rituals performed were tied and related to the forest and water. Chief among the deities or spirits is the *Kepenopfü* or the *Ukepenopfü*. The spirits specially associated with the forests and water was: *Dzürawü* / *Dzüraü* -goddess of fishing and *Chiehie* god of wild animals; *Kechi-ke-kho* the spirit or species of spirit, which inhabits stones and *Tekhu-rho*, a god of tigers etc. Thepfürülie Zutso, from Kigwema mentions that "certain rituals were practiced in Japfü Mountain where villagers gathered to pray for rain. They had the belief that they would be blessed with a good amount of rainfall and also water from the mountain." But worship of any object such as wood, stone or water source was not known. For most sowing and reaping ceremonies, the village priest would bathe in the river water as a process of ritual purification. During the *Sekrenyi* festival only the man- folk were allowed to fetch water for rituals to purify their souls.

Wokha District:

The Lothas who call themselves *Kyong* are situated to the north-east of the Angami and Rengma country, having the Semas to the east of them and the Aos to the north-east. They are divided into two divisions, *Liyo*, comprising the villages to the north of the Doyang River, and *Nrüng/Ndrüng*, those located to the south of it. Like the rest of the Naga tribes, a Lotha Village was invariably built on the very top of a ridge, it was essential in the selection of the site that it must be easily defensible and near a spring. Keen fishermen and expert swimmers, numerous Lotha villages were formed along the banks of the Doyang River and its tributaries. Riphyim Old Village, Riphyim New Village, Changsu Old Village, Changsu New Village, and Lakhuti Village have been used as illustrations for this study.

The use of forest and water resources differed from village to village and each had their own specific forest and river water resources. Womomo Patton, from Old Riphyim village stated, "In the forefathers' era land was plenty and therefore whoever claimed it first, the land became their property. This was especially common in the case of *jhum* cultivation. The villagers treated the forests reverently. Even random burning of forests was not acceptable, only in case land was cleared for cultivation was it acceptable. "[55] Chenisao Patton, from Old Riphyim village added, "sharing of

[55] Interview with Womomo Patton, 72 years, Old Riphyim Village, Wokha District – 25th September 2013.

land within villages was prevalent. Some of the bigger villages like Wokha village having abundance of land and forest area sometimes allowed smaller villages like Humtso and Elumyo to cultivate in their land, provided that after harvest, such certain amount of rice was paid back in the form of rent." [56]

The land inclusive of the forests and water resources could be held either by the village, a *morung*, a clan, or an individual. There were often several *morungs* in a village. The Lotha Nagas were experts in swimming and diving and at fishing. The forest wasteland and resources close to the village was considered common property, and as also was water right; such as "poisoning" in certain pools. The common "poisons" used were juice of a creeper (*niro*) used to stupefy catfish, *cheti* (berries of a tree), *pitsü* (a creeper with small leaves), *opyak* and *achak* (the bark of two species of trees) *mmenthi* (berries), and *müzü* (a creeper). Community fishing was an event held once or twice a year and all the villages who had the right to "poison" in a certain pool agreed to combine to do so on a certain day; however women were prohibited to participate as it was seen as bringing bad luck for the fishing trip. Nets like big landing-nets were made out of twisted strips of bark from the *erhingya* tree. They are fitted onto a circular frame to which a long handle was attached, and were used to land the stupefied fish which come to the top when a river was "poisoned." They were made by men, never by women. Fish-traps were of various kinds. Two types of traps by the name *osa* were used, as also a third kind called *eyinga*.

Usage of water was mostly for domestic purposes and villagers dependent on stream or pond water for cooking, washing, drinking purpose. Bigger villages had more than one pond in the village. Springs issuing from the side of the hill below the village supplied Lothas with their water. Sometimes it was drawn from the muddy pool of unappetizing greenish water, but often there was a good flow into a basin dammed up with rough masonry. Small fish were put into the Niroyo basin, and were carefully preserved in order that they may keep the water clear of scum. At almost all springs there was a small dam, and over it a low fence so that women who drew water stood

[56]Interview with Chenisao Patton, 65 years, Old Riphyim Village, Wokha District – 22nd September 2013.

below and not in the supply from which they drew. Unlike the Ao, the Lotha did not fancy water after the village has washed their feet in it. When path from the fields did not happen to pass near a stream, water was often led in it in bamboo pipes from a long distance in order that men coming up after the day's work may have a drink and a wash.[57]

T. Hayithung Odyuo, from New Riphyim Village stressed, "Forest and water resources were open to all villagers and there were no restrictions on fishing or hunting. In certain cases, one or more villages jointly held fishing rights over a particular stretch of water as determined by customary law. Most of the forested land in the Lotha country belonged to the clans and any water body passing through such land belonged to the clans."[58] Boundaries of villages were sometimes demarcated by a river passing through it. Individual persons from the clan were not allowed to sell off what they had inherited. Only by consultation within the clan, land could be divided and privately owned.

Most of the Lotha country practiced *jhum* cultivation or shifting cultivation. Land was cultivated for two years and then allowed to lie fallow for eight to ten years. The whole village cultivated in one block, each man having his own piece of land. Therefore, unlike the Angami Nagas, they did not use water for cultivation purpose. It was only in the Baghty region and Bhandari region consisting of plain areas that the ground was tilled and water was used for cultivation of paddy. Mr. A. Porteous, Deputy Commissioner Naga Hills, in his tour diary of 1890, mentions that 'the Baghty Valley was once occupied by refugee Assamese in the time of the Burmese troubles and traces of their cultivation still exist'. [59] Moreover, Nrisao from Lakhuti village said, "wet rice cultivation was not common during our forefathers' time. Even in the case of Baghty valley, it was probably only from the 1940's that such a practice was introduced on a wide scale by Lakhuti villagers." [60] In the case of Bhandari also, A. Porteous, has made a mention of the origins of wet rice cultivation; by stating that, 'I started early for Bhandhari. On the roadside, at the foot of the hills, on the Merapani, four Kacharis have started a little hamlet, and made a small clearing in the

[57] J.P. Mills, *The Lotha Nagas,* pp.29-30.
[58] Interview with T. Hayithung Odyuo, 50 years, New Riphyim Village, Wokha District – 23rd September 2013.
[59] Tour Diary of Mr. A Porteous, Deputy Commissioner Naga Hills, 1890. (Secret Department).
[60] Interview with Nrisao, 83 years, Lakhuti Village, Wokha District – 25th August 2013.

forest. They have some wet cultivation, and say they intend remaining permanently.'[61]

In the pre-colonial era, there were no cases of conflict over water. The Lotha country being close to the Doyang River and with smaller rivulets flowing through many of the villages, water scarcity was not a key issue. The Lotha Nagas are known to have made dug-out boats which they used on the Doyang. No other tribes in the Naga Hills made boats of this sort, though the Aos and Konyaks of Tamlu make bamboo rafts.[62] Marcus, from Lakhuti village opined, "Villages such as Pangti, Lakhuti, Sunglep, Yunchucho, Sanis etc., traditionally shares a linkage with the Doyang River, being close to it. From ancestral times such villages have benefitted from the use of the water as well as resources from the river. Other villages which were not connected to the Doyang by land, even they benefitted from its use. However, no village had ever put a claim to it." [63] Common springs in the village which was open to all, satiated the needs of the villagers. Mills relates an instance where he had asked a Lotha why they had no village boundary disputes like the Semas and the Angamis, to which he replied, "It would be a shameful thing. Everyman knows where his own land is, so how could there be a quarrel?" [64] Nchumbemo Kithan, from Old Changsu village affirmed that, "conflicts were extremely rare, in fact we can say that there was no conflict at all between villages because each had their own traditional boundary which was well respected by the neighbouring villages. The only kind of conflict that was seen sporadically were conflicts within a village be it between *khel* to *khel* or clan to clan." [65] However, if there were border issues between two villages, boundaries were fiercely guarded. Some traditional punitive customs were also in place, whereby in case of a crime leading to bloodshed in the village, the culprit was not allowed to draw water from the common source.

Among the Lotha Nagas also, all important ceremonies of the tribe whether it was for settlement of a new village, or to supply the new village with water were attached to the appeasing of the godlings of nature and the forest. In another ritual a priest (*pvüte*)

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[61] Tour Diary of Mr. A. Porteous, *op.cit.*
[62] J.H.Hutton, *op.cit.* p.366.
[63] Interview with Marcus, 72 years, Lakhuti Village, Wokha District – 26th August 2013.
[64] J.P.Mills, *op.cit.*, p.96.
[65] Interview with Nchumbemo Kithan, 34 years, Yikhum Village, Wokha District – 20th September 2013.

would be selected, and this *pvüte* in an elaborate ceremony would throw a cornelion bead into the spring which is to supply the new village with water, and offer prayers that the young men and the maidens of the village may be strong. He would then make animal sacrifices, and involve the new colonists in rituals announcing their occupation of the village. Further, to ensure a good water supply in their home they were required to bring water in a freshly-cut section of bamboo from the spring of the old village and pour it into that of the new. [66]

In sowing and the ceremonies connected with it, and also in the reaping ceremonies of the different Lotha villages, elaborate ritualistic ceremonies were performed although the formulae used in ceremonies varied considerably in different villages. These ceremonies were especially to appease or gain the favour of the *Ronsi* (god-lings). To every village and every man was attached a *Ronsi,* by whose favour the crops are good. Before reaping, a Lotha would utter some charms, praying to all *Ronsis* belonging to men who were busy fishing or snaring birds by the pools or were hurt (i.e. all men who did no cultivation and so had no need of *Ronsis*, together would all the *Ronsis* of the hillside to come and help him. For instance, a man, from Akuk village would utter this charm repeatedly:

" *Satung*	*ramping*	*Ronsi*	*Tchhüchi*	
Fishtrap	hunter's	deity,	water-side	
Rhempi	*Ronsi*	*lipphu*	*liteng*	*Ronsi,*
Wanderer's	deity,	hillside	company's	deity,
Tsatso	*rüku*	*mpito*	*Ronsi*	*rencheli*
Hurt	wounded men's	all	deities	come out of hiding." [67]

J.P. Mills in his monograph 'The Lotha Nagas' recorded some age old beliefs of the same, "among the Lotha tribes, just as crops and wild game have their genii, so have the rivers and streams in *Tchüpvüo* ("water-master"), a being like a man with hair of enormous length, who lives at the bottom of deep pools and uses human skulls as hearth stones. One is believed to inhabit a pool called *Tchüpvüo izzü* in the Doyang below Morakcho." [68]

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[66] J.P. Mills, *op.cit.,* pp.5-6.
[67] *Ibid.* p.55.
[68] *Ibid.* p.115.

Before the fields were cut for the next year's cultivation, some villages would perform a ceremony called *Pyotsoja* in honour of *Tchüpvüo*, the godling of the rivers. The first catch of the river was offered to *Tchüpvüo* to appease him and the rest were divided among those present.[69] Perhaps to show a man's spiritual tie with the water godling, even in death ceremonies in certain villages of the Northern Lothas rich men were frequently buried in wooden coffins called "boats" (*orhung*), cut out of one log of wood, with a representation of a hornbill's head and tail at the head and foot respectively. This symbolic feature is unique as the *orhungs* were made in villages which do not make dug-out canoes. [70] As with the Ao tribe, a custom prevailed with the Lotha tribe, whereby if any person died an unnatural death, very strict purification rites had to be performed. Especially in the case of death by drowning, any relative performing the late rites of the dead had to throw away all ornaments and clothing he was wearing at the time. Each man as he leaves the river flicks the water with his right hand and says, "Take away all evil, O river." Any person entering the village would symbolically wash his hand before entering the village, lest he should bring with him the evil with which he is contaminated. Rites such as these were performed to appease *Tchüpvüo*.[71] Lotha folk tales also frequently mentions stories of the Water Spirit *Tchüpvüo*.

Mokokchung District:

The territory occupied by the Ao Nagas on the north-west extends to the plains of the Brahmaputra valley, where it touches the Sibsagor district; on the south of the boundary is the territory of the Lotha and Sema Naga tribes; while on the east and north are the lands of various Naga tribes, collectively called "*Miri*" by the Aos. The whole territory consists of one mass of hills; there are no level stretches, but hill after hill, and ridge after ridge with deep valleys between. The hills rise gradually from the low ranges skirting the Brahmaputra valley until in the inner ranges there are some peaks above 5000 feet in height. The hill on which Lungkam (Longkhum) village is situated has an altitude of 5340 feet.[72] Mrs. Clark, (wife of American Baptist missionary Rev. E.W. Clark), doubtless the first white woman to come to the Ao country wrote, "our route, was simply a Naga trail, first across the lowlands where

[69] *Ibid.* p.125.
[70] *Ibid.* pp.157-58.
[71] *Ibid.* p.160.
[72] W.C. Smith, *op.cit.,* p.1.

grow in such profusion the tall, feathery, waving bamboos, intertwined and interlaced, forming pretty fantastic arbours across our path, and not infrequently necessitating the cutting of our way. On and on we went, up and down, through forests of stately trees, with delicate creepers entwining their giant trunks, their branches gracefully festooned with vines, and orchids swaying in the breeze." [73]

Most of the Ao village settlements were made near Rivers such as the Dikhu, Disoi, Tsurang, and the Melak. These rivers were of little practical use so far as navigation was concerned. For they were mainly swift mountain currents, tumbling over rocky beds, rising quickly after a rain and again quickly subsiding. The Aos exhibited great engineering by climbing up a big tree overhung the river and descending to the other bank by means of a bamboo ladders. For crossing the smaller streams, they constructed small bamboo bridges or just used a single tree trunk to cross over.

For this study Chuchuyimpang Village, Ungma Village, and Longsa Village have been used as illustrations for Mokokchung district. In the Ao country the selection of the village site was done according to the fertility of the soil/land and utmost importance was given to availability of water and placement on a strategic location; secure from the enemy's attack. Rivers, mountains, hills were used to demarcate boundaries with neighbouring villages. Every village had their own approach to the use and control of forest and water resources divided among the different clans in a village. Different clans had their own water source in any Ao village. There was no individual ownership; resources like land, water, forest, belonged to the community as a whole and sharing of water resources, usually river water between boundaries of two villages was also found. Takatuba Longkumer from Ungma Village elucidated, "Almost the entire villages in the Ao Naga area have the same system of using forest and water resources. Forest and water resource were defined as the main source of life in the ancient past. The community has always played a pivotal role in utility of such resources. The village land selections were made by the elders represented by the leaders of the clans (Jamir, Longkumer, & Pongen clans). The land was selected chiefly based on the availability of resources specially water and rich forest. Ungma Village is divided into 10 *khels* (*mepu*). Khel based division of forest and water

[73] M. M. Clark, *A Corner in India*, p.27.

resources were prevalent; however there were no restrictions imposed on usage of water and fishing. All members of the community participated in the cleaning of the water source." [74]

This has been reiterated again by L. Meren Longkumer from Longsa Village said that, "there has never been a private ownership of water resources. The people of Longsa had a community feeling and all the people worked towards the prosperity and upliftment of the community as a whole. There were four *khels* (mepu) in Longsa village. The first *khel* was located at the topmost side of the village called *Sangpu mepu*. The community in this block shared a pond called *Awatsü*. No personal ownership of pond or any other water body was seen. Next to *Sangpu mepu* is Longsati block. Here there is a pond (for the community) called *Longsati Tsübo*. Another name *Tsüboti/NokrabaTsübo* was also named after the same pond. The people of the third *khel Longti Mepu* shared water from the same pond called *Yimana Tsübo* – (pond of two khels). This pond was big enough to quench the thirst of at least two *khels* so the name was given *Yimana Tsübo* – two *khels* pond. The *Yimsenmüpu khel* was formed the last among the four *khel* so it is called New-Village-*khel* or *Yimsen Mepu*. The people of Longsa have no water scarcity due to this distinct division." [75]

The lands of each village were well defined, and forest and water resources considered as common property. Community fishing *tzu-ayok* occupied an important place in the life of the village. After selection of a particular river to be poisoned, leaders of the *morung* are informed of the decision by the *Putu Menden*. All the male members would go to the forest to collect *arr* which was the "poison" usually employed to stupefy or kill the fish; this was anything from creepers, barks or fruit of some particular trees. Aos did not generally build weirs in which to set fish-traps. The fences which they made across the streams at places where it was divided into two branches round an island were purely temporary. Such a place was identified as an ideal fishing ground, and rights in stretches where streams divide were jealously

[74] Interview with Takatuba Longkumer, 91 years, Ungma Village, Mokokchung District – 25th October 2013.
[75] Interview with L. Meren Longkumer, 67 years, Longsa Village, Mokokchung District, 22nd October 2013.

guarded by the villages owning them. Fishing disputes between villages were often settled by taking oath.

The Ao country widely practiced *jhuming* or shifting cultivation. *Jhum* cultivation was considered as beneficial and there were no records of any kind of destruction caused by *jhum* cultivation in the Ao country. Practice of wet rice cultivation was also found in some pockets of the Ao country were there was plain areas/valleys; although this practice may have been introduced at a later stage. The Ao villager was careful to leave enough trees standing to regenerate the jungle, and therefore, enjoyed land which was being no longer worked out now than it was at the beginning. The lands were put under *jhum* cultivation at intervals of not less than ten years with anything from eight to fifteen years, or occasionally even longer. The more land a village had, the longer the interval period. The villagers left enough trees standing; therefore it was not unusual to have thick jungle growth in such areas. Takatuba from Ungma Village mentioned, "Cultivation of land was divided clan wise, but plantation of trees were not seen in the early traditional management of forest. It was learned from outside influence only much later. The traditional administrator (*putu menden*) decided the place and time as to where or which part of land should be cultivated and when to cultivate." *Jhum c*ultivation commonly practiced in Ao areas did not require an elaborate irrigation network. Where there was no stream or spring near fields; water for the use of agriculturists was led to the path of fields from long distances in aqueducts of split bamboos. The pools which were often seen alongside the paths leading up to villages supposedly had effect on the crops. However, many villages with settlements on higher ridges had to depend on rain for agriculture as well as daily needs such as washing and cooking.

Conflicts between villagers over sharing of forest or water were usually amicably settled through dialogue by arriving at a common consensus by the elders of the clans. In some instance, Ao villages bordering the Dikhu River faced some conflict with their neighbours over sharing of water. A. Nungsang Imsong from Chuchuyimpang Village stated, "In the past Chuchuyimpang Village had conflict with neighbouring Sangtam Village over fishing rights and ownership of water in the Dikhu River. But

the conflict was resolved through mutual understanding between the two sides." [76] Aoyanger from Longsa village confirmed this account by saying, "there had been some conflicts with the Sumi and Sangtam tribes on land and forest ownership issues, but this has been solved through dialogue and in peaceful manner." [77]

The Aos observed a large number of festivals dedicated to sowing and reaping and the cultivation process as a whole. *Moatsu* festival after sowing was celebrated over six days; it was done to appease the spirits or godlings to shower more blessing on the crops. *Tsungrem Mung* ushers in harvesting and special sacrifices are offered to the deities for a good harvest. Ceremonies or *amongs* were considered sacred and both public and private were performed with reverence. For instance, to name a few among numerous ceremonies; to mark the beginning of jungle clearing for the new *jhum* was called *alu leptenmong*; sowing *–tendenmong*; weeding- *mo-reptenmong*; worship of sacred stones- *long Kulemmong*, etc.

Since water sources were scarce people performed elaborate rain making ceremonies to bring down the welcome showers. In particular a ceremony dedicated to water was *Tsükulemmong*, which literally meant "water-worship" ceremony. Prayers were offered to *Anungtsüngba* – the god of sky and of rain- to send more rain; this was particularly during drought. A stream was "poisoned" or fished with due rites, or sacrifices offered to sacred stones scattered around the Ao country. In fact, to meddle with or insult these sacred stones would entail a violent storm. Standing as remnants of the powerful rituals of the past, today these sacred stones are still found standing tall in some Ao villages such as Longkhum, Longpha, Unger, Waromong and Dibuia, Sungratsu and Impur, etc.

Even in religious beliefs and in all other traditional practices, water was regarded as a very important component by the Ao tribe as it was used for purification rituals. Aos believed that, 'in the beginning of things the Aos had no water, so they drank the juice of the rattan. When water was found they made an offering of a male pig, and ever since then they have made offerings to the deity who controls springs. No one has

[76] Interview with A. Nungsang Imsong, 89 years, Chuchuyimpang Village, Mokokchung District. 17th October 2013.
[77] Interview with Aoyanger, 67 years, Longsa Village, Mokokchung District – 22nd October 2013.

ever seen him, no one knows where he lives, but every year they propitiate him by offering up a pig.' [78]

Among *Chongli, Mongsen* and *Changki* clan of the Ao tribe and the subsequent subdivision of scores of phratries of these clans, the *Chami* phratry of the *Chongli* clan is regarded as specially connected to water. For this reason *Chami* women are usually called *Tsungalar* ("water finders") to this day, and certain duties in connection with water ceremonies are assigned to men of this phratry.[79] J.P.Mills mentions of a rite called *Awaotsung külem* ("pool sacrifice") commonly performed every three years in Ungma village illustrating the connection between the *Chami* phratry of the village and water. The story narrates that in the old days men did not know there was such a thing as water; all they had wherewith to cook their rice was the sap of creepers. It was a man of the *Chami* phratry called *Yimsangperung* of the *Tsüwar* clan who first found water through the prompting of a bulbul who urged him to drink water. He found a spring of water under a rock and cooked his rice in it. This secret he later shared with his friends who also sacrificed at the particular spring. At such, it is said that on that hot, cloudless day he created all the rivers of the land such as the Dikhu, Doyang and the Melak Rivers. [80]

[78] W.C. Smith, *op.cit.,* pp.88-89.
[79] J.P. Mills, *The Ao Nagas*, p.19.
[80] *Ibid*. pp.129- 130.

CHAPTER 3
COLONIAL GOVERNMENT AND WATER RESOURCES

The early contacts of the Europeans travelers and explorers with the Naga Hills tribe, their eyewitness impressions particularly from the mid nineteenth century and their accounts of the Naga tribes were often sketchy and negligible. Allen and Gait (1979) makes mention of one of the earliest witness of the Naga tribes saying, "It is interesting, however, to note that Tavernier in the latter half of the seventeenth century refers to people in Assam, evidently Nagas, who wore pigs' tasks on their caps, and very few clothes, and had great holes for earrings through the lobes of their ears." [81] Other accounts of the Naga tribes were often sketchy and negligible. It was in 1832 that for the first time two Europeans Captain Jenkins and R.B. Pemberton embarked on an exploratory expedition to the Naga Hills with a focal purpose to open a communication between Manipur and Assam. In his first eyewitness account, R.B. Pemberton narrates his earliest encounter with the Naga tribes saying, "with a sagacity which has at once ensured them both health and security, they have in every instance established themselves upon the most inaccessible peaks of the mountainous belt they inhabit, and from these elevated positions can see and guard against approaching danger long before it is sufficiently near to be felt." [82]

As far as the mid nineteenth century, there was little or no contact of the Naga tribes with the outside world. The extent of penetration of the region is observed by the narrative that 'these unexplored and thinly inhabited tracts have been to this day only occasionally penetrated here and thereby some eager sportsman or zealous missionary, or by an intrepid official whose presence on the spot was required by some exceptional duty.[83] H.H. Godwin-Austin, in his *Report on survey Operations*, recounts his first observation of the Angami country, saying, "Dense forest covers the slope, but from their steepness many parts are bare, breaking the usual monotony of the dark coloured mountain scenery. Where the steep rise in the slop commences, the spurs are at once more level, and are terraced for rice cultivation; not a square yard of

[81] B.C. Allen, E.A. Gait, C.G.H. Allen, H.F. Howard, *Gazetteer of Bengal and North-East India*, p.469.
[82] R.B. Pemberton in H.H. Wilson, *Documents Illustrative of the Burmese War, 1827*, Appendix, pp. xvii-ix.
[83] S. C. Dutt, *The Wild Tribes of India*, p.6.

available land had been left, and the system of irrigation canals is well laid out." [84] Butler recounts his experience with the Naga tribe saying, 'I trust I have now succeeded in clearly showing that out knowledge of a great portion of the Naga country really rests almost entirely upon "pure conjecture," and that beyond the fact of its mountainous character we know nothing at all about it up to the present date." [85] S.E. Peal, in his observation of the Naga hills and its tribes remarks that, "The area lying between the Irawati, Asam, and Bengal is mainly composed of densely-wooded hills of moderate altitude, and is also subject to like climatic conditions; the S.W. Monsoon, sweeping across the entire country, literally deluges it with water taken from the Bay of Bengal, and, with the sun, conduces to a rank vegetation; partly, perhaps, in consequence of this, most of the villages are perched on hilltops, on the shoulders of spurs, and in the rains(say May till October) communication is at a standstill. There seems hardly a flat stretch of land anywhere, all is hilly and valley, and thus the system of cultivation is mainly by what is called jooming, where forest is felled and the site used for two years only, when, in consequence, of the growth of rank weeds, fresh forest is again joomed, and a system of permanent culture of one spot is impossible. In fact there is a remarkable and direct connexion between all the peculiar customs of these strange people and their physical surroundings,"[86] a statement which reiterates and enunciates however, obscure their knowledge had been, the symbiotic relationship which existed between the Nagas and their physical world.

Conservation and forest regulations of the Colonial Government started with the establishment of an all India Forest Department in 1865. It was later extended to Assam and Naga Hill District. This initiation led to measures covering all aspects of the environment including forests, land, and water resources. The statute laws and state control imposed in the arena of forest and water management reinforced each in their development and growth of an intrusive state; thereby undermining indigenous and community based systems of water rights and management over its resources. The Naga villages were compelled to make new adjustments to their traditional authority over water resources. For instance, the usual practice of "poisoning" of a

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[84] H.H. Godwin-Austin, in his *Report on survey Operations, 1872-3,* p.82.
[85] A. Mackenzie, *The North-East Frontier of India*, Reprint 1995, Delhi, Mittal Publications.
[86] S.E. Peal, *'The Nagas and the Neighbouring Tribes'*, pp.476-81.

river in community fishing was prohibited by the Government. They therefore resorted to the use of carefully selected narcotic plants which would not poison but stupefy the fish.

Evolution of Forest laws in India 1881-2007

The British administrators at the early stages of their rule were preoccupied with building up an empire and therefore did not make an immediate assessment of the abundant forests resources in India as they did not have any apprehension that the supply of forest produce would ever fall short of demand. [87] By around 1860, Britain had emerged as the world leader in deforestation, devastating its own woods and the forests of Ireland, South Africa and north-eastern United States to draw timber for ship-building, iron smelting and farming. Upon occasion, the destruction of forests was used by the British to symbolize political victory. The revenue orientation of colonial land policy also worked towards the denudation of forests as their removal added to the class of land assessed for revenue. [88] Forests were considered 'an obstruction to agriculture and consequently a bar to the prosperity of the empire'.[89] The British Government endeavoured to bring extensive forest areas under cultivation and the whole policy tended in that direction. The introduction of the railway network by 1853 greatly intensified the demand for timber, particularly for railway sleepers. For this purpose a large number of forests were felled without supervision by private contractors both European and Indian, leading to deforestation in the important sub-Himalayan forests, Doab region, and Madras province etc. The pace of railway expansion-from 1349 kms of track in 1860 to 51,658 kms in 1910 (GOI 1964) – and the trail of destruction left in its wake brought home forcefully the fact that India's forest were not inexhaustible.[90] Cleghorn in his work, *The Forests and Gardens of South India,* states that railway requirements were, 'the first and by far the most formidable' of the forces thinning Indian forests. Dubbing forest administration upto the 1857 rebellion as a melancholy failure, the Governor General had called in 1862 for the establishment of a department that could ensure the sustained availability of the enormous requirements of the different railway companies for sleepers, which

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[87] M. Gadgil, and R. Guha, *This Fissured Land, An Ecological History of India*, in The Use and Abuse of Nature. p.118.
[88] M. Gadgil, and R. Guha, *op.cit.*, pp.119-120.
[89] B. Ribbentrop, *Forestry in British India*. p.60.
[90] M. Gadgil, and R. Guha., *op.cit.,* p.121.

'has now made the subject of forest conservancy an important administrative question'.[91] The paradox was that the construction of the railways had a dual impact on Indian forests. Railways hastened their destruction, but also provided a stimulus for conservation.[92]

The reserving of India's forests from the 1860's and 1870's was motivated partly by concern that a vital source of government revenue was being depleted. The Government saw the need to forge legal mechanisms to assert and safeguard state control over forests and the creation of an imperial forest department in 1864 set in motion a programme to change systems of forest management and recast them in the continental mould. Over the next five decades, the Indian Forest Department, partly staffed by personnel trained in Germany and France, systematically erected a framework of resource use modeled along European lines.[93]

The first attempt at asserting state monopoly was through the Indian Forest Act, 1865 and based on it a number of local rules were promulgated. The new Department was initially placed under Secretary in the Public Works Department (PWD) and in charge of the Honourable Member of the Department. In 1871 it was made part of the business of the newly constituted Department of Revenue and Agriculture. On the abolishment of that department, the forest branch was transferred to the Home department, but was again transferred in 1886 to the Department of Revenue and Agriculture, which had been reformed in 1881.[94]

The use of legislation to manage forest resources was an extremely difficult task as the previous policy of the Government had been to recognize forest and waste land as the property of the village communities within whose boundaries these fell. The government blamed deforestation on the tribal practice of shifting cultivation. The Forest Service set up a system of forest guards touring tribal areas to register reserved forests and to prevent the unauthorized cutting of trees.[95] Apart from this, tribal's

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[91] *Ibid,* p.122.
[92] R. Mahesh, *'Production, Desiccation and Forest Management in the Central Provinces 1850-1930'*, R.H., Grove, V. Damodaran & S. Sangwan (eds.), Nature and the Orient, p.579.
[93] R. Ravi, *'Imperial Environmentalism or Environmental Imperialism? European Foresty, Colonial Foresters and the Agenda's of Forest Management in British India 1800-1900',* R.H., Grove, V. Damodaran & S. Sangwan (eds.), Nature and the Orient, pp.324-325.
[94] B. Ribbentrop, *op.cit.,* p.73.
[95] P. Felix, '*Forest Knowledge:Tribal People, their Environment and the Structure of Power'*, Grove, R.H., Damodaran V. & Sangwan S. (eds.), Nature and the Orient, p.899.

were discouraged from hunting and their use of other forest products were severely restricted even though the peasantry's customary use of forests was not random but governed and regulated by community sanctions. Clearly, a firm settlement between the state and its subjects over their respective rights in the forest represented the chief hurdle to overcome.[96] Dietrich Brandis, the first Inspector- General of Forests in India, the pioneer of Indian forest management, committed himself to follow an uphill task of advocating restricted takeover of forests by the state, with forests of village and other communities and private forests. A prolonged and bitter debate ensued within the colonial bureaucracy over the measure of state control over forest management. Within a few years of the enactment, there was complaining that there was inadequate state control over forest lands. Colonial foresters argued in particular that it did not provide for the 'definition, regulation, commutation and extinction of customary rights by the state'.[97]

After thirteen years a more comprehensive piece of legislation the Indian Forest Act, 1878 was passed which extended to all provinces except Madras, Burma, the Hazara District in Punjab, Ajmer, Coorg, Berar, and Baluchistan.[98] By 1890 these provinces passed their own forest acts modeled on the 1878 Indian Forest Act. These Acts divided forest into three main categories: reserved, protected and village/communal. As in Germany and France, the Indian Forest Act gave foresters power to determine how forests were to be managed. All the forest acts provided for control, not only of state owned lands but over forests and lands not belonging to the state, 'if such control appears necessary for the public weal, or if the treatment such forests have received from their owners injuriously affects public welfare or safety.' [99]

Although the management of forests in Assam started since the 1860's, a well defined forest policy was promulgated only in the year 1894. By now the Indian Forests Acts of 1865 and 1878 were in force, and another Act was passed later in 1927. However, the most important regulation that was used to administer the forest resources of Assam was the Assam Forest Regulation VII, 1891.[100] From the day the Assam Forest

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[96] M. Gadgil, and R. Guha., *op.cit.,* p.124.
[97] D. Brandis, cited in R. Guha, '*An Early Environmental debate: The making of the 1878 Forest Act'*, The Indian Economic and Social History Review, 27, 1. p.67.
[98] B. Ribbentrop, *op.cit.,* p.109.
[99] *Ibid,* p.114.
[100] R. Handique, *British Forest Policy in Assam*, p.61.

Regulation VII, 1891 came into force, the Indian Forest Act, 1878, along with the amendments made by the subsequent enactments were repealed.[101] The Assam Forest Regulation VII of 1891 was extended to all the areas administered by the Chief Commissioner of Assam.[102] The local government however may exempt any area from the purview of the Regulation through notification.[103] According to the Assam Forest Regulation, 1891, the local government may constitute any land at the disposal of the government, a reserve land through publication of a notification in the official gazette.[104] Any complaint regarding the notification was settled by the Forest Settlement Officer to be appointed for the purpose.[105] Thus, the constitution of a reserve forest according to the Assam Forest Regulation, 1891, did not differ in ant significant way from the constitution of a reserve forest under the Indian Forest Act, 1865 or Indian Forest Act VII of 1878.

The Assam Forest Regulation, 1891 was however clear in constitution of village forests.[106] The local government was granted the authority to make rules for regulation of the management of the village forests, and of the activities of the communities regarding allotment of benefits derived from the forests and distribution of duties in respect of the protection and improvement of such forests. [107] However, the policy of forming village forests was abandoned by 1931-32, and those already created were cancelled under the orders of the local government.[108]

Several rules under the Assam Forest Regulation, 1891, pertaining to protected forests provided more evidence of the government's agenda to bring the forest areas of Assam under their strict control and to legitimize the hold over them. Some of them were declaration of any tree or any specified trees standing on any land at the disposal of the government[109]; regulation or prohibition to the cutting involved in jhum cultivation, regulate or prohibit the kindling of fires and prescribe the precautions to be taken to prevent the spreading of fires[110]; any infringement of the provision of the

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[101] The Assam Forest Manual, Vol. I, p.5.
[102] Under section 1(1) of The Assam Forest Regulation, 1891.
[103] Notification No. 920 P., dated 1 April, 1898 as mentioned in the Assam Forest Manual, Vol. I, p.5.
[104] Under section 5(1) of The Assam Forest Regulation, 1891.
[105] Under section 6, *Ibid.*
[106] Under section 29(1), *Ibid.*
[107] Under section 30(1), *Ibid.*
[108] A.J.W., Milroy, *Progress Report of Forest Administration in the province of Assam.,1932-1933*, p.1.
[109] Under section 32, The Assam Forest Regulation, 1891.
[110] Under section 34, *Ibid*.

protected forests, shall lead to punishment upto a term of six months, or with a fine of upto rupees five hundred, or with both.[111]

The Assam Forest Regulation, 1931[112], added a new chapter to the Assam Forest Regulation, 1891. The chapter was correlated to the control over forests and wastelands, which were not the property of the government. Among many others, the local government was given the authority to regulate or prohibit in any forest or wasteland the breaking up or clearing of the land; or the firing or clearing of the vegetation through notification when such regulation or prohibition appeared to be imperative in the public interest; or even for the maintenance of water-supply in springs, rivers and tanks.[113] The local government might do at its own expense, in or upon any forest or wasteland, such work as it considered fit.[114] In case of disregard or any willful disobedience shown to the provisions of the Act, the government had the power to assume management of the forests.[115] Further, according to the Land Acquisition Act, 1894, the local government reserved the right to acquire or expropriate any forest for public purpose.[116] As a result, a new category of forest, namely 'protected forest' came to be formed in Assam.

The Indian Forest Act of 1927 replaced the earlier 1878 Act. This was an attempt to codify all the practices of the forest officials and to regulate further people's rights over forest lands and produce. This Act embodied all the major provisions of the earlier one, extending it to include those relating to the duty on timber. The Act deleted the reference to communities' rights over forests, which were made in the 1878 Act. The preamble of the Act states that it seeks to consolidate the law relating to the transit of forest produce and the duty leviable on timber and other forest produce. There is therefore a clear emphasis on the revenue-yielding aspect of forests. The Government of India Act (Act XVI of 1927) extended to all the provinces of India except Assam, Madras, and Burma which had their own specified Acts.[117] This Act was the legal provision till the independence of India. The Act is still in force although there have been several amendments made by state governments.

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[111] Under section 35, *Ibid*
[112] The Assam Forest Manual, Vol. I, pp. 21-23.
[113] *Ibid.*
[114] *Ibid.*
[115] *Ibid.*
[116] *Ibid.*
[117] Report of the Forest Enquiry Committee, Assam, 1929, p.3.

The subject of forests was included in the provincial legislative list under the Government of India Act, 1935. This provision continued till 1976 in the new constitutional arrangements even after the Independence, listed in the 7th schedule. However, the subject of the forest was brought under the concurrent list of the subjects by the 42nd amendment of the constitution of India in 1976, which was enforced the Forest Conservation Ordinance issued on October 25, 1980. The Ordinance was turned into Act No.59 of 1980, which prohibited the state governments from allowing any land for any non- forest purposes without prior approval of the union government. The Act divides the forests into reserves, protected and village forests in view of the people's rights over them. There are punishable acts laid down under the Act, which includes felling of trees, trespassing of cattle and clearing up of any land for cultivation or any other purpose. Further this Act defines the forests as "any land containing trees and shrubs, pasturelands, any land whatsoever which the State Government may declare by notification to be the forest for the purpose of the Act". There were many complaints against the high-handed attitude in the Act towards the forest dwelling communities by tradition.[118]

A new Forest Policy along with the agriculture was envisaged in 1952, which was replaced after three decades in early 1980s followed by a more comprehensive, environ friendly and pro tribal act, the Indian Forest Act in 2007.[119]

Evolution of Colonial Water Laws and Legislations in India

The colonial government started taking a direct interest in water law in the nineteenth century. The colonial context is chronologically identifiable and ends somewhere between 1947, whom India became independent, and 1950 when she became a Republic and gave unto herself a Constitution. Statute law and state control in the arena of water management have reinforced each in their development. The span of history of statutory water law in India is less than 130 years.[120] The advent of this statute law has provided fertile ground for the unreined growth of an intrusive state. Consequently, and relentlessly, it has attacked indigenous, and community-based, systems of control and management of water. Statute law has propounded its own set

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[118] A.C. Sinha, *Colonial legacy and Environmental Crises in North East India*, pp. 57-58.

[119] *Ibid.*

[120] Water Law in India (ed.) Chhatrapati Singh, ILI (1992). Annexure I of Siddiqui's 'History of Water Laws in India' places the earliest water law enactment at 1864.

of values and priorities which have forcibly replaced those learned and cultivated through extended periods of a community's history. [121]

A steady growth of statute laws was visible under the colonial government; in empowerment of officialdom was enunciated along with a statement of the duties of the officials. A huge amount of authority was vested on the officials starting from power to levy water rates, act upon a decision of 'expediency' to construct a canal or embankment, permit third party user of private source. It also permitted the official to compulsori1y requisition labour upon the threat of sanction, in the event of what he considered an emergency, or even demand labour without wages. He could authorize others to act on his behalf. The collection of rates could even be farmed out to ensure that the maximum collection of revenue results. [122]

Colonial water legislation was characterised by its unmistakable intent to generate revenue. The control that the state sought to exercise through its officialdom was with the clear intention of maximising revenue.[123] This included several kinds of interventions, including laws for the protection and maintenance of embankments, regulation of ferries, as well as fisheries.[124] Furthermore, in consonance with its desire to harness water for irrigation, the colonial government gave special attention to irrigation. This led to the adoption of various enactments, including one of the most important enactments; the Northern India Canal and Drainage Act, 1873 for large scale irrigation works – while this Act did not directly assert the state's ownership over surface waters, it recognised the right of the Government to 'use and control for public purposes the water for all rivers and streams flowing in natural channels, and of all lakes' (Preamble). This led to the progressive strengthening of state control over surface water and the concomitant weakening of people's customary rights.[125] Other Acts passed included the United Provinces Minor Irrigation Works Act, 1920 for smaller irrigation works.[126] On the whole, the colonial laws tended to focus on the

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[121] U. Ramanathan, *Legislating for water: the Indian context*, (Paper presented at the 3rd Common Property Conference, Washington, DC) . p.1. Retrieved from www.ielrc.org/content/w9201pdf.

[122] *Ibid.*

[123] *Ibid.*

[124] For example, Bengal Embankment Act, 1882, Northern India Ferries Act, 1878, and the Indian Fisheries Act, 1897.

[125] P.Cullet, and J. Gupta, *Evolution of Water Law in India*, p.164.

[126] P. Cullet, and S. Koonan, (eds.) *Water Law in India*, pp.1-2.

economically productive uses of water and did not concern themselves either with the environmental considerations or with the social aspects of water.[127]

Colonial law makers also saw the commercial non-use of -all potentially usable water as 'wastage'.[128] While the language employed read 'used', the import shifted then from 'use' to 'exploitation' of the resource. Needless to say, the purpose was greater revenue. To ensure optimum use of water, officials carrying out the work for the state were statutorily given a wide range of powers. The right to trespass with impunity was carefully engrafted on to every statute. Not only may he trespass where he found the need- a matter of subjective satisfaction- but he may also cause damage on the property of another in the process of the trespass.[129]

Over time, the Colonial government took an increasingly assertive position with regard to the control over water, culminating with an assertion of absolute rights by the time the Madhya Pradesh Irrigation Act, 1931 was enacted. The Act provided that; 'All rights in the water of any river. Natural stream or natural drainage channel, natural lake or other natural collection of water shall vest in the Government'. The assertion of rights of control over water was not limited to irrigation. Thus, beyond the assertion of the state's overall control, water law was largely concerned with the allocation of water among landowners, thus creating a direct link between real property rights and control over and access to water.[130]

Accordingly successive statutes and clauses implemented slowly gave absolute control to the state. To take an instance, a canal officer may permit any person to use a water course or even to become a joint owner even where the owner may be an unwilling party.[131] This control over water sources was in fact extensive and included for instance the power of acquisition of private water sources;[132] the power to convert the use of water and to divert the flow;[133] the power to allow access to, and use of, water from privately owned sources even by an ex parte order.[134] This statutory

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[127] U. Ramanathan, op.cit., p.1.
[128] The 'wastage' of water occurs in, for e.g., Statutes. 31 and 71 of the Punjab Minor Canals Act, 1905.
[129] E.g. S. 17 Andhra Pradesh Rivers Conservancy Act, 1884.
[130] P. Cullet, and S. Koonan, (eds.) *op.cit.,* p. 2.
[131] Sections 22 and 23, Bombay Irrigation Act.
[132] Section 8 (2), Punjab Land Preservation Act,1900.
[133] Section 17, Punjab Minor Canals Act, 1905.
[134] Section 3, Uttar Pradesh Irrigation (Emergency Powers) Act, 1950.

whittling away of the rights of owners, users, and the generally unmentioned community converted ownership into a non-status, and made intrusive control by the state of the greatest significance.

These legislations, while they could be extended to all available sources of water, saw no need to make even a residual provision for basic needs, like drinking water. However, in the rare instance that drinking water has been mentioned, it must be said to the credit of the colonial law makers that they recognised the non-compensatable nature of drinking water. For instance the Statute 12, of the Bengal Irrigation Act states that, if any supply of drinking water was 'substantially deteriorated or diminished' by any works undertaken, the remedy was not compensation, but' an adequate supply of good drinking water' 'within convenient distance'. [135]

The Government of India Act, 1935 specifically gave provinces the powers concerning water supply, irrigation, canals, drainage and embankments, water storage, and hydro-power. Conflicts between provinces/princely states were subject to the jurisdiction of the Governor-General, who could appoint a commission to investigate a conflict if it was found to be of sufficient importance.[136] After independence, the Constitution retained the basic scheme chosen in 1935 and gave the states a leading role in water legislation. Water was thus included in the state list in recognition of the fact that the water related issues in different parts of the country are different.

The Colonial Forest Policy in Naga Hills (an appendage of Assam till 1881)

The growth and development of forest administration and conservancy efforts in mid nineteenth century under the British Government of India indirectly led to the beginnings of Forest administration in the Naga Hills (a district of Assam till 1881) at a later point of time. In the Naga Hills, Forest administration covered all aspects; including water resources. No separate water law was imposed or administered as was the case in other parts of the country. Therefore, any forest law implemented or referred to in the course of the study covers all aspects of the forest, including water resources.

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[135] U. Ramanathan, *op.cit*. p.6.

[136] Government of India Act, 1935, sections 130 to 134.

The Government Forests in Assam managed under the Bengal Forests Rules, sanctioned by the Supreme Government, were gazetted under Act of 1865, either as "reserves" or "open forest". The Government gained control over the reserved forests and their products and in the open forests, the authority of the Forest Department extended only to the protection of some species of trees. Under this Act, there were restrictions imposed on the use of streams and canals passing through or coming from government forests; prohibition of the closing or blocking up for any purposes whatsoever of streams or canals used or required for the purpose of timber or forest produce; prohibition of the poisoning of or otherwise interfering with streams and waters in government forests in such a manner as to render the water unfit for use.[137] Even in the remaining un-classed forests, the government retained monopoly rights over trade in forest produce. The rights acquired by the government were absolute. This meant that the rights of local communities were either abrogated or curtailed.
The First Forest Department of Assam formed in 1868, was initially a part of the Forest Department of Bengal and the Bengal rules were in force in the province.[138] Later as it became evident that it was difficult to administer several provinces in charge of one Conservator; Assam was separated from Bengal in 1874.

Forest management in Assam showed district wise differentiation in implementation of policies. Such variations occurred because of different levels of Imperial penetration according to Imperial needs. It was in the year 1868 that an Assistant Conservator was deputed to inspect and report on the forests of Assam. Forest administration was completely organized only by 1873, under Mr. Gustav Mann, who went on to become the first forest officer in Assam. Later, when the province of Assam was reconstituted in 1874 as a Chief Commissioner's province, Mann assumed the post of Deputy-Conservator of Forest.[139] By 1874; the forests of Assam were divided in to two divisions, each headed by an Assistant Conservator of Forests with a Deputy-Conservator of Forest having overall charge of the entire province. The Upper Assam division comprised the former districts of Lakhimpur, Sibsagar and the Naga Hills, while the Lower Assam Division covered Kamrup, Nowgong, Darrang and the

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[137] Forest Reserve in Assam 1872-74, (Government of Bengal), (Forest)-Duty (Record) Shillong.
[138] B. Ribbentrop, *op.cit.*, p.25.
[139] S.D. Goswami, *Aspects of Revenue Administration in Assam*, p.119.

Khasi Jaintia Hills.[140] The Forests of Assam was very considerable, covering a large portion of the total area of the province when the British first occupied it. Apart from the government owned lands, a portion also belonged to the private parties like the Zamindars of the Goalpara district.[141] Other parts of Assam such as the Garo, Khasi, Jaintia and the Naga Hills the whole of which remained more or less forest or waste, with next to no permanent cultivation, a sparse and scattered population lived almost entirely by *jhuming*.[142] In the year 1877-78, the area of Assam was 45,302 sq. miles; [143] government forests formed 17 percent of the total area. The reserved forests was sought to be maintained at 6 per cent of the total area under forests in the province. Out of which (1879) a statement shows the extent of forest reserves in the Naga Hills District,[144] more additions were made over the years.

DISTRICT	YEAR	NAME OF THE FOREST	AREA
Naga Hills District	1879	Nambar Mikir Hills Daigurung	389 sq. miles[145] 81 sq. miles[146] 16 sq. miles[147]
"	1887	Kaliani Forest Reserve[148]	
"	1896	Addition to Nambar Forest	8728/11 acres[149]
"	1902	Desoi Valley in (Mokokchung sub-division)	40,480 acres[150] 2517.6 acres [151]
"	1916	Rangapahar forest (Dimapur sub-division)	6,816acres[152] 7,865 acres [153]
"	1918	Intangki Forest (Dimapur sub-division)	44,800 acres [154]

[140] Part II of the Forest Rules published in Assam Gazette of 16th September, 1876, p.502.
[141] B. Ribbentrop, *op.cit.*, p.76.
[142] *Ibid*. p. 96.
[143] G. Mann, PRFA 1877-78, p.7.
[144] D. Brandis, Suggestions Regarding Forest Administration in Assam, p. 8.
[145] Appendix I
[146] Appendix II (a), Appendix II (b) & Appendix II (c)
[147] Appendix III (a) & Appendix III (b)
[148] Extract from the Assam Gazette, No. 32 of 1887 (Part II) August, 1887, Revenue Department. Appendix IV
[149] Extract from the Assam Gazette, No. 12 of 1896 (Part II) p.238 dt. 21-3-1896. Appendix V
[150] Section 17 of the Assam Forest Regulation, VII of 1891.Appendix VI (a)
[151] Revenue Dept. Officer on Special Duty (Records), Government of Nagaland (Records' Cell) Nagaland Secretariat. No. 8 of 1922 (Part II) P. 247, Dated 22-2-1922. Appendix VI (b)
[152] File No. 111F/312 of 1916 Assam Secretariat, Revenue Dept. No's 33, 39. Appendix VII (a)
[153] Financial Dept. Notes, Forest A, 1920 Nos 1-11, Government of Nagaland, Officer on Special Duty (Records). Appendix VII (b)
[154] *Ibid.* Appendix VIII

The rights acquired by the government were absolute. Rules were framed from time to time to increase the hold of the Government over other aspects of the environment. Thus, among many others, there were restrictions imposed on hunting of elephants, and also prohibition of poisoning of water for fishing flowing into or through the government reserved forests.[155]

Although formally the treaty of Yandabo had encompassed Naga inhabited areas within the sphere of British influence, for some decades it remained beyond the pale of British administration. The treaty had no immediate impact on the Nagas, and their undefiled country, hemmed in by Burma on the East, Manipur and Cachar on the South and Assam on the North-East, West and South-West, nominally remained a part of British territory.[156] The year 1832, led to more direct Anglo-Naga contact. The earliest British contact with the Nagas of Nagaland came about when they crossed into Naga territory during the strategic survey of road communication between Assam and Manipur [157] and they had a further interest to stop the menacing raids of the Nagas on the British subjects of the Cachar and Nowgong frontier.

Despite their efforts to maintain peace and security of their settled districts, the British could not follow any consistent policy until 1881 when the Naga Hills were brought under a regular system of administration.[158] The Government changed its policies from time to time depending on the response of the Nagas vis-à-vis the tenability of their tactics. The first period covers 1832-77 during which the primary concern of the British was to ward off the Nagas from raids into the administered districts of Assam; the second period from 1877-1880, the Government followed a 'forward policy' leading to the final merging of the Hills into the Indian system of Administration.[159]
The early colonial policy in Naga Hills was directed to the exploration of its economic resources. As early as 1845, Francis Jenkins, the Agent to the Governor General of North East Frontier agency, sent Captain John Butler to Naga Hills on a commercial mission.[160] However, for the colonists compared to extensive rich forests of the Assam plains and foothills, much of the hill forest had less commercial potential in

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[155] G.Mann, PRFA 1879-1880, (Appendix III).
[156] For. Deptt. Extl-A. February 1890, nos. 155-167. K.W. 1,p.2. See table I, see Map of Naga Hills District.
[157] For. Deptt. Pol-A March 1832, no. 70.
[158] B.C. Allen, *Assam District Gazetteer, Naga Hills and Manipur*, p.9.
[159] *Ibid.*
[160] *For. Deptt. Pol-A*, February 1845, no.148.

terms of species and their numbers. Therefore at the time of regular administration in Naga Hills District by 1881, the colonial land use policy could be expected to be far less intrusive in the Naga Hills in comparison to that conceived for various other parts of the country; this can be seen in the context of the concurrent national and provincial policies. To quote Mackenzie: "all that we sought was peace and free intercourse." As it was the general policy of the government to interfere as little as possible with the internal affairs of the Nagas, the government did not assess the land of the Nagas for taxation.

On his exploratory mission, Butler was directed to the discovery of lime, salt, coal and iron ores, indigenous tea and coffee plants and any timber trees which might appear to possess useful qualities, and all hill products which were likely to become articles of commerce and to submit the results of his researches and samples of such articles.[161] The Government showed interest to promote tea and coffee cultivation. Mr. Walter Butler, brother of deceased Deputy Commissioner of Naga Hills District, Captain Butler, was the proprietor of a tea garden in Wokha, till he left the country for good.[162] The two methods of cultivation of the Nagas -*jhum* and terraced type, received the attention of the government and having considered *jhum* as a wasteful mode of cultivation, the authorities tried to impose restrictions on it. This was achieved in January 1882, by the Chief Commissioner, C.A. Elliot, after solidifying British influence in the district. [163] Sir Charles Elliot issued instructions to political officers in the Naga Hills to make every endeavour to encourage the Naga Hill tribes to take to terraced cultivation. He advised the district officials to introduce cultivation of potatoes, other staples, and different vegetables. He suggested free distribution of seeds and impartation of necessary instructions to the Nagas in this respect.[164] The Deputy Commissioner of Mokokchung sub division, personally bought two pairs of bullocks and lend them out to the people, in order to teach them to plough as they had no previous knowledge of such a practice.[165] Further the Assam Agriculturists' Loans Act XII of 1884[166] was introduced to the Naga Hills District with an objective to promote cultivation through annual financial assistance. However, the meagre annual

[161] *For. Deptt. Pol-A*, February 1844, no.134.
[162] Tour Diary of Mr. A. Porteous, Deputy Commissioner Naga Hills, 1890. (Secret Department).
[163] Assam Agricultural Department Report, 1886.
[164] *For. Deptt. Pol-A*, January 1882, no.135.
[165] Annual Administrative Report of Mokokchung sub-division, 1908-1909.
[166] Report of the annual agriculturists' Loans of the Government in Naga Hills District.

agricultural loans, could not meet the requirements of the farmers for instructors,[167] the loans were more useful as an expression of government's desire to improve agricultural economy in the district than as an effective attempt to accelerate agricultural growth in the Naga Hills.

Experiments with lac were carried out at Mokokchung and Changki village and although the venture failed, there were plans to carry out more experiments in several other Naga villages. Orange crops, millet crops, cotton crops were all put under cultivation in different locales. There were fruit gardens at Nichuguard, Ghaspani, Piphema and Zubza; and a few young apple and pear trees were planted at Kohima, Zubza, Mokokchung, Yekhum, Sanis and Bhandari. [168] Terrace cultivation was introduced in the Tizu valley and some Sema areas.[169]

Gradually, the village communities were no longer left to manage their affairs without direct or indirect supervision. As for management of forests, the British administration applied the Assam Forest Regulation, 1891; by which the extraction of timber was regulated under terms and conditions of agreements drawn up with the coupe holders which paid a certain amount of security. Felled trees were measured and marked with Government passing hammers, with serials and allowed to be exacted under cover of transit pass and challan issued by the forest officials.

With the reorganization of East Bengal and Assam in 1912, the forests of Assam were organized into eastern and western circles and it also dealt with forestry issues of the Naga Hills District and the princely state of Manipur. Under the British administration, the report on forest administration was filed annually. The report included information on the nature of forests in Naga Hills District, its status whether "reserved" or "open", *jhuming*, timber-wise and area wise extension. Some examples of conservation were seen when the Imperial forest service under Meiklejohn as Deputy Conservator of Forests (1922) in the Naga Hills demonstrated the value of conserving jungle as far as possible to ensure an adequate and constant supply of water in the streams in Tezu Valley. He urged the Sema tribes to spare trees on their *jhums* as far as possible and to sow alder. However, considerable difficulty was

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[167] *S.D.O's Diary*, D.R.O. Mokokchung, November 1915, see the inspection note of Reid, Commissioner, S.V. and H.D.,Assam.
[168] General Administrative Report (forwarded to the Chief Secretary, Assam) 1896-97.
[169] Annual Administrative Report of the Naga Hills for the year 1908-09 (General Department).

experienced in getting specially sown alder seed to germinate in the region, in comparison to the good yield from the *jhums* in the Angami country.[170] At the same time the necessary preliminary work for the constitution of the Forest Reserve on the Nowgong border had been completed during the year 1922-23.[171] Mr. Bor of the Imperial Forest service is also commended to have made most valuable work of conservation of forests particularly in the Sema country during his tenure as Deputy Conservator of Forests during 1924-25.[172] Species of trees such as the Acacia, oak, Grevilea, and Melia, Toosender and Melia Azadiratch were tried and some of them proved to be most promising. However, their main effort involved in particular the weaning away of tribals from shifting (*jhum*) cultivation.

The declarations of the British, to conserve and preserve forests, included in greater or lesser degree, the regulation of the rights and privileges of the local community. While the forest-based industries had relief on the commercially valuable wood, the forest Tribes, depended on the minor forest produce for their subsistence. The colonial government allowed for the supply of fire wood to the 3rd Assam Rifles and to the station in Kohima from the Pulebadze Reserve Forest, while at the same time private individuals, predominantly the local Angamis, were issued passes for a fee for even collection of firewood for their hearths from what was once their traditional forests.[173] This practice of fuel cutting for the Assam rifles was stopped only around the year 1936.[174]

In actual practice, all declarations of conservatism were set aside whenever they came in the way of British interests. For example, forests in the Naga Hills and the Terai region were unscrupulously cut to meet the increasing demand of wood during both world wars. There was heavy demand on timber of all types resulting in unplanned felling. The Nagas in the Sanphan range bordering the valley near the Tiru River and Safrai River, particularly the villages of Wakching and Punkhung (Konyak country) suffered loss of their surface rights over the land they had earlier rented out to Assamese cultivators. All rights to their land were extinguished by the payment of

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[170] Annual administrative Report of the Naga Hills District for the year 1922-23, File No. Pol.1247 of 1923.
[171] *Ibid.*
[172] *Ibid*.
[173] General administrative Report of the Naga Hills District for the year 1925-26, File No. 354.
[174] General administrative Report of the Naga Hills District, 1936-37.

lump sum compensation. This was done so that the Deputy Commissioner of the Naga Hills would issue trade permits for the removal of forest produce from this forest area.[175]

The Government also meddled in petty issues of all types. For instance, the Government forbade the felling of alders in *jhum* fields and ordered their preservation in the Pollarded form. In another instance, the administration forbade fishing with cast nets in the Doyang and Bagti rivers. The transplanted regulations created a totally new dimension in forest laws for the Naga Villages, as it carried both the old and new elements. The growing restrictions on forest right and dispossession of customary rights, such as restrictions placed on shifting cultivation and the sale of forest produce also alienated the tribals from their land particularly after the passing of the 1878 Forest Act, and this generated resistance among the tribals. However, unlike other parts of India where there were major episodes of coordinated popular resistance, in the Naga Hills it was mostly in the form of petitions and claims.

Upto 1957 the whole of Nagaland was one forest division of Assam. From 1961 to 1963, forests of Nagaland were in charge of the Chief Forest Officer. After the formation of the Nagaland State, Nagaland Forest Act, 1968 was passed which entitles the Government to carve out forest reserves on the basis of awarding compensation to the holders or authorities who own the forests, after assessing the existence, nature and extent of any rights claimed by them. The state government is empowered to constitute, reserve, protect, village forests and demarcate them. At present, the Reserved forests, Protected forests, Wildlife sanctuaries and National parks are under the control and management of the Forest Department, while the Village forests are under the control and management of the land owners.

The Colonial Water Policy in Naga Hills (an appendage of Assam till 1881)

When the Naga Hills was brought under a regular system of administration from 1881, the British made their administrative arrangement in such a manner that Nagas were mostly left to continue to rule and administer their villages according to their respective customs and traditions with only 'loose control'.[176] In pursuance of this

[175] Forest Department Files 1928-Proposed forest notification.

[176] The Government played a supervisory role in the district administration thus leaving the responsibility of the actual day to day administration to the *Gaonboras*.

policy objective, the Government while their own technique of control administration remained informal without any hesitation used the existing institutions based on local customs and traditions. It served the dual purpose of keeping the Nagas free to govern themselves in their traditional ways; while at the same time immensely reducing the responsibility of the government from the detailed and costly affairs of administration.[177] By recognising the traditional leaders and elders as 'Chiefs and Gaonboras'[178] they tried to integrate the existing leadership into the colonial administrative framework. The status of the village administrative functionaries was changed significantly as they were given a quasi-official position and were no longer answerable to the village community of which they had been the representatives or servants.[179] A case in point was seen in the rise of collection of house tax and land revenue by the headmen of different villages from Rs.15, 757 in 1880-81 to Rs. 28, 295 in 1883-84. The prompt payment and steep increase was because the 'police were dispatched to enforce payment'.[180] In the interest of British administration, village administration was delegated with the powers to deal with petty local disputes, and yet, practically in almost every aspect of public matters, the district administration invariably intervened in the name of maintaining law and order and developmental activities.

Coercion was the usual method used in subjugating the Nagas; examples which are seen in the comments of McCabe, who noted that, "the Angami at first was inclined to treat a summons in a most casual manner, returning an answer that he was busy with his cultivation, and could not attend just then. By the immediate infliction of heavy punishment for all such contempt of authority, I have succeeded in making the Angami very obedient to official summons, and it is now only on very exceptional occasions that a man fails to appear on the fixed date". He refers to another incident when an entire *khel* of Thenejuma village by refusing to come to Kohima on his orders were immediately confronted by the said officer with an escort of 100 sepoys and punished by imposition of a fine of Rs. 100.[181] In another incident during an

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[177] N. Rustomji, *The Imperilled Frontiers*, p. 26.
[178] The British readily incorporated and recognized the village chiefs in some communities and as elders or Gaonburas in other communities. Whatever be the title, they were constituted as representatives for carrying out the orders of the government in their respective villages.
[179] P. Sema, *British Policy and Administration in Nagaland, 1881-1947*, p.53.
[180] Judicial Department, *Resolution on the Naga Hill, General Administrative Report for 1883-84*.
[181] *Ibid.*

inter-*khel* feud at Jakhama village, the administration was quick to intervene by imposition of a fine of Rs.600 and punitive measures led to a road construction free of cost from Jakhama to the Manipur road.[182] Thus although the Government's policy was to interfere as little as possible in the internal affairs of the Nagas, this non-interference was superficial rather than real.[183] The words of McCabe, summed up the Colonial stance in the Naga Hills, "The Nagas are quietly settling down, and as each year passes without an attempt to contest our authority a blow is struck to all dreams of future independence".[184]

As mentioned before, there were no uniform stringent impositions of Colonial water laws within the administered areas in India. Statute laws were imposed randomly across different time; space and areas as and when, the government felt it was to their benefit. This empowerment of state instrumentalities through statute law was therefore clearly intended to disempower a people, and the legitimacy that attached to enacted, codified law was used to achieve this.

Although as an administered unit of the Colonial government from 1881, all statute water laws within the British administered areas where applicable per se also presided in principle over the Nagas Hills district; in actual, no specific water laws were put into practice. As per the policy of the Colonial masters, the Nagas were mostly left to continue to rule and administer their villages according to their respective customs and traditions; covering all aspects of the forest, including water resources. Although the Naga tribes were permitted by the colonial government to be governed by their own customary laws; it did not stop the very same administration in meddling in petty issues of all types. They were instrumental in the creation a contradictory state of affairs; whereby as a result of relentlessly imposing its statute laws and regulations it attacked indigenous, and community-based, systems of control and management of forest and water.

References have been made to the permission granted by the colonial administration to a large number of villagers for the cutting of a "namghar" of half a dozen posts of

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[182] Judicial Department, *Resolution on the Naga Hills, General Administrative Report for 1884-85.*
[183] N. Rustomji, *op.cit.,* p. 26.
[184] Judicial Department, *Resolution on the Naga Hills, General Administrative Report for 1883-84.*

wood of the reserve kinds from the district forest.[185] Moreover, frequent complains of the forest dwellers was brought to the notice of the officials regarding the oppressiveness of the forest rules in the Dhansiri valley, an unreserved forest, and of the difficulty of getting wood for houses or of opening up new patches of land for cultivation, owing to the heavy cost of royalty on one hand, and the prying indifference of the forest officials on the other.[186] However, not much attention was given to such complaints. A. E. Woods, Assistant Commissioner, Naga Hills, makes mention in his tour diary of the permission he granted to the Yekam villagers (Lotha country) to kill an elephant, from a herd of elephants that had strayed from the valley into their cultivation area, destroying crops.[187] Annual miscellaneous revenue generated by the colonial government included the issuing of licenses to hunt elephants; for instance between 1883-84, they generated Rs. 1,499, and paid Rs. 3,900 as royalty on the captured animals and the fishery rights in the Doyang and Dhansiri rivers brought in Rs.300 for them.[188] Another case brought to the notice of the district administration was by Mr. Clark, of the American Mission, who reported that the Ao village, described as Merangkhang claimed to certain fishing rights in the Jhanzi river (Melak River), but this was challenged by Deka Haimong village (presently known as Molungkimong) following which Mr. Greer, the Deputy Commissioner at that time, settled the case in favour of the latter.[189] There were evidences that the forest department issued permits to a certain man from Sylhet to cut sasi trees of over 4½ feet circumference, even outside government forests as seen in a case presented by Deka Haimong village (presently known as Molungkimong) to A.E. Shuttleworth, Sub-Divisional Officer, Mokokchung,[190]

One vital piece of evidence showing the reach and agenda of the colonial government to bring the forest areas and resources of Naga Hills under their strict control and to legitimize the hold over them was seen in a notification issued, under the Assam Forest Regulation, VII of 1891, pertaining to protected forests. One of its clause mentions the proposal and intent of the colonial Government to bring more forest areas under its control by reserving forested areas. Schedule C mentions: 'On the

[185] Tour Diary of Mr. A. Porteous, Deputy Commissioner Naga Hills, 1890. (Secret Department).
[186] *Ibid.*
[187] Tour Diary of Mr. A. E. Woods, Assistant Commissioner, I.S.C. Naga Hills, 1892.
[188] Judicial Department, *Resolution on the Naga Hills, General Administrative Report for 1883-84.*
[189] Judicial Department, *Resolution on the Naga Hills, General Administrative Report for 1886-87.*
[190] Tour Diary of A.E. Shuttleworth, Sub-Divisional Officer, Mokokchung, 1895-97.

formation of the above area into a reserved forest all private rights over the land or to the products thereof and all rights of way, rights to a watercourse or to use of water, rights of pasture and all other rights whatever will be extinguished save and except such as are admitted by the Forest Settlement Officer and sanctioned by the Local Government'.[191]

The District Forest Rules applicable in Assam province were not applicable in the Naga Hills District,[192] even after the Naga Hills came under regular administration in 1881, although the intent to bring more forests areas in Naga Hills under 'reserved areas' were in place. For instance, in a letter from Gustav Mann, Esquire, Conservator of Forests, Assam, to the Chief Commissioner of Assam, mention is made of the intentions of the local government to constitute certain land 'known now as the proposed Doyang Reserve'[193] reserved forest. The colonial government appointed an official to enquire into and determine the existence, nature and extent of any rights which may exist in favour of any person in or over the lands. That, if there were no "legal" rights, he made the assertion 'the term is a question for the decision of the government'.[194]

The Desoi Valley Reserve extended to an area of 40,480 acres[195] in Mokokchung Subdivision and this forest reserve swallowed up a huge area of what was previously traditionally managed forest area spreading over many Ao villages. After annexing the traditional forest areas, the Colonial government represented by F.C. Hennicker, Secretary to the Chief Commissioner of Assam promptly issued a notice to the Nagas whereby permission was granted as 'the following Naga paths now existing inside the reserve for the use of the Nagas: 1. Lakhu-Moriani path. 2. Semsa and Japu- Moriani path. 3. Changki – Moriani path. The Nagas of the villages of Lakhu, Semsa Japu (including Longmi Khaba), and Changchang are allowed to fish in the Desoi and its tributaries within the boundaries of the reserve by means of dams and traps for their own consumption, and not for sale. The exercise of the right to fish will not interfere with the transport of timber and other forest produce'.[196] Such acts seemingly

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[191] Appendix IX
[192] Forest Department Files-1898-99, Collection XX, File No. 2.
[193] *Ibid.*
[194] *Ibid.*
[195] Extract from the Assam Gazette, June 21. 1902.
[196] (Reserve Forest), Mokokchung Sub-division No. 25 of 1902.

considerate, illustrated the irony of the circumstances where Naga tribes required official permission to pass through their ancestral forests and to fish in the Desoi River.

In another instance, the arbitrary manner in which colonial forest regulations were imposed is seen in the Proclamation issued on the 24th October, 1916, regarding the intentions of the Forest Department Assam to bring an additional 5,145 acres of land to the Rangapahar forest, Dimapur sub-division, under section 5 of the Assam Forest Regulations, VII of 1891. The often indiscriminate enforcement of regulations is evident in the response of the Deputy Commissioner, Naga Hills to the notification issued by W.F.L. Tottenham, Esquire, Conservator of Forests, Eastern Circle, Assam. He noted that 'this proposal was started without any notice to the Deputy Commissioner or anyone else in the Naga Hills and had been framed without any consideration for the wants of the people residing at Nichuguard and Dimapur. Government wants to open out the Nambor and the creation of new reserves in a haphazard way frustrates that policy'.[197] In a letter addressed to the Deputy Commissioner, dated 15th March, 1914, twenty three residents of Nichugard Basti and Shamuguting Basti wrote against the reservation of the forests from 3½ mile to 8th mile between Dimapur and Nichuguard, stating that they were cattle breeders and cultivators. They asked for right to graze their cattle and to cultivate their fields, pleading that, 'So that if whole of the forest is reserved death of (by) starvation will be the said result'.[198] Such incidences were a frequent occurrence throughout the Naga Hills. The villagers had to seek permission to even collect firewood and daily essentials from the forest which had been their traditional abode. For instance, the Goanbora of Wamakan Village in the Ao country had to claim permission to use (a) right- of- way (b) to water course and to use water and (c) right of pasture or to forest produce in the proposed forest reservation in their area.[199] Though the given list is not exhaustive but a few among the scanty records found, it establishes the factual justification of the colonial disregard for traditional customs and the slow erosion of the legitimacy of timeless customary laws practiced by the Naga Hill tribes.

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[197] Forest Department Files-1914-1917, under Rangapahar Reserve Forest.
[198] Forest Department Files-1913-1914.
[199] Appendix X (a) and Appendix X (b)

Mon District: Colonial rule reached only to the present lower Konyak areas bordering Mokokchung District and the state of Assam. The coming of the British and later the imposition of forest and other laws greatly affected the traditional practices of the Konyak Naga region. But perhaps due to the indomitable nature of the Konyak tribe, only partial restrictions were imposed. Apart from Jhum cultivation, violation of other forest laws were imposed fines of Rs. 1 or Rs. 2. Fishing and use of fishing nets/poisoning of rivers and jhum cultivation was left free by the British. They imposed restrictions mainly on head-hunting cutting down of certain kind of trees and killing animals, especially female animals. In the Dikhu river/forest area, everything almost remained the same as it was in the pre-colonial era except for restrictions in movement of people around the region. The practice of head-hunting continued for long even after framing law and order in the region. The British used force to suppress villagers and thus, many villagers looked upon them as enemies. The British also gave a gun each to every village for defence and useful purposes. The greatest and biggest change that was brought about by the British in the Konyak Naga Region was introduction and supply of opium to the head-hunting people. Opium totally ruined the Konyak society at large. The British Govt. supplied opium to the villagers in order to weaken and colonize the powerful Konyak villages. The effect is still ruining the Konyak society even these days.

Kohima District: In the Angami country, the British collected house tax as a symbol of authority over the Angami people, but they were careful not disturb the customs of the people. There was no random imposition of laws relating forest or water source relating to jhum cultivation, fishing or hunting, or cutting of trees, except in times of rivalry between khels or individuals. They tried to introduce conservation of forests, but forcefully occupied some forest under their administration and even claimed *Pulie Badze* in Jotsoma as reserved forest area. Initially, the British intervened only to settle disputes or pass judgment after settlement of a conflict or case but in time their administrative hold became stronger. They discouraged traditions like head hunting and people were restricted from mingling with one another. In case of violations of law, villagers were jailed for months and forced to take up hard labour as construction workers of roads and buildings or as *coolie* daily wages (workers). Although there was no change in the river/ forest areas as what belong to Angami villages remain unchanged; daily life was no longer unfettered, systematic imposition of foreign ideas transplanted traditional ideas; and these regulations strengthened their control over the Angami country.

Wokha District: In Wokha district also a house tax of Rs. 2 was imposed by the British. The payment of house tax to the authorities enabled them to enjoy the protection of the government; it also signified their commitment to obey the authority as also to cease from raids and to pay revenue punctually. The recognition of British authority was encouraged by the British as a peaceful means of bringing the Lotha Nagas under their control. As such initially they did not interfere in the local customs and traditions of the Lotha Nagas concerning the forest and water resources. No restrictions were imposed for fishing, hunting; although the villages were discouraged from jhum cultivation and some kind of forest conservation was introduced. But if colonial forest laws were violated, then penalty was imposed either through fines of Rs.1 or Rs. 2 or hard labour was imposed on the defaulters. Restrictions on traditional practices were applied gradually; villagers could no longer use certain kinds of "poison" to fish, or use a certain kind of fishing net in the Doyang River. In case of land or water disputes between villages, most settlement issues were first reported to the British administration. Curtailment of traditional customs and practices became inevitable under the colonizers.

Mokokchung District: The coming of the British to the Ao area did not bring about many changes initially. They were careful not to disrupt the age old customary laws that were in place; local traditions were allowed to function. The concept of communal ownership of forest and water resources was not disrupted. They tried to introduce conservation of forests, and different types of trees were introduced and planted in the area. There were no restrictions imposed on fishing, or hunting in the forests. Only in cases, where there was conflict between two villages or infringement of their authority, were villages punished. Village elders were befriended to communicate between the British administrators and the villagers; and the colonization process was enforced; with time, restrictions were openly imposed through colonial forest laws like curtailment on hunting of elephants, or poisoning of water for fishes. At Lakhuni Village just above the plains, a number of plain traders assembled every year to buy rubber and *sai* wood. Although till that time no royalty was levied on forest produce within the Mokokchung sub-division, the colonial government issued permits to six different firms to send representatives up for trade. Besides, Lakhuni nearly every Ao village bordering on the plains traded in both *sasi* wood and rubber. [200]

[200] Annual Administrative Report 1905-1906. (General) (226).

CHAPTER 4
COMMODIFICATION OF WATER DURING COLONIAL AND POST COLONIAL PERIOD

Commodification of Water during Colonial period

Some reference have been seen to the first instance of privatization, starting in 1740, of peasant rights to farm, graze and hunt on lands owned by nobility in England and Wales. Enclosure of such spaces took place in the global South as well. The British policy of deforestation and the enclosure of the environment were replicated in the colonies of India.[201] British colonial rule shared in many respects the ethos of domination over nature that marked the emergence of 'middle-class' government in Britain. Shaped by the increasing influence of capitalist modes of thinking, many British leaders saw domination of nature, and its commodification, as both a critical measure of class power and a legitimizer of the British in India as a ruling community.[202] Colonization brought about three major influences - A transformation from a resource gathering and food production economy into a commodity- oriented economy; a change in long standing relations and customs as local social relations became less important and social cohesion declined; and the development of the market and the importance given to wealth.[203]

In 1865, a law was passed, lifting protection of the forests including the water, land, air, forests and fisheries, paving the way for the commercial exploitation of both land and forests. The ensuing marginalization of peasant communities' rights over their forests, sacred groves and "wastelands" was the first and prime cause of impoverishment for millions of Indian people.[204] Through the introduction of private property laws, the establishment of new tax codes, the fast expropriation of common property resources, and the coordinated implementation of centralized water management systems, the colonial regime affectively stripped civil-society of its power and right to regulate its own resources. Moreover the British regarded the local communities "in a language of 'naturalism' that defined them as parts of the 'natural'

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[201] M. Barlow, *Our Water Commons; towards a new freshwater narrative,* p.3.
[202] D. Gilmartin, (1995) *Models of the Hydraulic Environment: Colonial Irrigation, State Power and Community in the Indus Basin.* D. Arnold and R.Guha (eds.). Nature, Culture and Imperialism: Essays on the Environmental History of South Asia. p.210.
[203] M. Gadgil and R. Guha, (1992). *The Use and Abuse of Nature*. p.116.
[204] M. Barlow, *op.cit*. p.3.

environment to be modeled and controlled." [205] Thus began a long historical process whereby absolute power would become vested not in civil-society but in the state, enabling first the colonial state, then the post-colonial state, to "legally" exploit resources at its will without any accountability to the people.

The proprietorship of the forest land at the time of the British occupation varied in accordance with the political and historical developments of each province in India.[206] This principle also applied to water rights in India as it had been closely linked to property rights in land. The control that the state sought to exercise through its officialdom was with the clear intention of maximising revenue. Until 1857 the British did not interfere with local rules and customs unless it interfered with their policies. Some initial attempt to codify water laws in India was seen in the Bengal Regulation VI of 1819 and the Charter Act, 1833. After the 1857 revolution, the British began to consolidate power focusing both on famine relief and the need to maintain the resource base of trade for this; leading to investment and regulation of canals and irrigation facilities.[207] Water which was treated as a Common Property Resource (CPR) [208] was converted into state property starting with the Indian Easement Act, 1882; and acts such as the Indian Forest Act, 1894 which gave the State the right to acquire forest lands and along with it the water resources beneath it. This transformed the way water resources were managed and maintained. It ended up becoming a commodity, generating revenue and profits.[209]

Irrigation

The British introduced the concept of government control over surface waters. Expansion of irrigation was driven by the ethos rooted in the transformation of water itself into a commodity.[210] After a quantum leap in irrigation was initiated in 1830s by repair of one the greatest irrigation works of pre-colonial times, the Grand Anicut in

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[205] D. Gilmartin, *op.cit.* p.214.
[206] B. Ribbentrop, *Forestry in India*, p.97.
[207] P. Cullet and J. Gupta, *Evolution of water law and policy in India*. J.P. Dellapenna, & J.Gupta, (eds.) The Evolution of the Law and Politics of Water.
[208] S. Sahu, *Politics of Access to Drinking Water in Urban Areas in India: State and Market Interventions – A Case Study of Hyderabad.* p. 9.
[209] I. A. Siddiqui, *"History of Water Laws in India"*, in Chhatrapati Singh, (ed.), Water Law in India, New Delhi. p.14.
[210] D. Gilmartin, *op.cit. p.211.*

Tanjore[211] and the Jamuna canals[212] in the Delhi region; other attempts on large-scale irrigation projects in the Deccan region and rehabilitation of other traditional irrigation tanks system proved unsuccessful.[213] Massive construction of vast network of new canals started in the Upper Ganges Region and this later became the approach of development.

In 1860s and 1870s, British irrigation policy endorsed local initiatives in private or semi private canal buildings,[214] empowering the state to frame rules of irrigation so as to enable them to control people as canal controlled water. [215] There emerged a highly centralized arrangement of irrigation with a huge bureaucratic structure extending even to Britain. In the 1880s a series of interlinked irrigation canals brought about 14 million acres of arid land under agricultural colonization and settlement in Punjab named as 'canal colonies'. Upper River valleys of South India and Deccan were introduced to large and medium canals schemes; in upland areas, small surface systems which included tanks, mechanized tube wells and large-capacity deep tube wells for groundwater development.[216] The Provincial Agriculture Departments later created, aimed to provide new professional expertise on issues relating to water and agriculture.[217] Farming through the manipulation of large untapped rivers and reconfiguring the basin hydrology; and centralized structures for constructing and managing large irrigation systems on commercial lines led to an unbalanced irrigation development without regional equity.[218]

Colonial control over types of water

British Colonial water had two main strands. First, control over water and rights to water were regulated through the progressive introduction of common law principles, emphasizing the rights the rights of landowners to access water. The trajectory of

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[211] Grand Anicut on River Cauvery.
[212] These canals were originally dugout in the regime of Firuz Shah Tughlaq about 600 years ago.
[213] N. Sengupta, *'Irrigation: Traditional vs Modern'* in Economic and Political Weekly 20 (45/47): 1919-1938.
[214] D. Gilmartin, *loc.cit. p.216-217.*
[215] D. Gilmartin, *loc.cit. p.224.*
[216] P. Baumann, R. Ramakrishnan, M. Dubey, R. K. Raman, and J. Farrington, '*Institutional Alternatives and Options for Decentralised Natural Resource Management in India',* Working Paper 230, London.
[217] *Ibid.*
[218] F. Naz, V. Saravanan, Subramanian, *Water Management across Space and Time in India,* Working Paper series 61.

rights and management systems over surface and groundwater, for instance, were very different and it continues to have an impact on current use patterns.

The Northern India Canal and Drainage Act, 1873 for large scale irrigation works recognised the right of the Government to 'use and control for public purposes the water for all rivers and streams flowing in natural channels, and of all lakes' (Preamble). This led to the progressive strengthening of state control over surface water and the concomitant weakening of people's customary rights. [219] The Easement Act (1882)[220] recognised water rights for the first time and the absolute rights of the state over rivers, lakes and water bodies.

For ground water, the Indian Eastment Act, 1882 provides a land owner with the right to appropriate water below the land and no action will be taken against the owner even if the owner intercepts and diverts water under the land of another.[221] For surface waters, a riparian right allows a landowner the right to take a reasonable portion of the flow of a water course.[222] For practical reasons, these were linked to the tenure rights of the landowner by the Transfer of Property Act (1882) and the Land Acquisition Act (1894). These imply that groundwater rights cannot be transferred independently of land tenure. The legislation also provides no limits on the amount of groundwater that can be extracted by a landowner, an issue of significant importance in contemporary water management, as by implication the landless and communities that own land communally are excluded from legal access to groundwater rights.[223]

Common law principles, enshrined in the Indian Eastments Act, 1882 led to enactment of laws such as Embankment Regulation 1829; Bengal Embankment Act, 1855.[224] Other laws regulated canals for navigation purposes levying taxes on users, river conservation, and rules on ferries and fisheries such as Northern India Ferries

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[219] P. Cullet and J. Gupta, Evolution *of Water Law in India*, *loc. Cit.*, p.164.
[220] The Easement Act 1882 allows private rights to use a resource that is, groundwater, by viewing it as an attachment to the land. It also states that all surface water belongs to the state and is a state property.
[221] NAAS. *Emerging issues in water management-The question of ownership*. Policy Paper No. 32, p.8.
[222] J.W. Dellapenna, '*The right to consume water under "pure riparian rights'*. in R.Beck (ed.), Water and water rights ch. 7.
[223] P. Baumann, R. Ramakrishnan, & Others, *loc. Cit.*
[224] I.A. Siddiqui, *loc. Cit.*

Act, 1878; Indian Fisheries Act, 1897. Regulations recognizing local practices and rules in villages were also enacted.[225]

Colonial legislation also introduced the division of responsibilities between the centre and the regions/states with regard to water. The Government of India Act, 1935 gave provinces the powers concerning water supply, irrigation, canals, drainage and embankments, water storage, and hydro power. Conflicts between provinces/princely states were subject to the jurisdiction of the Governor-General, who could appoint a commission to investigate a conflict it was found to be of sufficient importance.[226]

Commodification of Water in the Post-Colonial period

Many of the laws enacted to further colonial interest have simply been continued in the post colonial period. The situation worsened in the post-independent India with the political leadership and the bureaucracy retaining much of the colonial mindset. After Independence, the Constitution retained the basic scheme chosen in 1935 and gave the states a leading role in water regulation. Water was thus included in the state list in recognition of the fact that the water related issues that arise in different parts of the country are different.[227] Development policy and planning in independent India followed the Nehru-inspired vision of economic centralisation and transformation from above based heavily upon industrial growth. This model set the context for all development activities and centralised control over natural resources was considered an important component of this planned policy, allowing the state to execute programs based on scientific and technological judgments and protect resources from unsystematic exploitation by local people. Hence, though the independent state assumed the role of provider, protector and regulator in fulfilling the nationalist project, as far as natural resource management is concerned, there is considerable continuity in the policies of the colonial and the independent government.[228]

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[225] P. Cullet and J. Gupta, *loc. Cit.* p.164.
[226] Government of India Act, 1935, sections 130 to 134.
[227] Constitution, Schedule 7. List II, reproduced at p.60.
[228] P. Baumann, R. Ramakrishnan, & Others, *loc. Cit.*

Irrigation

Since independence, states have enacted irrigation policies and laws that generally follow the pattern of colonial legislation. Surface water irrigation had seen little changes until the 1990's as it still continues to give ownership rights to the Government as seen by the statutes enacted in different part of India. Post independence, the Government implemented Major[229] and Medium[230] Irrigation Projects (together with some minor[231] irrigation projects) particularly to overcome food grain shortage; to accelerate development and address regional disparity of investment. With the First Five Year plans in 1951, vast new multipurpose irrigation works were taken; such as the Bhakra-Nagal, the Damodar Valley and Hirukad projects besides some other projects but exposure to flaws in the system has led to delay in projection completion due to compounding problems.

In the 1970's the Government acknowledged the issue of severe water management problems and initiated changes. The Command Area Development Programme (CAPD) for water management 1974-75, in the command areas and several attempts in the 1980s sought to bring about reform in the management practices of Irrigation, through the World Bank supported National Water Management Project (NWMP). But it did not address the issue of the Irrigation Department's legal powers, lack of accountability in the system management and the monopolistic control of public funds assigned for surface water development. During the early 1990s, several states[232] in India (as water law reforms are state specific) fostered the participation of farmers in irrigation schemes along the principles of 'participatory irrigation management' (PIM). Several states are now implementing ground water legislation.[233]

Privatisation in water sector[234] was introduced late in India, and the initial pace was slow. However, already from the 19th century (1820) six private companies in England were in charge of water provision. The concept was officially introduced by

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[229] Major irrigation schemes is the one in which the arable command area is more than 10,000 hectares.
[230] Medium irrigation schemes is the one in which the arable command area is more than 2000 hectares but less than 10,000 hectares.
[231] Minor irrigation schemes is the one in which the arable command area is less than 2000 hectares.
[232] Andhra Pradesh, Rajasthan, Maharashtra, etc.
[233] P. Cullet and J. Gupta, *loc. Cit*. p. 171.
[234] The term "water privatization" officially refers to the process of transferring legal public sector "responsibility" of water resources (provision of water, sanitation) to the private sector which then is in charge of managing, producing, and dispersing the water as an economic good.

Margaret Thatcher in 1989, when public water and sewer companies in England and Wales were privatized.

Privatisation of irrigation is in initial stages and this sector is also being opened up. There have been some preliminary experiments of involving the private sector in canal operations in Gujarat; the World Bank supported privatised irrigation projects in Madhya Pradesh, and Maharashtra. The reasoning behind this step is to promote participatory management, but it may well lead to backdoor entry of privatisation.[235]

Ground water Irrigation

Since the landowners have a virtually unlimited right to access water under their holdings, the Central Government does not have jurisdiction over ground water. Regulation of groundwater is limited to a few states and metropolitan cities. The mechanized lift irrigation from groundwater started in mid 1960s with the advent of new pumping technology, to bore deep wells and extract water in large quantities. The onset of the Green Revolution in North West India led to increasing usage of shallow tube wells and deep borewells. Various public agencies provided credits and subsidies for well installation and supply of electricity however this again benefited the rich farmers.[236] Such initiatives helped to augment the already well established canal irrigations by playing a complementary role in disbursement of water. Public[237] tube well programs run by Government Corporation initiated with the funding of the World Bank were set up in some states.

In the 1980's a competitive groundwater market developed. Private markets[238] in pump irrigation service emerged and started competing with the public tube wells.[239] Improved drilling and lifting technologies, liberal credits provision, among other reasons, aided the private tube well owners to provide superior irrigation services. This led to wide scale commodification of water, whereby farmers and private players

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[235] D. Gaurav, Rehmat, and S. Dharmadhikary, *Water: Private, Limited. Issues in privatization, corporatization and commercialism of water sector in India*. p.21.

[236] S. Singh, *Taming the Waters: The Political Economy of Large Dams in India*. p.53.

[237] When using the term "public sector" one refers to the part of a government, which is in charge of the production, sale, exchange and provision of goods by or for the government or the people.

[238] The private sector of a country's economy is the sector that is composed of and "operated" by private groups or individuals for reasons of profits and cannot be controlled by the state.

[239] T. Shah, *Wells and Welfare in Ganga Basin: Public Policy and Private Initiatives in Eastern Uttar Pradesh, India*. Research Report 54.

constructed deep wells in order to sell water as a commodity and to generate revenue without thinking about the long term consequences of water depletion in their areas. Further, under private property regime, water markets have developed in many parts of India.[240] The rapid depletion of groundwater as a consequence of extraction for irrigation and other uses over the past 50 years has led to policy development in this area. The latest is the Model Bill to Regulate and Control the Development and Management of Groundwater (2005) constitutes an instrument seeking to broaden state control over the use of groundwater by imposing the registration of all ground water infrastructures or denying permits in over exploited areas.[241] It does not, however, propose a clear break from rules of access linked to land ownership.[242]

Recent developments in privatization and commodification

The policy of privatization of water, though presently in its infancy, is not entirely new to the Indian water sector. Some early pilot projects were launched by the Government in the early 1990s in the power sector in an attempt to engage private players in both the rural and urban water sectors. The National Water Policy, 2002, explicitly encouraged private-sector participation in the planning, development and management of water resources, wherever feasible. It envisaged private player involvement to introduce innovative ideas, generate financial resources, introduce corporate management, and improve service efficiency and accountability. Most recently, the Draft National Water Policy 2012 encourages the engagement of private companies as service providers for water distribution.[243]

Hydropower projects

In 1991, the Government of India announced its policy of opening the power sector to private players. Most of the private companies who signed Memorandums of Understanding (MoUs) were foreign multinational corporations offered concessions by the Government for their investments in this sector. This meant that the private companies could come in and build, own, operate dams, establishing control over the

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[240] T. Shah, '*Groundwater Markets and Irrigation Development: Political Economy and Practical Policy'*, in *Land Economics,* K. William Easter and Robert Hearne (eds.) pp. 261-264.

[241] F. Naz, V. Saravanan, Subramanian, loc. Cit. p.19.

[242] Cullet, P., & Gupta, J., loc. Cit. p. 167.

[243] Government of India Ministry of Water Resources, *Draft National Water Policy, 2012*, June 2012.

river waters. Among the private sector hydropower projects are Malana (Himachal Pradesh), Vishnuprayag (Uttaranchal), Baspa (H.P.) and several others. Many of the privatized power projects did not take off as anticipated. Out of those that did, just a handful of projects have been completed, and the rest are languishing or dragging along. The projects that are completed are producing power at a very high cost. Enron (Dabhol) a most well know example was closed down, as the cost of power was very high. In Orissa, the first state to privatise distribution, private companies failed miserably to deliver on the lofty claims, being neither able to increase access, nor cost recovery nor control transmission and distribution losses. Benefits of these privatisation schemes have not been uniform; while the upper crusts of the society afford to make payments, the common citizens simply cannot afford the escalating power tariff. [244]

Industrial water supply

Privatisation of water supply, especially industrial water supply is very much a reality and several cases are at various stages of development and implementation.[245] Some of the earliest schemes have been for industrial water supply. Sheonath project has already been completed and running, Tirrupur - one of the bigger projects, has recently been inaugurated, work is progressing on the Dewas project.[246] Other private hydropower projects like Maheshwar (M.P), Allain Duhangan (H.P.), Karcham Wangtoo (H.P.) continue to face opposition from affected people.

Sheonath project in Chhattisgarh was one of the earliest privatization projects in the water sector in India. The project is meant for supplying water to the industrial estate of Borai, near Durg city in Chhattisgarh. In 2001, Radius Water Limited, a local private company was given a concession to build a dam across Sheonath River, and full rights to the 23.6 km water reservoir to supply water to the industrial estate. The state owned Chhattisgarh State Industrial Development Corporation (CSIDC) signed a contract, under which full payment for 4 million litres per day was guaranteed to the company even if the off-take of water is below this. The irony is that the availability of water at the Radius anicut has been guaranteed by the state government byway of assured releases from an upstream dam. The money to build the project was also

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[244]D. Gaurav, Rehmat, and S. Dharmadhikary, *loc. cit.* p.11.
[245] D. Gaurav, Rehmat, and S. Dharmadhikary, *loc. cit.* p.32.
[246] *Ibid.*

advanced by the CSIDC to Radius. The rationale of privatisation was that the public agency did not have money to build the project. The project continues to supply water – 1 MLD only while receiving payments for 4 MLD. However, due to the protests, a new anicut has been constructed downstream of the company anicut to address the grievances of the people downstream.[247] The life of villagers neighbouring the dam especially five neighbouring villages were adversely affected by the dam project. The worst hit was the fishing and sand mining occupations. Irrigation is another issue as the Mohlai village panchayat, says the company doesn't allow farmers to lift water from the reservoir through pumps during the lean season. This shows that the commodification process has ignored the riparian rights and has simply not taken into account pre-existing rights of users.

Rerouting and diverting of rivers

The massive $200 billion *River Linking Project*, supported in part by the World Bank, is a key to the privatization of water and the enclosure of India's water commons. The River Linking Project is divided into the Himalayan component and the Peninsular component. The Himalayan part consists of 14 river links and the Peninsular component consists of 16 river links. The cost of this project, according to the government's economic survey for 2001–2002, is higher than India's gross domestic savings and more than $12 billion, higher than India's total outstanding external debt. It also raises questions about how this loan would be repaid and what guarantees will be needed to secure it. External borrowing on this scale would also make future governments more vulnerable to foreign financial pressures. In that scenario the only alternative left would be to hand over the project - along with the country's entire water resources to multinational corporations.[248]

The study by the Research Foundation shows that even after escalating drought in 40 villages affecting 75,000 hectares of land in the district of Banda and flood in 200 villages causes devastation in 400,000 hectares of land in Hamirpur district, the link canal will remain without water for four months during summer. This project proposes five dams' altogether, which would displace around 18 villages. All five

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[247] *"Controversial plan to sell water from Sheonath river"*. Retrieved from http://www.indiaenvironmentportal.org.in/content/39490/controversial-plan-to-sell-water-from-sheonath-river/.

[248] V. Shiva**,** *Resisting Water Privatisation, Building Water Democracy.* A paper presented on the occasion of the World Water Forum in Mexico City, March 2006.

dams are proposed to be built in protected forest area submerging 800 hectares of forest. This interlinking and transfer of water will affect not only these animal and unique fish species but also the vegetation, as hundreds of thousands of trees would be cut and livelihood of thousands of fisher folks destroyed. As a mark of resistance to the river linking project, every village in the Ken basin has passed a resolution to declare that water is a commons and that community rights have to be the basis of any water plan or project.

Ground water depletion

Earlier, private markets were tube-well or tanker water supply based water markets, with limited commercial objectives as operators did not have any control over the whole sector and their clout was limited. Recent developments have seen the entry of the corporations; mainly multi-national, foreign corporations and private bottled water suppliers like Coca-Cola and Pepsi in rural areas like Plachimada, Kerala and Mehdiganj, Uttar Pradesh, pumping out water to produce soft drinks for the markets. These are hugely powerful entities, with enormous financial and political muscle. Moreover, they are being backed by international financial agencies like the World Bank, and global powers like the United States Government who in turn wield enormous influence over Governments and policy, and are using this to promote the interests of the new players in the water sector. [249]

According to a recent market business survey (2012-2017) India is among the top ten countries in terms of bottled water consumption. Today Bottled Water is one of the India's fastest growing industrial sectors. Recent estimates show that the industry to grow at a rate of 18% till 2017 and would be soaring to new heights. Indian Bottled Water Industry currently pegged at USD 1454 million in 2011 will jump to reach USD 3925 million by 2017.[250] Parle Bisleri Ltd, PepsiCo and Coca-Cola, respectively are the dominant brands, accounting for a 62% total volume share in 2012.[251]

The Coca-Cola plant in Plachimada commissioned in March 2000 to produce 1,224,000 bottles of Coca-Cola products a day was issued a conditional license to

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[249] D. Gaurav, Rehmat, and S. Dharmadhikary. *loc. cit.* p. 11-12.

[250] Market research retrieved from: http://www.marketresearch.com/IS-Advisors-v3900/BOTTLED-WATER-INDIA-7429118/

[251] Market research retrieved from: http://www.euromonitor.com/bottled-water-in-india/report

install a motor-driven water pump by the Panchayat; however, the company illegally extracted 1.5 million liters of clean water per day causing the water level to deplete rapidly from 150 to 500 feet below the earth's surface. This act threatened traditional drinking-water sources, ponds, water tanks, waterways and canals. 260 bore wells provided by public authorities for drinking water and agriculture facilities have become dry as a result. Coca-Cola was also pumping wastewater into dry bore wells within the company premises. The local movement of women initiative in Plachimada and public outcry against marketization, privatization and corporatization[252] of water and also through litigation, the Kerala high court in a landmark judgment ordered the plant to stop pirating Plachimada's water, forcing its closure on February 17, 2004. The judgement triggered recognition of people's community rights to water in law, also activating movements against the 87 other Coca-Cola and Pepsi plants doing the same. The Plachimada issue is currently in the Indian Supreme Court and the plant remains closed. Following the Plachimada issue several State Governments imposed a ban on Coke and Pepsi following the exposé of high pesticide residues.

The scale of private operations has also undergone an order of magnitude change in the new regimes of privatisation. The operations are now huge and so are the finances associated with them. Privatisation and commercialization has extended to whole sections of rivers or water supplies to whole cities, Multi National Companies are in a position to establish control over whole sections of the sector. In other words, what is happening today should be described not merely as privatisation, but more accurately as corporatization or corporate globalisation.[253]

Privatisation of public water supply

Water is placed in state list in Schedule VII of the Constitution of India; thereby giving each state government the prerogative to establish its own system of water supply.[254] Due to the absence of a common body of governing principles, every state has distinct laws, leading to systems of water supply across states lacking comprehensiveness and compatibility. [255] Water policy is also influenced by the central government through less formal mechanisms, such as formulation of National

[252] As seen in the 'Plachimada Declaration' against commodification of water.
[253] D. Gaurav, Rehmat, and S. Dharmadhikary, *loc. cit*. p. 11-12.
[254] Constitution of India, 1950, Schedule VII, List-II, Entry 17.
[255] K. J. Joy & Suhas Paranjape, 2009. *Water Use: Legal and Institutional Framework* in Water and the Laws in India. p.238.

Water Policies and 'Model Laws'. More importantly, the Centre is able to significantly influence water policy in targeted states by ensuring water supply systems envisaged in schemes such as the Jawaharlal Nehru National Urban Renewal Mission ('JNNURM') are implemented, by the provision of central funds for the same.[256]

The 73rd and 74th Constitutional Amendment Acts of the constitution has transferred the ultimate responsibility of water supply to the elected local bodies, in keeping with the trend of decentralization in recent water sector reforms. While the states lay down the legislative framework for water supply, the management of the system is carried out by the municipalities. Since the ultimate management of the system is in the hands of the local bodies, it is at this level that the private players get involved. However, the level and scale of private involvement differs, as 'privatization' encompasses a spectrum of contractual arrangements between the government and private sector depending on legal and regulatory frameworks and degrees of control with the state.[257]

There is a surge in the privatised urban water supply projects. Municipalities of many cities have employed public-private partnerships (PPPs)[258], where the private player is in charge of operation, management and distribution improvement. Important projects include the Tirupur project (to build, operate and charge for water supply); the Hubli-Dharwad project that aims at 24x7 water supply for residents; the Khandwa project in Hyderabad and the Delhi Jal Board ('DJB') public-private partnership model.

The proposed privatisation in Delhi is currently on hold due to the protests of local people. Design process of privatisation of one of Mumbai's larger wards (K-East, population one million) is on and this is to be a pilot project with extensions to other wards in mind. The ambitious Bangalore privatization project is being carried out with the help of International Finance Corporation (World Bank). Several other cities have also planned privatisation of water supply and tenders have been floated by

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[256] P. Cullet, 2009.*Water Law Poverty And Development- Water Sector Reforms In India*, p.54.

[257] P. Vora, M. Khanna & A. Kurlekar, *Anayzing the implications of water privatization : Reorienting the misplaced debate*. p.149.

[258] When such a partnership is enforced, then the public sector still has ownership of property and financial gain, yet the private company is in charge of certain functions for a very specific time period.

Ludhiana, Aurangabad, and works are on in Gulbarga and other towns in north Karnataka.

There is a push by foreign aid agencies like Department for International Development (DFID), United States Agency for International Development (USAID) for privatization initiatives. The Ministry of Urban Development and Poverty Alleviation (MoUDPA) is also working with *National Institute of Urban Affairs* (NIUA) and USAID for privatisation of urban services in major cities across the country. Under the centrally sponsored Jawaharlal Nehru National Urban Renewal Mission (JNNURM) municipal corporations have to undertake mandatory urban reforms, including possible privatisation of water, to be eligible for central funds.[259]

Commodification of water during Colonial Period- the Naga Hills

The span of history of statutory water law in India is less than 130 years[260] and water legislation was characterised by its unmistakable intent to generate revenue. Colonial law cast social relationships over environment within a framework that institutionalized an imperial interest in environment. The Colonial rule introduced a disjuncture between legal rights of States as set out in treaties, settlements, and other legal instruments and the reality in society as reflected by geographical and historical conditions (as in case of the Naga Hill tribes). Colonial rule introduced conflicting trajectories of economic development, different political structures, and different mixes of traditional and modern technology, and situated those differences within a legal framework that gave the disjuncture its structure.

Colonial policy in the Naga Hills cannot be treated in isolation from, and without reference to, their interest in Assam, Manipur, Burma and mainland China. It appears that it was as a part of their direct interest in this entire region that Naga Hills assumed a strategic importance and it later became a gateway to colonial economic pursuit in this region. Apart from economic interest in the Far East, the natural resources of Assam immensely attracted the British. The commercial prospects in the province to which the Naga Hills was an appendage were promising. The influence of strong colonial economic interests and policy in Assam thus indirectly determined the

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[259] D. Gaurav, Rehmat, and S. Dharmadhikary, *loc. cit*. p. 32.

[260] Water Law in India (ed.) Chhatrapati Singh, ILI (1992). Annexure I of Siddiqui's 'History of Water Laws in India' places the earliest water law enactment at 1864.

decision of the government to extend regular administration in Naga Hills by 1881. Consequently, the British colonial administration in Naga Hills district for the period 1881-1947 was founded not on a defined territorial boundary once for all, but on a growing process of extension throughout the period.

The East India Company in the early nineteenth century saw innumerable problems of commercialization in timber trade though it was a primary motivating factor. According to the 1835 reports of Captain Jenkins, some trade was carried on in sal wood in the forest of western Assam which after cutting required to being transported through the Brahmaputra River during the rainy seasons. These woods were used in these areas for building boat. To save the high cost of sending the boat to Calcutta, Jenkins suggested the formation of an establishment of building boats in Assam to make it a commercially viable venture. Alternately he also advised that a very large and strong raft might be constructed to float the timbers for a long distance. These rafts were to mainly transport the timbers to sail from Assam to Calcutta, through the many water ways and rivers such as Paddah River. Within a decade, in Cachar the revenue prospect of forest as a commercial commodity attained a practicable phase. In the 1860's the revenue in Cachar was derived by establishing a custom ghat on the river at all which all rafts being floated down had to pay duty for each piece of timber. Other species of trees were also marked and put in the market. The expense of floating the timbers from the forest to the Bengal market was about Re 1 anna 4 per score. [261] As the timber trade as well as the duty imposed on the waterways generated revenue for the British, other separate forest divisions were soon proposed to be established in Lower Bengal, Cachar, and Chattagong.[262] Thereafter the government began a methodical survey of the forests of Assam province under the Bengal Forest Department to assess the forest resources. Such a survey of the forest resources of Assam in the post-1850 period resulted in the emergence of a map of the forest resources of Assam which helped in the entry of the natural landscape of Assam into the hands of the professional foresters.[263]

In 1874, Assam was declared a separate chief commissionership and eventually the Department of Forest became an independent wing. Management of the affairs of the

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[261] A. Saikia, *Forest and Ecological History of Assam*, pp-48-50.
[262] Jenkins, *1835, Report on the North East Frontier of India,* p.409.
[263] A. Saikia, *loc. Cit.* p. 51.

forest and revenue earnings began on a war footing. New additions were made into the reserved Forest areas. Also timber from the region found its way into the larger market. However, the subject of poor communications remained a major concern since the early days of the imperial forestry. Creation of new roads became a priority, with arrangements from the Public Works Department and also the tea garden owners; however, such fragmentary investment could not link the majority of the forested tracts till the twentieth century. Reserved forests remained mainly inaccessible even for private timber traders especially during the rainy season. The timber trade so far had survived through the use of pre-imperial and traditional method of river transportation. Bamboo rafts, known as *meleng,* were used by timber traders for transportation against powerful river courses in central Assam hill forests and the southern valley. River routes trade also used boats, known as *bajras* and *panshis*, owned mostly by people from north India, which were used in the timber trade. Traders wanted to bring their timbers to the market as quickly as possible and therefore often forced boatmen to overload the boats. The overloaded boats, often blocked routes as it could not get pass the difficult river courses. Moreover, timber brought through the river had to halt in Dubri depot for nine months, as the river Brahmaputra was not safe for rafting till end of September. [264] To minimize transport difficulties the traders resorted to cutting long logs into short lengths suited for making boats. These logs were then rolled over long distances of temporary tracts to bring them to the river.[265]

To overcome these hurdles the department gradually adopted a series of river rules known as Assam River Rules effective from 1880. These rules included the levying of fees for the pass at Dhubri.[266] This pass was done away with in 1882, due to the protests of the traders. However, with the introduction of steamers in the Brahmaputra, the traditional boats were rapidly replaced. The Colonial government's increasing control over waterways in Assam leading to commodification was directly connected to the Assam Forest Regulation, which allowed for the establishment of revenue stations along the riverside to monitor the movement of forest trade and to collect levy from these. In the next few years, river based revenue stations came up in,

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[264] *Ibid.* p. 155.
[265] Assam Forest Department, Annual Report, 1898-99, para.50.
[266] Assam Forest Department, Annual Report, 1881-82, para.51.

initially in Goalpara, and then in Kamrup and Nowgaon, to regulate the traffic in the forest produce.[267]

The Forest Acts and Regulations adopted and framed during 1865 and 1891, not only defined the rights and privileges of the Forest Department but it also gave it an absolute status in matters of forest resources including water resource. The Government also started several kinds of interventions, including laws for the protection and maintenance of embankments, regulation of ferries, as well as fisheries.[268]

The Indian Forest India Act 1865 set up a system of forest guards touring tribal areas to register reserved forests and to prevent the unauthorized cutting of trees. Apart from this, tribal's were discouraged from hunting and their use of other forest products were severely restricted although the peasantry's customary use of forests was not random but governed and regulated by community sanctions. This took away the liberty of the people who could no longer venture particularly into the Reserved Forests (which had hitherto been freely open for them to use since times immemorial) to fish, hunt or make use of resources they needed for their survival. The Indian Forest India Act, 1878 gave the Government a more effective control over the forests. By now, individual forest officers were authorized to prosecute those who violated the forest rules. The new forest rules defined the parameters of elephant hunting and poisoning of water. As per regulations of The Assam Forest Regulation, 1891 Waterbodies came under renewed pressure.[269] In fact, the experiment of 1891 proved to be a successful one as the regulation remained in force with little change till the Independence.

The case of Assam shows the indivisible connection constructed by the colonial government between commercial exploitation of forest resources namely timber trade and the need to maintain control over the waterways for its transportation. Revenue was generated from not just from the colossal exploitation of timber but also through use of forest resources. No wide scale regulation over water was seen in the province

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[267] Files Forest -A. (Assam), No.1. Finance, ASP nos 1-6, June, 1908.

[268] The Indian Fisheries Act 1897 - establishes two sets of penal offences whereby the government can sue any person who uses dynamite or other explosive substance in any way (whether coastal or inland) with intent to catch or destroy any fish or poisonous fish in order to kill.

[269] See Annexure IX

as those imposed in North West India in the irrigation sector. However, it is very apparent that administrative control over the province and the forests in varying degrees through the above mentioned regulations, by default, led to control over water resources.

As mentioned earlier, the absolute nature of colonial rule affected the Naga Hill tribes, they discovered that application of English principles of prescription and prescriptive rights to an alien social and environmental context did little to their promises of reformative polity and a cohesive society and resources. Although there was no single cohesive water statute or policy imposed as such on the Naga Hills, the forest policies such as 'The Government Forests Act, 1865', 'The Indian Forest Act of 1878', The Indian Forest Act of 1927, sought to strengthen the state's control over forest areas and water resources through the regulation and in some cases extinction of customary rights.

Before 1865, forest dwellers were completely free to exploit the forest wealth. Then, on 3 August 1865, the British rulers, on the basis of the report of the then-superintendent of forests in Burma, issued a memorandum providing guidelines restricting the rights of forest dwellers to conserve the forests.[270] The reservation of forests was a very, serious blow to the Naga tribesman. At every turn the Forest Laws cut across his life, limiting, frustrating and destroying his self confidence. Such Acts allowed the state to expand the commercial exploitation of the forest resources while putting curbs on local use for subsistence. The official correspondence in following year's show how maps were drawn to demarcate what should now come as "reserved Forests" within the Naga Hills by Indian Forest Act 1878. Outmost care was taken to leave sufficient forest to supply the requirement of villagers of "wild or uncivilized tribes" which would otherwise give rise to complications. Specifications in the Act included the control over use of streams and canals passing through and coming from government forests, prohibition of poisoning of or otherwise interfering with streams and waters in government forests[271]: imposition of fines and penalties according to the Colonial Code of Criminal Procedure.

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[270] The changing life of the tribals vis-à-vis the imposition of forest laws has been mentioned in JoshiGopa, *Forest Policy and Tribal Development*, CSQ Issue: 13.2 (Summer 1989) India: Cultures in Crisis.

[271] Section 25, Clause (1) of the Indian Forest Act, 1879.

The Regulation of 1891 also continued the exploitation of natural resources in previously traditional land holdings, now under Reserved Forest category. All traditional rights to 'water course or to use water' was taken as extinguished further with this Act. Settlement of issues by the colonial government overriding traditional laws and practices began to increase in volume and coverage in successive years.

In the Tour Diary of A.W.Davis, Deputy Commissioner Naga Hills, 1891-97, he makes mention of his trips to various parts of the Naga Hills going from village to village over traditional areas of different tribes and settling disputes and imposing penalties where required. His intervention and judgment over even petty disputes is seen in instances like the Chengaki village fishing dispute with Nungtang whereby the two villages claimed the same stretch of the stream for fishing.[272]

He played a pivotal role in sanctioning of a new water channel in Viswema village[273] which was within traditional boundaries of the village and in the conflict case over usage of water between Jakhama and Viswema village. He awarded the settlement in the case of Viswema new water-channel being damaged by Jakhama villagers.[274] Intervention was seen even in cases such as of Khuzakunomi verses Terhephema village whereby the Khuzakunomi claimed the right to half of the water of a certain channel which was challenged by the Terhephema.[275] On his way, the Emilomi village was fined for creating fences across a road[276] in actuality within their own traditional land, but taken as under reserved land by the British.

Further, intervention is seen during the tours of A.E.Woods, Deputy Commissioner Naga Hills, who met swarms of litigants in Satazuma village area, all over cases of water disputes;[277] which originally had been within purview of their own village administration. Such issues had usually been amicably solved in the past though taking of oaths. Rights were curtailed in the Lotha area with restrictions imposed on their method of damming for fishing[278]; and imposition of duties for fishery rights in

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[272] Tour Diary of A.W. Davis, Deputy Commissioner Naga Hills, 1891-97. (Secret Department).
[273] *Ibid.*
[274] *Ibid.*
[275] *Ibid.*
[276] *Ibid.*
[277] Tour Diary of A.E.Woods, Deputy Commissioner Naga Hills, 1901. (Secret Department).
[278] Tour Diary of A.E.Woods, Deputy Commissioner Naga Hills, 1899. (Secret Department).

the Doyang[279] and as also were the case in the Dhansiri Rivers. The colonial administration further saw the completion of construction of an iron suspension bridge over the Dikhu,[280] took assessment of suspension bridge build over Killeki River[281]; imposed restrictions on Lhosiapu village's use of fishing nets[282] and punished Solhupu village for planting *panjies.*[283]

An escalation of colonial intervention over traditional customs and rights was seen in the example of the prohibition imposed on cultivation of water field on Kamima and kipfoma khels of Kegwema village, with their land dispossessed permanently as mark punishment for rioting against the administation[284]; this (and in countless other land settlement cases) shows not just interference in the mode of cultivation as practiced by the Angami tribe but also the permanent dispossession of ancestral lands; thereby indicating the complete authority of Colonial Government who had displaced the customary laws of the Naga tribes.

The quote by McCabe that, 'all disputes regarding rights in land, aqueducts, and all questions of inheritance, I decide as far as the general principles of equity permit in accordance with Naga Laws and customs"[285] was not the true indication of the ground reality faced by the Naga tribes who were subjected to acceptance of an alien rule often under coercion and intimidation. While the tribes were allowed some sort of liberty to practice their traditions and customs, the claims of the communities were not allowed to override the colonial interests that in no event could the Naga tribes use the forest wealth at the cost of wider colonial interests. The inhabitants of the Naga Hills did not take too kindly to the new impositions of forest laws as the settlement of cases by the imposition of codified law superseding the traditional authority held by the chiefs and elders of the Naga tribes supplanted the traditional practices of the Naga tribes. This denial of village forest rights often provoked

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[279] Judicial Department, Resolution on the Naga Hills General Administrative Report for 1883-84.
[280] General Administrative Report for 1897-98 (General).
[281] Tour Diary of A.E.Woods, Deputy Commissioner Naga Hills, 1900. (Secret Department).
[282] *Ibid.*
[283] *Ibid.*
[284] Tour Diary of A.E.Woods, Deputy Commissioner Naga Hills, 1901. (Secret Department).
[285] As seen in a quote by McCabe, the Deputy Commissioner of the Naga Hills District; Judicial Department, Resolution on the Naga Hills General Administrative Report for 1884-85.

rebellions. Even where discontent did not manifest itself in open rebellion, it was expressed through arson, noncompliance, and breaches of the forest law.

Commodification of water in Post-Colonial Period-Nagaland

Even in the post colonial era, Nagaland had to undergo drastic changes made a compulsion by decisions taken by a post independence government in India. The true nature of statute laws codified and imposed and prolonged dependency on this capricious state device used right from the colonial era and the progressive e*mpowerment* of officialdom, lead to the depletion of rights of an individual making intrusive control by the state of the greatest significance. For a long time, there was a general feeling among the Naga tribes that all the arguments in favor of preservation and development of forests and its resources were intended for exploitation and interference in their traditional practices, rather than to aid them.

The transition from community ownership to private ownership/ privatization became prominent after Nagaland became a State in 1963. After Statehood, Naga villagers started to sell their land. The money economy entrenched itself in Naga society and as the gap between the rich and the poor widened exorbitant prices were offered to communities to sell their lands. Population growth in villages also played a role in the clamour for land or water ownership leading to conflicts at all levels, whether, between villages, clans or individuals. At the departure of the colonial government, some land ownership issues were left unsettled. There were areas of "no man's land" in the Naga society with both the post colonial government and Naga villagers claiming the land or water source as under their jurisdiction. These contentious issues have yet been left unsettled, with the Naga villagers having the general view that their land or water sources have been 'occupied' by an alien government.

From 1961 to 1963, forests of Nagaland were in charge of the Chief Forest Officer. After the formation of the Nagaland State, Nagaland Forest Act, 1968 was passed which entitles the Government to carve out forest reserves on the basis of awarding compensation to the holders or authorities who own the forests, after assessing the existence, nature and extent of any rights claimed by them. The state government is empowered to constitute, reserve, protect, village forests and demarcate them. At present, the reserved forests, protected forests, Wildlife sanctuaries and National parks are under the control and management of the Forest Department. The Village

forests and water resources are under the control and management of the land owners according to 371A of the constitution, which granted a special status to the state of Nagaland enabling the people to be protected and governed by Naga customary law and procedure, in matters relating to religious or social practices of the Nagas, administration of civil and criminal justice involving decisions according to Naga customary law, and ownership and transfer of land and its resources. Forest and water management in Nagaland is therefore a very unique one due to the land ownership pattern. Under the traditional system of land ownership, the land and water resources is owned either by the village community as a whole or by a clan or clans within the village or by individuals.

YEAR	OWNERSHIP	FOREST AREA IN HECTARS	% OF TOTAL FOREST AREA
1971[286]	State	82,472	28.47
	Private	2,07,198	71.53
2001-02[287]	State	1,00,823	11.7
	Private	7,62,107	88.3

The probable reason for the decrease in state government share of the forest reserves within a 30 years' time span from 28.47% (1971) to 11.7% (2001) are taken to be inaccuracies in survey records of both government and private forests; till today, according to a forest department report there are no clear surveyed records available on private forests of the state. [288] Other reasons for such decline are seen in cases of 'reclaiming' of traditional lands from the government, often leading to encroachment in reserved forests.

An example of such was seen in the Morung Express, a leading newspaper in Nagaland, which reported in a news item that, 'after purging Intanki National Park from encroachments, the Nagaland Forest department is intent on removing another thorn in the flesh - "illegal hutments" mushrooming along boundary walls of Rangapahar Zoological Park. Rangapahar reserved forest originally boasted of 800

[286] Nagaland Forest 1972, a handbook published by Nagaland Forest Department on occasion of 25th Independence Day. p.7.
[287] Annual Administrative Report, 2001-2001, Department of Forest, Environment & Ecology and Wildlife, Nagaland.
[288] Annual Administrative Report, 1982-84, Forest Department. p.8.

hectares of lush forest and vegetation, an ideal wild life habitat. Rampant encroachment of the forest over the years has reduced the forest (now converted to a zoological park) to its present mere 176 hectares. Despite evictions done in the past, the alleged encroachers have on numerous occasions taken recourse in the lengthy route of legal proceedings to frustrate the government's eviction drives. The latest legal battle between the State Government as petitioner and Thilixu 'B' village as respondents is still pending in the high court.'[289]

The water situation in Nagaland is both unique and complex as though a variety of policies, legislation and institutional initiatives have formulated by the government to better manage its resources, still resource constraints have become increasingly apparent and water management made complex due to existing land ownership rights, directly affecting water resource ownership and management.

Due to the application of Article 371 a unique division of rights exist between the State Government and the people of Nagaland. Water being a state subject, although the states have been empowered to enact laws or frame policies related to water, Nagaland has yet to set up organizations/bodies for planning and allocating water for various purposes or to implement a water policy; moreover, water management in Nagaland is made more difficult because the water resources are often situated within the privately owned land, belonging to villagers either collectively or individually.
In Nagaland State the concept of water privatization was unknown. Water was considered a "public and common" good. Traditional ponds, springs, rivers, had been in use by the various Naga tribes, very often with the involvement of the different *khels* of the village in management and upkeep of the water sources. The water sources were privately owned by the villages, *khels*, clans or individuals, and as a precious commodity, all water sources were jealously guarded by the different villages and tribes, however, there was not a single instance where water was sold as commodity for a price. Even in case of water depletion in a traditional spring or pond of a particular *khel* in a village, members of the said *khel* were free to fetch water from another *khel*.

[289] The Morung Express, *Forest dept. intent on curbing 'encroachment',* 26th April, 2012.

After attainment of statehood in 1963, the Public Works Department (PWD) played a pivotal role implementing water supply schemes in both rural and urban areas in Nagaland. By 1966-67, 18 schemes were completed under PWD, including supply of water through piped lines to nine villages. In the following years Dimapur, Kohima and Mokokchung water supply were completed, besides augmentation of water supply to Tuensang, Mon and Phek towns.[290]

Unlike other states of India, the cultivation method of Nagaland is not water intensive as the traditional shifting cultivation (*jhum* cultivation) does not require irrigation canals. This method had been in practice since the pre-colonial era as it was most appropriate according to climatic conditions and physical terrain of the Naga country. Following statehood, records show that the concerted efforts of both the forest as well as the agriculture department could not reduce this mode of cultivation and therefore the only irrigation project was minor projects where a number of pumping sets were supplied to farmers at foothill areas for lift irrigation.[291]

Upto 1966-67, only 7 towns were electrified by the use of diesel generating units; later 24 additional towns were electrified, 11 by diesel generating units and 13 towns by power purchased from the Assam State Electricity Board. Upto the Fourth Plan period, hydro-electric projects were still in the investigative stage. [292] In recent years, it is the Central Policy on power sharing, that Nagaland is getting power at cheaper rate from Central projects like Loktak, Kopili, Ranganadi and other hydro and thermal plants in the region since the State has a limited hydro power potential. One such potential, namely the Tizu-Zungki Hydro Electric Project with a capacity of 150 MW which was conceived and initiated for action in early 1980s, still remains cold. The National Economic Policy was declared in 1991 empowering liberalization and private participation in infrastructure development in economic ventures. The Electricity Act was amended in 2003 and in this Act, besides many important reforms[293] has opened up the Power Sector for participation of Private Developers in

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[290] Nagaland 1963-1969. A handbook published by the Directorate of Information and Publicity, Nagaland.p.45.
[291] *Ibid.* p.13.
[292] *Ibid*.p.29.

[293] Such as the creation of Central Electricity Regulatory Commission (CERC) / State Electricity Regulatory Commission (SERC) etc.

hydro power generation and transmission utilities. However, in Nagaland privatisation has not been realized in any hydro power projects as yet. Even the ongoing Dikhu Hydro Project, is reportedly facing a number of roadblocks even before ground breaking on account of some dissensions with a private developer, and also with the landowners[294]

In later years like other states, Nagaland government also started to plan, design and execute water supply schemes and continued to operate through their State Public Health Engineering Department (PHED). The latest statistics (as on 1.4.2013) shows that the department is providing water supply facility to a total of 1460 habitations in Nagaland in rural areas.[295] With supply also in urban areas, the yearly water tax revenue realizations in the year 2012-13 (upto January 2013) stood at 131.54 lakhs.[296] Although, the PHED has made much progress in providing piped water supply to most parts of Nagaland, because of logistical problems and also affordability factor, many parts are still outside its purview.

Due to an incremental growth of population in Nagaland placed at 1,98,0602 according to the 2011 census, there is water stress in many parts of Nagaland and water supply and increasing recurrent power cuts has become one of the most vital issues that need to be to be addressed. However, it is clearly seen from this research work undertaken that the government alone is not able to provide necessary expansion of services to a growing population. Whether in the rural or urban set up the governmental agency PHED has not been able to provide or implement uniform service all over Nagaland and target levels of benefits has not been achieved uniformly all over Nagaland. In such a scenario, the Nagaland government still continues to struggle find a common platform with the landowners to obtain sharing rights of water resources.

The term "water privatization" officially refers to the process of transferring legal public sector "responsibility" of water resources (provision of water, sanitation) to the private sector which then is in charge of managing, producing, and dispersing the

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[294] I. Lanu Toy, *'Power Development in the State'*, A paper presented in the Seminar on Power Sector Reform in Nagaland organised by the NERC, Kohima.

[295] Annual Administrative Report 2012-2013, Public Health and Engineering Department, Nagaland. p.6.

[296] Ibid. p. 15.

water as an economic good. The private sector of a country's economy is the sector that is composed of and "operated" by private groups or individuals for reasons of profits and cannot be controlled by the state. The type of privatization/ commodification seen in Nagaland is the participation of private operators in an unorganized market where most of these operators do not own the water source; but their capital investment though minimal gives high profits. What have transpired in recent years are also the visible public-private partnerships (PPPs) where the private player is in charge of operation, management and distribution improvement. One such case is the Dzükou Bulk Water Supply Scheme for Kohima under the North East Region Capital Cities Development Investment Program, through a loan acquired by the Central Government from the Asian Development Bank (ADB). The proposed funding is in the ratio of 70:30 between ADB and the Government of India as according to the feasibility report of the scheme, May 2013. The Urban Development Department (UDD) is the executing Agency (EA); implementing agency is the State Investment Program Management and Implementation Unit (SIPMIU). However, a private enterprise M/s CDM Smith Inc. (CDMSI) has been appointed as the design, Construction supervision & Management Consultant (DSMC) for Kohima. Other participants in the water sector are basically unregulated private entrepreneurs, either land owners themselves or those purchasing water from the source directly from the land owners and selling it at a superior rate to the public.

Owing to water scarcity especially during the peak of the lean season, many existing consumers of the PHED water supply are withdrawing their connections. Such customers are shifting to the supply through PVC[297] pipe lines of the private operators who provide a more reliable supply at regular intervals except during the peak of the lean season. The PVC pipe lines commonly used by private operators have the advantage of navigating through the various localities in over head space sometimes even balanced on telephone line poles, as seen in different localities especially in Kohima town. The monthly charges levied for each consumer ranges from Rs. 1000 to 1,500. Apart from this, additional investments have to be made by the consumer by paying 6000-10,000 rupees for installation of PVC or other pipeline connections from the water source to the consumers' residences.

[297] Poly vinyl chloride pipes, a cheaper and more convenient option than the DIP: Ductile Iron Pipe.

Another source of commercialization, are the private water vendors who supply water to consumers at a very steep rate. Currently, in Mumbai, a private tanker carrying 10,000 litres of water costs between Rs. 800 and Rs. 1300 and around 2,500 private water tankers with a capacity of 10,000 litres ply in the city. [298] In cities like Pune, the Pune Municipal Corporation took the initiative to regulate prices by fixing prices of water tankers; that the 10,000 litres tanker should provide service at Rs. 600, 15,000 litres at Rs. 700 and 20,000 litre at Rs. 800 per trip.[299] In the case of Bangalore, 500 water tankers in the city are owned by around 200 private water tanker owners. Private operators supply through tankers for R.s 250-300 for a full tanker of water, about 4,000 litres, in 2013; has an increase to Rs. 600 recently. Private suppliers have jacked up rates because the demand is high. An operator has mentioned that "If the destination is close by, we charge Rs. 350-400. As the distance increases, the rate goes up." [300] In comparison, one such water tanker driver in Kohima had mentioned to this researcher through interview that there are two kinds of vehicles that supply water; a pick-up truck fitted with plastic water tanks and water tankers. They pay the water source owners (usually landowners having perennial water source flowing though their land) a nominal sum of Rs. 70 for a pick-up truck carrying upto 2000 litres and Rs. 150 for a tanker with 5000-7000 litres capacity. The water is then sold in Kohima for Rs. 500-Rs. 2000 for 1000 litres. In localities in the northern part of Kohima (Lower Bayavu hill and Kruoliezou area) where private piped water supply is not available due to severe water scarcity in the area, private tankers are doing brisk business charging a rate as high as Rs. 2000 per 1000 litres. Consumers staying in rented houses, residences without PHED pipeline connection, hotels and other business establishments are seen as the main buyers from such operators.

Another segment of this water business is pushcart water vendors commonly known as ‘paniwallas’. In Bangalore city for instance, water tankers or pushcart water vendors would sell a pot of water at the cost of costs Rs. 3-5.[301] In Nagaland ‘paniwallas’ consist mainly of migrant workers from North India, who work as daily

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[298] R. Subramanian, *‘Rates of private water tankers may rise sharply’*, in the Hindustan Times, Mumbai, August 01, 2012.
[299] The Indian Express, *PMC fixes rates for water tankers*, Express News Service : Pune, July 07 2009.
[300] B. R. Rohith, *On Bangalore outskirts, water price doubles*, The Times of India, Bangalore, April 24, 2014.
[301] *Ibid.*

wage labourers in the day time and sell water in the early mornings and late evenings to augment their income. The rate commonly charged for a bucket of water is Rs. 30 in Kohima town.

There is no mechanism to monitor the quality of the untreated water supplied by these vendors and in addition there is no price regulation by any agency for fixing the rate of water tankers, pipe water suppliers, or the 'paniwallas'. In fact, most of the operators are individual players in the very lucrative private water business which is flourishing despite the soaring rate of water all over Nagaland. They are not necessarily owners of the water sources; they rather purchase the water according to their own capacity to be sold to the public at an enhanced rate later.

A relatively new entrant to the water commercialization business in Nagaland is the packaged bottled water business. The bottled water industry is estimated to be a whopping Rs 1,000 crore business (Business Today, 2001). It has grown at a rate of 40-50% annually over the past four years or so. Keeping in mind consumer interest and public health, the Union Ministry of Health and Family Welfare issued a notification on September 29, 2000 for all packaged water manufacturers and traders, according to which ISI certification from Bureau of Indian Standards was made mandatory. According to the Bureau of Indian Standards, there are 1,200 bottled water factories all over India (of which 600 are in the state of Tamil Nadu) and over 100 brands are battling over the bottled water market. By the mid-1990s, many more players had entered the market, and competition was stiff: Coca-Cola's Kinley, Pepsi's Aquafina, Nestle's Pure Life and a host of smaller companies. By 2002**,** Kinley overtook Bisleri, with a market share of 35.1% compared to Bisleri's 34.4%. As globalisation opens up opportunities for private players, investing in water and/or manipulating water scarcity makes increasingly good business sense for multinational corporations, entrepreneurs, individuals, etc. Most of the brands compete in a very narrow market segment, comprising predominantly the travel, tourism, caterers, restaurants, and hospital segments. Separate standards have been formulated for packaged drinking water (IS14543: 98) and for packaged natural mineral water (IS 13428:98). [302]

[302] Analysis of pesticide residues in bottled water [Delhi region] Centre For Science and Environment, CSE/PML-6/2002.

A number of bottling plants have been set up in Nagaland, in the Dimapur vicinity with brand names such as 'Viva', manufactured by Viva Beverages, and another new entrant under the brand name 'Aiko', based on Canadian technology, is the bottling plant launched by Inoto Beverages, with 300 ml, 1 litre, 1.5 litre and 5 liters bottles. The plant processes and bottles about 9,000 bottles of drinking water daily, which are then distributed to both Dimapur and the Nagaland capital Kohima, as well as Imphal, Manipur.[303] Other brands include Zion, Diamond, Delight, Monte, Oasis, Dzukhü, etc.

To show the reach and extent of commercialization of water in Nagaland, four case studies have been taken up for this research work namely covering the Mon District, Kohima District, Mokokchung District and the Wokha District. Data taken from the four districts is pertinent to prove and substantiate to the argument that commodification of water is very prevalent in Nagaland. In such a scenario, although water is a basic right according to the Fundamental Rights of the constitution, the common people are compelled to purchase even drinking water from unregulated private water suppliers at a very high rate, causing them much inconvenience and draining a large share of their income on water. Again due to the traditional land ownership system the Government and the landowners are often at a deadlock situation unable to formulate a plan of how share, or regulate the supply of water. Commodification of water resources in Nagaland are therefore on an all time high, leading to contestation of water between various landowners, whether villages, communities, clans, or individuals. With the landowners, villagers, or *khels* all claiming compensatory benefits for usage of water from their area, the Nagaland State PHED in return issued a notification that there shall be no claim to any appointment to Government Service basing on water source and other land ownership rights. [304]

[303] The Nagaland Post, *Aiko mineral water launched,* Dimapur, 16 August 2010.
[304] Annexure XI

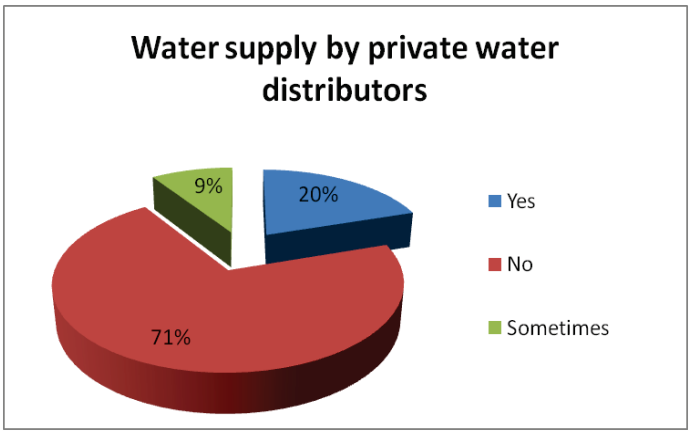


Chart 1

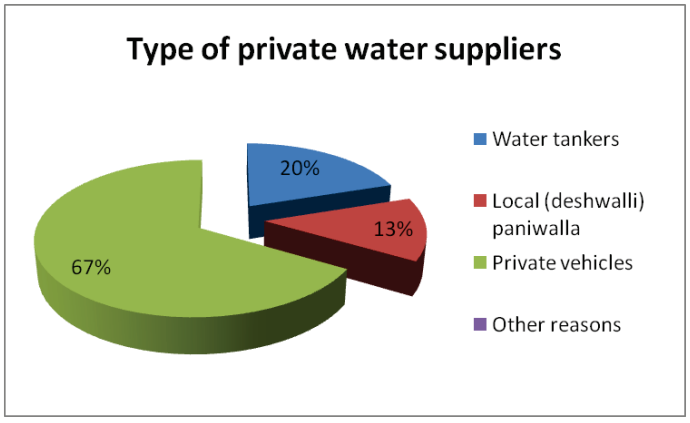


Chart 1.1

The responses from Mon district are shown in ***chart 1***; 71% said that they did not purchase water from private water suppliers; 20% replied 'yes' and 9% replied 'sometimes' indicating purchase of water from private water suppliers. Those that were dependent on private water suppliers, when asked as to what kind or type of suppliers sold water to them, 67% replied 'private vehicles' such as pick up vans, jeeps, etc., 20% 'water tankers; 13% said local 'paniwalla' a kind of pushcart water vendor, as seen in ***chart 1.1.*** Data from Mon district indicates that 71% of respondents were not dependent on private water suppliers and did not purchase water from them. Only 20% purchased from private water suppliers. 67% of private vehicles consisting of smaller pick up vans, jeeps were the choice of the respondents' when buying water from private suppliers.

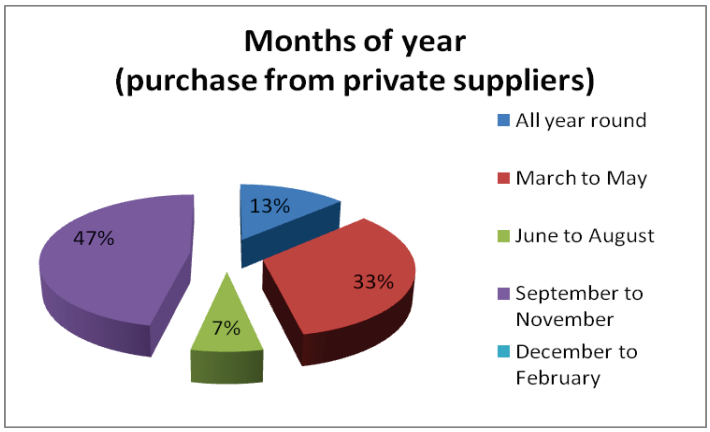


Chart 2

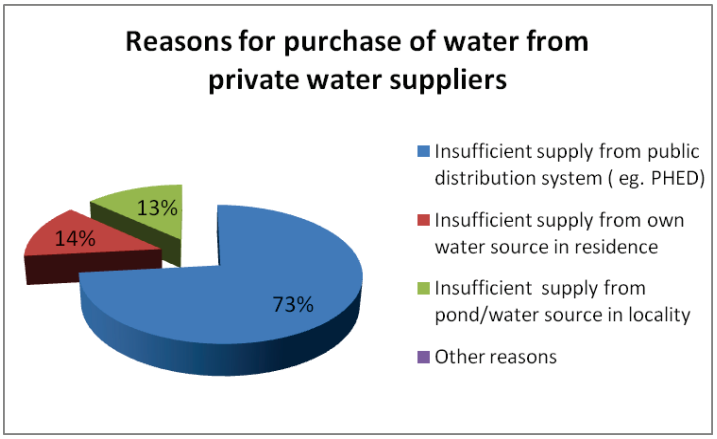


Chart 3

47% respondents who purchased water from private water suppliers said that they purchased it from September to February, 33% March-May, 13% 'all year round' and 7% June-August as seen in ***chart 2***. Data in ***chart 3*** shows 73% respondents' who gave the main reason for purchase of water as 'insufficient supply from public distribution system (e.g. PHED)'; 14% replied 'insufficient supply from own water source in residence'; and 13% 'insufficient supply from pond/ water source in locality'. The above responses indicate that water was generally purchased all year round but 47% made purchases during September to February and 33% March-May. The main reason for purchase from private suppliers was indicated by 73% of respondents as 'insufficient supply from public distribution system (e.g. PHED)'.

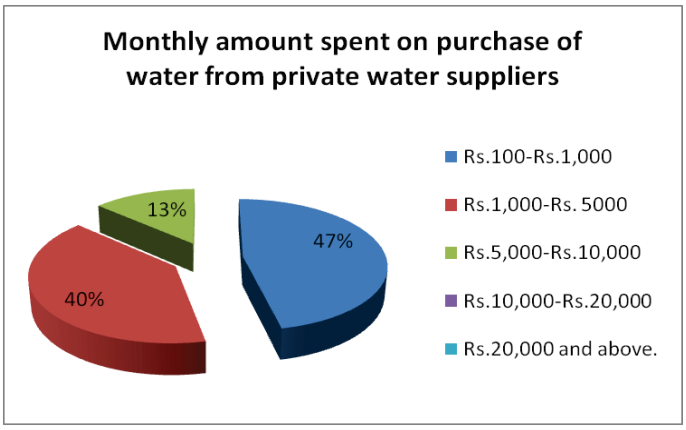


Chart 4

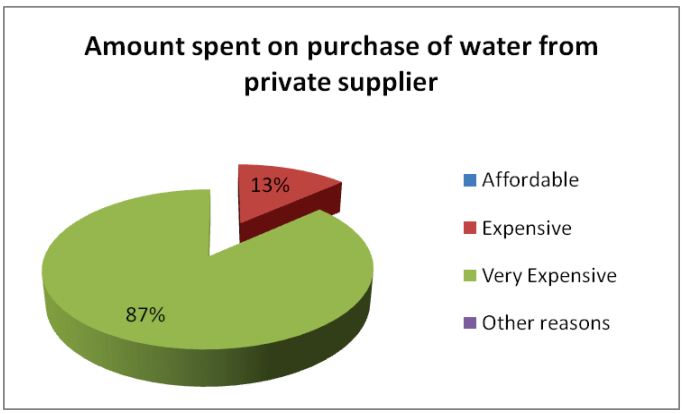


Chart 5

The monthly amount spent on purchase of water from private suppliers are seen in ***chart 4***, 47% spent Rs. 100-1000, 40% Rs. 1000- 5000, and 13% Rs. 5000- 10,000. When the respondents were asked their opinion on the amount of money spent on water, 13 % said it was 'expensive', and 88% ' very expensive' as in ***chart 5.*** The above responses show that a majority 47% spent Rs.100-Rs.1000 and 40% spent Rs. 1000-Rs.5,000 on purchase of water from private suppliers. An overwhelming 87% majority respondents' said the amount of money charged/fixed by the private water suppliers was 'very expensive'. There was no single respondent from Mon district said that the amount charged by private water suppliers was affordable.

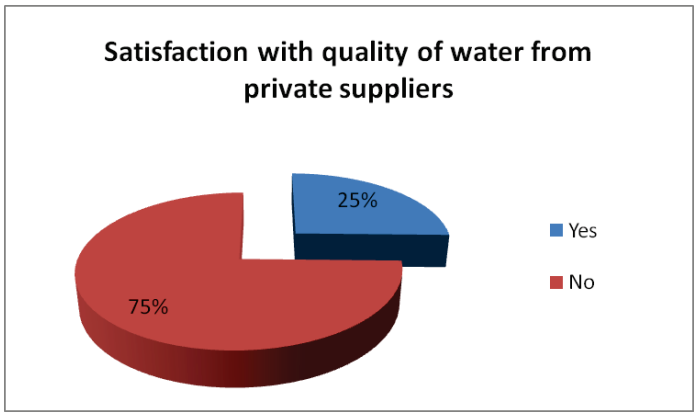


Chart 6

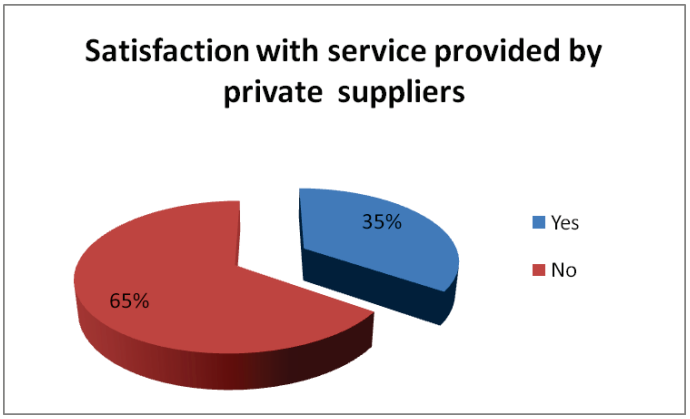


Chart 7

Respondents from Mon district were asked if they were satisfied with the quality of water provided by private water suppliers, and 75% replied 'no' and 25% replied 'yes' as seen in ***chart 6.*** Responses were given (***chart 7***) to the question of satisfaction with service provided by the private suppliers; 65% replied 'no' indicating that they were not satisfied by any means and 35% replied 'yes' to the same question. The above data gathered from Mon district shows that generally the respondents were not satisfied with both the quality of water and quality of service provided by the private water suppliers; 75% and 65% responses respectively, proves this very fact.

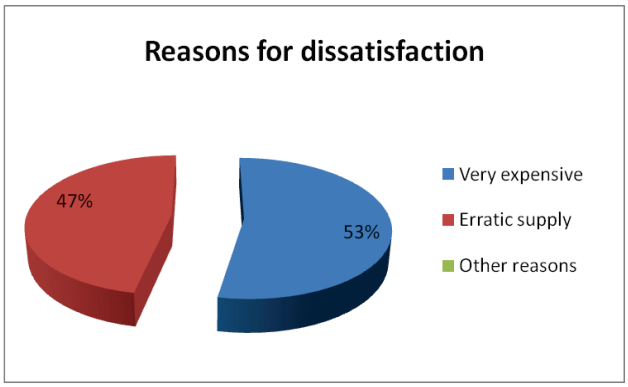


Chart 7.1.

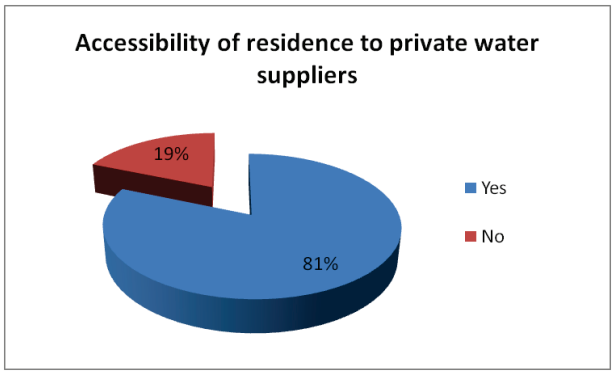


Chart 8

Chart 7.1 shows responses to the question of reasons for dissatisfaction with private water suppliers; 53% stated that they were dissatisfied because it was 'very expensive' and 47% said that it was because of 'erratic supply' of water; no other reasons were mentioned. In order to assess the reach of the private water suppliers, a question was raised to ask if the residences of the respondents' were accessible to private water suppliers; ***chart 8*** shows the responses whereby 81% replied 'yes' and 19% 'no'. The above data indicates that cost of water was a factor of dissatisfaction for 53% and erratic supply for 47% of the respondents. Also only small 19 % respondents' residences were in accessible to private water suppliers due to various reasons stated in the next chart.

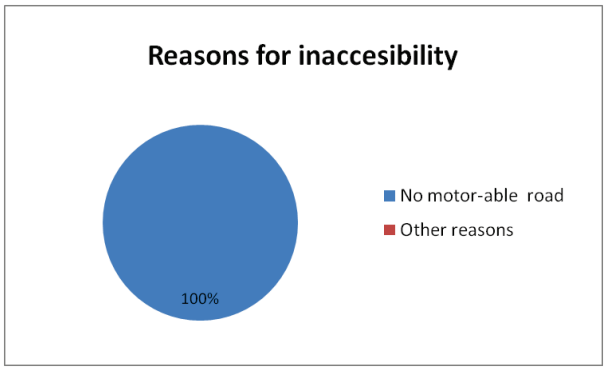


Chart 8.1.

The respondents gave various reasons for inaccesiblity of residence to private water suppliers, as seen in ***chart 8.1***. Out of the total respondents 100% said 'no motorable road' and no 'other reasons' were offered. The data gathered from the responses in Mon district shows that the main reason for inaccesibility of private water suppliers to the houses of the respondents' was lack of motorable road.

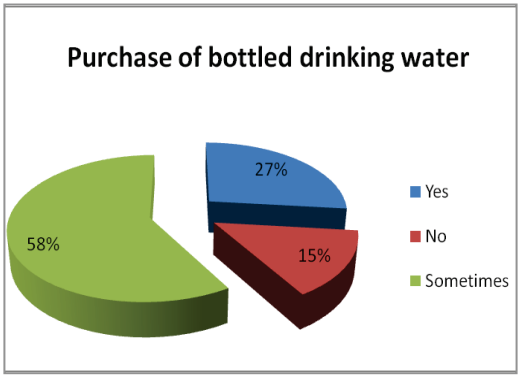


Chart 9

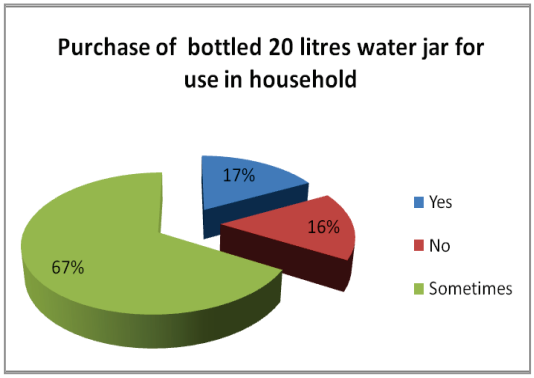


Chart 10

Several questions were asked in order to assess the extent of commodification (water sold as a commodity) of water, the responses of which are given below. ***chart 9*** shows responses to the question of whether bottled drinking water was purchased by the respondents in Mon district; 58% replied 'sometimes', 27% 'yes', and 27% replied 'no'. ***Chart 10*** shows responses to the question of whether 20 litres water jar was purchased; 67% replied 'sometimes' 17% 'no' and 16% 'yes'. The responses stated above show that only 15% said that they did not make purchase of the item. However, in general bottled drinking water does not seem to have been very commonly used as 58% said they purchased it only sometimes. Also 87% said 20 liters water jar was purchased only sometimes.

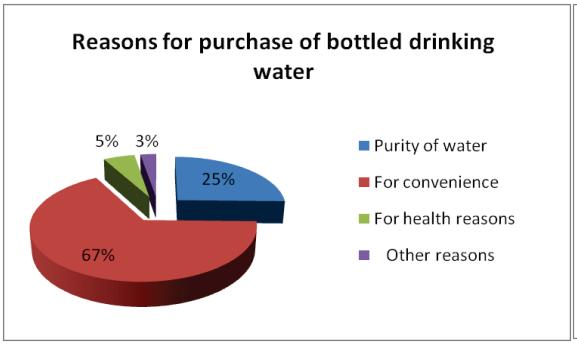


Chart 11

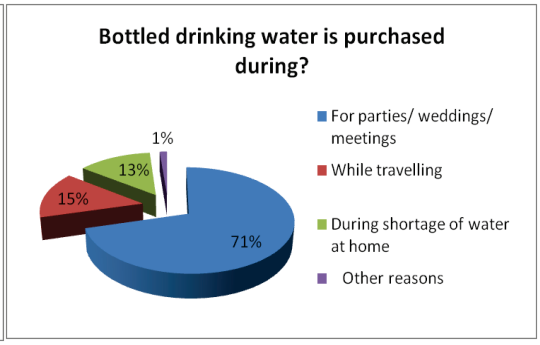


Chart 12

Chart 11 shows responses to the question for reasons why bottled drinking water was purchased; 67% replied 'for convenience' 25% 'purity of water', 5% 'for health reasons' and 3% 'other reasons', which included ' for travelling only', 'used for special occasions'. Purchases for the above mentioned items were for the sake of convenience for most (67%); although other reasons were also mentioned. The question was raised as when bottled drinking water was purchased as seen in ***chart 12***; 71% replied 'for parties/ weddings/ meetings' 15% 'while travelling', 13% 'during shortage of water at home' and 1% 'other reasons' which included 'buy for daily usage'.

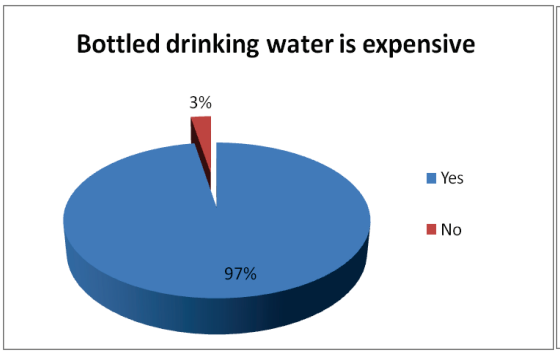


Chart 13

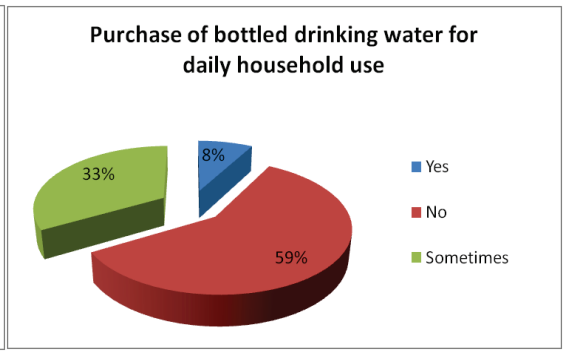


Chart 14

When asked if bottled drinking water was expensive, 97% replied 'yes' and 3% 'no' as seen in ***chart 13.*** When the respondents were asked if they purchased bottled drinking water for household use on a daily basis, as seen in ***chart 14***, 59% replied 'no', 33% 'sometimes' and 8% 'yes'. The above responses show that purchase of bottled drinking water was usually reserved for particular occasions and was not used on a daily basis. The reason for the sporadic purchases may have been the cost factor as 97% considered packaged water as an expensive commodity. It was seen that only 8% of the respondents from Mon district used it on a daily basis.

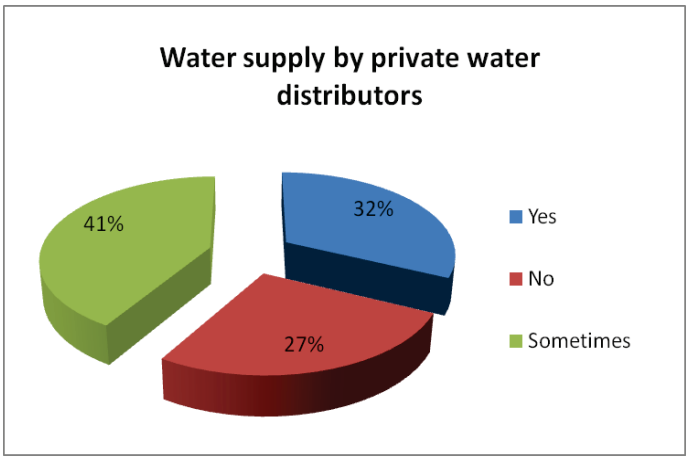


Chart 1

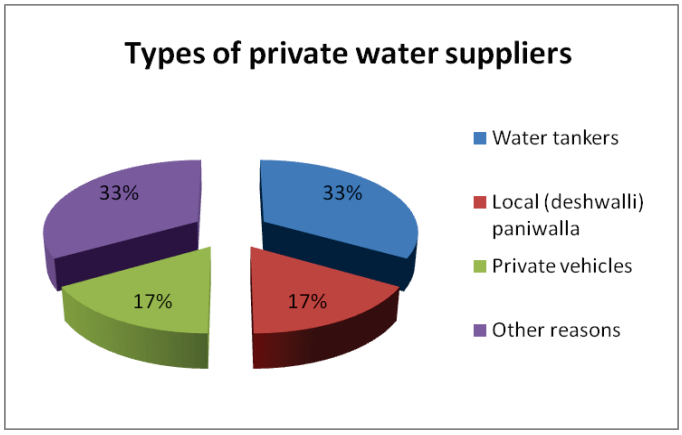


Chart 1.1

Chart 1 shows the dependency of the respondents from Kohima District on private water entreprenuers. It shows that 32% of the respondents were dependent on private water suppliers for their needs, 41% said 'sometimes' whereas 27% said 'No'. Those that were dependent on private water suppliers, when asked as to what kind or type of suppliers sold water to them, 17% said local 'paniwalla' which is similar to pushcart water vendors, 33% 'water tankers and 17% 'private vehicles' such as pick up vans, jeeps, etc., and 33% private water piped lines carried by gravity from water source as seen in ***chart 1.1.*** This indicates that, 41% of the respondents did not purchase water from private water suppliers, but the rest were either totally dependent or partially dependent on them. 50% bought water from local deshwali 'paniwalla' usually North Indians settled in Kohima district who sell and deliver water to homes, others were dependent on water tankers and private vehicles.

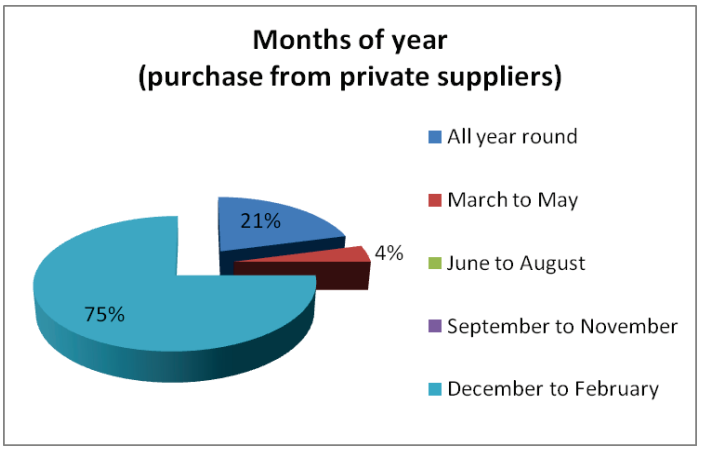


Chart 2

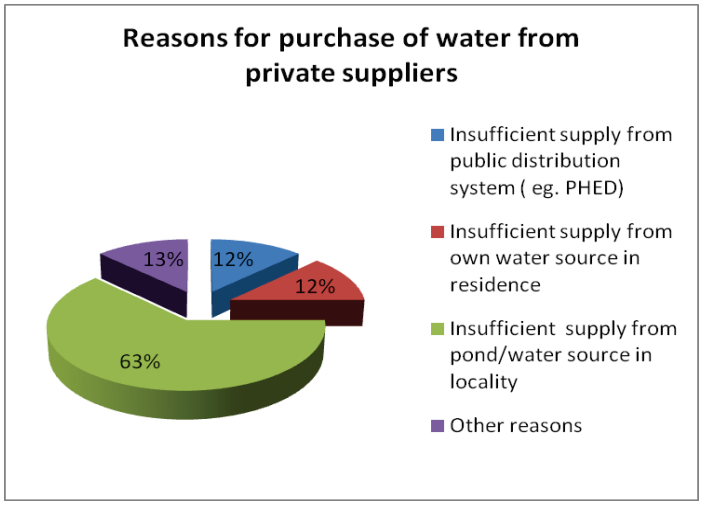


Chart 3

The months of year when water is purchased from private players is indicated by reponses seen in ***chart 2***, where 75% respondents said December-February, 21% 'all year round' and 4% 'March-May'. The main reasons for purchase of water from private suppliers is listed in ***chart 3,*** 'insufficient supply from pond/water source in locality' was 63%, 12% 'insufficient supply from PHED source', 12% 'insufficient supply from own water source in residence' and 13% 'others reasons' for which some responses were, 'for all of the above reasons', and for others 'compelled to purchase for hotel business'. This data shows that a maximum 75% felt the need to purchase water from private suppliers during December-February, a post monsoon season and for 21% 'all year round' suggesting that some private parties were supplying water all year round. Reasons for purchase were mostly insufficient supply for respondents in Kohima district whether from local pond/stream, from PHED supply or even insufficent supply at residence.

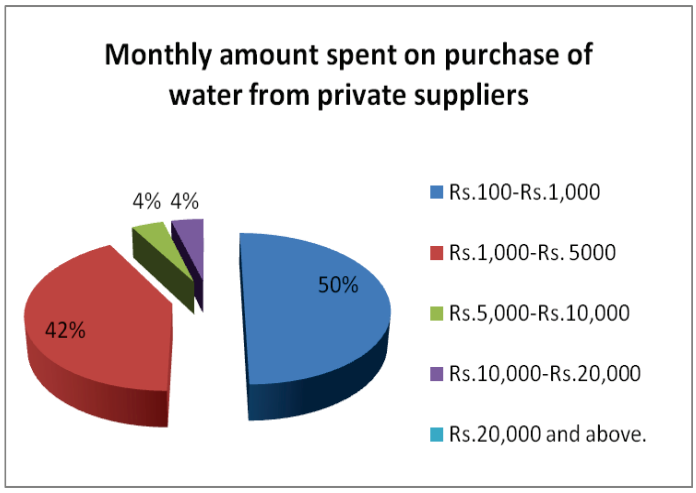


Chart 4

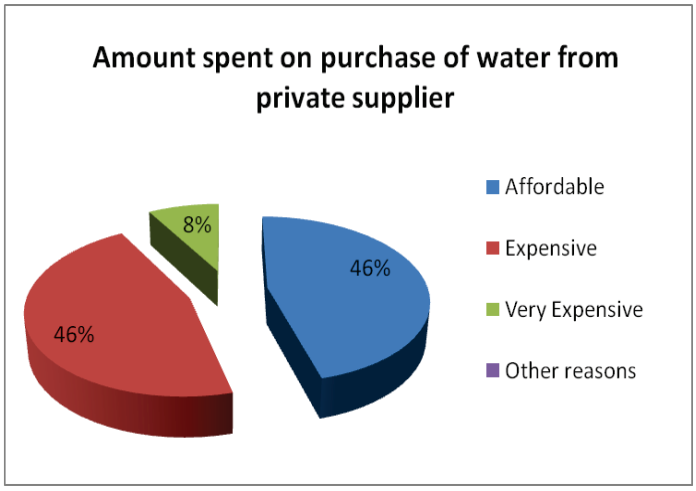


Chart 5

The monthly amount spent on purchase of water from private suppliers are seen in ***chart 4***, 50% spent Rs. 100-1000, 43% Rs. 1000- 5000, 4% Rs. 5000- 10,000, and 4% Rs. 10,000-20,000. When the respondents were asked their opinion on the amount of money spent on water, 46% said it was 'expensive', another 46% 'affordable', and 8% ' very expensive' as in ***chart 5.*** As the respondes indicate, a half of the respondents on an average spent Rs. 100-1000 per month, and 43% Rs. 1,000-5,000, however, from the response of a smaller number of respondents, data shows that households in Kohima district spending a huge amount of upto Rs.20,000 for their various needs. More than half of the respondents said that the amount they spent on purchase from private suppliers in Kohima district, were either 'expensive' or 'very expensive'.

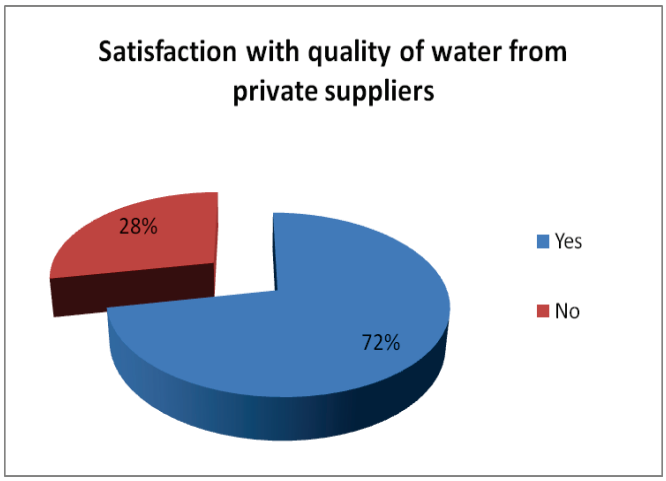


Chart 6

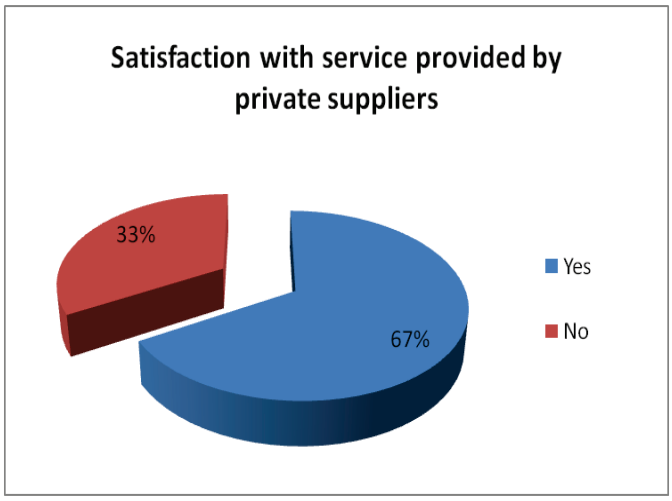


Chart 7

As shown in ***chart 6,*** 72% of the respondents from Kohima district said they were satisfied with the quality of water from private suppliers, whereas 28% said 'No' indicating that they were not satisfied with it. When asked if satisfied with the service provided by the private water suppliers, 67% said 'Yes' and 33% 'No' as shown in ***chart 7***. Data figures indicate that 72% of the respondents who purchased water from private suppliers in Kohima district expressed satisfaction for quality of water supplied and 67% expressed satisfaction with the service of the private water suppliers. Therefore, in Kohima district, respondents purchasing water from private source seem to be satisfied with both the quality of water and service provided to them

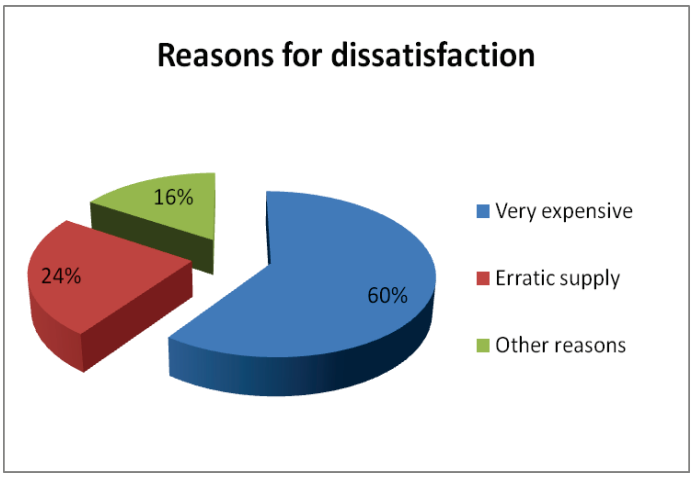


Chart 7.1.

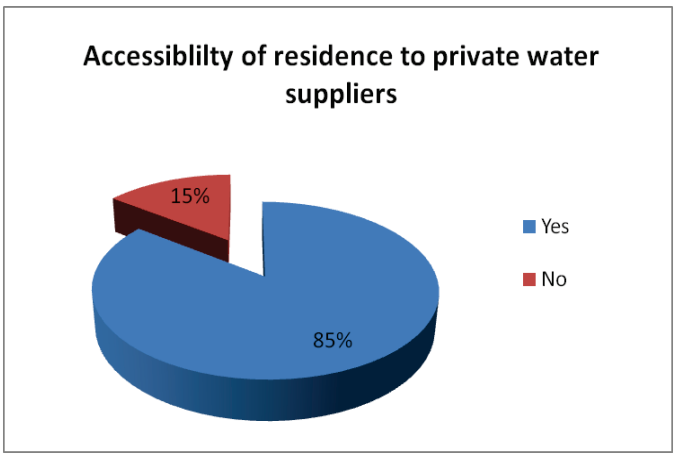


Chart 8

When asked for the reasons for their dissatisfaction as seen in ***chart 7.1*** , 60% said ‘ very expensive’, 24% said ‘erratic supply’ and 16% gave ‘other reasons’. Some of the ‘other reasons’ given includes ‘erratic pricing of water’, ‘difficulty in finding suppliers as they don’t have office but are independent players’, and ‘unable to negotiate price for water’. In ***chart 8*** data shows that 85% of the respondents said their residence is accesible to private water suppliers, 15% said ‘No’. This data shows that the repondents were generally satisfied with the quality of water and service provided by the private water suppliers, but out of those who expressed dis-satisfaction, 60% expressed that it was ‘very expensive’, others gave reasons suggesting that the private water supply sector was not regulated through any agency, and therefore with no checks and balances in the system and without uniform pricing. Otherwise, most respondents’ homes were accesible to the private water suppliers.

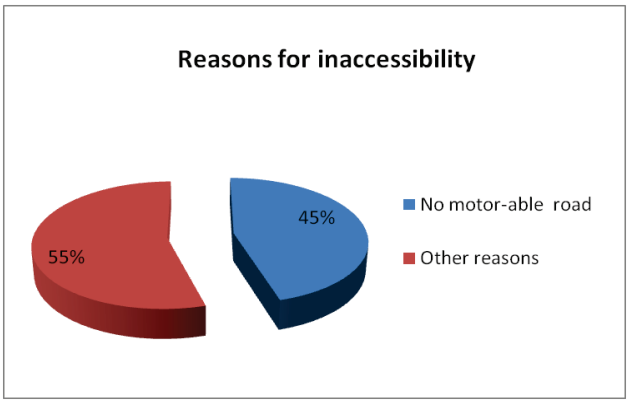


Chart 8.1

The respondents gave various reasons for inaccesiblity of residence to private water suppliers, as seen in ***chart 8.1***. Out of the total respondents 45% said 'no motorable road' and 55% 'other reasons'. The 'other reasons' given included 'no knowledge of private suppliers phone numbers since it is not listed anywhere', 'no supply in our colony since it's far from main town', and 'water suppliers take only large supply in our colony'.

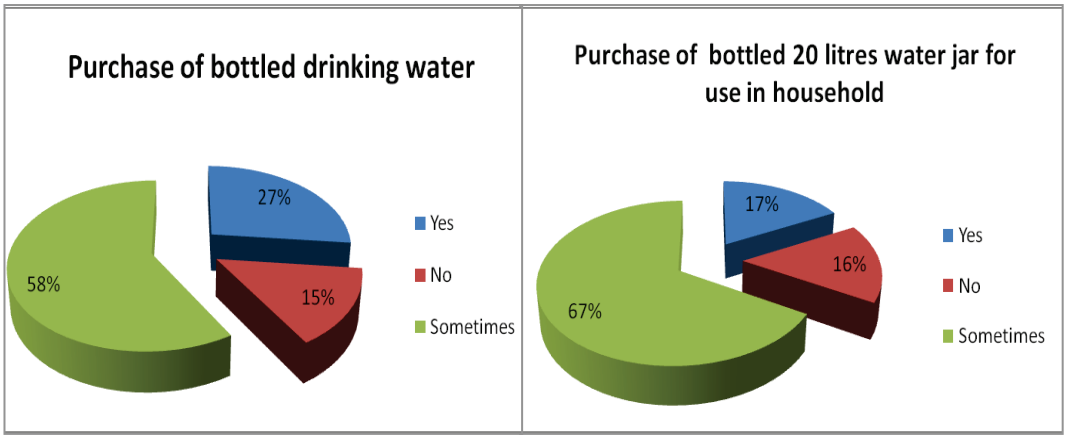
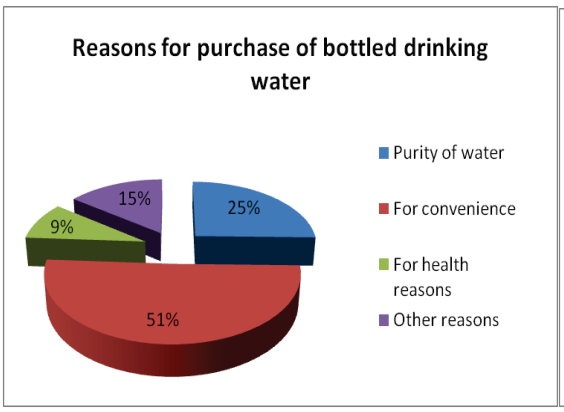


Chart 9 **Chart 10**

Commercialization of water can be seen not only in bulk supply for household consumption, but also in the packaged bottled water business. In order to assess the extent of penetration of the selling and consumption of packaged drinking water in Kohima district, as seen in ***chart 9,*** out of the total respondents, 64% said 'no' to the question as to whether they purchased bottled drinking water, 28% 'sometimes' and 8% said 'yes'. When asked whether they purchased bottled 20 litres water jar for household use, 88% said 'no', 9% 'sometimes' and 3% 'yes' as seen in ***chart 10***. The above data indicates that the use of packaged bottled drinking water is still not very widespread, as only 8% said they bought it regularly and only 3% bought the 20 litres' water-can. Also the respondents who bought packaged bottled drinking water purchased such an item occasionally.



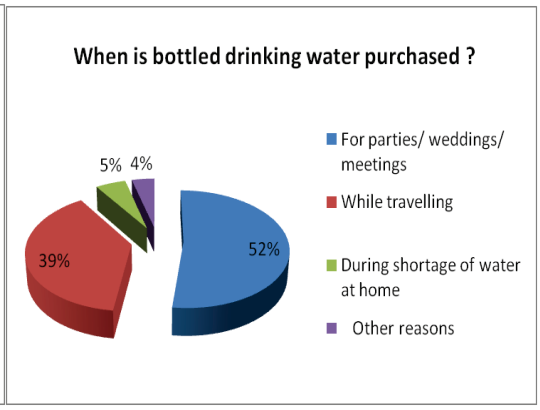
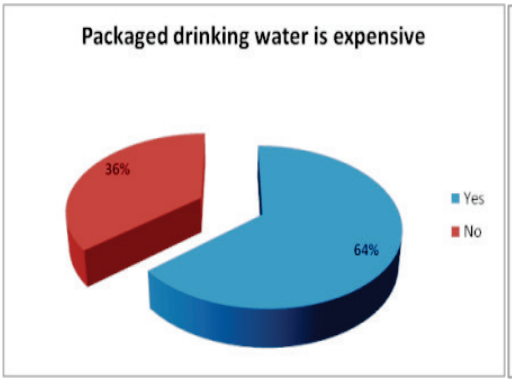


Chart 11 **Chart 12**

When asked the reasons for purchase of bottled drinking water as in ***chart 11***, 51% said 'for convenience' 25% 'purity of water' 9% 'for health reasons' and 15% stated other reasons, which included 'for use during travelling', and 'for hygienic reasons'. As seen in ***chart 12*** bottled drinking water is purchased by the respondents 52% for 'parties/weddings/ meetings', 39% 'while travelling' 5% ' during shortage of water at home', and 4% ' other reasons' which included 'when at outpost during official work'. As seen by the data, bottled drinking water was bought mainly for special occasions and for use during travels etc., this shows that daily utilization and consumption of the item is not common. It was an item bought sporadically for specific occasion or need.



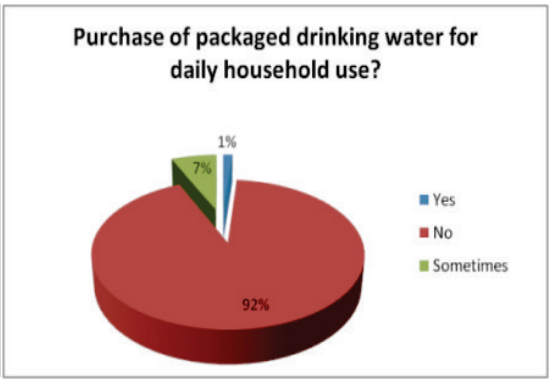


Chart 13 **Chart 14**

In ***chart 13***, 64% of the respondents said 'yes' when asked if bottled drinking water is expensive, 36% 'no'. When asked if the respondents purchased packaged drinking water for daily household use, 92% said 'no', 7% 'sometimes', and 1% 'yes', as in ***chart 14.*** Most of the respondents said that it was an expensive commodity or item and an overwhelming 92% majority said they did not purchase bottled drinking water for daily household use. The pricing factor may have been the reason why domestic bulk consumption is still uncommon in Kohima district.

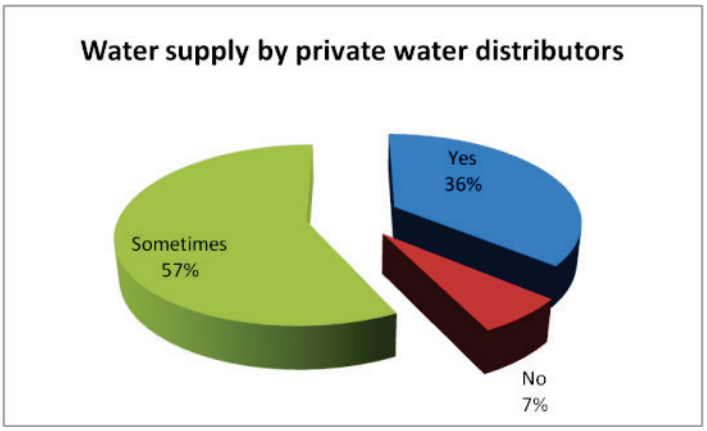


Chart 1

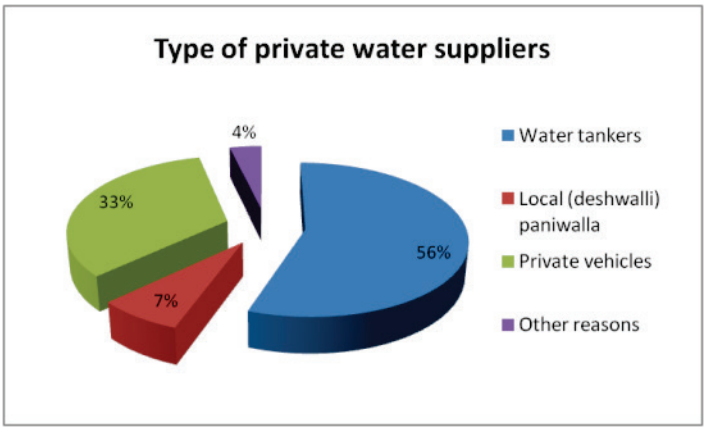


Chart 12

Chart 1 shows responses to the question of whether the respondents availed the services of the private water suppliers. 36% replied 'yes'; 57% replied 'sometimes' and 7% replied 'no'. ***Chart 1.1.*** shows 56% respondents saying they bought water supplied from private 'water tankers', 33% 'private vehicles' in use such as mini pick-up trucks, jeeps, etc., 7% replied local 'paniwallas' usually meaning migrant workers from outside the state carrying water for a living, and 4% stated 'other reasons' which included 'private PVC pipe lines from water source'. This shows that in Wokha district 36% respondents were dependent on private water supply and 57% were also partially dependent on them. Most of the respondents were using the services of private 'water tankers'. A point to note here is the 4% respondents who said private pipe lines supplied water to the consumers; this case was similar the example seen in Kohima where parallel private plastic pipe line were fitted next to PHED lines.

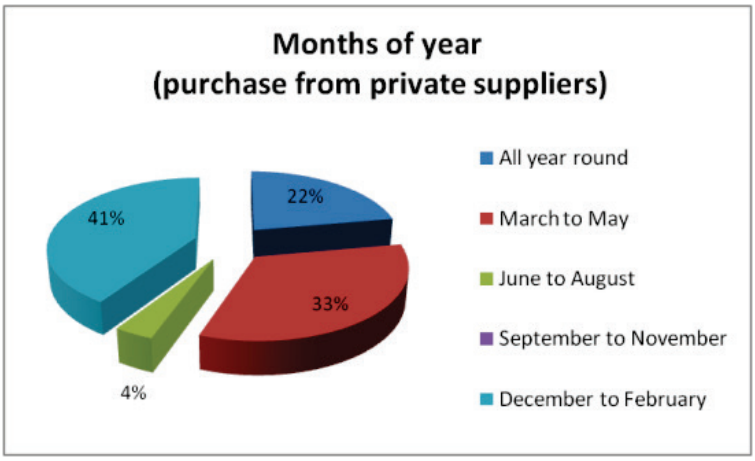


Chart 2

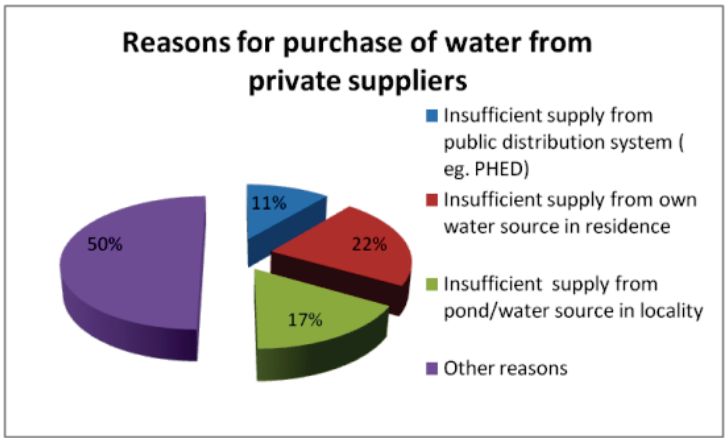


Chart 3

The period water was purchased from private suppliers is shown in ***chart 2***; whereby 41 % stated December-February, 33% March-May, 22% 'all year round' and 4% 'June-August'. The reasons for purchase of water from private suppliers are listed in ***chart 3***, 22% said' insufficient supply from own water source in residence', 17% 'insufficient supply from pond/water source in locality', 11% 'insufficient supply from public distribution system (e.g. PHED), and 50% quoted 'other reasons' which included 'all of the above reasons', 'large volume available at required timing', etc. This shows that private water suppliers made more supply during the months December-February based on the reply of 41 % respondents. Also the main reasons for purchase had basically been insufficient supply from all sources.

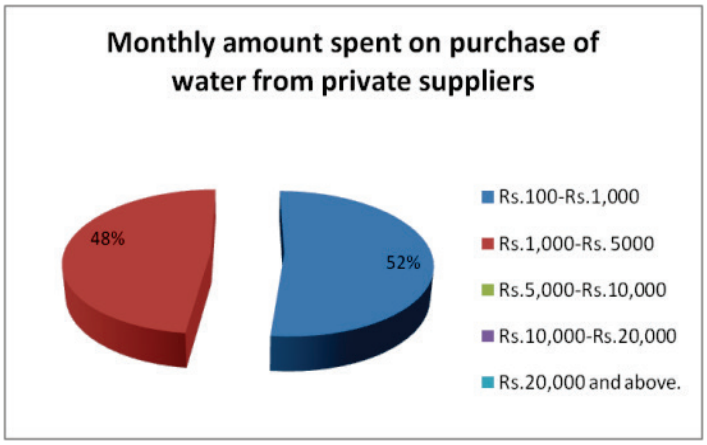


Chart 4

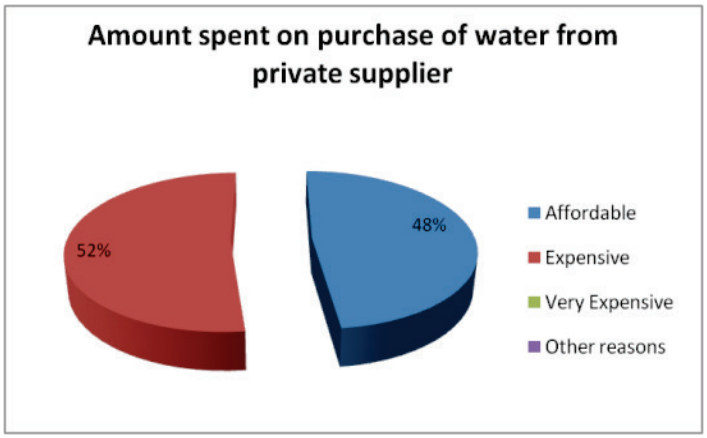


Chart 5

Chart 4 shows responses to the question of monthly amount spent on purchase of water from private suppliers; 52% respondents replied saying that they spent 'Rs.100-Rs.1,000' and 48% 'Rs.1,000-Rs.5,000'; no other figure /amount had been mentioned. Opinions were also expressed on the amount spent on purchase of water from private suppliers as seen in ***chart 5***. 52% had the opinion that the cost for private water supply was expensive and 48% replied that it was affordable. The data above shows that respondents were almost even in contrasting opinions; 52% and 48% respectively said that private water supply was 'expensive' and 'affordable'. Another factor seen was that there were no respondents who said that they had spent above Rs. 5,000 and above range, despite 39% coming from a household of 5-10 members and 3% from 10-15 member households.

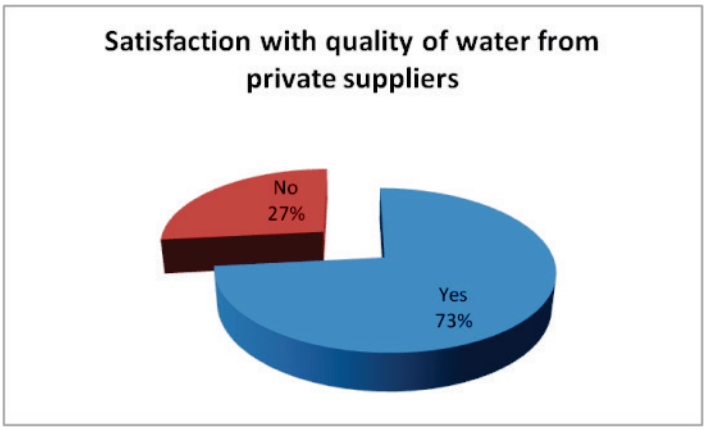


Chart 6

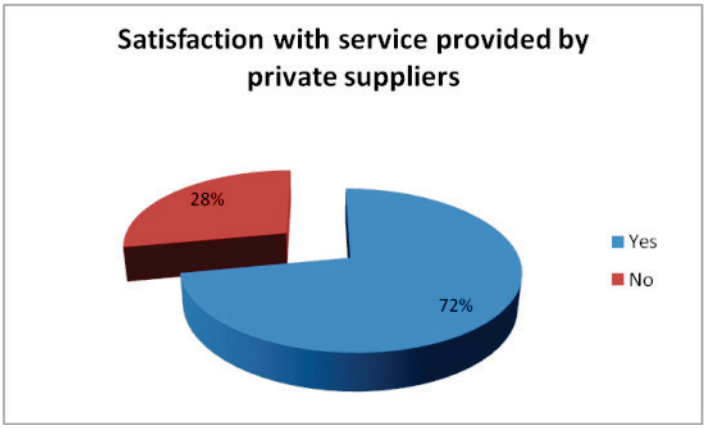


Chart 7

Responses are seen in ***chart 6,*** to the question of whether the respondents from Wokha district were satisfied with the quality of water from private suppliers; 73% responded 'yes' and 27% 'no'. A response to another comparative question is seen in ***chart 7,*** whereby the respondents were asked if they were contented with the service provided by the private suppliers; 72% replied 'yes' and 28% 'no'. The above data shows that in Wokha district, a distinct response was visible in the responses to both the questions. 73% expressed satisfaction with the quality of water and another 72% satisfaction with the quality of service provided by the PHED.

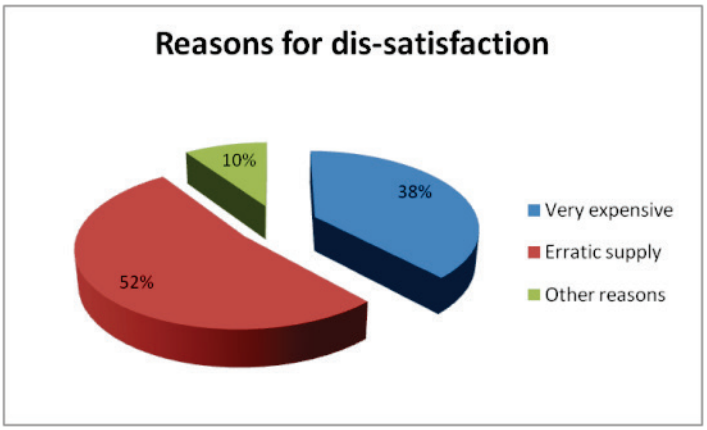


Chart 7.1

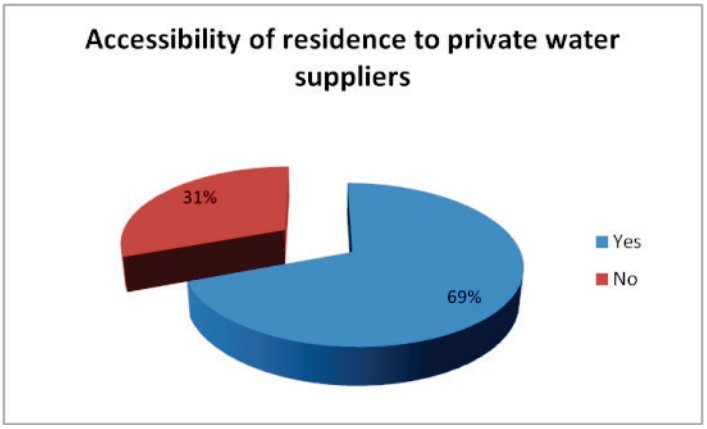


Chart 8

Chart 7.1 shows the responses given for dissatisfaction with service provided by the private water suppliers; 52% was quoted as saying the main reason was 'erratic supply', 38% 'very expensive' and '10% quoted 'other reasons' such as 'difficult to contact private suppliers', 'our locality is too far for frequent supply'. ***Chart 8,*** shows responses to the question of accessibility of private water suppliers to the residences of the respondents; 69% said 'yes' and 31% 'no'. The above data shows that besides other reasons for dissatisfaction, 52% said 'erratic supply' of the private suppliers was the main reason. In Wokha district, most of the residences were accessible to private water suppliers; only 31% were quoted as saying that their houses were not accessible to private water suppliers; showing the reach of the private suppliers.

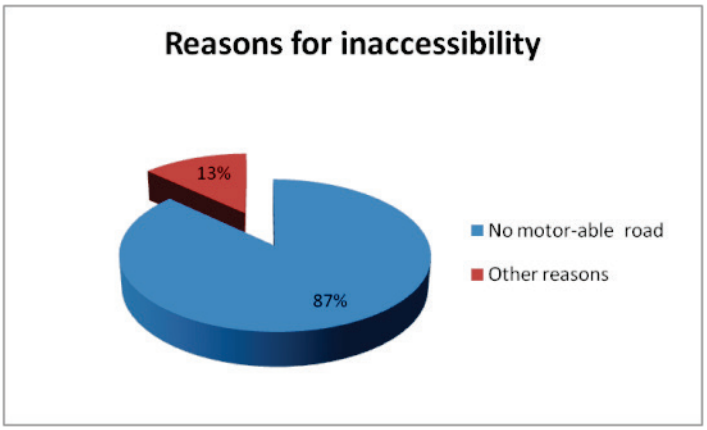


Chart 8.1

Those who replied that their residences were not accessible to the private water suppliers gave various reasons for this factor. ***Chart 8.1*** shows that the main reason quoted by 87% was 'no motor-able road' and 13% quoted 'other reasons', which were mainly 'distance factor'. The above data indicates that private water distributors had a well established line of supply in Wokha district, although some residences were inaccessible due to lack of motor-able road.

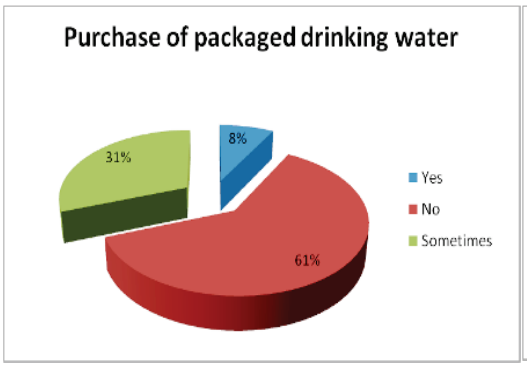


Chart 9

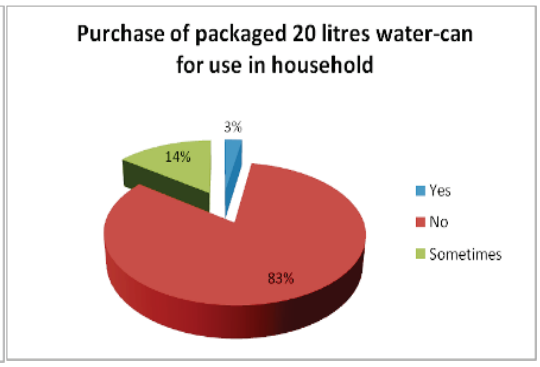
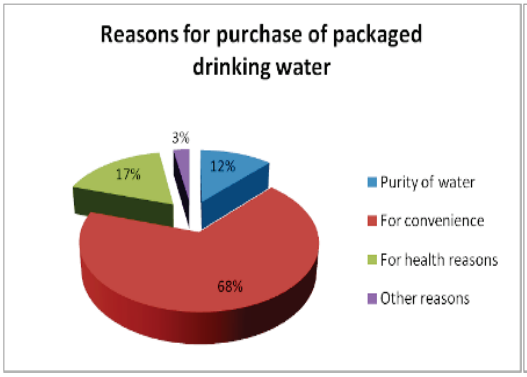


Chart 10

Commodification (water sold as commodity item) of water / Commercialization of water can be seen not only in bulk supply for household consumption, but also in the packaged bottled water business. ***Chart 9*** shows, the extent of penetration of the selling and consumption of bottled drinking water in Wokha district. As seen in ***chart 10,*** out of the total respondents, 61% said 'no' to the question as to whether they purchased bottled drinking water, 31% 'sometimes' and 8% said 'yes'. When asked whether they purchased bottled 20 litres' water jar for household use, 83% said 'no', 14% 'sometimes' and 3% 'yes' as seen in ***chart 40***. The above data indicates that the use of packaged bottled drinking water was still not very widespread, as only 8% said they bought it regularly and only 3% bought the 20 litres water jar.



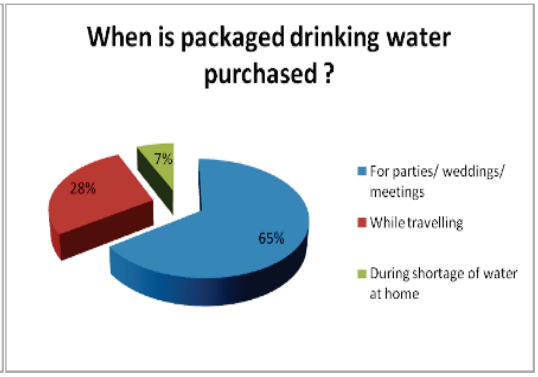
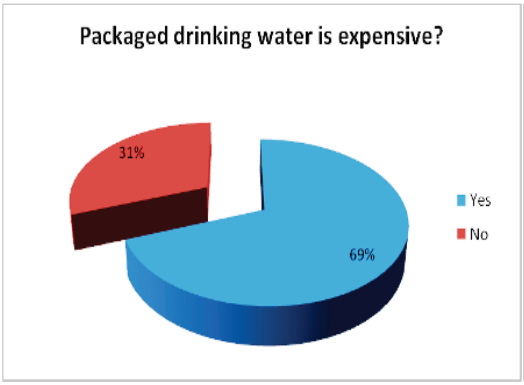


Chart 11 **Chart 12**

The reasons for purchase of bottled drinking water in ***chart 11***, shows that 68% said 'for convenience' 12% 'purity of water' 17% 'for health reasons' and 3% stated other reasons, which included 'for journey'. ***Chart 12*** shows responses to the question of when bottled drinking water was purchased; 65% replied 'for 'parties/weddings/meetings', 28% 'while travelling' 7% ' during shortage of water at home', and 4% 'other reasons' which included 'when on journey'. The data indicates packaged bottled drinking water was bought mostly for convenience sake (68%), for travel, and not as a regular item; it was bought mainly on special occasions (65%), daily utilization and consumption of the item was not common.



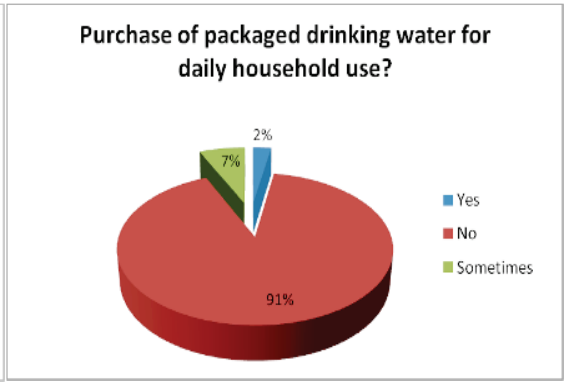


Chart 13 **Chart 14**

Chart 13, shows responses to the question of whether the cost of bottled drinking water was considered expensive; 69% of the respondents said 'yes' and 32% 'no'. When asked if the respondents purchased bottled drinking water for daily household use, 91% said 'no', 7% 'sometimes', and 2% 'yes', as seen in ***chart 14***.It was an item bought sporadically and most of the respondents (89%) said that it was an expensive commodity or item and an overwhelming 91% majority said they did not purchase bottled drinking water for daily household use. The pricing factor may have been the reason why domestic bulk consumption was uncommon in Wokha district as was in the other districts (Kohima, Mon, Mokokchung) also taken as a case study.

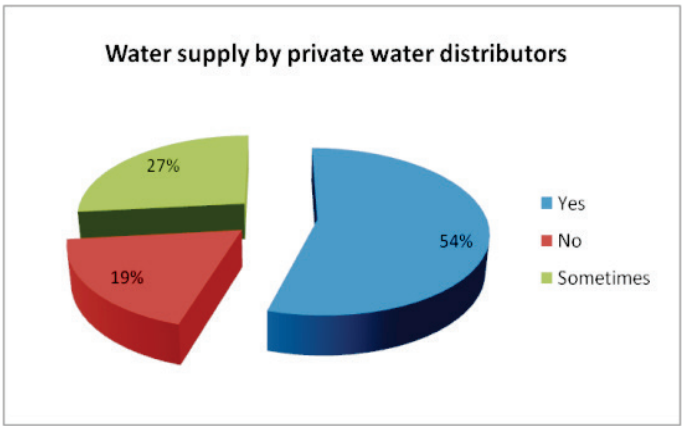


Chart 1

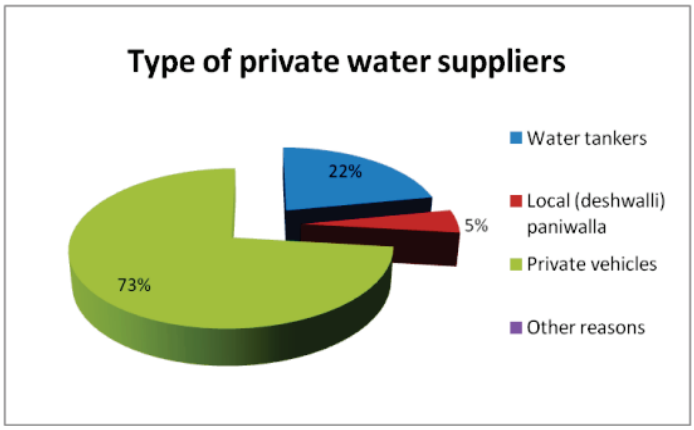


Chart 1.1

Chart 1 shows the responses to the question of whether the respondents availed the services of private water distributors and purchased water from them, 54% said 'yes', 27% 'sometimes' and 19% 'no'. To make a classification of the type of private water suppliers, a question was raised as to which type of private water suppliers catered to their needs, 73% said 'private vehicles', 22% 'water tankers', and 5% local 'paniwalla' as seen in ***chart 1.1***. The above data shows that more than half of the respondents in Mokokchung district were dependent on the supply of water from private water distributors, only 19% said they had not made use of such services. 73% said they bought their requirements from 'private vehicles' such as jeeps, pick-up mini trucks, and the other 22% were dependent on 'water tankers', carrying a larger volume of water to satisfy the needs of bigger households.

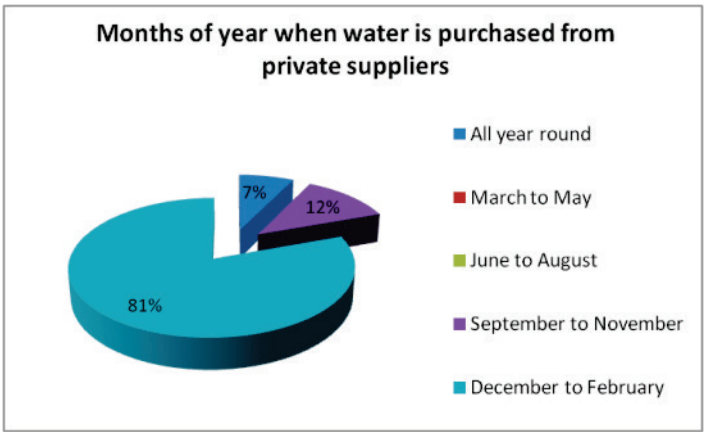


Chart 2

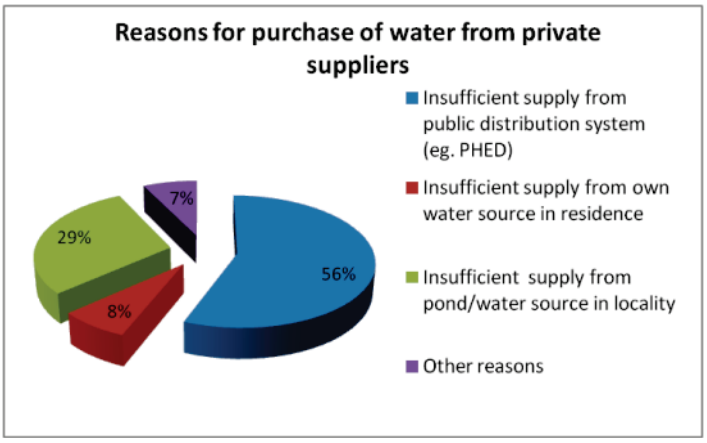


Chart 3

For the respondents from Mokokchung district, as seen in ***chart 2***, 81% purchased water from months of December- February, 12% from September-November, 7% 'all year round'. When asked for the reasons they purchased water from private suppliers (***chart 3***), 56% replied 'insufficient supply from public distribution system (e.g. PHED)', 29% 'insufficient supply from pond/water source in locality', 8% 'insufficient supply from own water source in locality', 7% gave 'other reasons' which were mainly 'for all of the above reasons'. As 81% respondents from Mokokchung district said they faced water scarcity, during the months December-February, data indicates that this may have been a common experience for the district as a whole. No single supplier/source seems to have sufficed the needs of the respondents, and particularly those who availed the services of the PHED.

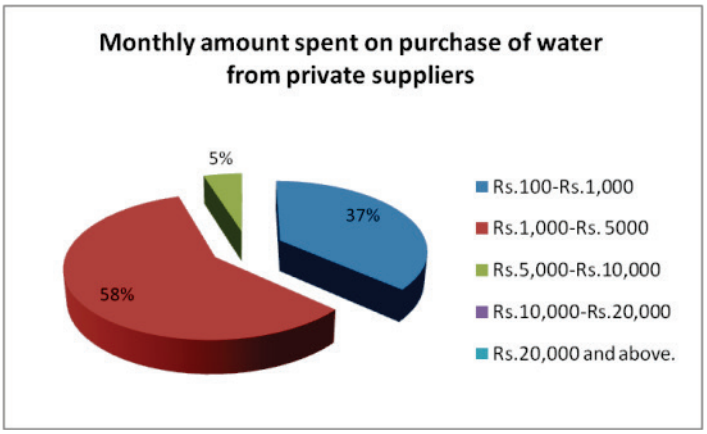


Chart 4

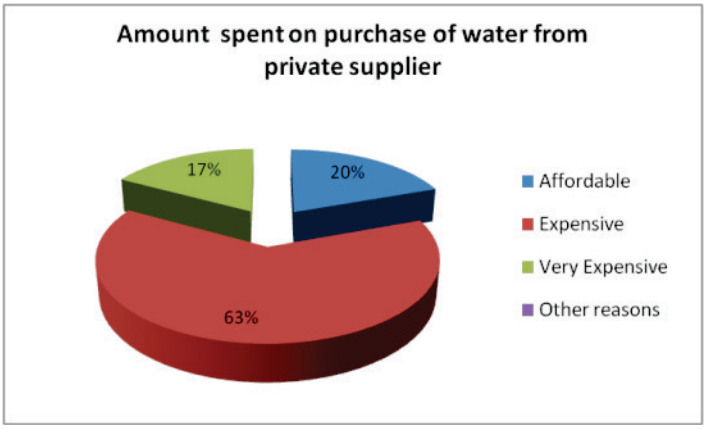


Chart 5

Chart 4 shows the amount of money spent monthly on purchase of water from private suppliers, 58% spent Rs.1000-Rs.5000, 37% Rs.100-Rs.1,000, and 5% Rs.5,000-Rs.10,000. For 63% of the respondents the amount spent on purchase of water from private suppliers' was 'very expensive', for 20% 'affordable' and 17% replied 'very expensive' as seen in ***chart 5***. The above responses shows that the respondents from Mokokchung district spent a fairly high amount of money for purchase of water ranging from Rs.1000-Rs.5000 for 58%, and Rs.5,000-Rs.10,000 for 5% respondents. Reponses also shows that although only 20% found it affordable, the rest either found it 'expensive' or 'very expensive'. Despite the prevalence of the high rate, the respondents seem to have been dependent on the supply of private water distributors.

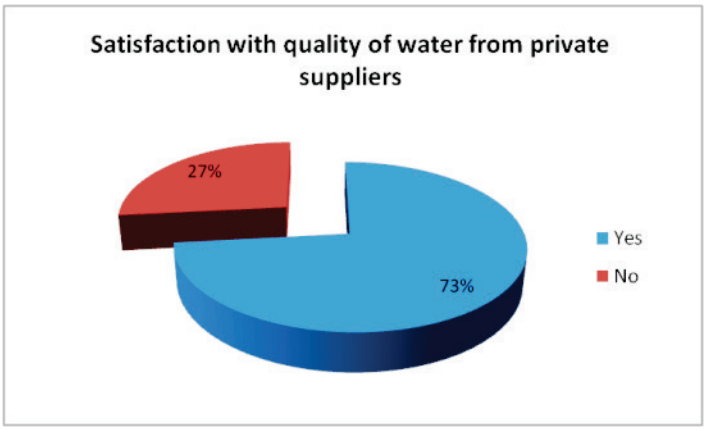


Chart 6

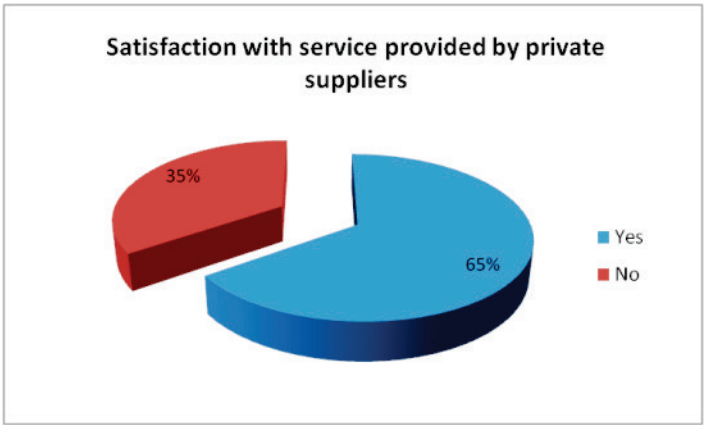


Chart 7

As seen in ***chart 6***, in responses to the question of whether the respondents were satisfied with the quality of water from private suppliers, 73% said 'yes' and 27% said 'no'. ***Chart 7*** shows the responses to the question of whether the respondents were satisfied with the quality of service provided by the private suppliers; 65% replied 'yes' and 35% 'no'. The data indicates that the respondents from Mokokchung were generally satisfied with both the quality of water as well as the service provided by the private water suppliers. 73% expressed satisfaction with water quality and 65% expressed satisfaction with service quality.

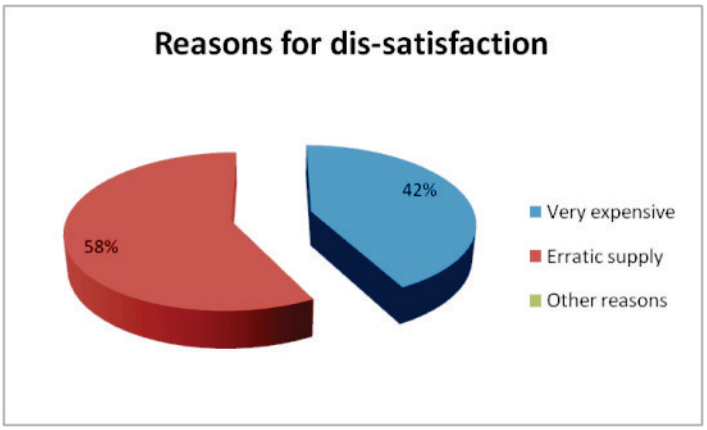


Chart 7.1

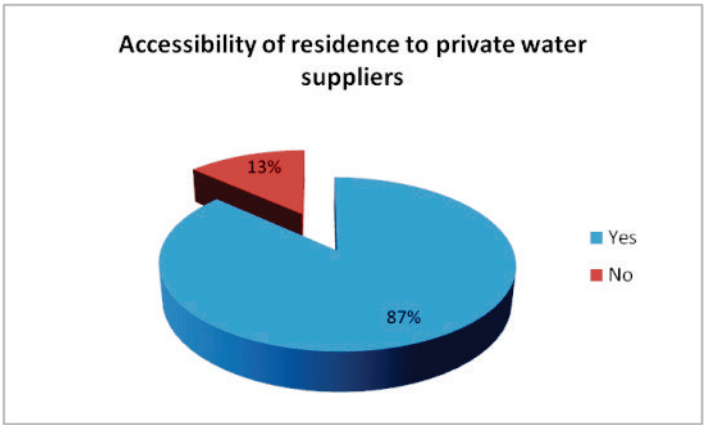


Chart 8

The respondents who expressed dissatisfaction with the private water suppliers as seen in ***chart 7.1.*** were asked to give reasons for their dissatisfaction; 58% replied 'erratic supply', 42% replied 'very expensive' and no other reasons were offered for their dis-satisfaction. ***Chart 8*** shows accessibility of residence to private water suppliers, and 87% respondents replied in the affirmative, only 13% replied 'no'. This indicate that respondents from Mokokchung felt that erratic supply of water from private water suppliers was the main reason for their dis-satisfaction, followed by the high cost for water. Besides this, a high majority 87% said that in case there was any requirement, their residences were accessible to private water suppliers.

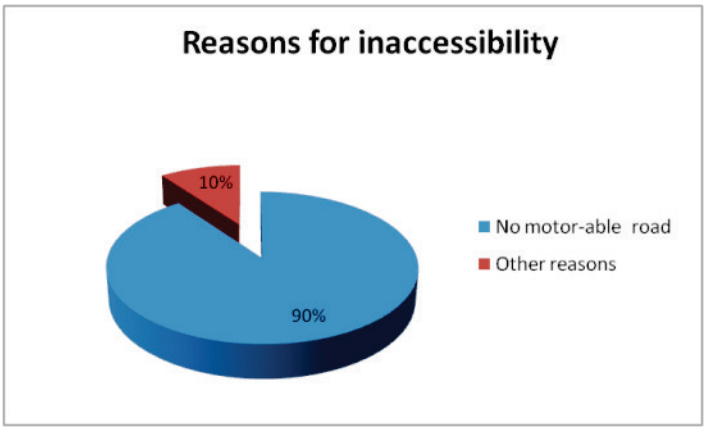


Chart 8.1.

Chart 8.1 shows the reasons given for inaccessibilty of residence to private water suppliers. 90% said 'no motor-able road' and 10% gave 'other reasons' which included 'no supply in village', 'no supply in colony' . The responses show that for those respondents who had no access to private water suppliers, the main reason by 90% was given as 'no motorable road'.

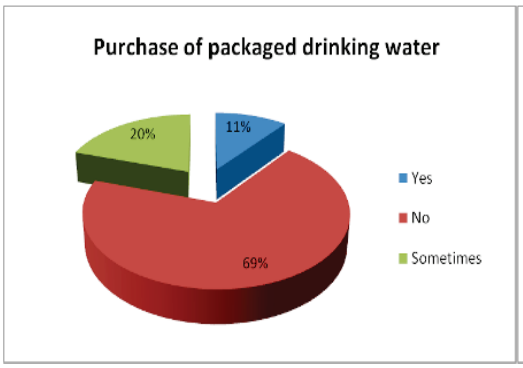


Chart 9

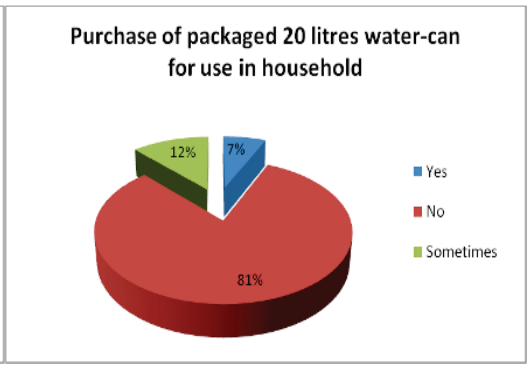


Chart 10

In order to assess the extent of commodification (water sold as a commodity)/commercialization of water in Mokokchung district, certain questions were asked pertaining to the issue. ***Chart 9*** shows responses to the question of whether the respondents purchased bottled drinking water; 69% said 'no', 20% 'sometimes' and 11% 'yes'. ***Chart 10*** shows responses to the question of whether 20 litres water-can were purchased for the household; 81% replied 'no' 12% 'sometimes', and 7% 'yes'. The responses from Mokokchung district show that 69% of respondents did not purchase bottled drinking water and an even higher percentage 81 % said that they did not purchase 20 litres water jar for use in their household. Only 11% said that they purchased packaged drinking water; and 7% said that they purchased 20 litres water jar for use in their household.

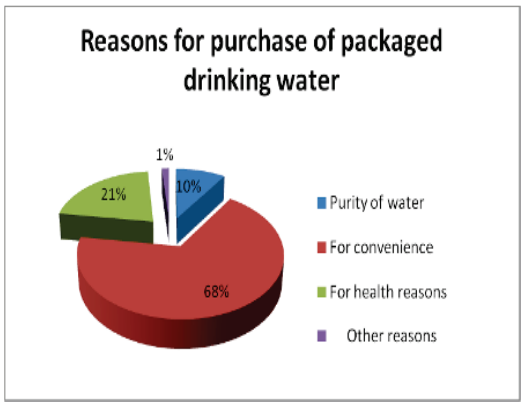


Chart 11

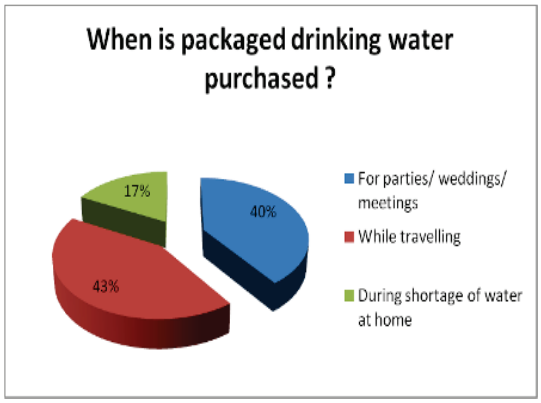


Chart 12

The question was raised as when bottled drinking water was purchased as seen in ***chart 11***; 43% replied 'while travelling', 40% 'for parties/ weddings/ meetings', and 17% 'during shortage of water at home'. The reasons offered for purchase of bottled drinking water as seen in ***chart 12*** were 'for convenience' for 68% respondents, 21% replied 'for health reasons', 10% 'purity of water' and 2% 'other reasons' which included 'used for journey', 'used during work in outpost'.

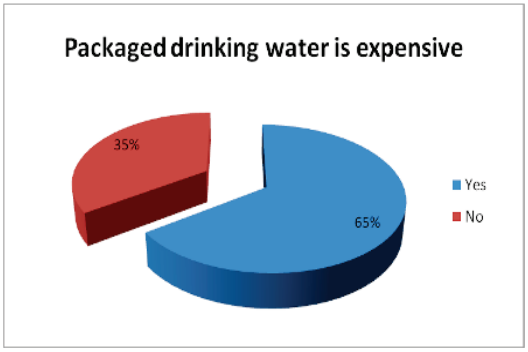


Chart 13

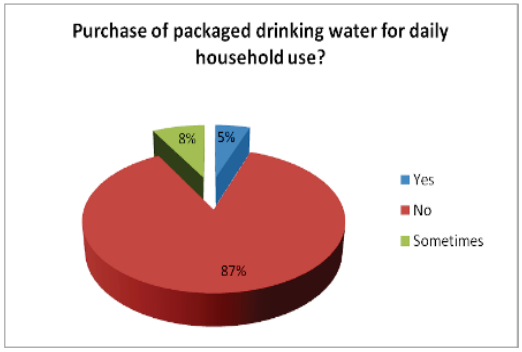


Chart 14

When asked if bottled drinking water was expensive, 65% replied 'yes' and 25% 'no' as seen in ***chart 13.*** When the respondents were asked if they purchased bottled drinking water for household use on a daily basis, as seen in ***chart 14***, 87% replied 'no', 8% 'sometimes' and 5% 'yes'. The above responses show that purchase of bottled drinking water was usually reserved for particular occasions and was not used on a daily basis. The reason for the sporadic purchases may have been the cost factor as 65% considered bottled water as an expensive commodity. It was seen that 87% of the respondents from Mokokchung district did not use it on a daily basis.

FINDINGS

A total of random 300 sample size were taken in order to assess the prevailing water situation and to give an accurate representation of daily water consumption, kinds of water usage, reliability of water distribution system through both governmental and private agencies, prevalence of water scarcity and nuances of water conflict and emerging commodification in Mon district, Kohima district, Wokha district and Mokokchung.

COMMODIFICATION OF WATER RESOURCES

Chart 1: Water supply by private water distributors

1. The statistics show that Mokokchung district had the highest percentage of respondents purchasing water from private water entreprenuers at 54%, followed by Wokha district at 36%, Kohima district 32% and Mon district at 20%.
2. For partial dependence on purchase of water from private operators, repondents from Wokha at 57% topped the list, followed by Mokokchung and Kohima district both at 27% and Mon district 9%.
3. Mon district was least dependent on private water suppliers with 71% of respondents saying they did not purchase water from them. 41% from Kohima 19% in Mokokchung and 7% in Wokha district did not make such purchases.

Chart 2: Type of private water suppliers/operators

1. Most of the repondents from the four district engaged the services of the water tankers and smaller pick –up vehicles for purchase of water.
2. Pushcart water vendors mostly North Indian migrant daily wage workers selling water to augment their income, were seen as playing an increasingly bigger role in the unregulated water market with 17% in Kohima, 13% Mon, 7% Wokha and 5% in Mokokchung district saying that they bought water from such vendors.
3. In Kohima district 33% of private water pipe lines was carried by gravity from the water source. In Wokha district also 4% respondents said private pipe lines supplied water to the consumers. This was similar to Kohima district where parallel private plastic pipe lines were fitted next to PHED lines or overhung from telephone poles.

Chart 3: Months of year (purchase from private suppliers)

1. Maximum purchases from private operators were made in all districts between the months of December-February; 81% Mokokchung district, 75% Kohima district, 47% Mon district, and 41% Wokha district. This is the lean season without rainfall however lack of rainfall alone cannot be attributed to scarcity as Nagaland has a fairly high annual average rainfall.
2. Some private players were selling water to customers all year round. 22% respondents from Wokha district, 21% Kohima district and 7% Mokokchung and Mon district said they made purchases all though out the year. This shows that water supply from the PHED was either insufficient or the respondents had to make provisions to supplement it. Also those staying in areas out of reach of governmental agencies had to depend on the supply of private operators.

Chart 4: Reasons for purchase of water from private suppliers

1. The main reason for purchase from private suppliers was indicated by 73% of respondents from Mon as 'insufficient supply from public distribution system (e.g. PHED)'; also 56% Mokokchung, 12% Kohima, and 11% from Wokha district stated the same.
2. Respondents in the four districts were seen to have been compelled to avail water from any source available and in case of insufficiency; they would purchase water from private suppliers. This is seen from the 63% responses from Kohima and 29% from Mokokchung that insufficient supply from pond/water source in locality compelled them to buy from private operators. Another reason stated was insufficient supply from own water source in residence.
3. The PHED water supply in Nagaland state is not on a daily basis, it can vary from 2-3 days in a week, with 1-3 hours of supply for a day.

Chart 5: Monthly amount spent on purchase of water from private suppliers

1. Private suppliers particularly cater to business establishments like hotels and restaurants as these do not have PHED water suppy, the high spending therefore could be indicative of this.

2. A majority of respondents, 52% from Wokha, 50% Kohima, 47% Mon district and 37% from Mokokchung district spent Rs. 100- Rs. 1000 per month on purchase of water.
3. 58% respondents from Mokokchung district spent a fairly high amount of money for purchase of water ranging from Rs.1000-Rs.5000.
4. From the response of a smaller number of respondents, data shows that in Mon district 13% spent Rs. 5000 - 10,000, in Mokokchung district Rs.5, 000-Rs.10, 000 for 5% respondents and 4% in Kohima district. There were no respondents from Wokha district who spent money in this given bracket.

Chart 6: Amount spent on purchase of water from private supplier

1. There was no single respondent from Mon district said that the amount charged by private water suppliers was affordable. 87% said the amount of money charged/fixed by the private water suppliers was 'very expensive'and 13% stated "expensive". In Kohima district for 46% it was 'expensive' and for 8%.'very expensive'. Wokha district 52% commented that it was expensive; in Mokokchung district 63% respondents found it 'expensive' and 17% 'very expensive'.
2. 48% from Wokha district and 46% from Kohima district stated that the private water supply rates was 'affordable' ; and 20% from Mokokchung said the same. These responses show that some section of the people have well accepted the steep running market rate of water without much reservation.
3. The respondents from the four districts seem to have been heavily dependent on private water distributors selling water as a commodity at a very high unregulated rate and who also functioned exclusive of any regulating agency.

Chart 7: Satisfaction with quality of water from private suppliers

1. The above data gathered from Mon district shows that generally that 75% respondents were not satisfied with the quality of water provided by the private water suppliers.
2. However, 73% respondents from both Mokokchung and Wokha district stated that they were satisfied with the water quality; as also 72% from Kohima district.

3. Quality regulation is still an issue left completely to governmental agencies and due to this factor there is no regulatory authority involved in water testing for the private water sector.

Chart 8: Satisfaction with service provided by private suppliers

1. The responses from three districts are similar. 72% from Wokha, 67% Kohima, 65% from Mokokchung district stated that they were satisfied with the service provided by the private water suppliers.
2. Only in the case of Mon district, 65% stated that they were not satisfied with the service.
3. The above responses shows that generally the private players are catering to the needs of the people in the above mentioned districts except Mon district, providing a good service despite the dissatisfaction expressed for its costly rate of water.

Chart 9: Reasons for dissatisfaction with private water suppliers

1. Responses from the four districts indicates that the high cost for water from private water suppliers was the main reason for their dissatisfaction; 60% in Kohima, 53% in Mon, 42% in Mokokchung and 38% in Wokha district expressed the same.
2. This was followed by erratic supply of water; with 58% from Mokokchung, 52% from Wokha, 47% from Mon and 24% from Kohima district expressing the same.
3. No other reasons were mentioned from Mon district and Mokokchung district. The other reasons mentioned from Kohima district were 'erratic pricing of water', 'difficulty in finding suppliers as they don't have office but are independent players', and 'unable to negotiate price for water' suggesting that the private water supply sector was not regulated through any agency. For Wokha district responses included 'difficult to contact private suppliers', and 'our locality is too far for frequent supply'.

Chart 10: Accessibility of residence to private water supply

1. Despite the topography and difficult hilly terrain most of the four districts have been shown as to be accessible to private water entrepreneurs showing their increasing reach in all districts of Nagaland.

2. In Mokokchung a high 87% had access to private water suppliers, followed by Kohima district with 85%, Mon district with 81%, and 69% in Wokha district.
3. Only a few percentages in all districts mentioned that they could not avail the services of the private water suppliers (due to reasons stated in the next chart finding); for instance, 31% in Wokha district, 19% in Mon district, 15% in Kohima district and 13% in Mokokchung district mentioned the same.

Chart 11: Reasons for inaccessibility

1. Out of the respondents who did not have access to private water suppliers the main reason given for inaccesibility of private water suppliers to the houses of the respondents' was lack of motorable road; with 100% responses from Mon district, 90% in Mokokchung district, 87% in Wokha district, and 45% in Kohima district.
2. 55% of Kohima district respondents gave other reasons which included, 'no knowledge of private suppliers phone numbers since it is not listed anywhere', 'no supply in our colony since it's far from main town', and 'water suppliers take only large supply in our colony'. 13% from Wokha district stated 'distance factor' and 10% from Mokokchung district stated 'no supply in village', and 'no supply in colony' .
3. This again shows that the private water sector is not a well organised sector. There is no central regulating agency therefore, supply is sectoral, haphazard and supply depends on demand. Moreover, when the distance is far from their supply circle then the suppliers would very often refuse to supply water.

Chart 12: Purchase of bottled drinking water

1. Commercialization of water can be seen not only in bulk supply for household consumption, but also in the packaged bottled water business. Several questions were asked in order to assess the extent of commodification (water sold as a commodity) of water, the responses are given below.
2. The responses shows that 69% from Mokokchung district, 64% from Kohima district, 61% from Wokha district and 27% from Mon district stated that they did not purchase bottled packaged drinking water.
3. Packaged drinking water does not seem to have been very commonly used although it had a pervasive presence in the market. 58% in Mon said they

purchased it only sometimes; 31% in Wokha district, 28% in Kohima, and 20% in Mokokchung stated the same.

4. 27% in Mon, 11% Mokokchung, 8% both in Kohima and Wokha district purchased bottled drinking water regularly.

Chart 13: Purchase of 20litres bottled water for use in household

1. The above data indicates that the use of bottled drinking water was not very widespread, as only 3% bought the 20 litres' water containers to be used in their homes in Wokha and Kohima district, 7% in Mokokchung district and 16% in Mon district.
2. 67% in Mon stated that they purchased it sometimes, 14% in Wokha district, 12% in Mokokchung and 9% in Kohima district mentioned the same.
3. In Kohima 88% respondents did not commonly purchase 20 litres bottled drinking water, 83% in Wokha district, 81% in Mokokchung district and 17% in Mon district stated the same.
4. This shows that respondents from the four districts were still not open to the idea of regularly purchasing 20 litres bottled drinking water for their households. One factor could be due to the cost factor. At present in other states of India, 20-litre containers are sold between Rs.22 and Rs.30. Premium brands manufactured by large players come with a price tag ranging between Rs.60 and Rs.95. The price is usually doubled in Nagaland and maximum retail price (MRP) of the item is ignored by the retailers who usually pass the blame of the price hike on illegal taxation by some elements.

Chart 14: Reasons for purchase of packaged drinking water

1. The data shows that packaged drinking water was bought mainly for special occasions and for use during travels and for health reasons etc., this shows that daily utilization and consumption of the item was not common. It was an item bought sporadically for specific occasions or need. 68% from Wokha and Mokokchung districts, 67% Mon, and 51% from Kohima district bought it as bottled drinking water was convenient to buy.
2. 25% from Mon and Kohima, 12% from Wokha, and 10% from Mokokchung district said that they bought bottled water as it was pure and clean.

Chart 15: Packaged drinking water is purchased during?

1. The responses from the districts show that packaged drinking water was purchased mostly for special occasions like 'parties/ weddings/ meetings'. 71% in Mon, 65% in Wokha district, 52% in Kohima district and 43% in Mokokchung district stated the same.
2. Other uses included shortage of drinking water at home for 17% from Mokokchung district, 13% Mon district, 7% Wokha district and 5% from Kohima district. Reasons also included 'while travelling to outpost'.
3. The usage of packaged drinking water is still not very widespread or frequent in the four districts mentioned above.

Chart 16: Packaged drinking water is expensive

1. The responses show that purchase of packaged drinking water was usually reserved for particular occasions and was not used on a daily basis. The reason for the sporadic purchases may have been the cost factor as 97% in Mon district, 69% Wokha district, 65% Mokokchung district and 64% in Kohima district considered packaged water as an expensive commodity.
2. It was an item bought sporadically and most of the respondents said that it was an expensive commodity or item. The pricing factor may have been the reason why domestic bulk consumption was uncommon in Wokha district as was in the other districts (Kohima, Mon, Mokokchung) taken as case studies.

Chart 17: Purchase of packaged drinking water for daily household use

1. Most of the respondents said that it was an expensive commodity or item and an overwhelming 92% majority in Kohima district, 91% Wokha district, 87% Mokokchung district and 59% in Mon district said they did not purchase packaged drinking water for daily household use. The pricing factor may have been the reason why domestic bulk consumption is still uncommon in the districts mentioned above.
2. It was seen that only 8% of the respondents from Mon district used it on a daily basis, 5% from Mokokchung district, 2% from Wokha district and 1% in Kohima district.

CHAPTER 5
MANAGEMENT OF WATER RESOURCES

Since independence, India has made significant advancement in developing its water resources and supporting infrastructure. In the last six decades after Independence, India has built its capacity to store about 200 Billion Cubic Meters (BCM) of water, an irrigated area of about 90 Million Hectares (Mha), and an installed hydropower capacity of about 30,000 Mega Watts (MW) (World Bank, 2005). It has invested in large-scale dams used to transform hydropower and irrigation, and yet water storage infrastructure in India remains one of the lowest in the world.

In spite of a substantial water resource base and vast land resource, due to rapid development, increasing population and iniquitous distribution of water, the demand for this natural resource far outweighs its supply. As an end result India continues to struggle to meet its water sector infrastructure requirements, including operation and maintenance costs. There is visibly a lack of a unified perspective in planning, management and use of water resources. India has about 16 percent of the world's population as compared to only 4 per cent of its water resources. With the present population of more than 1,000 million, the per capita water availability is around 1,170 cum/person/year (NIH, 2010).[305]

Sectoral demands for water are growing rapidly in line with urbanisation (estimates suggest that by 2025, more than 50 per cent of the country's population will live in cities and towns), population increases, rising incomes and industrial growth, and urban India is fast emerging as centres of demand growth.[306] The water sector in India today faces numerous issues and challenges such as: (a) erratic distribution of rainfall, often leading to floods and droughts in various areas; (b) water use inefficiency; (c) unregulated groundwater extraction; (d) water pollution; and (e) decreasing water quality due to poor waste management laws, inter-state river disputes, growing financial crunch for development of resources and scarce safe drinking water.

[305] UNICEF, FAO and SaciWATERs. 2013. Water in India: Situation and Prospects. Water in India:. p.vii.
[306] India Assessment 2002 – Water Supply and Sanitation, Planning Commission of India.

The performance level of the water service delivery is furthermore affected by inadequate institutional reforms and ineffective implementation of existing provisions. In recent years there has been an escalation in conflict situation between users in the agricultural and industrial sectors, as also the domestic sector. The situation is made worse due to the effects of climate change. It is further predicted that the situation could worsen due to a disturbed hydrological cycle and regional climatic variability. The lack of water availability and poor management practices have also manifested in poor sanitation facilities, one among the biggest environmental and social challenges India faces today.[307]

INSTITUTIONAL STRUCTURE

The Constitution and the Legislature

The Constitution retained the basic scheme chosen by the Government of India Act 1935, and gave the states a leading role in water regulation. States have the exclusive power to regulate water supplies, irrigation and canals, drainage and embankments, water storage, water power and fisheries.[308] The constitutional division of powers between the Union and the states constitutes the basic framework for formal water law in India.

However, on several issues the centre can intervene:

1. Article 262 allows the parliament to legislate on inter-state water issues.
2. Certain powers in the 7th schedule, reserves powers for the parliament to regulate inter-state rivers.[309]
3. Article 252 allows the parliament to adopt a legislation in any field in which states are competent to legislate, provided that the states have given their assent.
4. The Union has used less formal mechanisms to prod states into adopting certain measures. For instance, in view of progress in the provision for drinking water in rural areas, the Union implemented Accelerated Rural Water Supply Programme (ARWSP) in the early 1970s and had it mainstreamed through the provision of finances for drinking water schemes by the Union government to the states.

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[307] UNICEF, FAO and SaciWATERs. 2013. *op. cit*. p.vii.
[308] Constitution Schedule 7, List @, Entries 17, 21.
[309] For instance, under this provision, the River Boards Act, 1956 was enacted.

5. The Union has also other-related powers that it can exercise, for instance, in the context of the impact assessment of large projects that require an environmental clearance.[310]

   Water supply and sanitation is a State responsibility under the Constitution of India and following the 73rd and 74th Constitutional Amendments, the state legislation may give responsibility in rural areas to *panchayati raj* institutions powers and responsibilities over drinking water supply, minor irrigation, water management, watershed development, and fisheries. In urban areas, municipalities have been given powers over water supply for domestic, industrial, and commercial purposes.[311]

Legal component in water resource management

India does not have any separate water legislation, but has water-related legislation dispersed across various sectors between central and state provisions. Besides constitutional matters, water law consists of a variety of laws and other legal instruments at the Union and state level. Three major characteristic of water law in India are:

1. There is no instrument that brings together the general principles of water law. As a result, different principles adopted in different contexts co-exist or contradict each other. Water issue is relatively complex because laws have developed through a number of sub-branches that are not necessarily conceived as belonging to an overall cohesive body of law. Moreover certain laws such as environmental laws, infrastructure laws, and municipal laws addresses water but do not formally constitute water laws.
2. The wide variety of water laws addressing different issues cannot mask the limitations of existing water law particularly with regard to fundamental rights and environmental laws. (For instance, the Constitution includes a right to water, yet there is no law that specifically seeks to foster the realization of this fundamental right, nor is there a framework drinking water legislation that would give specific content to it.). [312]

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[310] Environmental Impact Assessment Notification, 2006.
[311] P. Cullet, & S. Koonan, (2011). *Water Law in India: An Introduction to Legal Instruments*. p.3.
[312] *Ibid*. p. 3-4.

Management at the Centre and the State levels

The present arrangement to manage water in India exists at two levels—central government and state governments. The centre has been responsible, through the Five Year Plans, for guiding much of the investment in the water sector as well as establishing other organisations to lend to the States. The designated apex body for water resource management is the union Ministry of Water Resources (MoWR), at the centre. The ministry is responsible for the overall development, conservation and management of water, treating it as a national resource. This includes formulating general policies on water resource development and providing technical assistance to all states in irrigation, multipurpose projects, groundwater exploration and exploitation, command area development, drainage, flood control, water logging, coastal and riverbank erosion problems, dam safety, and hydraulic structures for navigation and hydropower. Additionally, it also oversees the regulation and development of inter-state rivers. [313]

Various other central ministries also carry out different functions in the water sector.

1. Urban Water Supply and Sewage Disposal –Ministry of Urban Development (MoUD)
2. Rural Water Supply and Rural Sanitation –Ministry of Drinking Water and Sanitation (MoDWS)
3. Hydro-electric and Thermal Power – Ministry of Power (MoP)
4. Pollution and Environment Control – Ministry of Environment and Forests (MoEF)

In addition, the Indian National Committee of Irrigation and Drainage (INCID) works in close coordination with its parent organisation, the International Commission on Irrigation and Drainage (ICID), to further promote research in relevant areas. The watershed development programmes, it's funding and implementation is managed by the Ministry of Agriculture and Cooperation (MoAC)

Since water is a state subject, the governments at the state level are primarily responsible for its use, conservation and control. The state agencies though various programmes administratively control and take responsibility for development of water

[313] UNICEF, FAO and SaciWATERs. 2013. *op.cit.* p.57.

and management of water resources through water related sectoral units (agriculture, forest, rural development, urban development), other than the Ministry of Water Resources.[314]

1. Major and medium irrigation: Irrigation/water resources departments.
2. Minor irrigation: Water resources departments, minor irrigation corporations, zilla parishads/Panchayats, and other departments like agriculture.
3. Urban water supply: Public health/public works department.
4. Rural water supply: Gram Panchayats.
5. Government tube wells: Constructed and managed by irrigation/water resources department or by tube well corporations set up for the purpose.
6. Hydropower: State electricity boards.

States also generally plan, design and execute water supply schemes and often continue to operate through their State Public Health Engineering Department (or for some states Panchayati Raj Engineering Department or Rural Development Engineering Departments) and Water Boards. Even at this level, though there are diverse departments and agencies involved over water resource management but their role remains fragmented (World Bank, 1998).

Sector Agencies outside of Government

The involvement of the private sector is mainly in supply of materials and construction and to small extent maintenance of the water related projects. The state agencies also employ the help of private consulting firms (and NGOs) although on a very limited basis. The private sector with its involvement in construction under government projects through contracts comprises a considerable part of capital investments. Services from private firms amounts to more than two thirds of annual investment in the sector. The state government through its agencies manages bore well drilling and hand pump installation. But the groundwater development sector particularly the drilling of irrigation tube wells has depended largely on the private sector with a huge network of private drilling contractors. In the rural sector, local private contractors & local private mechanics provide maintenance and repair services for farmers' irrigation tube wells.

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[314] *Ibid.*

The sector in India receives assistance and aid from numerous external multilateral and bilateral agencies. Some of the external support agencies (ESAs) include the bilateral agencies of Japan, the United Kingdom, the United States, Denmark, Sweden, Germany, Australia, Netherlands, etc. and multilaterals such as the World Bank, WHO,UNICEF, Water and Sanitation Program – South Asia, UNDP, and the European Union. [315]

National Policy on Water

The first National Water Policy[316] (NWP) was adopted in 1987 but it was later revised in 2002. According to the policy, planning, development and management of water resources need to be governed by national perspectives. The emphasis is more on river-based planning for water use. For water allocation main priority has been given to drinking water followed by irrigation (agriculture), hydropower, ecology, navigation, and industrial or other uses. The priorities could be modified if necessary by the area /region specific considerations. As water resources development is a state-governed subject, the states are required to formulate their own state water policies within the realm of the NWP, followed by set up a plan for water resources development. Presently, several states in India have come up with their own water policies. [317] Few among the apparent trends of the policy are the increased private sector involvement in water control and use from planning, development, and administration of water resource projects.[318] Particularly the urban water supply is singled out for private sector involvement.[319]

Water Governance in Transition

For more effective dealing with emerging challenges in the water sector today, structural changes are in progress to see that there is appropriate governance in water and also its management. In more recent years there is also sustained demand from various quarters of society asking for the government to transform its role from a service provider to facilitator so it can provide the required level of financial and

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[315] India Assessment 2002. p.27.

[316] Source, Government of India, Ministry of Water Resources, 1 April 2002.

[317] Andhra Pradesh (2008), Assam (2007), Himachal Pradesh (2005), Karnataka (220), Kerala (2008), Madhya Pradesh 2003, Maharashtra(2003), Orissa (2007), Punjab(2008), Rajasthan(2010), and Uttar Pradesh (1999).

[318] National Policy on Water, 2002: 13.

[319] Rajasthan State Water Policy 1999: 9.

policy support to communities and community-based institutions, thus fulfilling services at desired levels on a sustainable and equitable basis. Such changes in processes are being reflected in the Indian government's policy through various water sector reforms.

Water Sector Reforms

Water sector reforms promote the integrated management of water resources and though broadly conceived, are not necessarily comprehensive. It involves primarily the need to conceive water as an economic good or commodity, to seek its 'efficient' use to deal with scarcity. Another dimension is the drive for institutional reforms with reduction in the influence of the states, through a decentralisation process and participation of water users; it also includes calls for private sector participation. Responses to the water sector reforms have differed sector to sector and areas, also according to context. It has not been mainstreamed to a vast extent in India, as combinations of factors have led to its opposition, for instances cases where outright privatization of water services was introduced and limitations of project-by-project reforms. Few of the major reforms[320] include:

1. The Accelerated Rural Water Supply Programme (ARWSP), the first major initiative commenced in the year 1972-73. A Technology Mission on Drinking Water was subsequently launched in 1986 to give coverage to the programme. The mission was renamed the Rajiv Gandhi National Drinking Water Mission in 1991-92. The Department of Drinking Water Supply (DDWS) 1999 was formed under the Ministry of Rural Development (MoRD). The first major sector reform project (SRP) was started the same year. The department was renamed the Department of Drinking Water and Sanitation in 2010. Finally, in 2011, it was conferred the status of a ministry. This ministry is the nodal department for all activities in the sector, ranging from overall policy planning, funding and coordination of programmes focused on drinking water and sanitation in the country.

[320] UNICEF, FAO and SaciWATERs. 2013. *op. cit.* pp.59-62.

2. The Integrated[321] Watershed Management Programme (IWMP) is an initiative of the Department of Land Resources (DoLR) of the Ministry of Rural Development MoRD. The IWMP under the Eleventh Plan (2007-12), is a format incorporating three watershed programmes, viz. integrated wastelands Development Programme, Drought Prone Areas Programme, and Desert Development Programme; implemented under the Common Guidelines on Watershed Development, 2008. The aim of the programme is towards restoration of the ecological balance through harnessing, conserving and developing degraded natural resources like soil, vegetative cover and water.
3. Participatory Irrigation Management (PIM) an essential part of any systemic reforms, aims at involving all stakeholders and is acknowledged as an element of policy. Department of Water Resource (DoWR) brought out a Model Act in 1998, which was to be adopted by state legislatures for enacting new irrigation acts or amending existing acts for facilitating PIM.[322]
4. Ever since the Government in 1991 opened up the power sector to private players, hydro power, irrigation, water supply and industrial water supply have also opened up to private sector. The Eleventh Five Year Plan document of the Planning Commission of India emphasises private sector investments improving infrastructure and public utility systems through various Public-Private Partnerships (PPPs).
5. A new change in the water sector is the advent of the advent of the Independent Regulatory Authorities or IRAs at the state level. Some of the focus areas of the IRA are in five prime areas of governance: (a) tariffs; (b) distribution through entitlements and allotment; (c) resource planning; (d) private sector participation; and (e) public participation.

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[321] Other ministries Ministry of Agriculture (MoA) and Minstry of Environment and Forest (MoEF) are also involved.

[322] Fifteen state governments (Andhra Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Sikkim, Tamil Nadu, and Uttar Pradesh) have enacted a new PIM Act or made amendments to their existing ones. The remaining state governments, including Punjab, Haryana, Himachal Pradesh, Manipur, and Arunachal Pradesh are in the process of taking action (Planning Commission, 2010).

6. In the last 15 years the states and Union territories have started to adopt ground water legislation according to the Model Bill (originally circulated from the 1970's onwards) due to the existing importance of groundwater.
7. A sanitation programme for rural areas the Total Sanitation Campaign or TSC in 1999 was launched after the restructuring of the Comprehensive Rural Sanitation Programme. The major objectives of the TSC comprises of improving the general quality of life and increasing sanitation coverage in rural areas by access to toilets for all by2012 through motivation of communities and panchayati raj Institutions.
8. The National Urban Sanitation Policy was launched by the MoUD in 2008. Its main focus is not simply infrastructural development but also on outcomes and behavioural changes. Under this policy, all the states in the country are required to develop state sanitation strategies as per the national guidelines.

MANAGEMENT OF WATER RESOURCES IN NAGALAND

In Nagaland traditional land ownership system, governed by customary law, is directly related to the ownership or management of water resources. The community or privately owned lands consist of nearly 90% of the total land area. The main occupation in the state is agriculture with over 70 percent of population living in rural areas with dependence on agriculture and allied activities. 88 per cent of the forests are owned and managed by the village councils, communities or privately while the government has control over only 11.7 per cent of the forests.[323] According to the 2011 census, the State has a predominantly rural population at 71.03 percent of the population living in villages, while the rest consist of the urban population. In such a scenario the distinct sanction granted by the Article 371(A) of the constitution, with protection of its customary laws and procedure, (including ownership of land and its resources) gives an overriding supremacy over the national statutes.

In Nagaland, due to the topography, it has proved to be a challenge to develop and protect and manage water resources. It has not been viable to connect many villages, hamlets and even distant towns with proper drinking water supply facility. As a result many of these places continue to depend on their own traditional streams and wells

[323] Annual Administrative Report, 2001-2001, Department of Forest, Environment & Ecology and Wildlife, Nagaland.

for their water needs. In numerous areas it has been difficult for the Government to implement water supply schemes due to land disputes or land ownership issues and liabilities connected to it.

Immediately following the Statehood in 1963, without proper planning water supply schemes were implemented and executed by departments such as Public Works Department, Rural Development Department, and Agriculture Department etc. It was the Public Works Department which started piped water supply system in a few rural and urban areas and this was done without sufficient technical supervision.

The most recent statistics on water supply coverage, in Nagaland, show that so far only 25% are Fully-covered, 72% are Partially-covered and the remaining 3% are Not-covered, with water supply. These 'Not covered' villages include the Problem villages where there is either no water source within feasible distance or the available source is disputed or feasibility is only by pumping. Pumping schemes are technically feasible, but economically neither viable nor sustainable; especially in rural areas.[324]

The State Government presently works within this very limited framework and implementation of water sector policies and plans are often slowed down or thwarted due to the prevailing land ownership patterns. The key institutional agencies involved in the water management in the state are listed below.

Department of Public Health and Engineering (PHED)

The Public Health and Engineering Department (PHED) is the nodal agency of the State Government for water supply and sanitation. All work related to safe/portable drinking water supply, safe disposal of solid and liquid waste and environmental hygiene is executed by the department.[325] As the implementing agency, the funding for the department is obtained from centrally sponsored programs of Accelerated Urban Water Supply Programme (AUWSP) of the JNNURM[326] and the MoUD-ADB[327]-North Eastern Capital Cities Development Programme (NECCDP), and the

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[324] Public Health and Engineering Department, '*Communalization of Water Supply and Sanitation Model Rules 2008'* Available as *Annexure A - PHE RTI Sec 4(1)(b) 20012-1.* p..34.

[325] Annual Administrative Report, 2012-2013, Department of Public Health and Engineering, Nagaland.

[326] Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

[327] Ministry of Urban Development (MoUD) - Asian Development Bank (ADB).

Bharat Nirman – Rural Drinking Water programme (National Drinking Water Mission) in addition to State Plan. The department also does conservation of water resources in and around their catchment areas, institutionalizing community participation in the implementation and management of rural water supply projects, restoration and revival of old water bodies such as wells and lakes, etc.[328]

1. For Rural water supply a total 1460 habitations have been covered till 2012-13 report. This has been augmented and further made possible through schemes under (NLCPR) DONER[329] Ministry and Environmental & Forest Ministry. It covers Chen EAC headquarter, Chenwetnyu village and 24 villages of Chiephobozou block. The expenditure on this project till February 2013 is Rs. 1800.98 lakhs (i.e. Central+ Rs. 1692.15 lakhs + State= Rs. 108.83 lakhs.)
2. The state capital Kohima with an increase in urban population has had water crises in recent times prompting the Government to augment its water supply by the introduction of a scheme under the North East Region Development Programme. The project involves pumping of water from the Zarü Stream of Dzüü River to a reservoir at Kigwema Village. From this reservoir the water will be conveyed to the Kohima by gravity. Another urban project is installation of Metering system in Dimapur Town.
3. Under Urban Sewerage and sanitation schemes the department has initiated the pollution abatement of Dhansiri and Diphu Rivers at Dimapur.
4. Under the PHED 1232 habitations have been communitized upto 2011-12 out of the total 1460 habitations. The department supervises the communitisation of water supply and sanitation in consonance with the Sector Reforms Programme of the Department of Drinking Water Supply, Ministry of Rural Development, Government of India. The communitisation of these basic services is carried out by way of handing over the Urban Water and Sanitation schemes to the Municipal/Town Councils and the Rural schemes to the Water and Sanitation (WATSAN) Committees.[330]

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[328] Nagaland State Action Plan on Climate Change: *Achieving a Low Carbon Development Trajectory*, Version 2012.2. p.72.

[329] Department of North Eastern Region.

[330] Public Health and Engineering Department, '*Communalization of Water Supply and Sanitation Model Rules 2008' loc cit.,* p.36.

5. The Department has initiated water testing in two levels, through training of village level functionaries in on testing water quality with Field Testing Kits, and it has functional laboratories in 11 districts to do the same. Mobile water Testing Laboratories is also engaged in all districts particularly the rural areas.

Department of Soil and Water Conservation

The Department of Soil & Water Conservation is an Agriculture & Allied Se ctor Department. It was bifurcated from the Department of Agriculture and duly established as a full fledged Department in 1968. The primary focus of the Department is for conservation of water resources with a focus on enhancing agriculture production and its sustainability in the state and increasing drinking water potential in the rural areas. Such protection measures are implemented through adaptation of appropriate scientific soil and water conservation measures. Under the state plan some of the programmes and projects of the department includes:

1. The objective of Integrated Water Resources Development & Management scheme is to provide safe drinking water to the rural areas by developing existing water sources and their catchment areas, building upon traditional technology where gravitational water supply is not available.
2. The main objective of the Integrated Watershed Management Project (IWMP) scheme is to conserve, develop and manage soil and water resources on watershed basis in relation to soil moisture conservation, water conservation, and land management. Under the scheme, a mini-watershed of about 200 Ha. area is to be taken up as a project in each Rural Development Block.
3. Under the Stream Bank Erosion Control (SBEC) the department administers a comprehensive multi-purpose and multi-dimensional river management plan which is linked to anti-erosion and anti-soil runoff; with stream bank erosion control to protect river banks from heavy rainfall runoff, due to floods and change in river course.
4. The department is also involved in conservation of water bodies, renovation of traditional wells and water holes, lakes and building water conservation structures.

5. The department on a regular basis monitors meteorological parameters, soil status and land use across the state using remote sensing technology and though soil testing laboratory and testing of other parameters through cartographic laboratory and meteorological stations.
6. The department involved in the augmentation of drinking water sources in rural areas through construction of rooftop water harvesting structures, and through catchment area treatment of springs in some areas of the state.
7. The River Valley Project (RVP) a Centrally Sponsored Scheme is being implemented in Dhansiri River Catchment for prevention of land degradation, prevention of soil erosion and and also to reduce flood peaks and volumes of runoff. It's operated under guidelines issued by Ministry of Agriculture, Department of Agriculture & Co-operation (National Rural Mission) Government of India.
8. Water harvesting ponds construction have been implemented under another central scheme the Rastriya Krishi Vikas Yojana (RKVY) commencing from 2007-08. It envisages using the impounded runoff water for agriculture, drinking water and other purposes.
9. With the help of the North Eastern Council (NEC), Shillong, implementation of a watershed treatment for flood mitigation & livelihood has started by the year 2013. It has among other things drought proofing, assured irrigation, flood mitigation and ground water augmentation.

Department of Irrigation and Flood Control

The Department of Irrigation and Flood Control is a water resource department. Major programme of the Department are funded under Ministry of Water Resources (MoWR), Govt. of India. The technical appraisal and proposals for implementation of its programme are vetted through the agencies of the MoWR such as Brahmaputra Board (BB) and Central water Commission (CWC). Hence, in various Committee of the Department the representative of the BB and CWC are standing members. As such, due consultation is always taken with the concerned central agencies mentioned above.[331] The Irrigation and Flood Control Department was formed out of Agriculture Department on 1st April 1988 as an Engineering Department to take up various works

[331] Department of Flood and Irrigation Control "Disclosures Under Sec 4 of Right to Information Act 2005".

in irrigation sector, flood mitigation and erosion control in the State. It deals mostly with augmentation of infrastructure for irrigation projects under the Government of Nagaland for all round water resource development. Furthermore, the Department undertakes the civil works of Land Record & Survey Department, and Land Resources Development Department Nagaland.

The department is involved in the construction of irrigation projects; groundwater development, command area development and flood management through Anti-erosion/Drainage/Flood Mitigation works. The Department also conducts Irrigation Census every five years in consonance with all the States of the country. Funds from the Accelerated Irrigation Benefit Programme (AIBP), the Bharat Nirman Programme (BNP), the Command Area Development and Water Management Programme (CADWMP) of MoWR, the NLCPR -Non Lapsable Central Pool Resources, and the State Plan are available for the above activities. Anti erosion works along the rivers of Dhansiri, Chathe, Nkwareu, Milak, Tizit and Dikhu to protect Dimapur area, suburban areas of dimapur district, Jalukie area, Tuli town, Tizit town, and Naganimora town respectively have also been undertaken under the Flood Management Programme of MoWR. [332]

Nagaland Pollution Control Board

The Nagaland Pollution Control Board monitors the discharge of sewage and trade effluents in rivers or streams as per laid down standards. The department has taken initiative under special campaigns to monitor water quality in three rivers in Nagaland, namely, Dhanasiri in Dimapur, Chathe in Medziphema and Dzu-u in Kohima. According to a report of the Central Pollution Control Board, it has 28 Water Quality Monitoring Stations in Nagaland, with 16 rivers; 2 Lakes, 10 Groundwater tested 18 times per year and another 10 half yearly monitoring through stations in States. [333] The main source of funding of these activities is the National Water Quality Monitoring Programme (NWMP).

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[332] Nagaland State Action Plan on Climate Change, Version 2012.2. op. cit. p.73.

[333] Monitoring of Indian National Aquatic Resources, Series: MINARS/ /2010-11 *Status of Water quality in India- 2010***,** Central Pollution Control Board, Ministry of Environment & Forests.

The Private Sector

While the state faces acute drinking water during the lean period, fairly large sections of the population become reliant on the supply of the unregulated private water entrepreneurs. These players are operating individually owned business not yet established to the level of an association or corporation. The private players usually access water from perennial streams originating in privately owned lands and sell the water to general public. In places like Kohima, Mokokchung, Wokha and Mon town beside growing number of places, the private distributors supply water either through their own network of rubber pipelines (many overhead); or supply through tankers; or even though pushcart system, selling by the small container. There is no regulatory mechanism to guide the supply and demand side management of water from these sources.

EXISTING SITUATIONAL CHALLENGES OF THE WATER SECTOR IN NAGALAND

Due to the traditional land ownership hold in Nagaland, the pattern of water management has a dual characteristic. The privately owned land and water sources are independently managed and by and large out of the reach of the Government which is contained in formulating policies and even imposing it through its various agencies within these areas. Implementation of plans or projects usually needs the authorization of the traditional land owners. A case to state is the Dzükou bulk water supply scheme project for Kohima; the lands required are in the possession of the southern Angami villages, therefore, the Southern Angami Public Organization (SAPO) as the authorized agency on behalf of these villages has to be consulted at each stage of field investigation. Without their consent and support, this project cannot be completed. Besides this, the prolonged unstable socio-political situation in the state has also prevented implementation of any major project. As a result the State Government's water management programmes have not been pervasive throughout the state and sectoral differences are existent. Policy implementation has not taken off as rapidly as expected.

Water sector reforms have been initiated in India though the National Water Policy 2002 providing a unified direction and a general frame work for water resource management, development and regulation. Following this, over the past decade, a few states in India have formulated their own reforms through water policies tailored to suit its own specifications. Yet all water policies, including the national policy, are

based on similar set of principles with stronger emphasis on integrated water resource management and a focus on encouraging private sector participation. Most of the states which have implemented a water policy have done it in the interest of their own states, in order to have a streamlined water policy, to have a clear dictate in how they develop their resources especially pertaining to that of sharing of waters in interlinking river projects. The neighbouring state of Assam is one among the 11 states which has adopted their own water policy. However, this has been far from reality in Nagaland State, where the Government has not been able to adopt its own water policy, due to the complexity of socio-political issues yet to be addressed, and in addition that of the issue of traditional land ownership set up.

Topographical features consisting of a hilly terrain with a succession of steep ridges, with a few rivers and streams separating the deep valleys are generally small both in width and length. The major drainage system consisting of the Doyang, Dhansiri and Dikhu Rivers flowing westward into the Brahmaputra and the Tizu River flowing eastward into the Chindwin River in Myanmar, due its size and volume of water does not have the capacity to put mega-power projects into operation. It has the capacity to implement only smaller power projects like the 75 MW Doyang Hydro Electric Project. The Central Policy on power sharing has benefitted the state as since it has a limited hydro power potential, and is getting power at cheaper rates cheaper rate from Central projects like Loktak hydro project in Manipur, *Kopili* Hydro Electric Project Umrongso, North Cachar Hills, Assam; Ranganadi Hydro-Electric Power Plant (RHEP), at Yazali in Lower Subansiri district of Arunachal Pradesh and other hydro and thermal plants in the North Eastern region. The state is buying power from its North Eastern neighbours for about Rs 160crores but its revenue generation is only about Rs 82.50 crores. After counting every purchase and expenditure details of the state it has been found out that that the state is not able to meet 80% of the expenditure (i.e. 80% loss) of supplying power to the people of Nagaland. [334]

It has recent a policy of the Indian Government, particularly the Ministry of Water Resources (MoWR) with the National Water Policy (2002), to encourage states to implement multipurpose water projects, having an integrated management aspect, and

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[334] A. Jamir, IAS, Addl. CS & Dev.Commissioner, Nagaland: paper entitled *"Stakeholders of the Power Sector in Nagaland – A overview",* 3rd SAC Meeting held at Hotel Japfu on 28th Sept. 2011.

many states have done so making water plans according to their own situational needs and conditions. However, Nagaland state continues to suffer in this aspect. There are governmental agencies like Soil and Water Conservation (DSWC) and the Department Irrigation and Flood Control (DIFC) whose programmes do not provide a comprehensive coverage to the state as a whole. Growth has been slow and departmental plans have been singular in approach. Till now, implementations of the projects are localized and sectoral in character. Scientific assessments are in want and data collection is still in its nascent stage as procurement of laboratory and testing equipments for all districts are still in the 'earmarked sector schemes' particularly in the instance of Soil & Water Conservation Department.[335] The Public Health Engineering Department (PHED) and the Soil and Water conservation Department (SWCD) working towards ensuring drinking water security still struggles to build up its infrastructure and technical proficiency for maximized utilization of water, particularly from runoffs during the monsoon. In the same manner, the Irrigation and Flood Control Department has not come up with an upto date, detailed map showing soil erosion and land slide prone regions in Nagaland thereby this is a hindrance to the proper implementation of anti land slide works and mitigation measures for soil erosion. Under the Water Resource Division, Planning Commission of India, certain provisions have been made for enhancement of powers of the State Governments for sanction of Flood Control, Drainage, anti-water logging and anti-sea erosion scheme, but even such provisions is not applicable in totality to the Nagaland state as it has not encountered any flooding, and sea erosion due to its topography.

Whether in the case of hydro-power projects or irrigation projects, Nagaland Government has had to work within certain limitations as stated above. So far most the projects are either small scale projects projects, or compact area projects. For instance, 86 percent of the cultivable area in Nagaland is under traditional Jhum and terrace rice cultivation system and rest under commercial and other crops. Until 2006-07, a total irrigation potential of 103217 ha had been created, only 60963 ha have been developed.[336] Due to the physical terrain and cultivation method in Nagaland,

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[335] Department of Soil & Water Conservation Nagaland: Kohima, 31-03-2012, *"Disclosures Under Sec 4 of Right to Information Act 2005"*.

[336] Nagaland State Action Plan on Climate Change, Version 2012.2. *op. cit*. p.37.

irrigation projects cannot be planned or implemented in a extensive scale like in other states.

It is also apparent that overlapping responsibilities between the various departments is an impediment to proper management of water, as overlapping area coverage in some areas/districts, leaves out some parts of the state from benefitting from the projects. Besides this, in many cases development is also incremental as central funds or schemes are released in a phase wise manner with a caution that improper implementation of the work will lead to delay in the release of more funds. Some projects which would have greatly benefitted the people have been delayed due to this factor. While there are some integrated central projects under implementation in the water sector, in Nagaland such integrated projects are still new, exploratory and experimental by nature. The integrated approach is seen mostly in central projects, while in the planning and implementation of projects under the state plan the departments usually take unitary approach. As a result, there is clearly a lack of a unified perspective in planning, management and use of water resources.

Nagaland gets on an average 1800-2250mm of rainfall during the monsoon from May to October. It has presently 15 meteorological centres located in various districts of the state.[337] Together with some north eastern states like Arunachal Pradesh at 2,782mm; Assam and Meghalaya 2,818mm and Manipur and Mizoram at 1,881mm, Nagaland has an average rainfall much higher than the rest of the country except in the coastal regions.[338] Yet during the lean season without rainfall from November to April, the entire state faces acute water shortage showing that there is a systematic failure to conserve or harvest rain water. For instance, in the year 2010, due to acute water shortage all over Nagaland, the PHED rationed water supply. It supplied water through tankers on a rotational basis to residential areas, excluding supply to business establishments and individuals; besides a strict directive was issued that the supply water was to be used for cooking and drinking purposes only.[339] Due to existing conditions as this, the unregulated private sector is playing an increasing role in water supply during the lean season in Nagaland.

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[337] Directorate of Soil & Water Conservation (Soil Survey Wing) "*Meteorological Report*", 2004-2010.
[338] Data of average annual rainfall Retrieved from http://www.rainwaterharvesting.org/urban/rainfall.htm.
[339] The Hindu, "Drinking water scarcity grips most parts of Nagaland" Kohima, March 12, 2010.

MON DISTRICT

	Village/ Town/ Colony:		
1.	NST Colony	12	
2.	Santham Ward	2	
3.	Forest Colony	1	
4.	Block Colony	1	
5.	Medical Colony	6	
6.	Fire Brigade Colony	2	
7.	Walo Ward	10	
8.	Thamnan Colony	11	
9.	Newside Colony	6	
10.	Bazar Colony	5	
11.	Private Colony	2	
12.	Papong Ward	3	
13.	Techa Ward	4	
14.	BOC Colony	1	
15.	A.T.C. Colony	1	
16.	Yaklom	1	
17.	Mission Compound	5	
18.	Thamnyu Ward	1	
19.	Lochong Ward	1	
	Total	75	

(Figure 1)

Respondents were mainly from the Konyak tribe, all residing in Mon district and as seen in *figure 1*, from 19 colonies/wards stretched across Mon town.

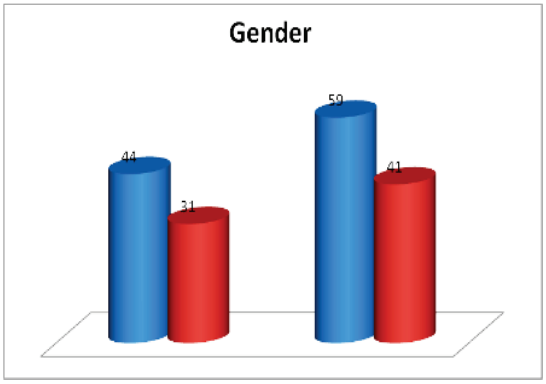


Figure 2

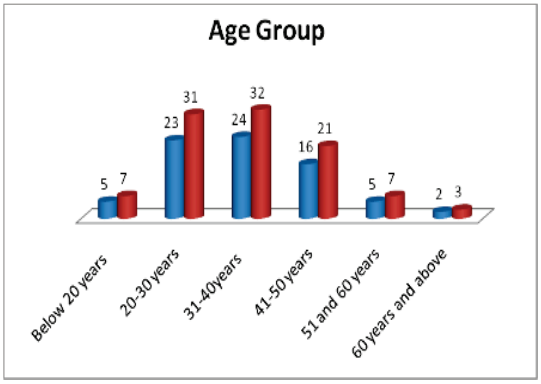


Figure 3

Figure 2 shows the gender of the respondents from Mon district. 59% of the respondents were male and 41% female. ***Figure 3*** shows the range of age of the respondents; 32% were from 31-40 age group, 31% between 20-30 years, 21% between 41-50 years, 7% below 20 years of age, 7% were 51 years and above, and 3% were 60 years and above. The data indicates that males made a 59% majority of the respondents from Mon district while female respondents were relatively lesser. The respondents were from all age brackets, but the 20-30 years and 31-40 years, made up 31% and 30% respectively. Respondents from the lower and older age group were lesser in number.

(Figure 4)	Occupation:	Male	Female	Number count
1.	Teaching	9	5	14
2.	Business	6	1	7
3.	Student	11	9	20
4.	Government Employee	6	5	11
5.	Religious activity	1	----	1
6.	Politician	1	----	1
7.	Housewife	----	3	3
8.	Farmer	4	3	7
9.	Unemployed	3	2	5
10.	NGO	3	----	3
11.	Nurse	----	2	2
12.	Typist	----	1	1
		44	31	75

The respondents were from 12 different kinds of professions/occupations as seen in ***figure 4***. 14 respondents were from the teaching profession, 7 from the business background, 20 were students, 11 government employees', 1 involved in religious activity, 1 politician, 3 housewives, 7 farmers', 5 unemployed, 3 from Non Governmental Organisations', 2 nurses, 1 typist. This data indicates that the

respondents' were spread across all line of work, although respondents from the education sector were more with 20 students' and 14 teachers'.

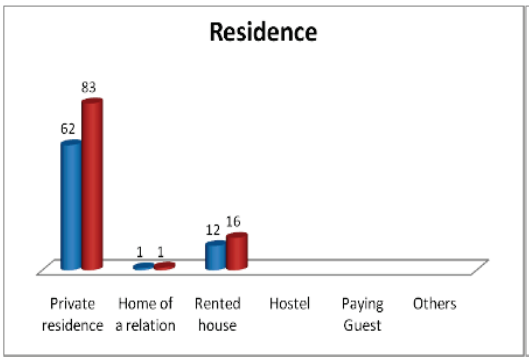


Figure 5

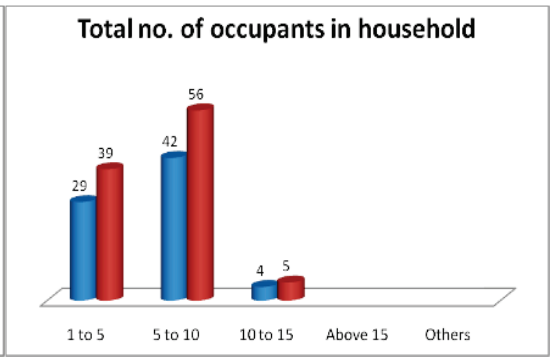


Figure 6

A vast majority 83% of the respondents' stated that they reside in their own private residence, 16% resided in rented houses and 1% in home of a relation as seen in ***figure 5***. The total numbers of occupants in a household are listed in ***figure 6,*** 56% said 5-10 members, 39% 1-5 members, 5% 10-15 members. The responses shows that in Mon district, 83% of the respondents resided in their own homes and more than half of the respondents (56%) came from households having 5-10 members, 5% even had 10-15 members. This shows that a typical household in Mon district had a fairly large number of occupants which may have included besides the immediate family, relatives and others.

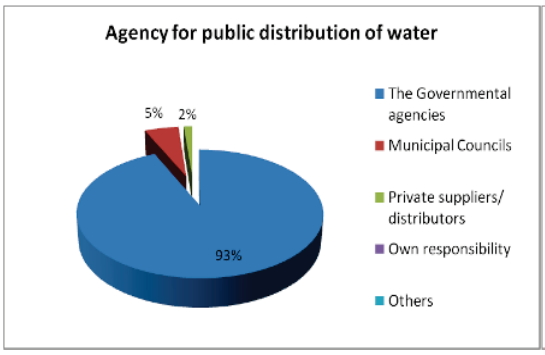


Figure 7

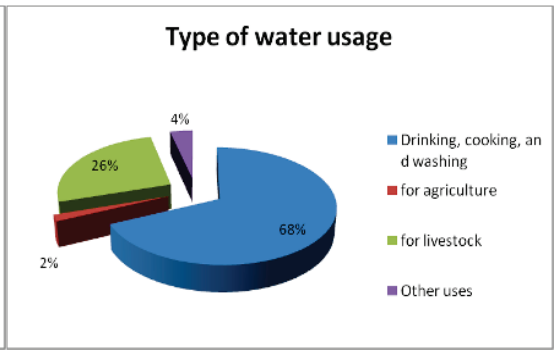


Figure 8

A question was raised as seen in ***figure 7*** as to which agency should be responsible for public distribution of water, and the responses varied; 93% replied that the governmental agencies should be responsible for the public distribution of water; 5% replied 'municipal councils', and 2% 'private suppliers/distributors'. The type of water usage as seen in ***figure 8*** according to the respondents were for 68% 'drinking,

cooking and washing', 26% ' for livestock', 4% for 'other uses' such as 'washing vehicle', 'flower business', etc., and 2% 'for agriculture'. The above data indicates that 93% respondents in Mon district strongly feel the government should play a pivotal role as the main agency for public distribution of water. Water usage was mainly confined for 68% to basic daily needs such 'drinking, cooking and washing', other uses such as 'for livestock', 'agriculture', etc. had been mentioned. This indicates moderate water usage for basic needs, and no lavish need or use was noticeable.

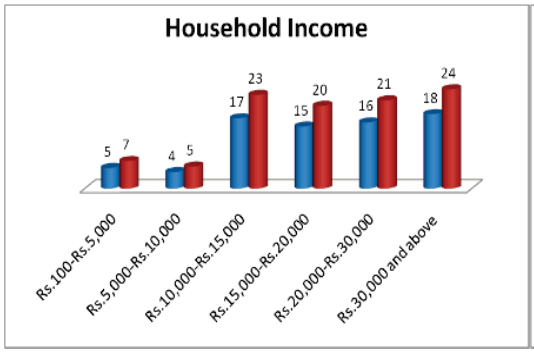


Figure 9

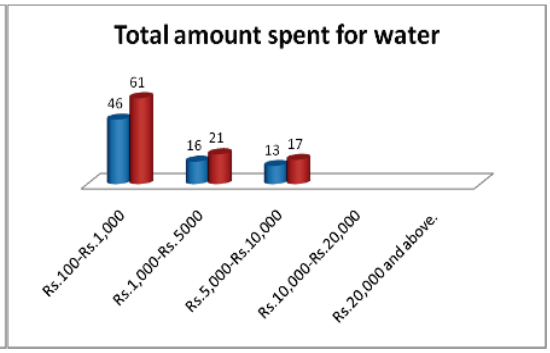
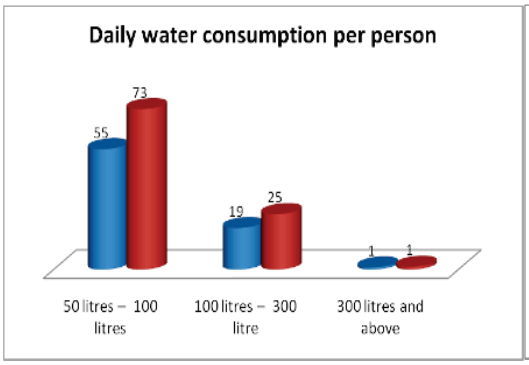


Figure 10

The respondents' came from households with diverse range of incomes as seen in ***figure 9.*** 24% said Rs.30,000 and above, 21% replied Rs.20,000- Rs.30,000, 20% Rs.15,000-Rs.20,000, 23% Rs.10,000-Rs.15,000, 5% Rs.5,000-Rs.10,000, and 7% Rs.100-Rs.5000. ***Figure 10*** shows the expenditure incurred for purchase of water. 61% of respondents spent Rs. 100-Rs.1, 000, 21% Rs.1, 000-Rs.5, 000, and 17% Rs.5, 000-Rs.10, 000. The above statements indicate that income of the household's in Mon district were reasonably spread out among which the higher range of 24% respondents' were from households earning Rs.30, 000 and above. A majority 61% of the households incurred a monthly expenditure of Rs.100-Rs.1, 000 on purchase of water for their household's.



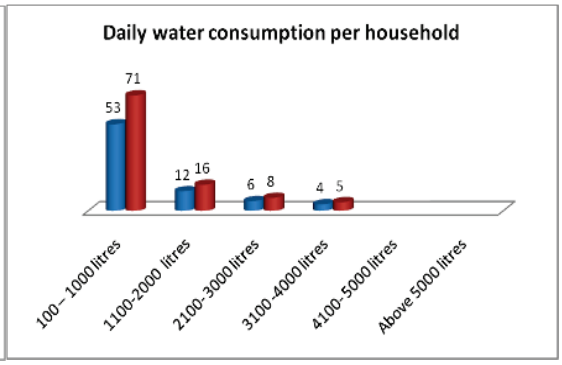
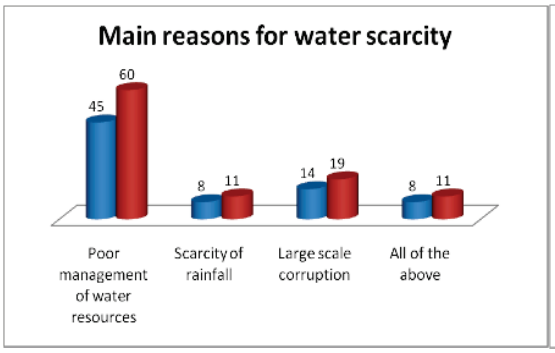


Figure 11 **Figure 12**

Responses are shown in ***figure 11***, assessing the volume of water consumed by a person per day, 73% consumed 50-100 litres' per day, 25% consumed 100-300 litres', 1% consumed 300 litres' and above. ***Figure 12*** shows the volume of water consumed in a day by a single household in Mon district. 71% of respondents replied 100-1000 litres' per day, 16% 1100-2000 litres' per day, 8% 2100-3000 litres' per day and 5% 3100- 4000 litres' per day. The above data illustrates that a majority of the respondents in Mon district, namely 73%, consumed 50-100 litres' per day, and only 1% consumed 300 litres' and above. Also 71% of the respondents' said that daily consumption per day for their households was 100-1000 litres; showing minimal usage of water, only 5% said that usage was from 3100- 4000 litres' per day.



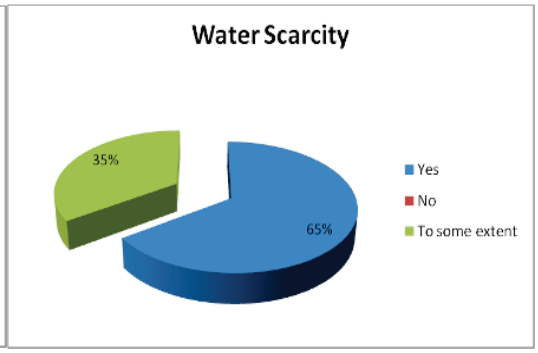
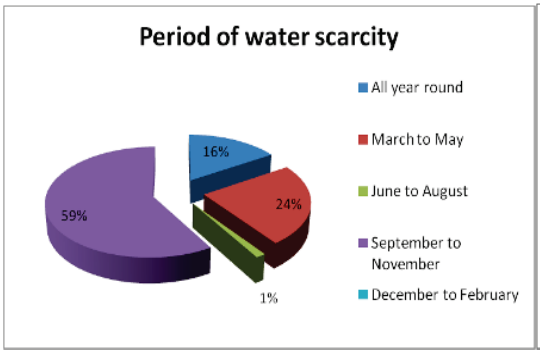


Figure 13 **Figure 14**

Out of the total respondents, as in ***figure 13***, 60% of the respondents said that water scarcity was due to 'poor management of water resources', 19% due to 'large scale corruption'. 11% 'scarcity of rainfall' and 11% have mentioned 'all of the above. Based on the respondent's opinions ***figure 14*** shows out of the total 75 respondents in Mon District; 65% of the respondents faced water scarcity and another 35% of the respondents, to some extent. The responses indicate that all the 75 respondents felt

there was water scarcity or at least scarcity to some extent in Mon district. An interesting point to note was that there was none among the respondents who said they did not face water scarcity. Most of them (60%) felt that the scarcity was mainly because of poor management of water resources.



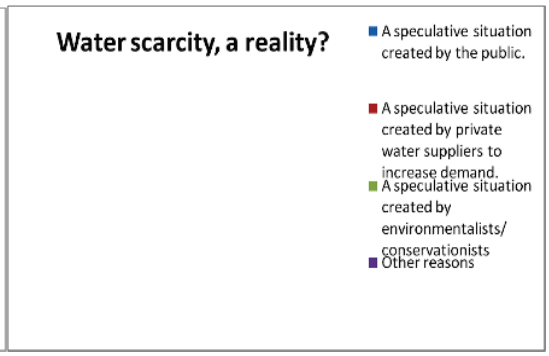
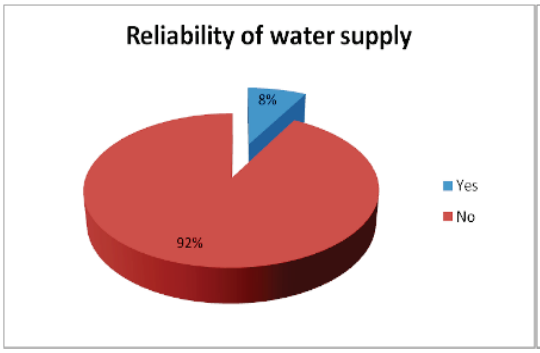


Figure 14.1 **Figure 14.2**

Out of the lot as in ***figure 14.1***, a majority 59% experienced water scarcity during the months of September to November, 24% March to May, 10 % all year round and 1% June to August. As all of the respondents from Mon stated that they faced water scarcity some way or the other, the question of 'whether water scarcity, a reality?' as seen in ***figure 14.2*** was not applicable to them. Therefore, according to the data illustrated above, it can be deduced that a majority 59% of the respondents experienced scarcity of water during the months of September to December. Another point to note is that 16% faced water scarcity all year round.



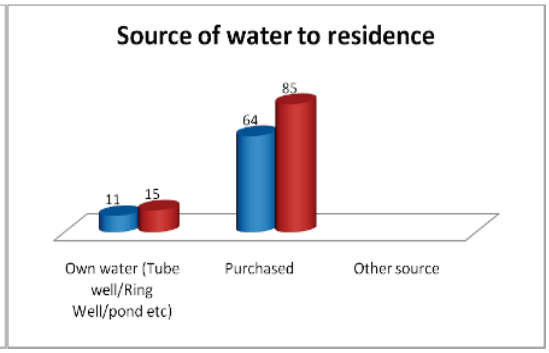


Figure 15 **Figure 16**

In response to the question of reliability of public water distribution system in their locality as in ***figure 15***, an overwhelming 92% replied 'No' and 8% replied 'yes'. ***Figure 16*** shows that out of the total respondents, 85% purchased water from water suppliers, whether it was through the governmental agency (PHED) or private

suppliers. Another 15 percent made use of water source they owned (tube well/ring well/pond). The above data indicates that 92% of the respondents from Mon district thought that the public water distribution system in their locality was totally unreliable. 85% also purchased water either from the governmental agency (PHED) or private suppliers.

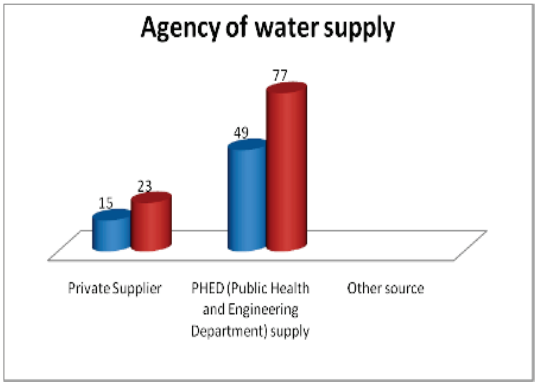


Figure 16.1

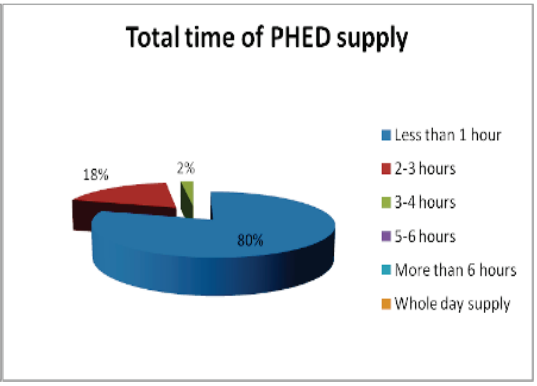


Figure 16.2

Figure 16.1 shows that out of the total respondents who purchased water, 77% purchased water from the PHED, another 23% from the private suppliers. Those who purchased water from PHED, when asked about the total time of supply of water as seen in ***figure 16.2***, 80% said they got less than 1 hour of water per day, 18% replied 2-3 hours and 2% replied 3-4 hours. The above figures show that the out of the samples collected in Mon district, a majority 77% depended on the governmental agency - PHED for supply and purchase of water and a smaller minority depended on the supply of water from private groups of suppliers. 80% of the respondents said that the PHED supply enabled them to get less than 1 hour supply of water per day, only a miniscule 2% said that they received 3-4 hours of supply per day.

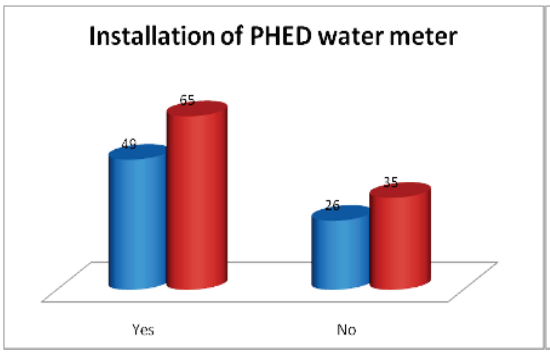


Figure 17

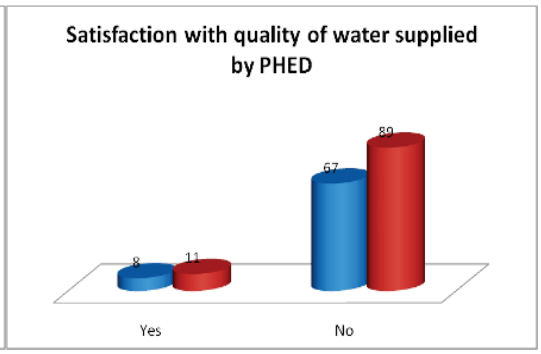


Figure 18

When the respondents were asked if PHED water meters had been installed in their households (***figure 17***) in order to gauge the supply and purchase of water, 65%

replied ‘yes’ and 35% ‘no’. 89% of the respondents’ replied ‘no’ to the question of whether the quality of water supplied by the PHED in Mon district was of a satisfactory quality (***figure 18***). Only 11% replied ‘yes’, that they were satisfied with the quality of water supplied. The responses indicate that many households’ (65% of respondents) had installed PHED water meters. However, an overwhelming 89% of the respondents’ generally expressed dissatisfaction with the quality of water supplied in Mon district by the PHED.

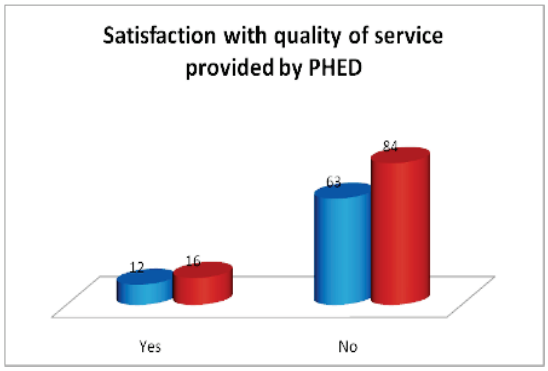


Figure 19

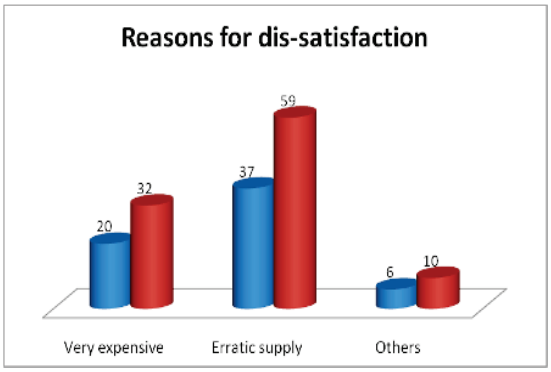
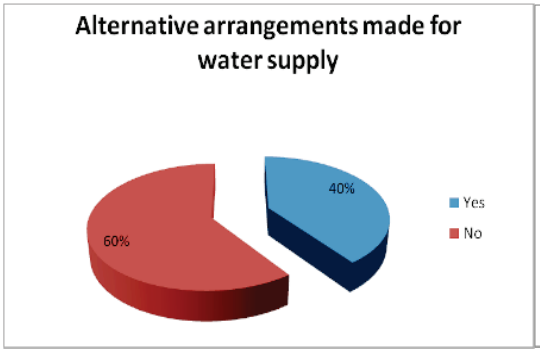


Figure 19.1

Figure 19 shows responses to the question of whether the respondents were satisfied with the quality of service provided by the PHED in Mon district; 84% replied ‘no’ and 16% replied ‘yes’. The reasons given by the respondents for their dissatisfaction were listed as (in ***figure 19.1)*** ‘erratic water supply’ for 59% of the respondents, 32% stated that it was ‘very expensive’ and 10% gave ‘other reasons’ for dis-satisfaction which included ‘no repair of rusted water pipes’, ‘unable to get connection despite repeated appeals’, ‘department has less concern over struggle of people over water issue’. A very high majority of the respondents expressed dissatifaction with the quality of service provided by the PHED. The main reason for discontentment for 59% was given as ‘erractic supply’ and 32% said it was ‘very expensive’ and other reasons were lack of general maintainence of water pipe line and apathy of department officials towards the genuine complains of the public.



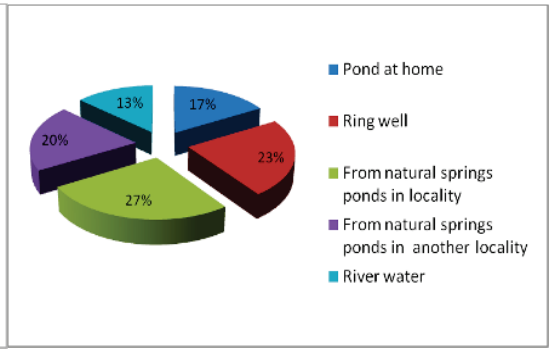
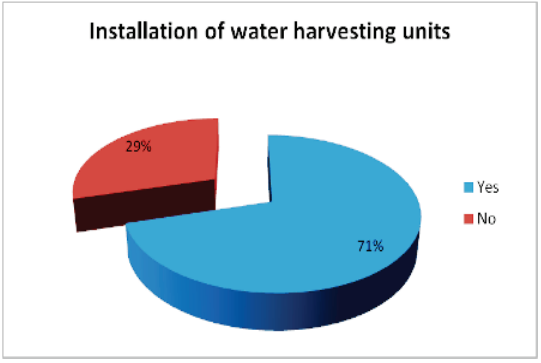


Figure 20 **Figure 20.1**

Figure 20 shows responses to the question of whether the respondents had made alternative arrangements to augment their water requirements; 60% replied 'no' and 40% 'yes'. Out of those that replied in the affirmative as in ***figure 20.1***., 27% said they collected water from natural springs/ponds in their locality, 23% said they made use of ring wells, 20% said they collected water for usage from natural springs/ponds from a locality other than their own; 17% collected it from pond at home; 13% from river. The above responses indicates that a fairly good number (40%) of respondents made arrangements to augment the intake of water for their households; although on the other hand, a bigger majority 60% replied that they were totally dependent on the supply of either the governmental agencies/ private suppliers for their requirements.



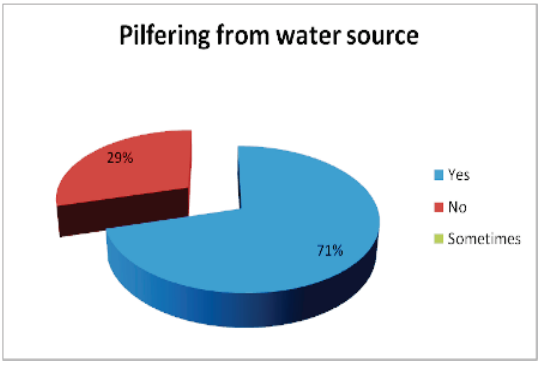
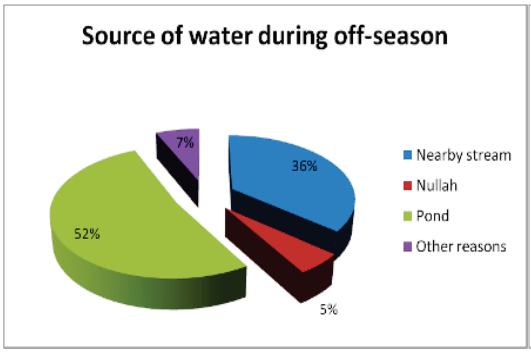


Figure 21 **Figure 22**

Figure 21 shows the responses to the question of whether water harvesting units were installed in the households of the respondents; 71% replied 'yes' and 21% 'no'. Responses are shown in ***figure 22,*** about the question of pilferage of water from the water source and 71% had replied 'yes' and 29% 'no'. The above data indicates that due to scarcity of water in Mon district, most of the respondents' had to resort to some

kind of water conservation; and therefore 71% had said that they had installed some kind of water harvesting unit to be used for their household. A vast number of respondents' (71%) also replied that cases of pilferage of water from their reserves was common for them; this is an indicator that scarcity of water was a crucial issue that may perhaps have had produced contention in society.



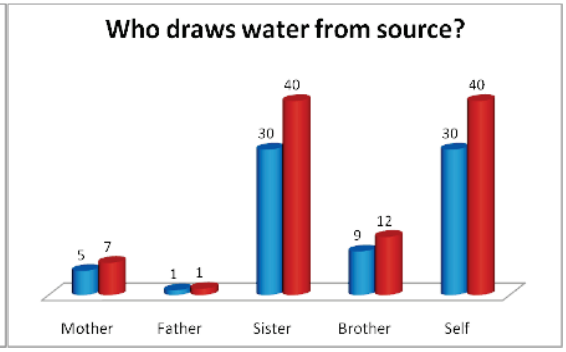
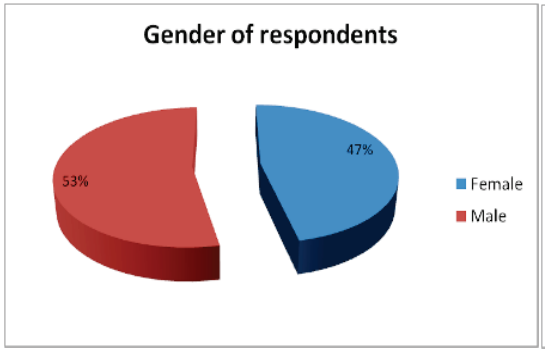


Figure 23 **Figure 23.1**

In ***figure 23***, when asked about their main source of water during off-season, 52 % said 'pond', 36% 'nearby stream', 5% 'nullah', 7% 'other reasons' which included 'public well', and ' drawing from river nearby'. The data gathered from the responses in Mon district shows that the main reason for inaccesibility of private water suppliers to the houses of the respondents' was lack of motorable road. During monsoon off-season, all types of water source were utilised to gather water for use; but mainly drawing water from ponds for 52 % of the respondents' and also 7% 'other reasons' which included 'drawing from river nearby'.In ***figure 23.1*****,** responses are shown to the question as to who draws water from the alternate source of water, 7% replied 'mother', 1% 'father', 40% 'sister', 12% 'brother' and 40% 'self' out of which 16 respondents were male and 14 female.



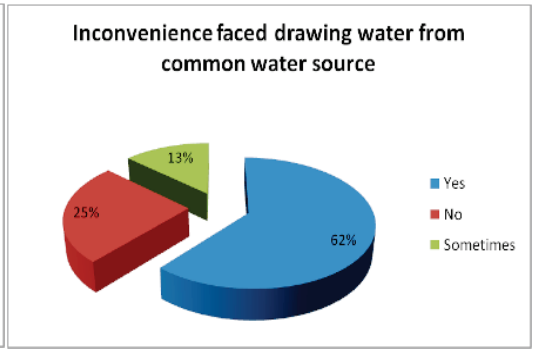
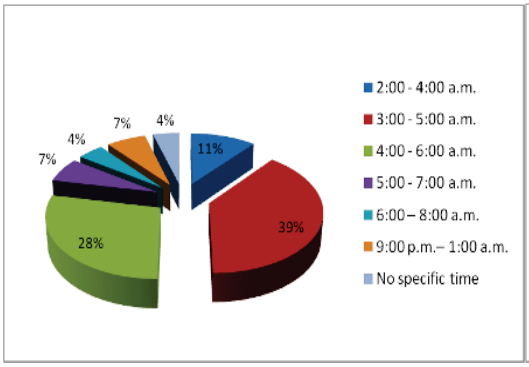


Figure 23.1.(a) **Figure 24**

As seen in ***figure 23.1. (a)*** the gender of the total respondents from Mon district were 53% male and 47% female. The responses indicate that in Mon district, although the whole family was engaged in fetching of water to be used for the household; more females 65% **(*figure 23.1*)** were engaged in fetching water as compared to 35% males. 62% respondents from Mon district expressed inconvenience they faced while fetching/drawing water from source, 13% replied 'sometimes' and 25% said 'no' to the question seen in ***figure 24***.



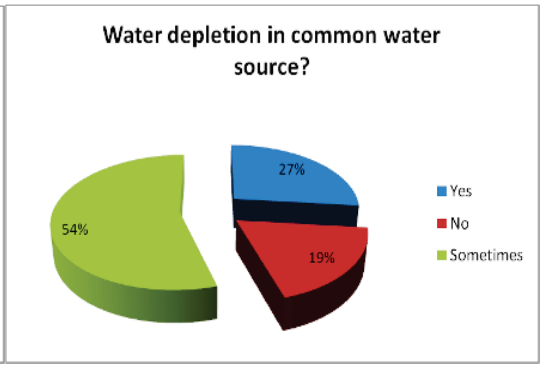
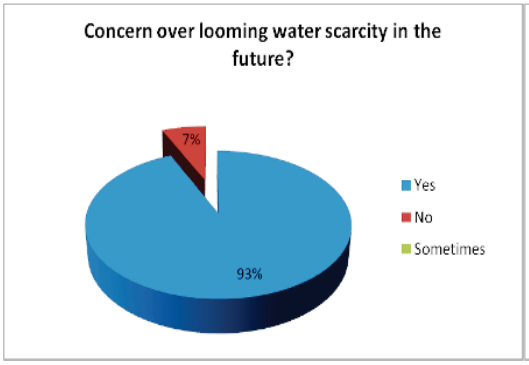


Figure 24.1 **Figure 25**

Also in ***figure 24.1***, responses are shown as to the time when respondents usually fetch/draw water from their usual source; 39% said '3:00 a.m. - 5:00 a.m.', 28% '4:00 a.m. - 6:00 a.m.', 11% '2:00 a.m. – 4:00 a.m.', 7% '5:00-7:00 a.m.', 7 % '9:00 p.m.- 1:00 a.m.', 4% '6:00-8:00 a.m.' and 4% 'no specific time'. The timing shows that 39% woke up early to fetch water '3:00 a.m. - 5:00 a.m.' in the morning; 28% from '4:00 a.m. - 6:00 a.m.'. There were some 7% who fetched water at midnight between '9:00 p.m.- 1:00 a.m.'. This shows not just great inconvenience caused to the entire household of the respondents but also shows a complete wastage of time.The respondents were asked if they faced a situation where there was depletion of water in

their common water source as seen in ***figure 25***. 54% replied 'sometimes', 27% 'yes' and 19% 'no'. The responses indicate that there were occasional incidences of water depletion in the water source as according to the 54% responses, and 27% who said they faced it regularly. This reveals a situation of scarcity as depletion of water volume shows that it was not enough to satiate the needs of the locality of the respondents'.



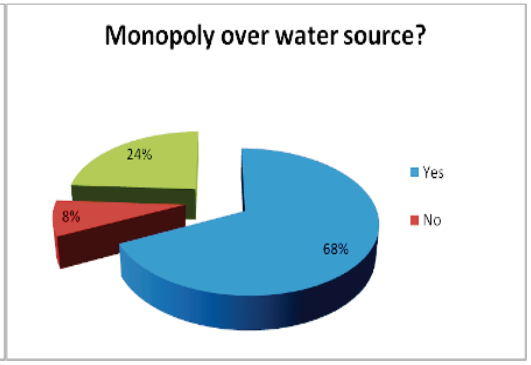
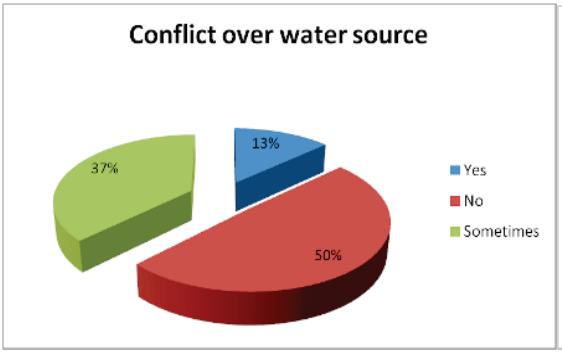


Figure 26 **Figure 27**

Figure 26 shows responses to the question whether the respondents were concerned over the looming water scarcity in the future; a vast majority 93% replied 'yes' and 7% replied 'no'. A question was raised as to whether there were cases of monopoly over water source by either individuals or groups; responses seen in ***figure 27*** shows that 65% respondents replied 'yes', that they were aware of such cases; 24% said 'sometimes' such cases occurred and 8% said 'no', they were not aware of the existence of such monopoly. Also data shows that almost all the respondents' from Mon district pertaining to 93% said that they were apprehensive about the looming water crises perceived to become a reality in the near future. From the responses gathered, 68% respondents' said that monopoly over water source was prevalent in general; only 8% said that there were no such cases.



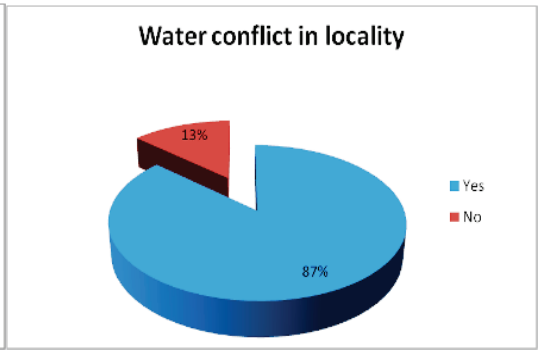
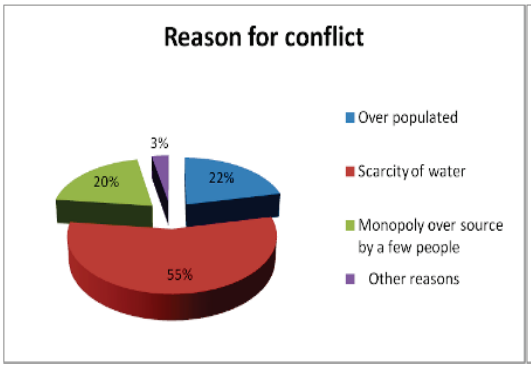


Figure 28 **Figure 29**

In ***figure 28***, 50% said that they did not have any kind of water conflict with other public over sharing of water, 37% had some water conflict issues and 13% had no conflict over water with others in their neighborhood or locality. Conflicts over water source though prevalent seems to be fewer in Mon district as a whole since only 13% said they had knowledge of such water conflict situations. As seen in ***figure 29***, a total 87% of the respondents know of cases of water conflict specifically in their locality. Only a small minority 13% say they did not know of any kind of water conflict in the mentioned places.



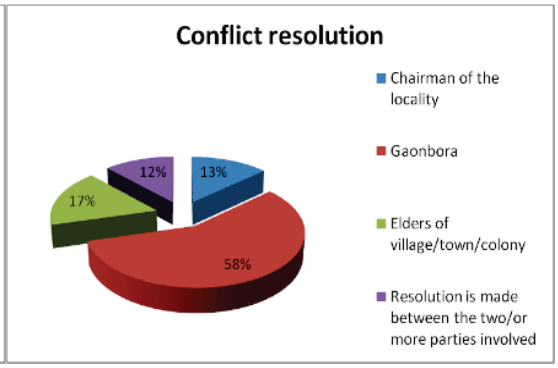


Figure 29.1 **Figure 30**

For 55% the reason for the water conflict as seen ***in figure 29.1*** was 'scarcity of water', 22% because of 'high population', 20% 'monopoly over source by a few people' and 3 % quoted 'other reasons' such as ' some villagers damaged PHED water reservoir in our locality', and 'conflict situation caused because of ownership issue'. Whenever there was water conflict, a resolution to the problem as in ***figure 30*** would come to 58% 'from g*aonbora* of the locality', for 17% from the elders of the locality', for 13% 'Chairman of the area', and for 12% 'resolution made between two or more parties involved in the conflict'. The above data shows that at least more half of the respondents (58%) were involved in some kind of water conflict situations, thereby needing some sort of conflict resolution taking the above mentioned steps. Thereby acquisition of water was not simplistic in its mode, but involved some hurdles for the general public.

KOHIMA DISTRICT

	Village/ Town/Colony:	
1.	A.G. Colony	2
2.	Kezieke	6
3.	Agri Colony	3
4.	Midland	3
5.	Daklane	18
6.	Bayavu Hill	7
7.	Sepfuzou Colony	3
8.	New Market	7
9.	Kenuozou Colony	2
10.	Themezie Colony	1
11.	Jail Colony	1
12.	NST Colony	1
13.	High School Colony	1
14.	Lerie	2
15.	Naga Bazar	1
16.	Kitsubuzou	1
17.	Chandmari	1
18.	Cherrylane	1
19.	Viswema Village	1
20.	Meriema Village	1
21.	Mezoma Village	1
22.	Rokabozou Village	1
23.	Kohima Village	10
	Total	**75**

(Figure 1)

Respondents were mainly from the Angami tribe, all residing in Kohima district and as seen in *figure 1*, from 18 colonies/wards stretched across Kohima town and from 5 villages out of which 10 respondents from Kohima village belonged to the T-Khel, L-Khel and D-Khel.

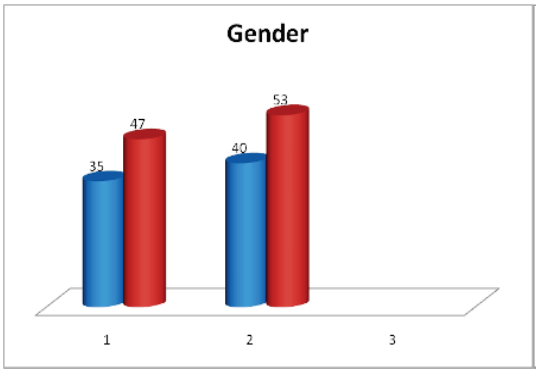


Figure 2

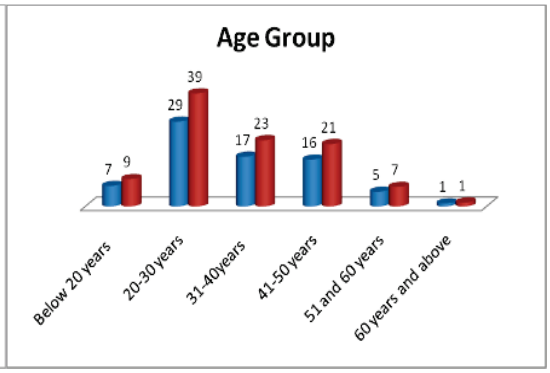


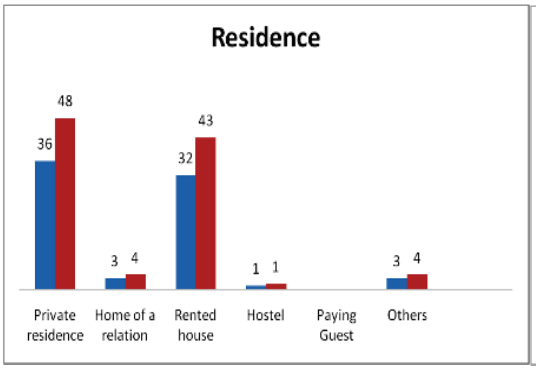
Figure 3

Out of the total number of 75 respondents as shown in ***figure 2*** from Kohima district, 47% consisted of male respondents whereas female respondents were slightly higher in number with a total of 53%. Both male and female respondents were spread across an irregular age group. ***Figure 3***, shows the respondents below 20 years as 9%, 20 to 30 years as 39%, 31-40 years as 23 %, 41-50 years as 21%, 51 to 60 years as 7%, and 60 years and above as 1%. This indicates female respondents were more than the male respondents and that the majority of the respondents 39% were from the age group 20 to 30 years, closely followed 23% in 31-40 age group. The least number of respondents 1 % were from 60 and above age group.

(Figure 4)	Occupation	Male	Female	Number Count
1.	Teaching	7	9	16
2.	Student	7	5	12
3.	Engineer	2	-----	2
4.	Business	2	7	9
5.	Pensioner	1	3	4
6.	Social worker	1	-----	1
7.	Govt. Employee	9	6	15
8.	Tour Operator	1	-----	1
9.	Unemployed	1	-----	1
10.	Doctor	1	-----	1
11.	Religious activity	3	-----	3
12.	Nurse	-----	2	2
13.	Housewife	-----	6	6
14.	Beautician	-----	2	2
		35	40	75

As shown in ***figure 4***, respondents both male and female were engaged in diverse occupations out of which a majority 16 was from the teaching profession, and another 15 were government servants serving in different capacities as officials. 12 college

students from different streams were also a part of the survey. Other occupations included, 9 business persons, 6 housewives, and 4 pensioners, 3 involved in religious activity, 2 engineers, 2 nurses, 2 beauticians, 1 doctor, 1 social worker, and 1 tour operator. Only 1 of the respondent was listed as unemployed.



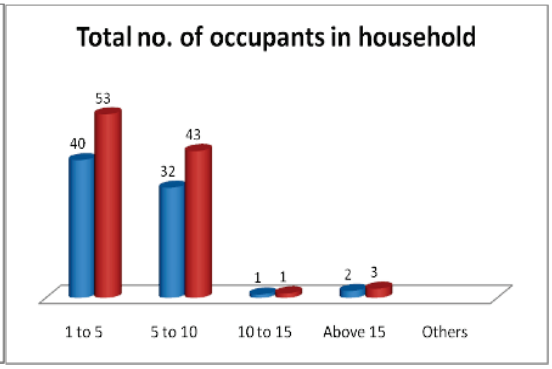
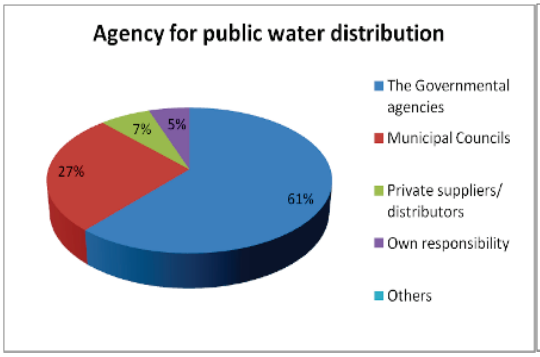


Figure 5 **Figure 6**

A total of 48% of the respondents resided in their own private houses, 43% in rented houses, 4 percent as a resident in a relative's house and 1% stay in a hostel and 4% indicates 'others' as shown in ***figure 5***. The 4% 'others' included the owner and resident of a hotel, and residents of guest houses. As the survey indicates in a typical household in Kohima district as in ***figure 6***, 53% had 1 to 5 members, 43% 5 to 10 members, 1% had 10 to 15 members and 3% had above 15 members. This indicates that a majority of the respondents 48% resided in their own, and a lesser number 43% in rented houses ; more than half of the respondents (53%) were from a family/household size of 1 to 5 members in total. The 1% of respondents with 10 to 15 members and 3% of residents indicating a household of above 15 members may have included not just the immediate family but relatives and other dependents.



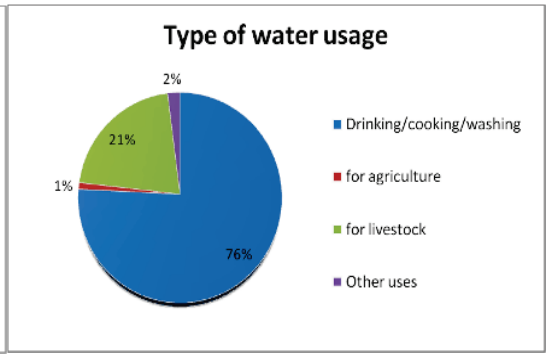


Figure 7 **Figure 8**

As shown in ***figure 7***, a majority of the respondents 61% said that public water distribution for Kohima district should be taken up by governmental agencies, 27% by

the municipal councils, 7% by private suppliers and 5 % said it should be own responsibility. Daily use of water includes drinking, cooking and washing for 76% and 21% for livestock and the rest for agriculture and other uses as in ***figure 8***. The 2% 'other uses' includes usage of water in maintenance of hotel and watering lawn of park. Data indicates that maximum usage of water 76% was pertaining to daily basic need such as drinking, cooking and washing only. Data shows that the nature of water usage per day was minimal in Kohima district and it is also clear that a majority 61% of the respondents thought that it is the responsibility of the government to make provision for regular water supply.

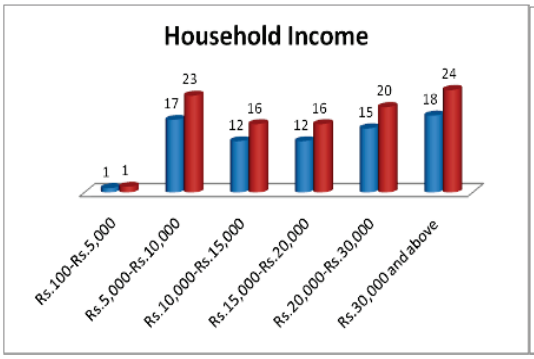


Figure 9

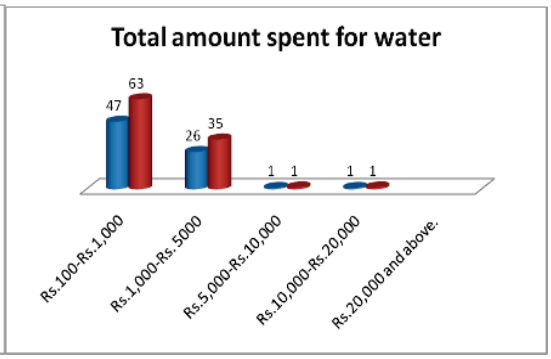
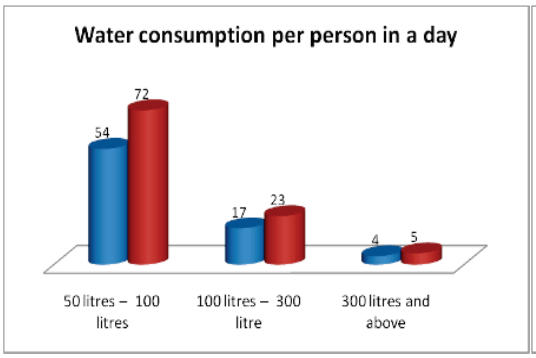


Figure 10

The total number of respondents as seen in ***figure 9***, 24% had a monthly income of more than Rs.30, 000 and above, followed closely by 23% with Rs.5, 000 to 10,000 and another 20% with Rs.20, 000 to 30,000. Only 1% had an income from Rs. 100 to 5,000. As seen in ***figure 10*** monthly amount spent for a majority of the respondents 63% was Rs. 100 to 1,000 for purchase of water. Another 35% spent Rs. 1000 to 5,000, and 1% spent Rs.5000 to 10,000 and 1%, Rs. 10,000 to 20,000. This indicates that in Kohima district, a higher number 24% of respondents' income were in the range of Rs. 30,000 and above, and monthly 63% spent Rs. 100 to 1000 for buying water both from governmental and private agencies. A lesser number, 1% was seen as spending Rs.5000 to 10,000 and another 1% spending a huge amount of Rs. 10,000 to 20,000 on buying water for various uses/ needs for their household.



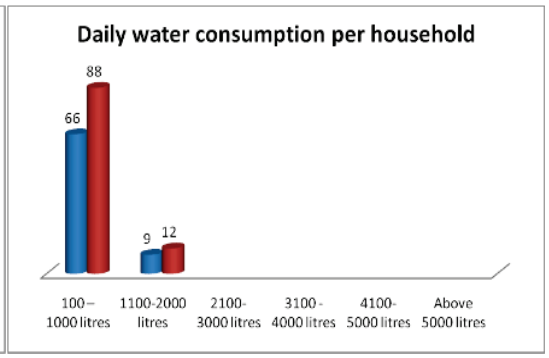
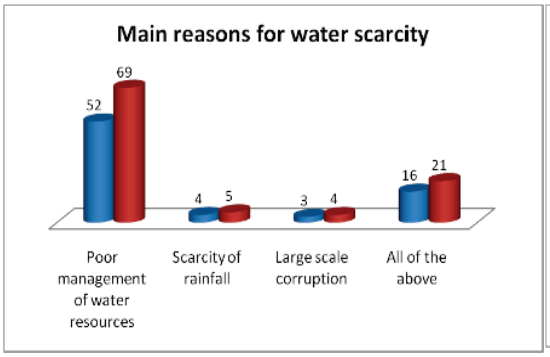


Figure 11 **Figure 12**

Figure 11 shows average amount water consumed by a respondent per day. 72% used 50-100 liters per day, another 23%, 100-300 litres and 5%, 300 and above. Daily water consumption as shown in ***figure 12*** for a high 88% of the households in Kohima District, was 100 - 1000 litres, and for 12%, 1100-2000 litres. The above figures show that most of the respondents 72% did not use more than 50- 100 litres per day. Out of the total number of respondents there was none who consumed water of 300 litres and above and there was also no household that consumed from 2100 – 3000 litres or more water in a day. Therefore, water consumption per person was a minimum at 50-100 litres per day (72% respondents), and 100-1000 litres per household (88% of respondents).



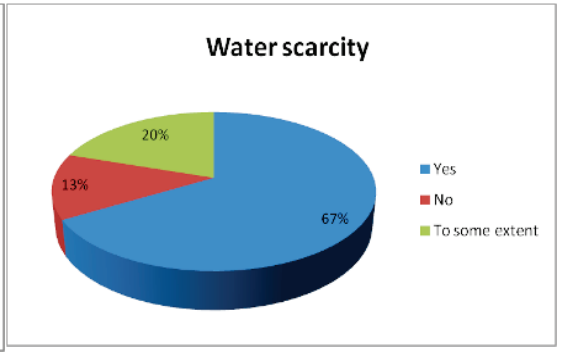


Figure 13 **Figure 14**

Various reasons have been given for the prevalent water scarcity in Kohima district as in ***figure 13***. 69% of the respondents' stated that it was due to poor management of water resources, 5% scarcity of rainfall, 4% large scale corruption, and 21% said it was a culmination of all the above reasons. When asked if they themselves faced water scarcity, as given in ***figure 14***, 67% said 'yes', 20% to 'some extent' and 13% 'no'. This indicates that a majority 67% faced water scarcity and 20% to some extent, however, 69% thought water scarcity was not because of the lack of water but poor

management of water resources. Looking at the minimal 5% stating scarcity of rainfall as a reason for water scarcity, it is clear that 95% did not think poor rainfall is a factor for water scarcity in Kohima district.

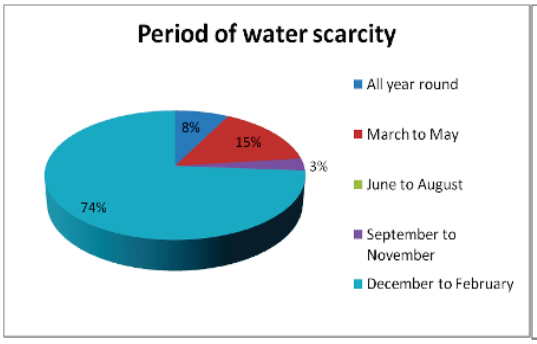


Figure 14.1

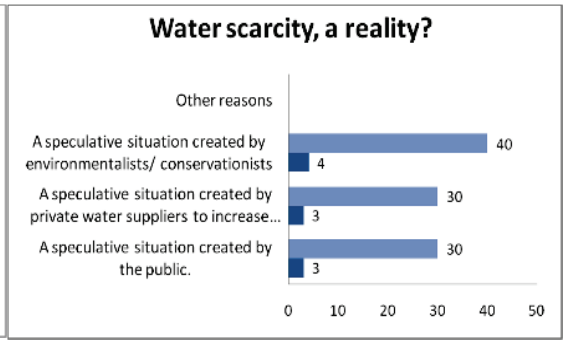


Figure 14.2

Out of those (as in figure 14) who have stated that they face water scarcity, in a typical year 74% said scarcity is felt most from December-February, 15% March-May, 3% September-November, 8% all year round as seen in ***figure 14.1.*** Out of the respondents who have stated 'No' (as figure 14) saying they do not face water scarcity, 40% said water scarcity is a speculative situation created by environmentalist and conservationists, 30% said it is a situation created by private water suppliers to increase demand of water, another 30% said it is a situation created by the public as in ***figure 14.2***. The data indicates that water scarcity in Kohima district was felt most during December to February-74%, a lean season indicated by lack of rainfall. Only an 8% said they face water scarcity all year round. For some of the respondents, water scarcity was a non issue, rather it was a situation created by environmentalist and conservationists, private water suppliers, and the public.

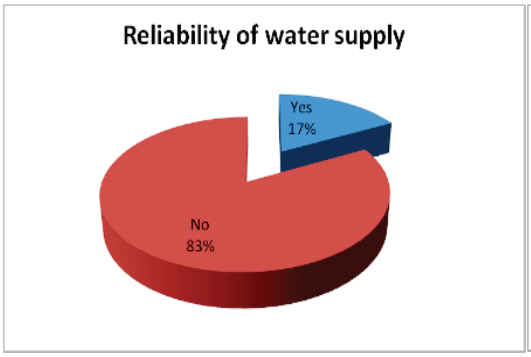


Figure 15

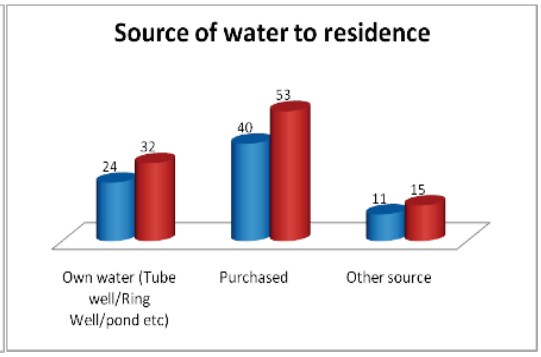


Figure 16

In response to the question of reliability of public water distribution system in their locality as in ***figure 15***, an overwhelming 83% said 'No' and 17% said 'yes'. As given

in ***figure16***, 53% of respondents said that water is purchased, either through governmental agency or private supplier, and 32% said they have their own supply, and 15% said 'other source' which includes drawing water from natural springs, or ponds in and around the locality. The above data indicated that a vast 83% majority of the respondents in Kohima district considered the public water distribution system as unreliable. A little more than half of respondents (53%) bought water from various sources, but the rest relied on their own water source, whether from a private well or from natural ponds and springs open to the public.

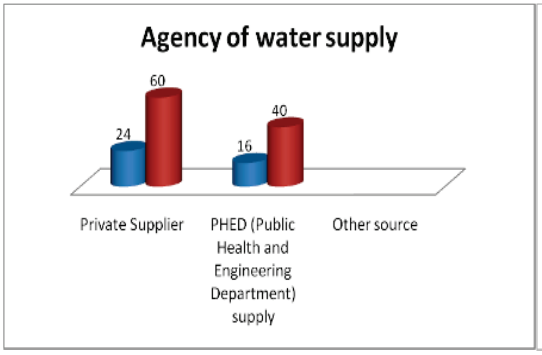


Figure 16.1

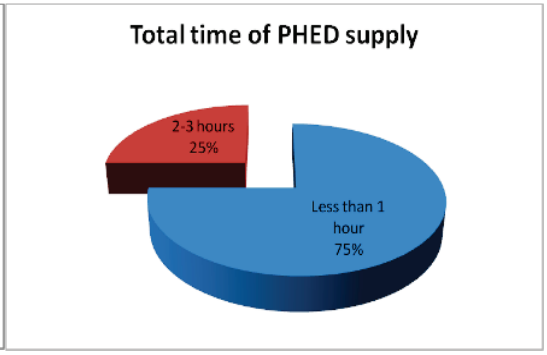


Figure 16.2

For the respondents who have stated that they purchase water (in figure 16) for use in household, 60% said it is from private suppliers, and 40% from PHED supply as shown in ***figure 16.1***. Those who purchased water from PHED, when asked about the total time of supply of water, 75% said they get less than 1 hour of water per day, another 25% said 2-3 hours as seen in ***figure 16.2***. According to the available data, the repondents from Kohima district therefore, purchased water more from private suppliers i.e., 60%, than the PHED shown as 40%. Also a majority 75% who purchased water from the PHED, got less than an hour of supply daily, another 25% for 2-3 hours, suggesting that PHED supply was not more than the maximum stated hours. There was no case of whole day continuous water supply to any of the respondents (from 18 colonies /wards and 5 villages) from Kohima district.

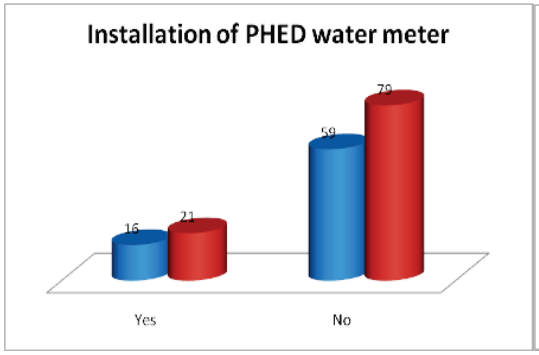


Figure 17

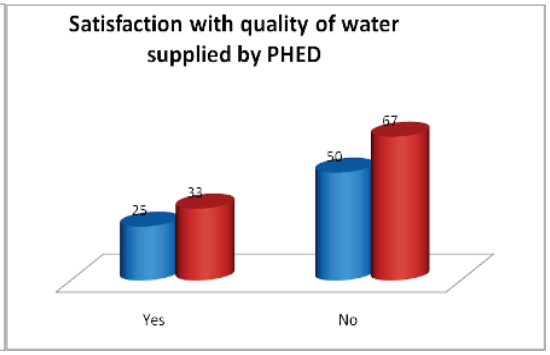


Figure 18

As shown in ***figure 17,*** a majority 79% of the respondents from Kohima district said they did not have a water meter installed by the PHED in their household, only 21% had this facility. Out of the total repondents as in ***figure 18***, 67% said that they were not satisfied with the quality of water supplied by the PHED, only 33% said it is of satisfactory quality. This data indicated the 79% majority of respondents' from Kohima district did not have water meters installed in their households, this suggests that their water supply was from a source other than the PHED. Furthermore 67% respondents' expressed their dis-satisfaction with the quality of water generally supplied by the PHED in Kohima district.

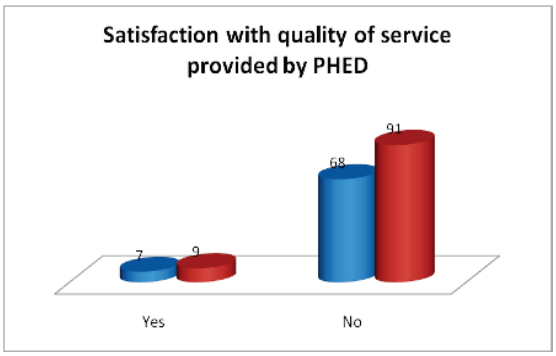


Figure 19

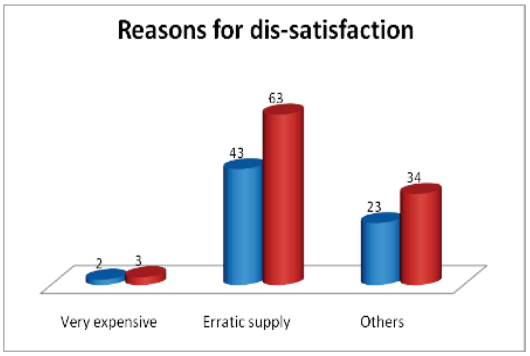


Figure 19.1

An overwhelming 91% majoriy of the respondents expressed dis-satisfaction with quality of service provided by the PHED in supplying water. Only 9% say they were satisfied with the service provided as seen in ***figure 19***. The main reasons for dis-satisfaction as in ***figure 19.1,*** for 63% of the respondents was erractic water supply, 3% 'very expensive' and 34% 'other reasons' for dis-satisfaction. Other comments included 'there is no supply or facility in the colony' another 'due to irregular supply', and 'service does not reach village', 'staff from department is irresponsible towards their duty'. The data indicates that a vast 91% majority of the respondents were dis-satisfied with the service provided by the PHED, while most of them stated the reason

being ‘erratic supply of water’ others said that service was not available in some localities, and that departmental staff were not responsible towards their duty.

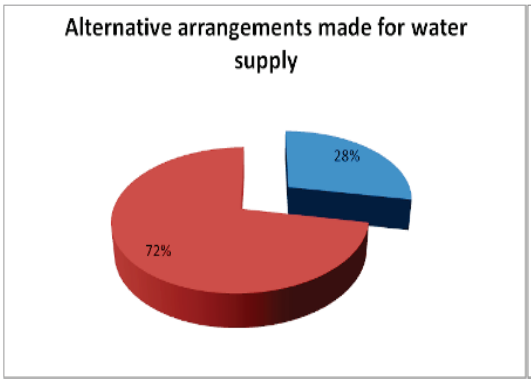


Figure 20

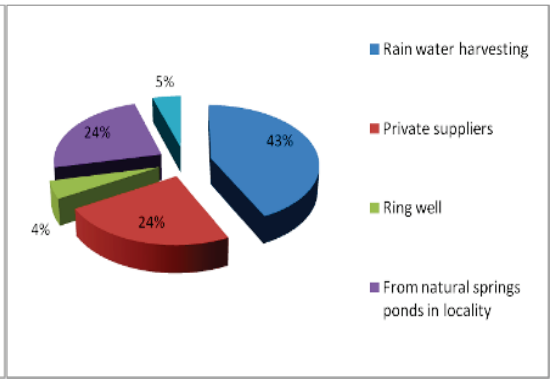


Figure 20.1

When asked whether alternative arrangements had been made to supplement their monthly regular water supply, 28% said ‘yes’ and 72% ‘no’ as seen in ***figure 20***. Out of those that replied in the affirmative, 40% said they had rain harvesting units, 30% said they made use of ring wells, 25% said they collected water from natural springs/ponds in their locality and 5% said they had to collect water for usage from natural springs/ponds from a locality other than their own as in ***figure 20.1***. Perhaps as a result of insufficient supply, 28% of the respondents felt the necessity to make alternative arrangements to supplement what they had been already been receiving as a regular supply. Further out of this, 40% of the respondents had made provisions for storing up rain water during the monsoon, while others made use of wells and other sources to store up water for their households.

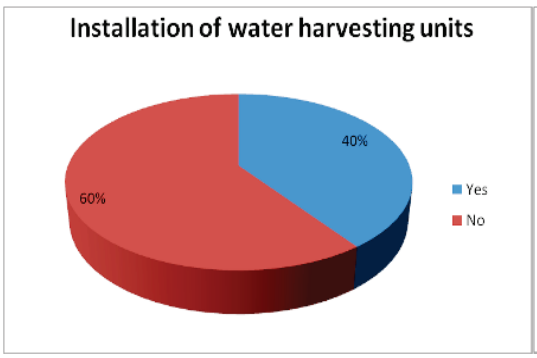


Figure 21

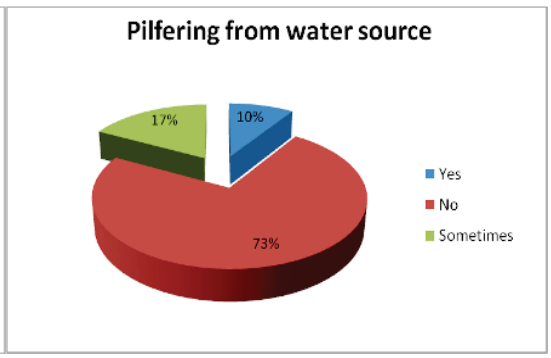


Figure 22

As seen in ***figure 21***, out of the total respondents in Kohima district 60% said they did not have water harvesting units installed in their households, while 40% said they had such installations. When asked whether there were cases of pilfering from their private

water source as seen in ***figure 22***, only 10% said 'yes', 17% 'sometimes' and 73% 'no'. The above data indicates that a good amount of respondents in Kohima district (40%), had the knowledge and means of storing up rain water during monsoon season to be used for their household when required. Pilfering from private water source did not seem to be common as 73% of the respondents said they did not face any such case, only a small minority claimed to have faced such instances.

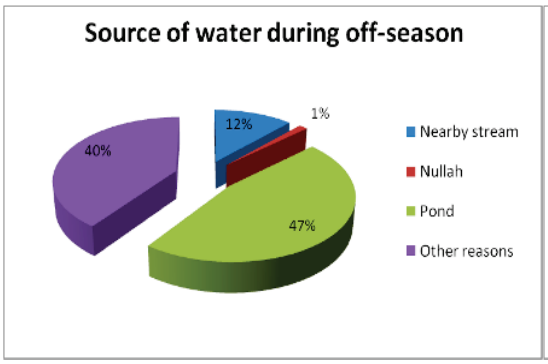


Figure 23

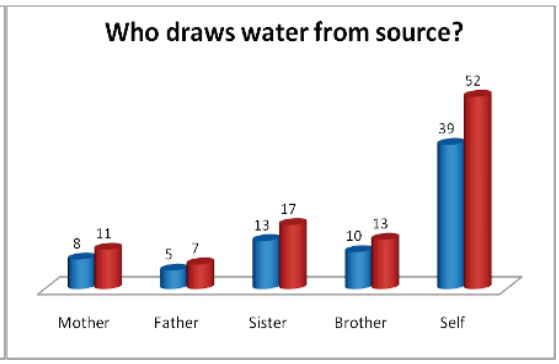


Figure 23.1

In ***figure 23***, when asked about their main source of water during off-season, 47% said 'pond', 12% 'nearby stream', 1% 'nullah', 40% 'other reasons' included 'drawing from public well', and ' drawing from spring in other locality'.Most of the respondents were dependent on alternate water source during off-season, since their primary supply source was not sufficient however some of them voiced their difficulties and said at times ponds and wells in locality were locked up by certain individuals, clans, or groups, making it difficult for them to draw water. As given in ***figure 23.1***, out of the total respondents from Kohima district who were dependent on alternative sources of water, when asked who took the responsibility to draw water from the source, 11% said 'mother', 7% 'father', 17% 'sister', 13% 'brother' and 52% 'self' which were 18 males respondents and 21 female respondents. The above data figures show that repondents in Kohima district had to depend and rely on other alternate source for water, often involving the family unit as a whole.

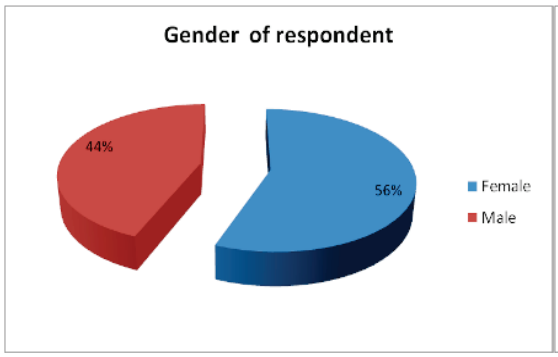


Figure 23.1.(a)

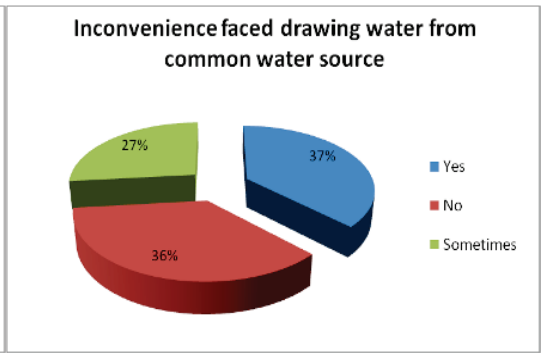


Figure 24

Also out of the total respondents as seen in ***figure 23.1 (a)*** 56% were female and 44% were male. The above data shows that for a family dependent on drawing water from alternate source, all members of the family were involved in fetching water; total 44% male and 56% female respondents. In terms of gender, female respondents as generally seen in the rest of India, were a majority group involved in fetching water even over long distances, to be used by their household.When asked about inconveniences faced while drawing water from common water source, 37% said 'yes', 36% 'no' and 27% 'sometimes' as seen in ***figure 24.*** Some of the respondents even specifically mentioned certain inconveniences such as 'having to go to other locality to draw water', 'staying up late and waking up very early to draw water from neighbourhood source'.

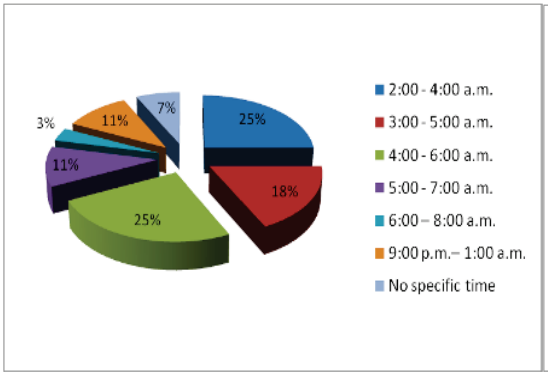


Figure 24.1

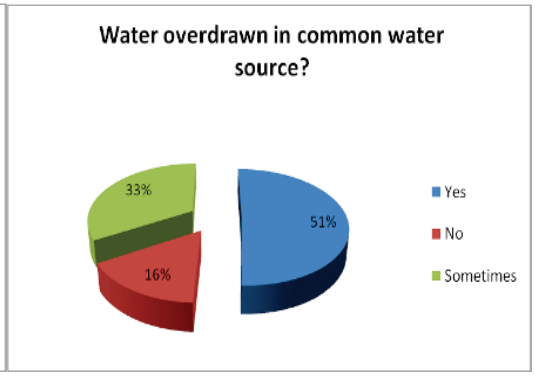


Figure 25

In ***figure 24.1*** data shows the timing of repondents from Kohima district who drew/ fetched water from common source. 25% said '2:00 a.m. – 4:00 a.m.', another 25% '4:00 a.m. - 6:00 a.m.', 18% '3:00 a.m. - 5:00 a.m.', 11% '5:00 a.m.-7: a.m.', another 11% '9:00 p.m.- 1:00 a.m.', 7% 'no specific time', 3% '6:00 a.m.- 8:00 a.m.' Most respondents had to wake up very early to fetch water for their household, some even staying up at midnight to collect water from neighbourhood springs or wells. This shows that the public water distribution system does not meet the requirements of the

public in general, who have to take great trouble, in time consuming effort to supplement their water consumption.The respondents as in ***figure 25*** when asked if water gets overdrawn or if the respondents face a situation when water is drawn exceeding the maximum limit, 51% said 'yes', 33% 'sometimes' and 16% 'no'. According to the data collected in 18 colonies and 5 villages in Kohima district, 51% said they faced situations when the water in their common source was exhausted by the time their turn came to draw water, suggesting that the natural springs/wells in various localities /villages did not suffice the needs of the respondents.

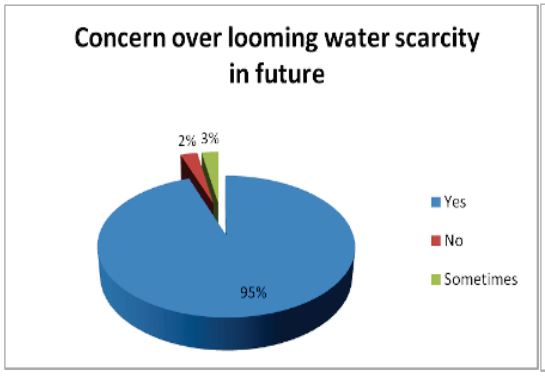


Figure 26

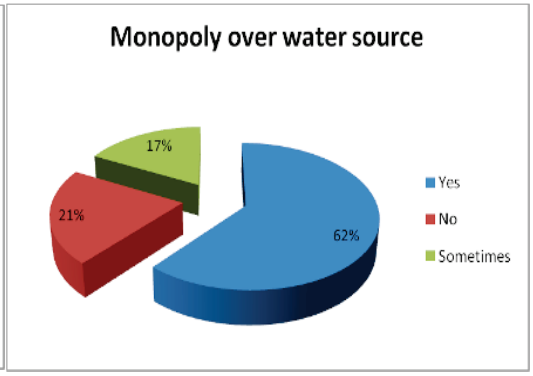


Figure 27

As in ***figure 26*** when asked if they had concern over looming water scarcity in future, 95% said 'yes', 3% ' sometimes' and 2% 'no'. Also an overwhelming 95% of the respondents in Kohima district said that they were concerned over the looming water scarcity in the future, their concern corresponding to a situation already prevalent in Kohima district.When the respondents of Kohima district were asked if any kind of monopoly existed over water sources, 62% said 'yes', 21% 'no', and 17% said 'sometimes', as seen in ***figure 27***.

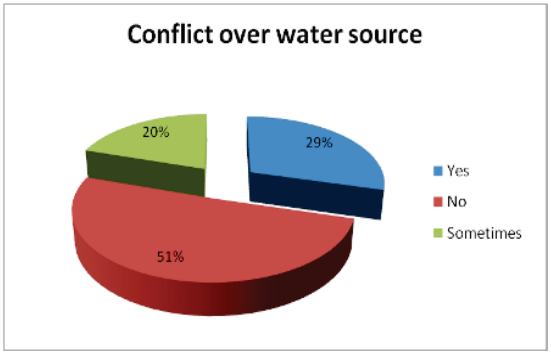


Figure 28

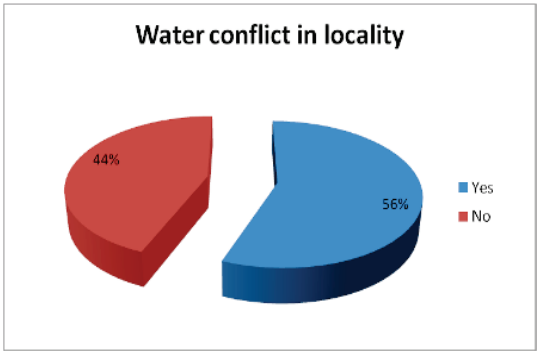


Figure 29

In terms of conflict and contestation over water in Kohima district in general, as seen in ***figure 28***, 51% said 'no' that they had no knowledge, 29% 'yes' and 20%

'sometimes'. The above data shows that a majority 62% of the respondents said that there was some kind of monopoly by some agents over water sources in Kohima district. The data also indicates that there are some incidences of conflict and contestation over water sources in Kohima district, although it is not generic by nature.When asked specifically, if there was water conflict in the locality as in ***figure 29***, 56% of the respondents' said 'yes' and 44% 'no'. The data illustrates that for the majority 56% of the repondents from Kohima district, water conflict was prevalent in their locality.

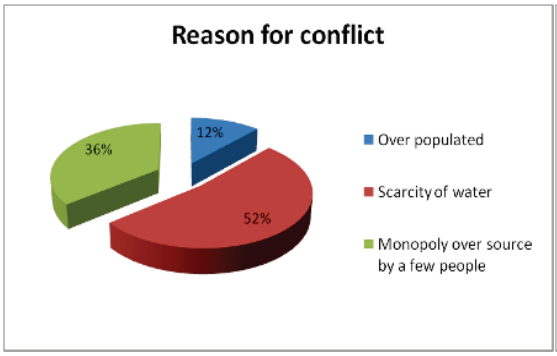


Figure 29.1

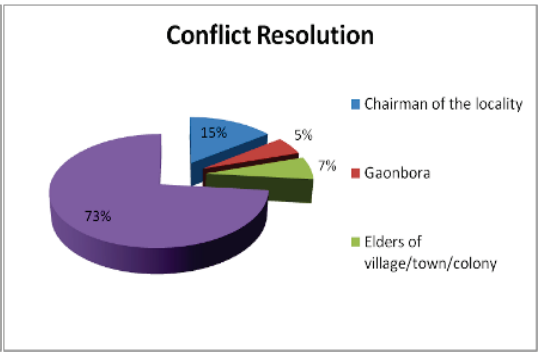


Figure 30

Figure 29.1 shows the responses to reasons of conflict over water, 52% said 'scarcity of water', 36% ' monopoly over source by a few people', and 12% blamed it on the high population. Although other reasons were also stated, the common issue for this prevalence was given as 'scarcity of water' by 52% of the respondents. This data also indicates that water scarcity in Kohima district was a significant issue of conflict and contestation.For resolution in cases of water conflict, as in ***figure 30,*** 73% said 'resolution is made between the two or more parties involved', 15% 'chairman of the locality', 7% 'elders of village/town/colony', and 5% '*gaonbora*'. This data indicates as per the responses of 56% of respondents who said 'yes', and another 44% who said 'no', that water conflict and contestation is common in pockets of Kohima town and the district as a whole.The above data shows that there are systems established in society to address such issues if and when it presents itself. However, in most cases, as seen in the data, if two or more parties are involved, the respondents say that resolution is made by the parties themselves. A lesser percentage chose to involve other parties such as the chairman of the locality, the goanbora or the elders of the village/ town or colony.

	Village/Town/Colony:		
1.	NST Colony	2	
2.	Chamka Colony	1	
3.	Tsumang Colony	2	
4.	Vungojü Colony	2	
5.	Suren Colony	4	
6.	Church Colony	3	
7.	Blue Hill Colony	5	
8.	GHSS	2	
9.	Etsuchukha	4	
10.	Project	2	
11.	Forest Colony	7	
12.	Molonsu	1	
13.	MTC	2	
14.	PWD Colony	1	
15.	Lower CMHS	1	
16.	Rachan	2	
17.	G.A. Colony	5	
18.	New Colony	1	
19.	Saron Colony	5	
20.	C.Khel	1	
21.	Orchid Colony	4	
22.	Midland Colony	1	
23.	A.khel	1	
24.	Likya	1	
25.	A.F.Colony	1	
26.	Medical Colony	1	
27.	Upper Zuvotong Colony	1	
28.	Longsa Village	3	
29.	Pangti	2	
30.	Riphyim Village (Old)	2	
31.	Riphyim Village (New)	3	
32.	Lakhuti	2	
	Total	**75**	

(Figure 1)

Respondents were mainly from the Lotha tribe, all residing in Wokha district and as seen in *figure 1*, from 22 colonies/wards stretched across Wokha town and from 5 villages in Wokha district.

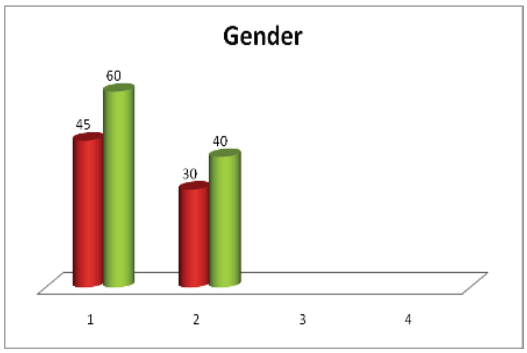


Figure 2

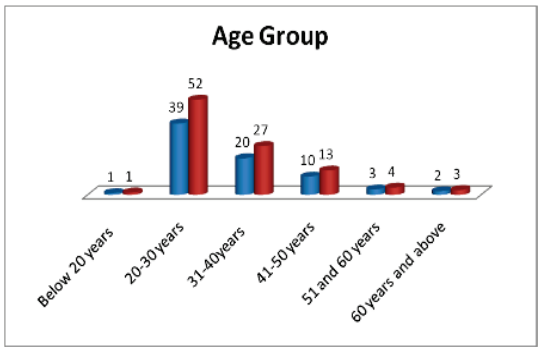


Figure 3

The gender of the respondents' from Wokha district is shown in ***figure 2,*** 60% respondents' was male and 40% female. As seen in ***figure 3***, they were randomly selected from various age groups to give a uniform representation; 52% were from 20- 30 age group, 27% 31-40 age group, 13% from 41-50 years of age, 4% 51 and above, 3% 60 years and above and 1% below 20 years. The above responses indicate that from Wokha district, male respondents were a 60% majority and the 20-30 years age group made up for a majority as more than half (52%) came from this group; followed by 27% from the 31- 40 age group. As was the case with the other districts such as Kohima; Mokokchung; and Mon; respondents' from Wokha district from the 'below 20 years' age group and older age group mentioned above were fewer.

(Figure 4)	**Occupation:**	Male	Female	Number Count
1.	Teaching	9	12	21
2.	Business	8	4	12
3.	Student	1	3	4
4.	Government Employee	15	4	19
5.	Pharmacist	1	----	1
6.	Social Worker	2	----	2
7.	Unemployed	1	2	3
8.	Engineer	1	----	1
9.	Farmer	2	5	7
10.	Retired Govt.Official	2	----	2
11.	NGO	3	----	3
	Total	**45**	**30**	**75**

In ***figure 4*** data shows that the respondents were from 10 occupations, and one category was from the unemployed. 21 were teachers, 19 Government employees, 12 business men and women, 7 farmers, 4 were students, 3 working in the Non-Governmental sector, 3 unemployed, 2 social workers, and 2 retired government servant and 1 pharmacist, 1 engineer. Therefore the data shows that the respondents from Wokha district had been randomly selected to show a background of diverse of range of professions/occupations.

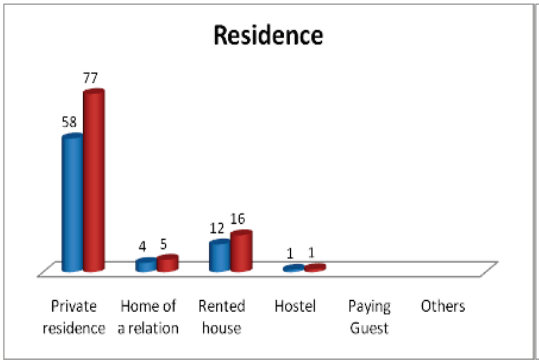


Figure 5

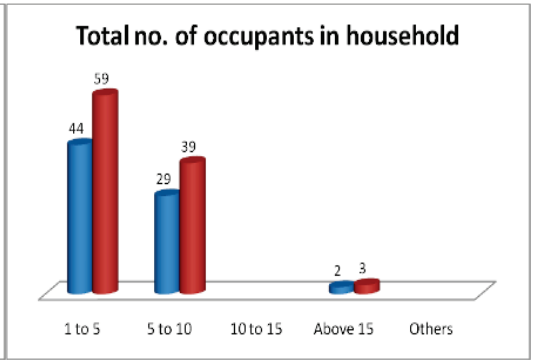


Figure 6

77% of the respondents from Wokha district stayed in their own private residences, 16% in rented houses, and 5% in the home of a relation; 1% in hostel as seen by the responses in ***figure 5***. Responses to the question of the total numbers of occupants in a household are given in ***figure 6;*** 59% of the respondents' said they come from a household of 1-5 occupants, 39% said '5-10 occupants' and 3% said 'above 15'. The above responses show that most of the respondents (77%) from Wokha district stayed in their own private residences and a good number (59%) of the household have had 1-5 members, and 39% had even bigger households with 5-10 members.

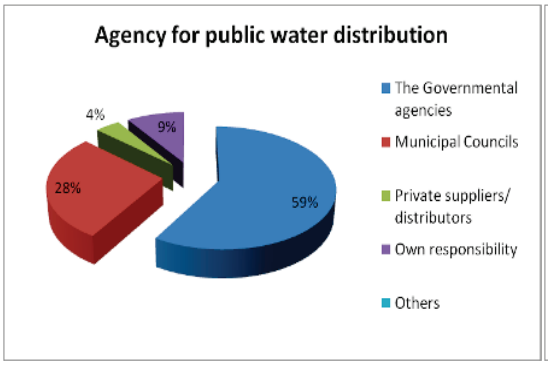


Figure 7

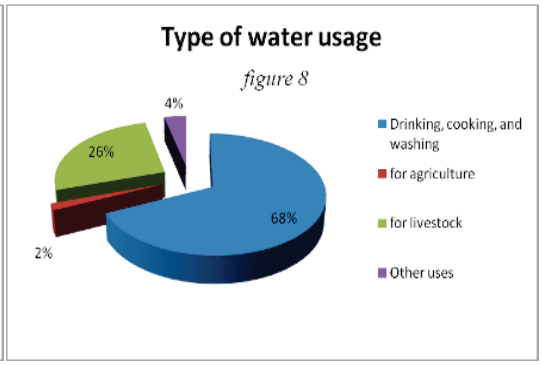


Figure 8

When asked the question of which agency should be responsible for public water distribution as seen in ***figure 7***; 59% replied 'the governmental agencies', 28% replied 'municipal councils', 9% 'own responsibility' and 4% 'private suppliers/distributors'. ***Figure 8*** shows the responses to the question of types of water usage, 71% said their daily water usage pertained mostly to drinking, cooking and washing; 18% for livestock, 8% for 'agriculture' and 4% for 'other uses' such as 'floriculture', 'gardening', 'cleaning of shops' etc. The above data indicates that 59% respondents had the opinion that 'the governmental agencies' should be accountable for public

water distribution, and another 28% had the opinion that it should be 'municipal councils'. Also, considering the type/nature of water usage is shown in ***figure 8,*** 71% said it was confined to basic needs only such as drinking, cooking and washing, others mentioned other uses such as agriculture, livestock and other uses such as for floriculture, gardening and cleaning of their business establishment.

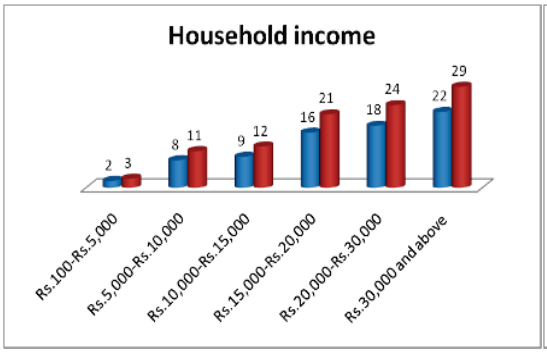


Figure 9

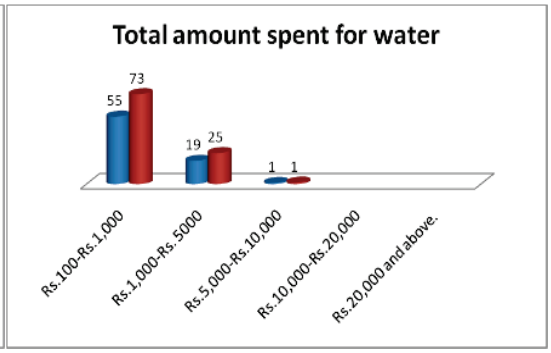


Figure 10

Responses to the question about the household income is seen in ***figure 9,*** 29% of the respondents replied Rs.30, 000 and above, 24% Rs. 20,000-Rs.30, 000, 21% Rs.15, 000-Rs. 20,000, 12% Rs. 10,000- Rs. 15,000, 11% Rs.5,000- Rs.10,000, and 3% Rs.100- Rs,5000. Next, responses to the question of total amount spent on water is shown in ***figure 10,*** whereby 73% spent Rs.100- Rs.1,000, 25% Rs.1,000-Rs.5,000, 1% Rs.5,000- Rs.10,000. The above statistics show that the highest income group from Wokha district was 29% respondents with income of Rs.30, 000 and above, followed by 24% with income of Rs. 20,000-Rs. 30,000; the statistics shows among the respondents there was only slight variation in the income quoted. Also most of the amount spent on water was between the brackets of Rs. 100- Rs.1, 000 as quoted by 73% of the respondents. There were no respondents who spent out of the range of Rs.10, 000- Rs.20, 000. Data shows that water consumption was generally limited, and so also the amount spent.

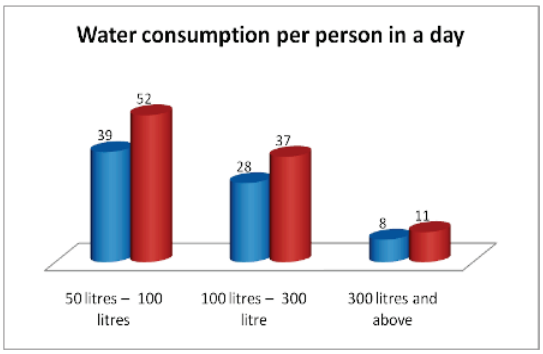


Figure 11

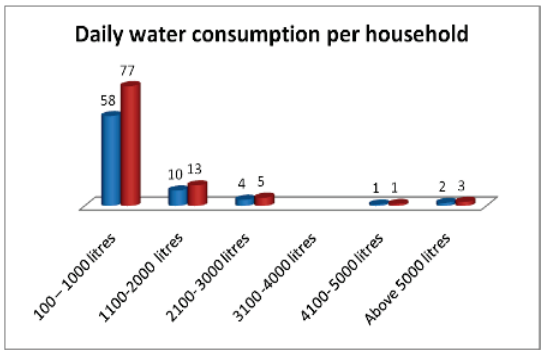


Figure 12

Water consumption per person per day is shown in ***figure 11.*** 52% said they consumed 50-100 litres, 37% quoted 100-300 litres, and 11% quoted 300 litres and above. ***Figure 12*** shows daily water consumption per household; 77% respondents said they consumed 100-1000 litres, 13% 1100-2000 litres, 5% 2100-3000 litres, 1% 4100-5000 litres and 3% above 5000 litres. Perhaps due to water scarcity, 52% said they consumed 50-100 litres per day, only 11% quoted usage of 300 litres and above. Even for households daily consumption was limited to 100-1000 litres for 72% respondents; however, 1% household consumed 4100-5000 litres and 3% above 5000 litres showing that some household had requirement for as such.

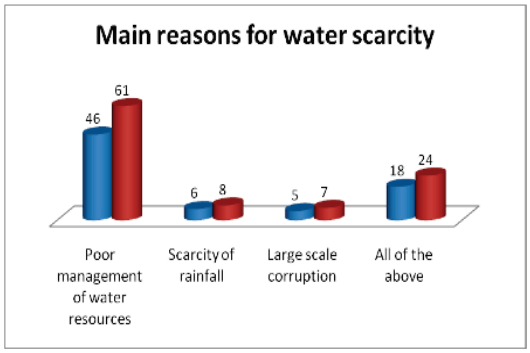


Figure 13

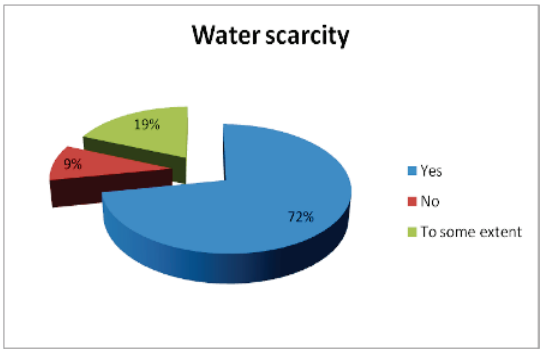


Figure 14

The responses to the question of the main reasons for scarcity of water are seen in ***figure 13; 61%*** stated 'poor management of water resources', 24% stated 'all of the above', 8% stated 'scarcity of rainfall'; and 7% 'large scale corruption'. Another question was raised as whether the respondents in Wokha district faced scarcity as seen in ***figure 14***; 72% responded 'yes', that they faced scarcity, 19% 'to some extent', and 9% 'no', that they did not face such a situation. The above data indicates that although other reasons were also stated; a greater part consisting of 61% of the respondents felt that water scarcity in Wokha district was mainly due to poor

management of water resources. 72% also stated that they faced water scarcity; only 9% said that they did not face scarcity of water in any way.

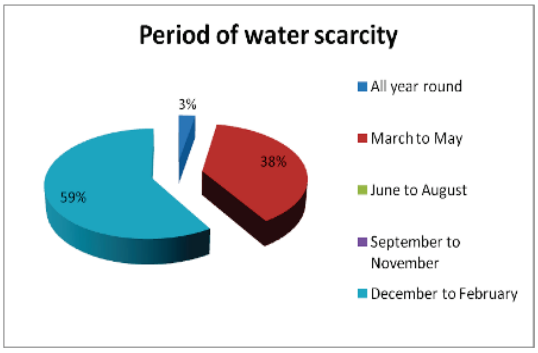


Figure 14.1

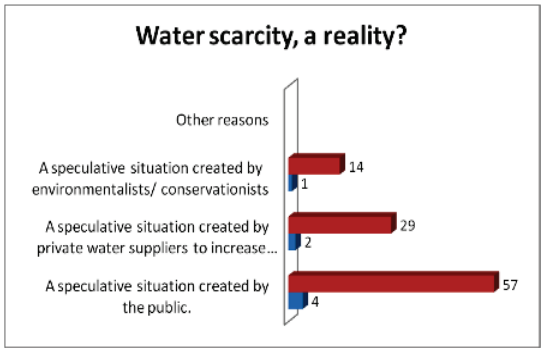


Figure 14.2

The respondents (as seen in figure 14) who had stated that they faced water scarcity, 59% said scarcity was felt mainly from December-February, 38% March-May, 3% 'all year round' as seen in ***figure 14.1.*** From the respondents who had stated 'No' (as seen in figure 14) saying they did not face water scarcity, 14% said water scarcity was a speculative situation created by environmentalist and conservationists, 29% said it was a situation created by private water suppliers to increase demand of water, another 57% said it was a situation created by the public as in ***figure 14.2***. The data indicates for the majority 59%, water scarcity in Wokha district was felt most during December to February; a scene reflective in the rest of the Nagaland state during the same months. Only 3% said they faced water scarcity all year round. For some of the respondents, the issue of water scarcity was a creation of the public who made speculations and the rest put the responsibility environmentalists and conservationists and private water suppliers.

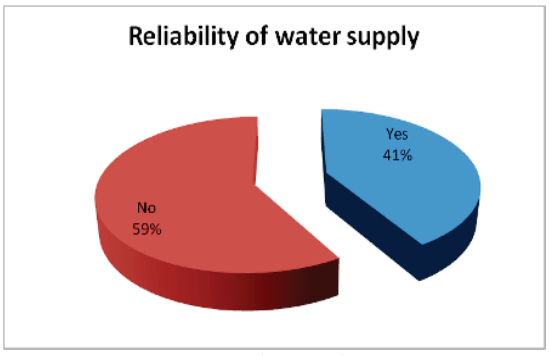


Figure 15

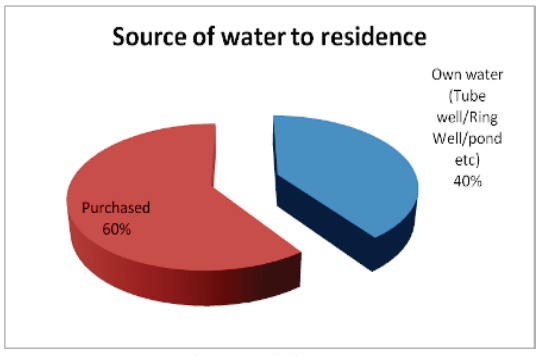


Figure 16

A question was raised about the reliability of public water distribution system in their locality as seen in ***figure 15,*** a greater part of the respondents consisting of 59% replied 'no' and 41% replied 'yes'. Responses to the question regarding the source of

water to the residence of the respondent are seen in ***figure 16***, 60% replied that had purchased it either from the governmental agency or from private suppliers; 40% replied that they used water from their own source, which was tube well/ring well/pond etc. The data shows some kind of discontentment of the respondents from Wokha district as 59% said that generally the public water distribution system was unreliable. 60% of the respondents purchased water either from the governmental agency or from private suppliers to suffice the needs of their households.

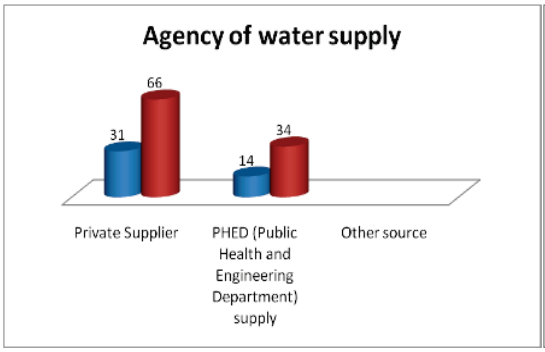


Figure 16.1

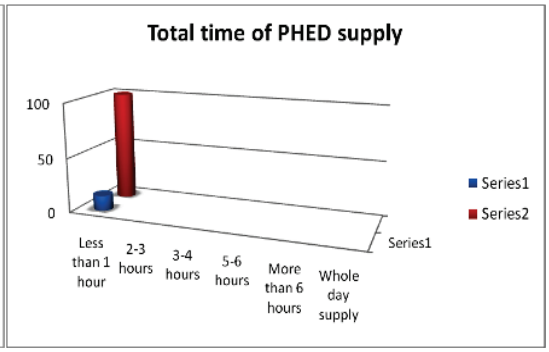


Figure 16.2

Out of those respondents who had purchased water (as seen in figure 16) 66% said that they purchased water from private suppliers and 34% said they made their purchases from the PHED as in ***figure 16.1***. Responses to the question assessing the total time of PHED water supply is shown in ***figure 16.2***; 100% made mention than the total time of supply was 'less than 1 hour'. The data indicates that respondents were dependent more on the supply of the private water suppliers in Wokha district as 66% said that their purchase was made from private water suppliers. All the respondents (100%) who were availing the services of the PHED said that total time of supply per day was 'less than 1 hour'.

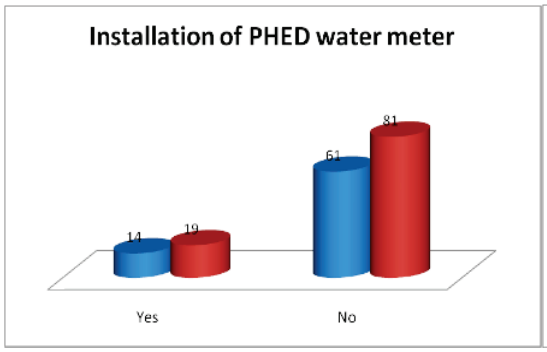


Figure 17

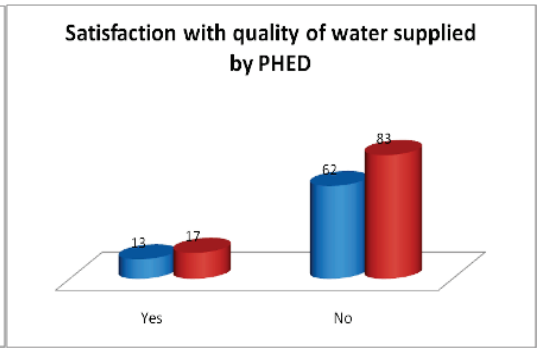


Figure 18

Respondents from Wokha district were asked if they had installed PHED water meters in their households; as seen in ***figure 17*** a greater part consisting of 81% of

respondents replied 'no' and 19% replied 'yes'. A question was raised to check satisfaction with quality of water supplied by the PHED as seen in ***figure 18,*** 83% replied 'no' and 17% 'yes. The above responses show that 19% those who were purchasing water from PHED supply had installed water meters to gauge the output and to make payments. 83% of respondents from Wokha district expressed dissatisfaction with the quality of water supplied by the PHED; it was noted that only 17% expressed satisfaction with the quality of water.

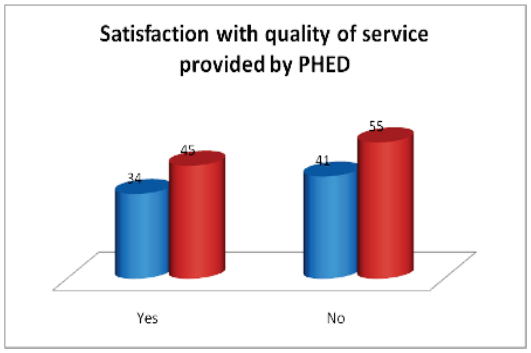


Figure 19

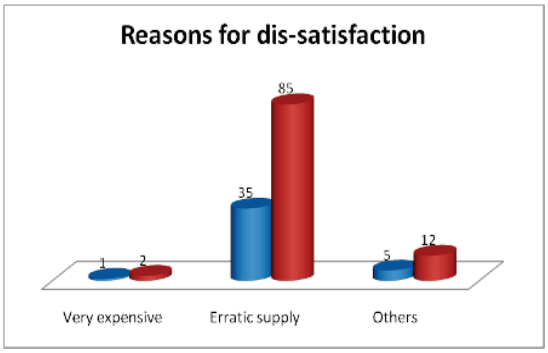


Figure 19.1

In wokha district 45% of the respondents expressed satisfaction with quality of service provided by the PHED in supplying water. Another 55% said that they were dissatisfied with the service provided as seen in ***figure 19***. The main reasons for dis-satisfaction as in ***figure 19.1,*** for a high 85% of the respondents was erractic water supply, 2% 'very expensive' and 12% gave 'other reasons' for dis-satisfaction. Other comments included 'no supply in the colony'and 'poor quality of pipes/ leakeges from water pipes'. The data indicates that 45% of the respondents were satisfied with the service provided by the PHED, while more than half expressed their dissatisfaction. Those who were dissatisfied besides giving other reasons such as the high cost and poor maintenance of supply pipes, however, (85%) have clearly stated that the main reason was because of 'erractic supply' of water.

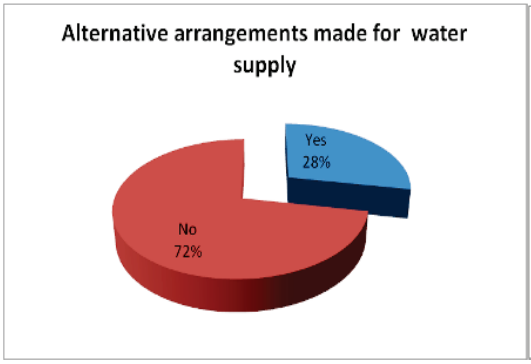


Figure 20

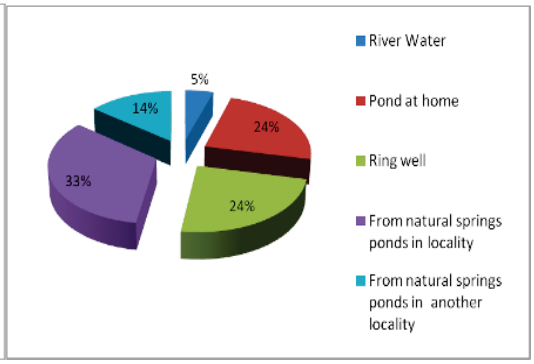


Figure 20.1

When asked whether alternative arrangements had been made to supplement their monthly regular water supply, 28% said 'yes' and 72% 'no' as seen in ***figure 20***. Out of those that replied in the affirmative, 24% said they made use of ring wells, 33% said they collected water from natural springs/ponds in their locality and 14% said they had to collect water for usage from natural springs/ponds from a locality other than their own, and 5% said they made use of river water as in ***figure 20.1***. Perhaps as a result of insufficient supply, 28% of the respondents felt the necessity to make alternative arrangements to supplement what they had been already been receiving as a regular supply. It can be seen that all available resources were put to use to satiate the requirements of the respondents; such as natural springs, ponds, ring well, and even including river water.

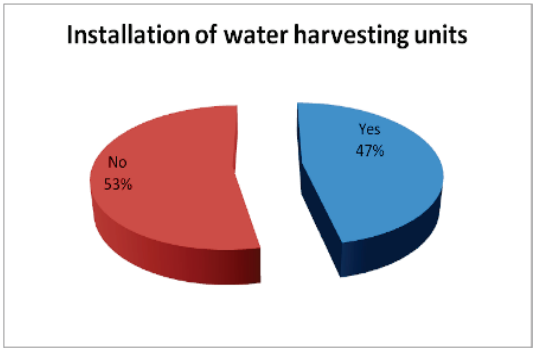


Figure 21

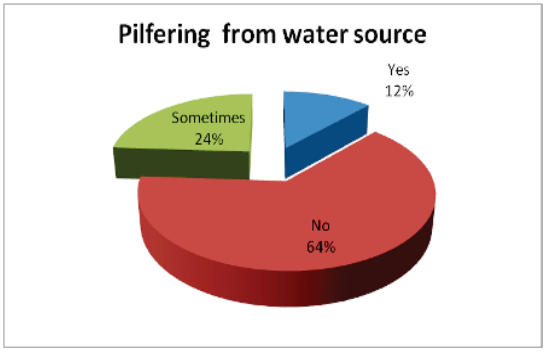


Figure 22

When asked if water harvesting units had been installed in their residences as seen in ***figure 21,*** almost half consisting of 47% of the respondents from Wokha district replied 'yes' and 53% replied 'no'. ***Figure 22*** shows responses to the question, of whether incidences of pilferage were experienced by the respondents. 64% replied 'no', that did not encounter any such case, 24% replied 'sometimes' and 12% replied 'yes'. Data indicates that 47% of the respondents from Wokha district had made provisions for water conservation through installation of water harvesting units. A

consequence of water scarcity was shown by the episodes of pilferage cases; 12 % stating that they had experienced it and 24% saying that they had experienced the same sometimes.

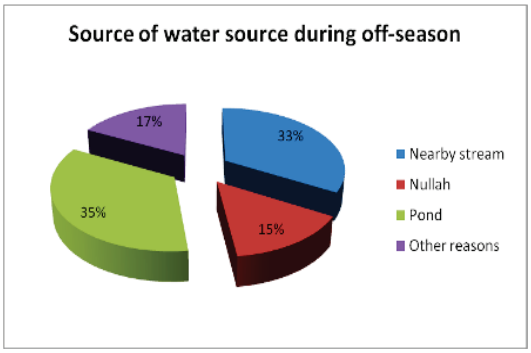


Figure 23

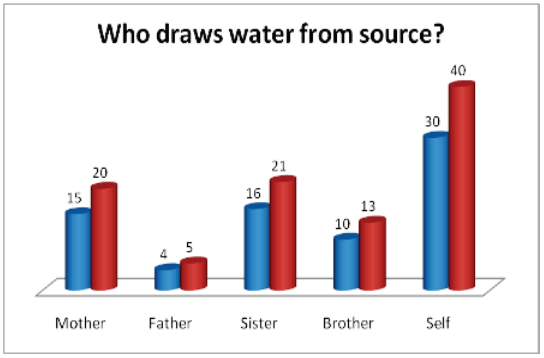


Figure 23.1

When asked about the source of water during off-season, respondents gave various reasons as listed in ***figure 23***; 35% 'pond' 33% 'nearby stream', 15% 'nullah' meaning drain water, and 17% gave 'other reasons' which included 'ancient community well in the jungle', and 'from water source in forests'. The respondents made use of every kind of water source available and the most preferred one for 35% majority were 'ponds'. ***Figure 23.1***, shows responses to the question as to who draws water from the alternate source of water, 20% replied 'mother', 5% 'father', 21% 'sister', 13%'brother' and 40% 'self' out of which 18 respondents were male and 12 female.

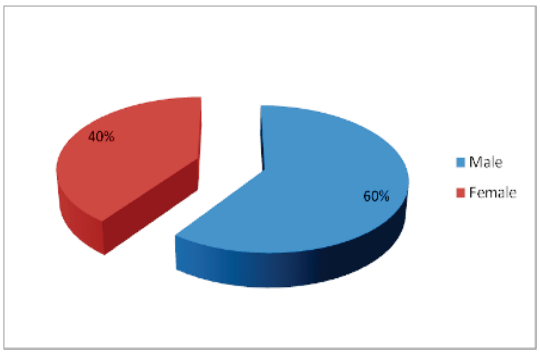


Figure 23.1.(a)

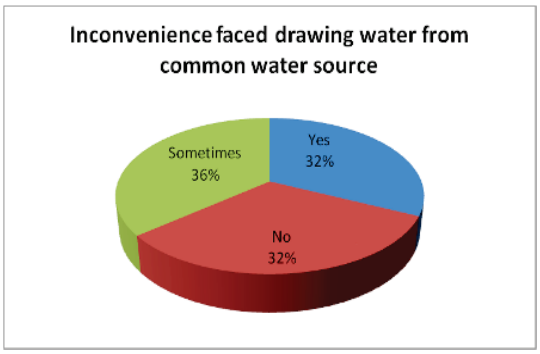


Figure 24

As seen in ***figure 23.1***. *(a)* the gender of the total respondents from Wokha district were 60% male and 40% female. From the above data, deduction can be made that the family unit as a whole was engaged in fetching water from the water source. In Wokha district, more females 58% (*figure 23.1*) were engaged in fetching water as compared to 43% of males. ***Figure 24*** shows the responses given to the question of whether inconvenience was faced by the respondents while drawing water from

common water source; 36% replied ‘sometimes’; 32% replied ‘no’, and another 32% ‘yes’.

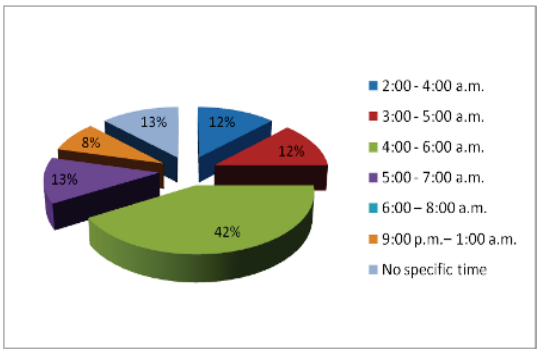


Figure 24.1

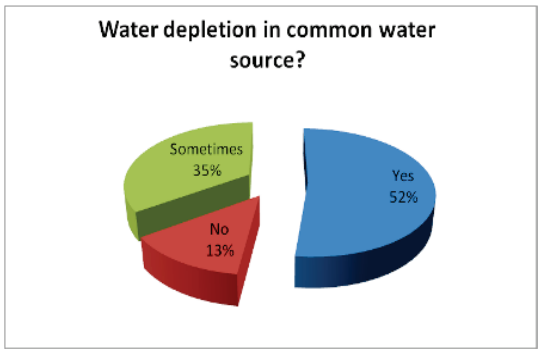


Figure 25

Figure 24.1, shows responses as to the time when respondents usually fetch/draw water from their usual source; 42% ‘4:00 a.m. - 6:00 a.m.’, 13% ‘no specific time’, 12% ‘3:00 a.m. - 5:00 a.m.’, another 12% said ‘2:00 a.m. – 4:00 a.m.’, 8% ‘9:00 p.m.-1:00 a.m.’. This shows that the most prefered timing for 42% majority was ‘4:00 a.m.-6:00 a.m.’. This data indicates that a most of the respondents from Wokha district had to bear the inconvenience of fetching water at the above mentioned time, only 32% said they faced no inconveniences as such. Data shows that 42% had to wake up as early as 4:00 am-6:00 a.m. to fetch their daily water requirement; 8% had to wait even at midnight between 9:00 p.m.-1:00 a.m., causing great inconvenience and wastage of time.***Figure 25*** shows responses to the question about whether there was cases of depletion of water in the common water source used by the respondents; 52% replied ‘yes’, 35% ‘sometimes’ and 13% ‘no’. It is evident from the responses that most of the respondents, who made arrangements for collection of water from common water source, had faced incidences of depletion of water; only 13% replied that they did not encounter such a situation.

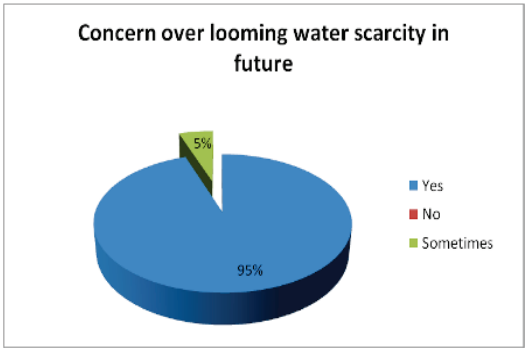


Figure 26

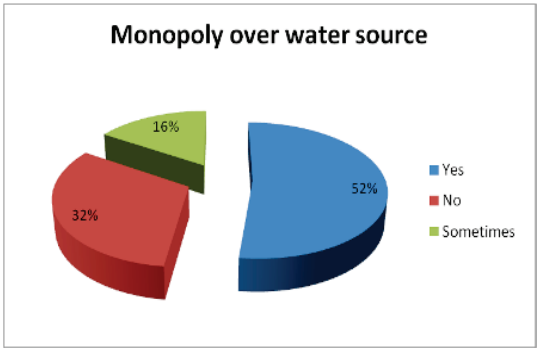


Figure 27

Another question was raised to assess the observation of the respondents to the looming water scarcity in the future; yet a phenomenon already evident to some degree in recent times. As in ***figure 26***, 95% expressed their concern over the issue by saying 'yes' and 5% mentioned 'sometimes'. Another point to note was that there was not a single respondent from Wohka district who did not voice out concern over the looming water scarcity as 95% said 'yes' and 5% 'sometimes'. A question was asked in order to evaluate if there were cases of monopolisation of water source by individuals/ groups in Wokha district, responses are seen in ***figure 27***; whereby 52% said 'yes', 32% 'no' and 16% 'sometimes'. As seen by the data, 52% of the respondents said there were incidences of monopolisation over water source.

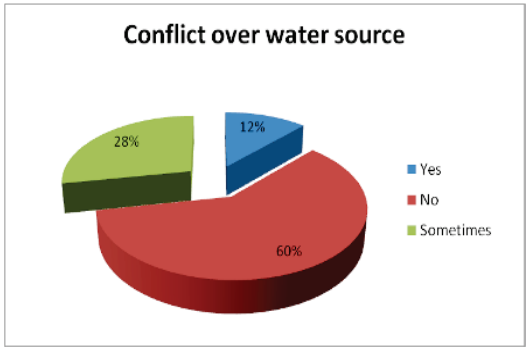


Figure 28

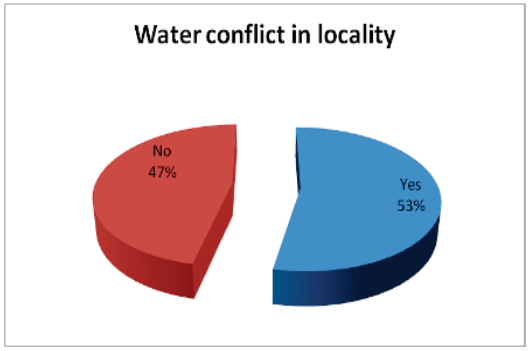


Figure 29

Responses are seen in ***figure 28***, to a question with an objective to assess conflict situations over water in Wokha district. Out of the total, 60% replied 'no', 28% 'sometimes' and 12% 'yes'. In case of issues of conflict over water, a majority 60% replied that there were no such cases in Wokha district; only 12% clearly stated the prevalence of such cases. ***Figure 29*** shows responses to a more specific question asked to determine whether water conflict was prevalent in the locality of the respondents; 53% replied 'yes' and 47% 'no'. The above responses indicate that in

some localities there were incidents of water conflict such as seen by the response of 53% who replied in the affirmative.

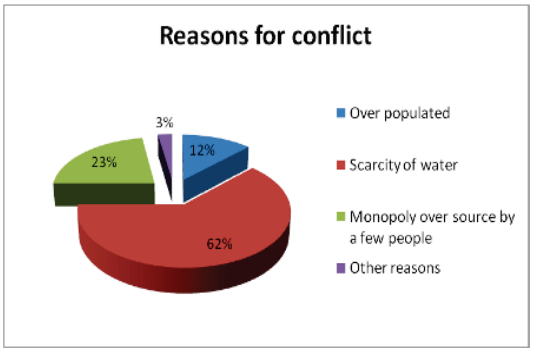


Figure 29.1

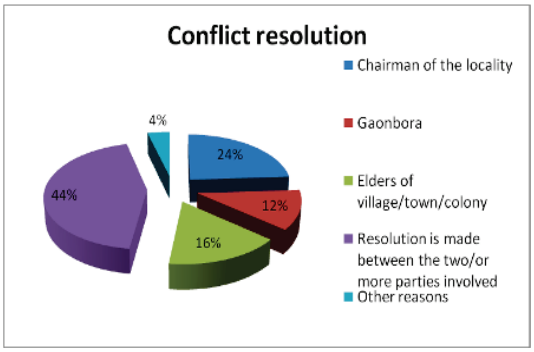


Figure 30

Corresponding to this, respondents gave various reasons for conflict situation in their locality as seen in ***figure 29.1.*** The main issue stated by 62% was 'water scarcity', 23% 'monopoly over source by a few people', 12% 'over populated' and 3% gave 'other reasons', which included answers such as 'breaking of water supply line/pipes', and 'diverting water to other source'. Various reasons were quoted for such episodes; however the major cause of conflict according to the 62% response was 'scarcity of water'. The important issue of conflict resolution is seen in ***figure 30,*** where 44% respondents were quoted saying that 'resolution is made between the two/ or more parties involved', 24% 'chairman of the locality', 16% 'elders of the village/town/colony', 12% '*goanbora*' of the locality, and 4% 'other reasons', which included responses such as 'conflict continues as no one resolves the issue', and 'between villagers involved'. The responses shown in ***figure 30*** shows different systems established in society to address such issues if and when it presents itself; although in Wokha district the most common response was 44% saying 'resolution is made between the two or more parties involved'. However, among the 'other responses' an interesting comment was 'conflict continues as no one resolves the issue'.

	Village/Town/Colony:		
1.	Majakong Ward	3	
2.	Artang Ward	11	
3.	Sangtemla Ward	8	
4.	Salangtem Ward	3	
5.	Sungkomen Ward	3	
6.	Tongdentsuyong Ward	7	
7.	Kumlong Ward	8	
8.	Dilong Ward	2	
9.	Arkong Ward	8	
10.	Aongza Ward	2	
11.	Penli Ward	3	
12.	Mongsenbai Ward	3	
13.	Alempang Ward	2	
14.	Alongmen Ward	2	
15.	Mokokchung Compound	1	
16.	Alijen Town	2	
17.	Mokokchung Village	1	
18.	Ungma Village	4	
19.	Chuchuyimpang Village	1	
20.	Khensa Village	1	
	Total	75	

(Figure 1)

Respondents were mainly from the Ao tribe, all residing in Mokokchung district and as seen in *figure 1*, from 15 colonies/wards stretched across Mokokchung town and from Alijen town and 4 villages in Mokokchung district.

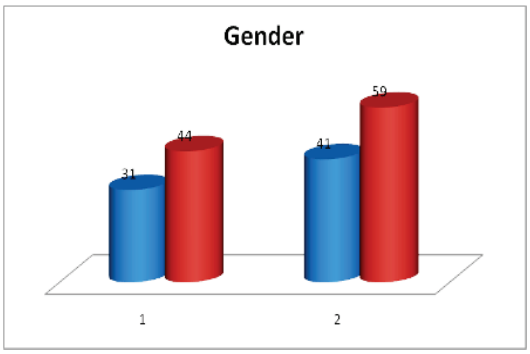


Figure 2

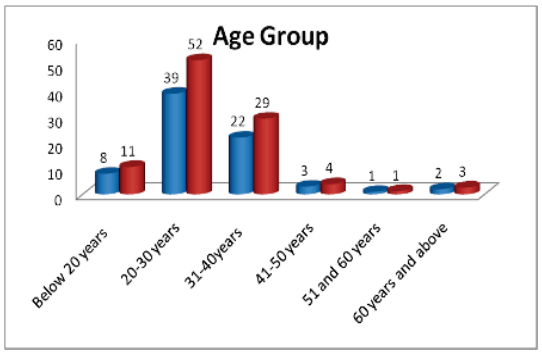


Figure 3

In the above data as seen in ***figure 2*** from the district of Mokokchung, 41% of the respondents were male and 59% were female. They were all in various age groups as in ***figure 3***, 11% were below 20 years of age, 52% were between 20-30 years, 29% were between 31-40 years, 4% between 41-50 years, 1% between 51-60 years, 3% were 60 years and above. The above data indicates that a majority 59% of the respondents were female. A bulk of the respondents 52% were from the age group of 20-30 years of age, followed by 29% in the age bracket of 31- 40 years of age. Respondents from the older age group both male and female group were minimal.

(Figure 4)	Occupation	**Male**	**Female**	**Number Count**
1.	Teaching	10	15	25
2.	Business	4	2	6
3.	Student	9	16	25
4.	Government Employee	3	1	4
5.	Religious activity	1	----	1
6.	Retired Government Servant	1	----	1
7.	Social Worker	1	2	3
8.	Politician	2	----	2
9.	Housewife	----	3	3
10.	Farmer	----	3	3
11.	Unemployed	----	2	2
	Total	**31**	**44**	**75**

In ***figure 4*** data shows that the respondents were from 10 occupations, and one category was from the unemployed. 25 were teachers, 25 were students, 6 business men and women, 4 Government employees, 3 social workers, 3 housewives, 3 farmers, 2 politicians, 1 involved in some religious activity and 1 retired government servant and 2 unemployed. Therefore the data shows a diverse of range of professions/occupations of the respondents from Mokokchung district.

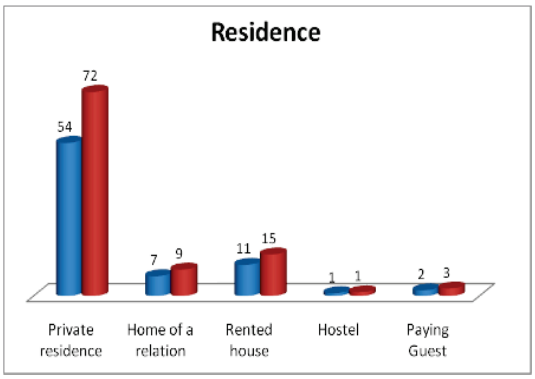


Figure 5

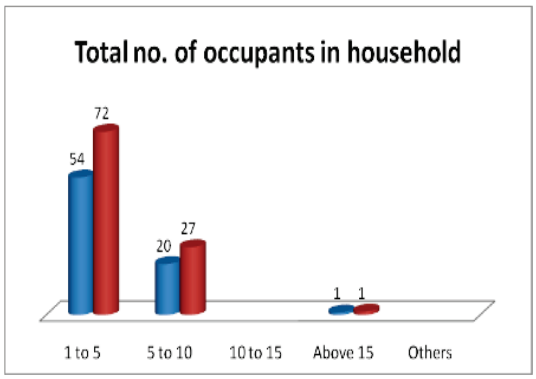


Figure 6

72% of the respondents lived in their own private residences, 9% in the home of a relation, 15% in rented houses, 1% in hostel, and 3% as a paying guest as seen in ***figure 5.*** From this division as seen in ***figure 6,*** a high 72% lived in a household of 1 to 5 members, 27% has 5 to 10 members in household and 1% above 15 members. The above data indicates that a 72% of the respondents lived in their own private residences, and another majority 72% had a household unit consisting of 1 to 5 members. The random data collected from Mokokchung district shows that most of the households' were average sized except for a few large sized household, probably the immediate family, relatives and other dependents.

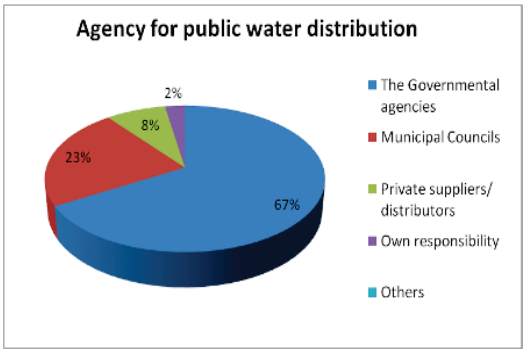


Figure 7

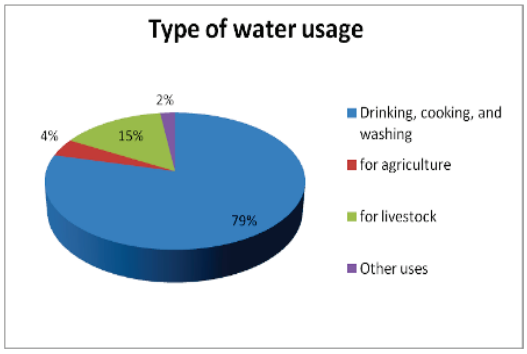


Figure 8

In Mokokchung district as seen in ***figure 7***, 67% said that the governmental agencies should take responsibility for public water distribution, 23% municipal councils, 8% private suppliers/distributors, and 2% said it should be own responsibility. When asked about the type of water usage as in ***figure 8***, 79% of respondents said their usage was mainly confined to drinking, cooking and washing, 15% said they used it also for livestock, 4% for agriculture, and 2% 'other uses', which included, 'for hotel use' and 'commercial establishment'. The data indicates a 67% majority in Mokokchung district had the opinion that public water distribution should be done by the governmental agencies alone, and a lesser 23% said municipal councils. The water

usage data also indicates that apart from basic utilization, the respondents from the district either keep or are compelled to keep their water usage to minimum, due to a variety of reasons discussed in the following data.

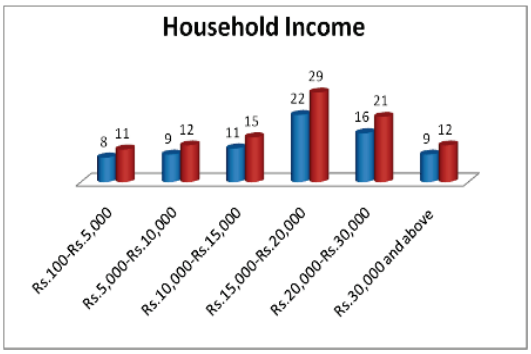


Figure 9

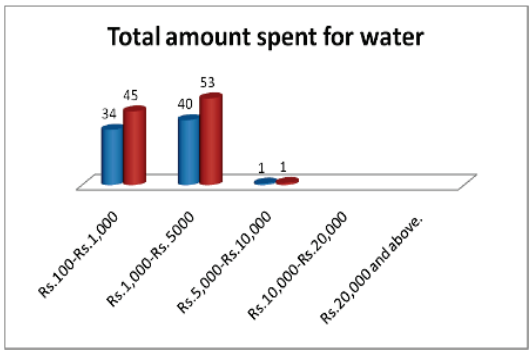


Figure 10

The household income of the respondents is shown in ***figure 9***, 11% had an income range between Rs. 100 to Rs. 5,000, 12 % Rs. 5,000 – Rs. 10,000, 15% Rs. 10,000 – Rs. 15,000, 29% Rs. 15,000- Rs.20,000, 21% Rs. 20,000- Rs. 30,000 and 12% Rs. 30,000 and above. Out of the income, 45% spent Rs. 100 – Rs. 1,000 on water, 53% Rs. 1,000 – Rs. 5,000 and 1% Rs. 5,000 – Rs. 10,000 as shown in ***figure 10***. The data from Mokokchung district indicates that the income range was not consistent, 29% were in the range Rs. 15,000- Rs.20,000, and 21% Rs. 20,000- Rs. 30,000. Others were all divided almost uniformly in the income range indicated above. Also, 53% of the respondents spent Rs. 1,000 – Rs. 5,000 on monthly purchase of water. This amount indicates that there may have been purchase of water from multiple agencies, for instance purchase both from the PHED and private suppliers as well.

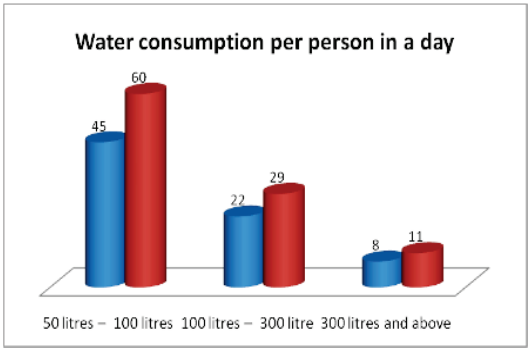


Figure 11

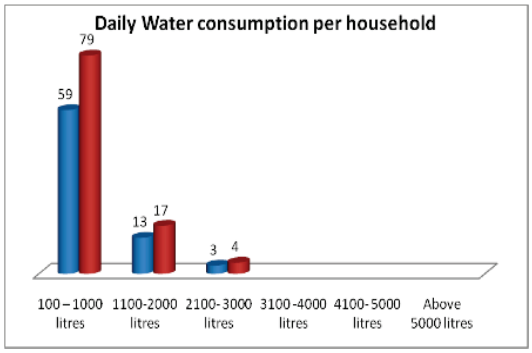


Figure 12

Water consumption per day among the respondents is shown in ***figure 11***. 60% used 50- 100 litres, 29% 100- 300 litres, 11% 300 litres and above. ***Figure 12*** shows daily water consumption per household, 79% used 100- 1000 litres per day, 17% 1100-

2000 litres, 4% 2100-3000 litres. The above data shows the responses from Mokokchung district, and it indicates that for a majority 60% water usage was minimal per person as daily consumption was limited to 50-100 litres per day. Only 11% of the respondents stated that they used up 300 litres and above per day. As in the case with households of respondents, a high 79% said that daily water usage was confined to 100- 1000 litres, on a smaller margin 4% said that their household's used 2100-3000 litres per day. None of the respondents lived in a household, with water usage more than 2100-3000 litres per day.

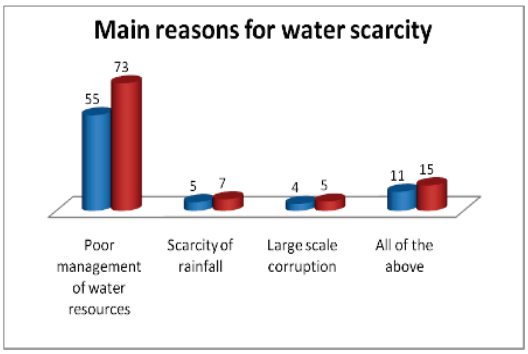


Figure 13

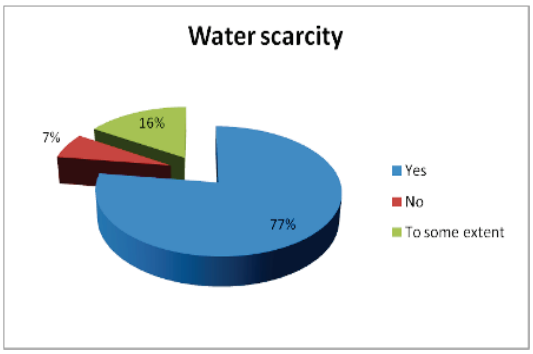


Figure 14

As given in ***figure 13***, the main reasons for water scarcity in Mokokchung district were listed by 73% respondents as poor management of water resources, 7% scarcity of rainfall, 5% large scale corruption, and 15% all of the above. In ***figure 14***, responses are seen to the question of whether the respondents face water scarcity, 77% said 'yes', 16% 'to some extent', and 7% 'no'. Data indicates a widely prevalent state of water scarcity as only 7% said they did not face scarcity, as opposed to 93% who faced scarcity in varying degrees. The main reason for this condition was stated by a majority 73% as poor management of water resources by the concerned authorities. This shows that the condition of scarcity in Mokokchung district was seen a result of improper administration of resources.

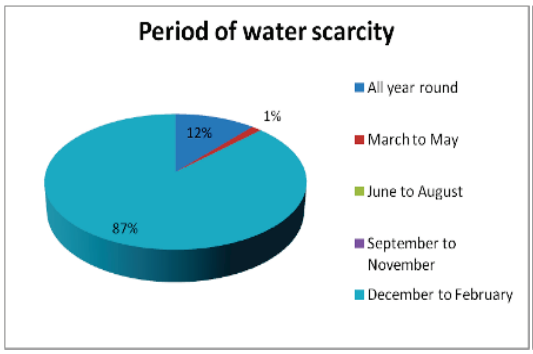


Figure 14.1

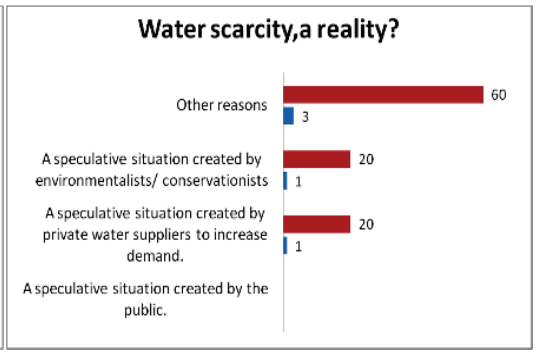


Figure 14.2

Figure 14.1 shows the period of water scarcity in Mokokchung district. According to 87% it was between December to February, for 12% it was all year round, 1% March to May. Some of the respondents did not agree to the view that there was a situation of water scarcity in the district as seen in ***figure 14.2.*** 20% said that it was 'a speculative situation created by environmentalist/conservationist', another 20% said that it was 'a speculative situation created by private water suppliers to increase demand', and 60% gave 'other reasons' some of them which included ' it is a natural situation' another said 'scarcity will not be there if resources are managed properly by oneself'. The data shows that a greater part of the respondents (87%) faced scarcity from December to February, and for 12% it was for all year round. Only a few respondents said that there was no scarcity of water in Mokokchung district.

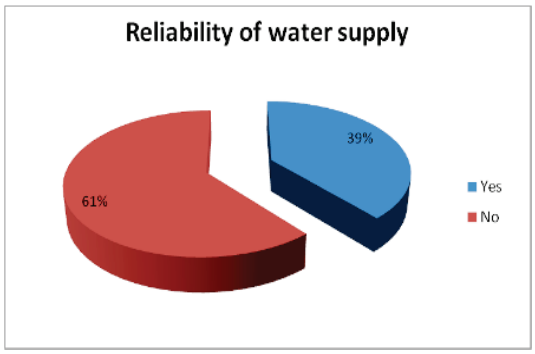


Figure 15

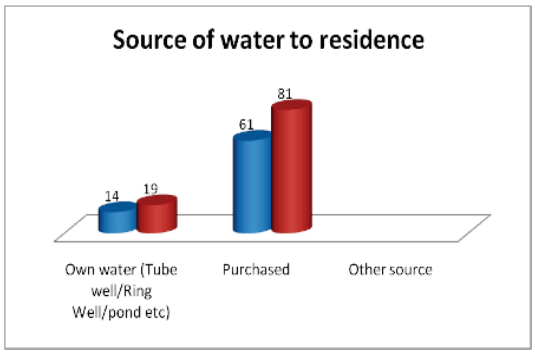


Figure 16

When the question was asked as to if the water supply system was reliable 61% said 'no' and 39% said 'yes' as seen in ***figure 15***. As also shown in ***figure 16***, 81% said the source of water to residence was purchased through certain agencies, 19% said they had their own water source for their households. The above data indicates firstly, that more than half of the respondents (61%) said that in Mokokchung district supply of water was unreliable while a lesser 39% disagreed to this view. Data indicates that most of the respondents from the district (81%) were wholly dependent on

governmental agencies and private agencies for supply of water to their residences, thereby leaving them vulnerable to a great deal of inconvenience if supply was irregular and bills inflated.

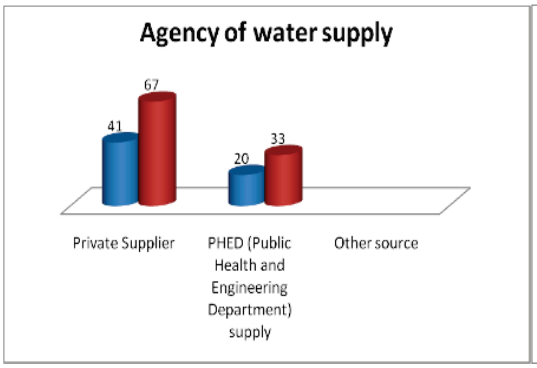


Figure 16.1

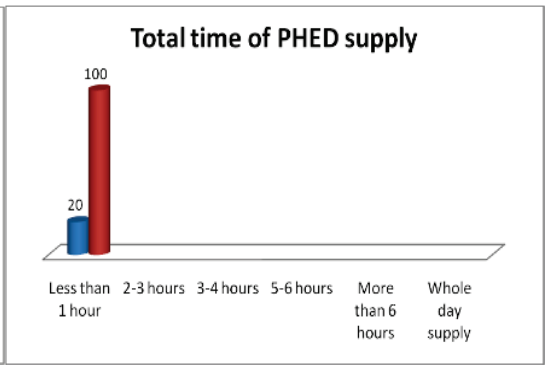
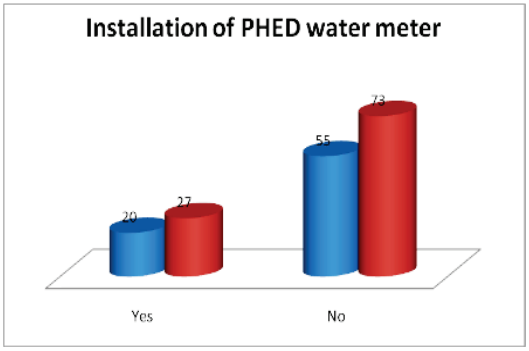


Figure 16.2

As seen in **figure 16.1** for 67% private suppliers are the agency for water supply in Mokokchung district, and for 33% PHED, no other source was mentioned. When the question was raised about the total time of PHED water supply, 100% said 'less than one hour', as in **figure 16.2**. The above details show that respondents from Mokokchung district are mostly dependent on private water suppliers as 67% purchased water from them for their household needs. Out of the smaller 33% minority who purchased water from the PHED, all of the respondents said that the total time for supply of water to their households was 'less than one hour'; this response shows that the time of supply by the PHED was nominal, and inconsistent.



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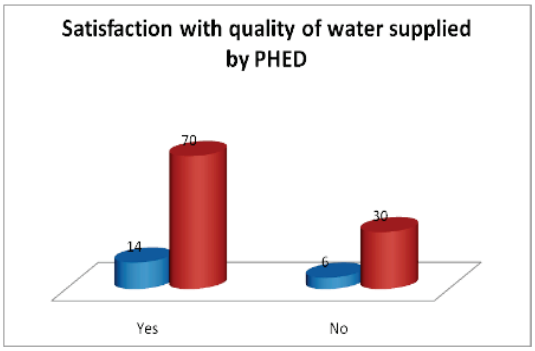


Figure 18

Out of the total respondents who purchased water only 27% had a meter to gauge the supply and purchase of water, the other 73% said they did not have any meter installed in their households as seen in ***figure 17***. When asked if they were satisfied with the quality of water supplied by the PHED as in ***figure 18***, 70% of the respondents' said 'yes' and 30% 'no'. The data from Mokokchung district indicates

that most of the respondents depended on private water suppliers and also had made their own arrangements for a constant supply of water as only 27% had a PHED water meter installed in their houses. For 70% of the respondents, the quality of water supplied by the PHED was satisfactory and only a part of the respondents' expressed dis-satisfaction.

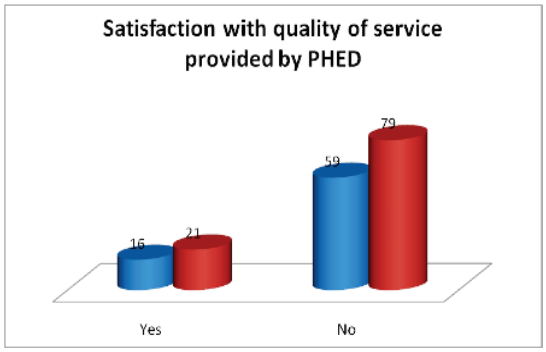


Figure 19

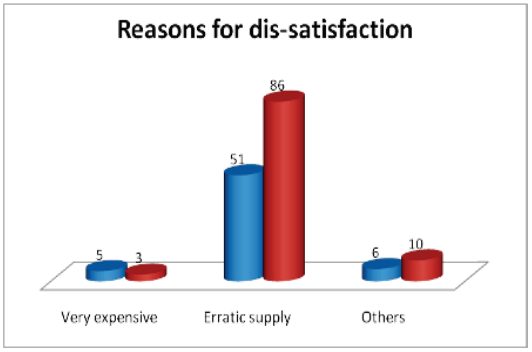


Figure 19.1

As seen in ***figure 19***, only 21% of the respondents expressed some kind of satisfaction with quality of service provided by PHED, otherwise 79% expressed their dissatisfaction. The reasons or causes given for their dissatisfaction as shown in ***figure 19.1***,was 'erratic supply' for 86% respondents, 3% 'very expensive' and 10% 'other reasons', which included 'old pipelines not replaced despite repeated complains', 'indifferent attitude of staff towards consumers genuine complains', etc. The above data indicates that generally 79% of the respondents were not satisfied with the quality of service provided by the PHED, and while other reasons were also stated, 86% very distinctly gave 'erratic supply' as being the main reason for dissatisfaction.

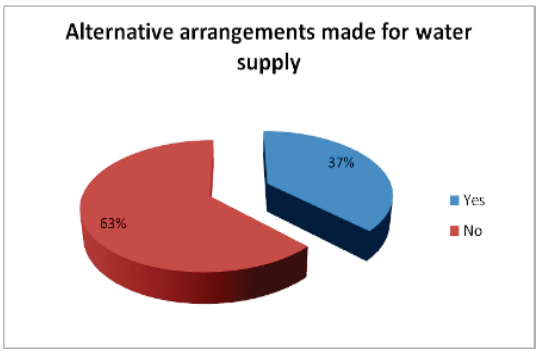


Figure 20

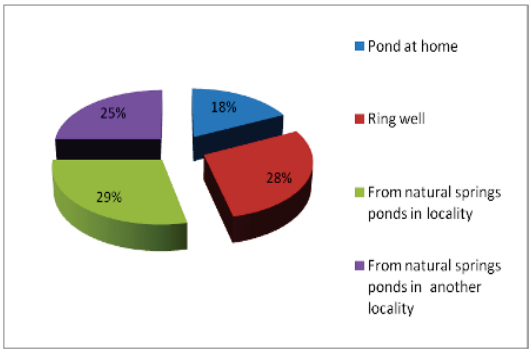


Figure 20.1

When asked if alternative arrangements have been made for water supply, as seen in ***figure 20***, 63% respondents replied 'no' and 37% 'yes'. Corresponding to the question in ***figure 20***, of whether additional arrangements had been made for supply

of water, ***figure 20.1*** shows that 29% were also dependent on natural springs/ ponds in locality, 28% had dug a ring well for their residence, 25% from natural springs in another locality, 18% pond at home. This data indicates that the 63% respondents who had not made alternative arrangements for supply of water were totally dependent on either PHED or private water suppliers. The other 37% despite having a supply source from both the agencies, had to make additional arrangements to suffice their requirements.

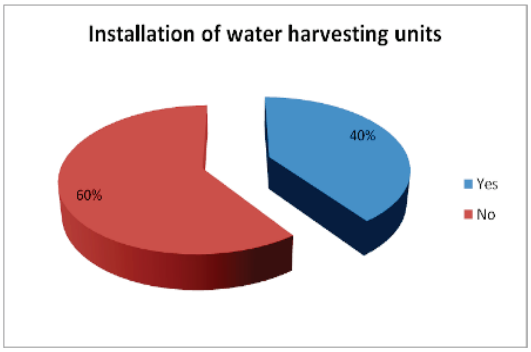


Figure 21

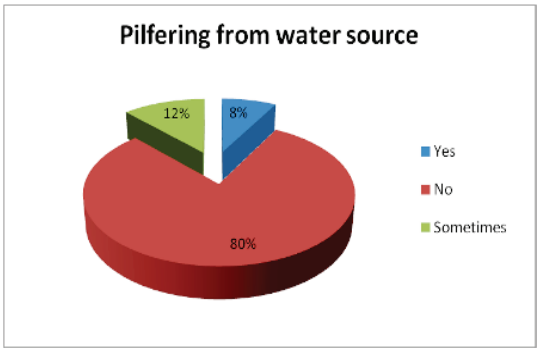


Figure 22

When the respondents from Mokokchung district were asked if they had water harvesting units installed in their households as seen in ***figure 21***, 60% said 'yes' and 40% 'no'. In ***figure 22***, respondents were asked if there were cases of pilfering from water source in their households, and 80% replied 'no' 12% 'sometimes' and 8% 'yes'. From the responses given above, data indicates that installation of water harvesting units is widespread in the district as 60% have said that they had such units in their households in order to conserve and store water. Although water scarcity was seen as an actuality in the district, only 12% from among the respondents said they had faced pilfering from their water source at their home. Therefore, it can be deduced that water scarcity was also a cause for a number of social problems as is apparent from the pilferage cases mentioned above.

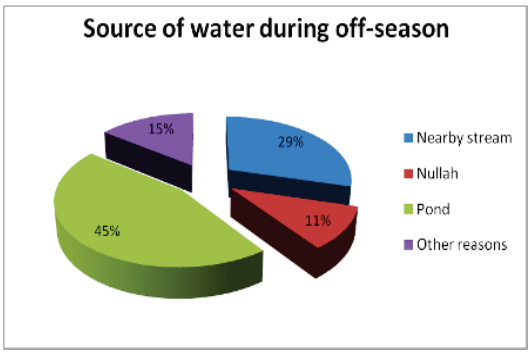


Figure 23

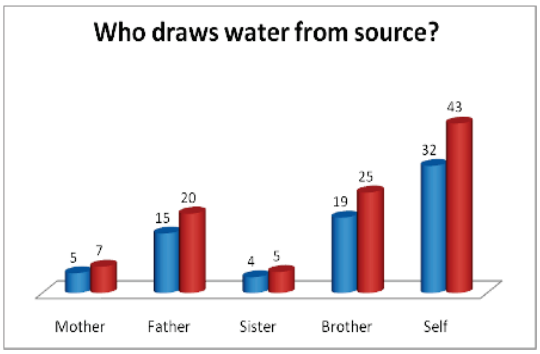


Figure 23.1

When asked about the source of water during the monsoon off-season, 45% replied 'pond', 29% replied 'nearby stream', 15% other reasons included 'public water reservoir tank', 'neighbour's ring well', 'tube well' etc., 11% replied 'nullah' as seen in ***figure 23***. For those respondents dependent on other sources during the off-season, a variety of responses were given with no single distinct answer, showing that the respondents had to depend on whatever sources were available and convenient for them.In ***figure 23.1***, responses are shown to the question as to who draws water from the alternate source of water, 7% replied 'mother', 20% 'father', 5% 'sister', 25%'brother' and 43% 'self' out of which 18 respondents were male and 14 female.

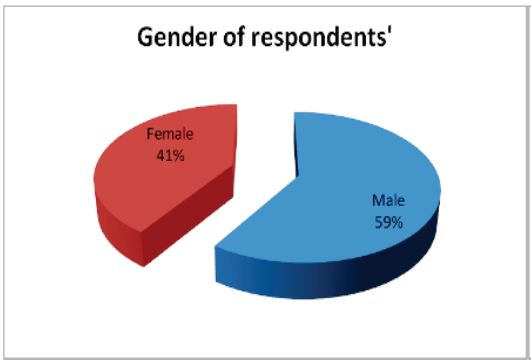


Figure 23.1.(a)

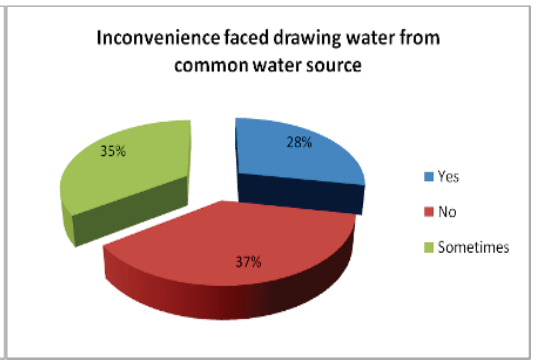
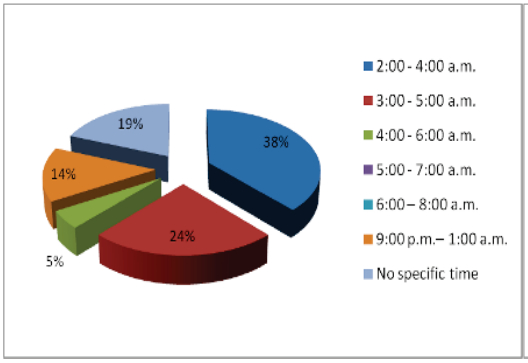


Figure 24

As seen in ***figure 23.1. (a)*** the gender of the total respondents from Mokokchung district were 59% male and 41% female. From the above data, deduction can be made that the family unit as a whole was engaged in fetching water from the water source. In Mokokchung district, more males 69% (***figure 23.1***) were engaged in fetching water as compared to 31% of females. Data in ***figure 24*** shows the responses given to the question of whether inconvenience was faced by the respondents while drawing water from common water source; 37% replied 'no', 35% 'sometimes' and 28% 'yes'.



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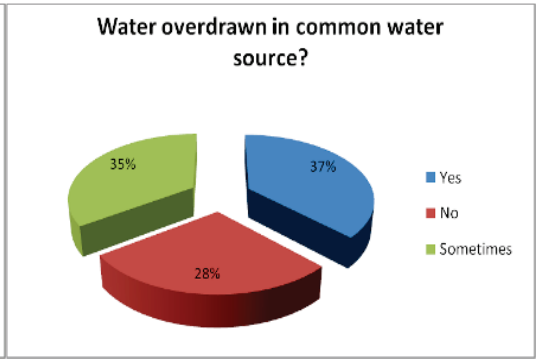

Figure 25

Also in ***figure 24.1***, responses are shown as to the time when respondents usually fetch/draw water from their usual source; 38% said '2:00 a.m. – 4:00 a.m.', another 5% '4:00 a.m. - 6:00 a.m.', 24% '3:00 a.m. - 5:00 a.m.', another 14% '9:00 p.m.-1:00 a.m.', 19% 'no specific time'. This shows that the most prefered timing for 38% majority was '2:00 a.m. – 4:00 a.m.' and 24% '3:00 a.m. - 5:00 a.m.'. This data indicates that a majority of the respondents from Mokokchung district had to bear the inconvenience of fetching water at the above mentioned time, indicating that accountability of the public water distribution was not clear as to which agencies/ governmental agency should look to the needs the public in general as seen by the examples of the random samples taken from areas spread over 15 colonies/wards and 5 villages in Mokokchung district.Responses to the question of whether water was overdrawn in common water source is given in ***figure 25***. 37% replied 'yes', 35% 'sometimes and 28% 'no'. The above responses illustrates that (*figure 25* - 72%) respondents had to often face a situation where water was deficient in their common water source, and they struggled to get their required quota. Only 28% said they did not encounter such a situation.

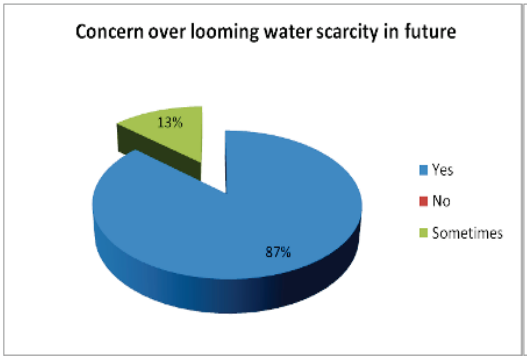

Figure 26

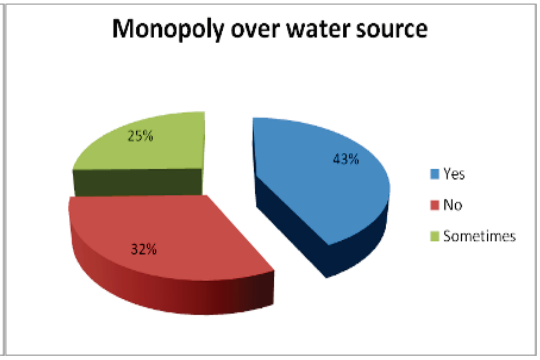

Figure 27

Responses are also shown in ***figure 26*** to the question of whether there were concerns over looming water scarcity in the future; 87% replied 'yes' and 13% 'no'. Also 87% of the respondents said that were deeply concerned over the looming water crises situation, perhaps seen as a reflection of the situation prevalent in their own district.43% of the respondents' from Mokokchung district said that there was monopoly over water source, 25% said 'sometimes' there were such cases and 32% said 'no' as seen in ***figure 27.*** The above responses in ***figure 27*** indicates that monopoly over water sources by certain individuals/groups have become more common over the years; 43% said such monopolization was prevalent and 25% said 'sometimes.

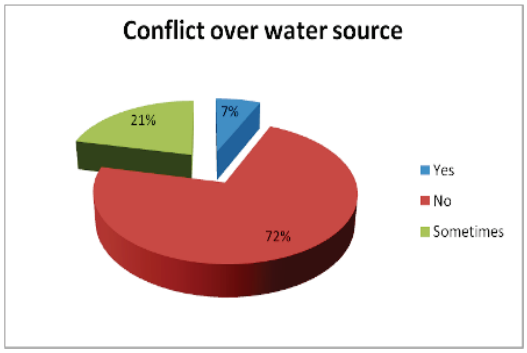

Figure 28

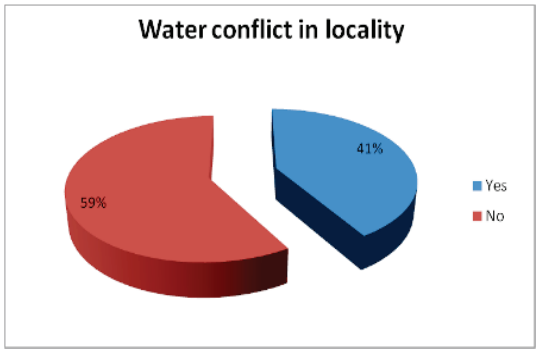

Figure 29

Figure 28 shows responses to the question of whether there were water conflicts over the water source, 72% replied 'no', 21% 'sometimes' and 7% 'yes'. Conflicts over water source though prevalent seems to be less common in Mokokchung district as 72% responded saying they had no knowledge, nor had they encountered such incidences; only 7% said they had knowledge of such water conflict situations. Responses to the question of whether water conflict was prevalent more specifically in their own localities are seen in ***figure 29***; 59% of the respondents replied 'no' and

41% ‘yes’. The 41% responses in the affirmative from Mokokchung district shows that water conflict was prevalent in some of the localities, out of the total from where data samples were taken.

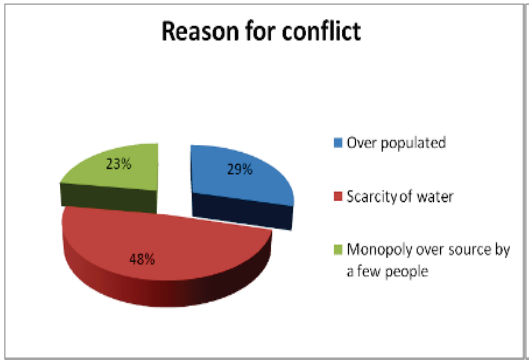

Figure 29.1

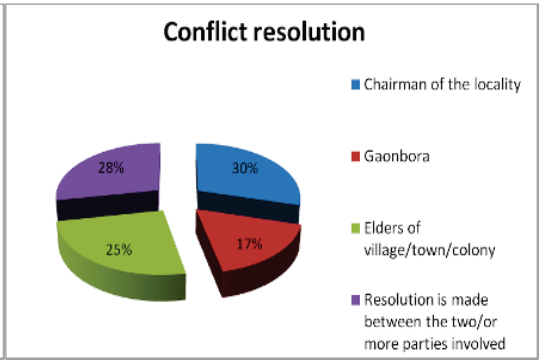

Figure 30

When the question of the reason for conflict was raised (***figure 29.1***), 48% replied ‘scarcity of water’, 29% ‘over populated’ and 23% ‘monopoly over source by a few people’. Although a number of reasons were stated for such a situation such as over population in the localities, and monopoly by few over water source, 48% majority said it was because of ‘scarcity of water’ in the district. ***Figure 30*** shows the responses to the mode of conflict resolution in Mokokchung district; 30% of the respondents said ‘chairman of the locality’, 28% ‘resolution is made between the two/or more parties involved’, 25% ‘elders of village/town/colony, and 17% replied the *‘gaonbora’*. The above responses show that in case of conflict situations, resolution was made according to the nature or severity of the problem; the responses also show the systems established in society to address such issues which had developed over the years. In the case of Mokokchung district, responses were almost equally divided; there was no category mentioned above seen as distinct by itself.

**Data from chart with figure 1-6, and 17, has been omitted as it concerns general information of the respondents from the four districts. Nevertheless the charts and data given in chapter 5 will make clear if necessary, any query on the general information. Shown here are findings from charts with figure number 7-30.*

Figure 7: Agency for public distribution of water

1. 93% respondents in Mon district, 67% Mokokchung district,61% Kohima and 59% in Wokha district stated that the government through PHED should play a pivotal role as the main agency for public distribution of water.
2. 28% in Wokha district, 27% Kohima district and 5% Mon district stated that municipal corporations should be the main agency for public distribution of water.
3. It was surprising that although the four districts were so heavily dependent on private water suppliers to satiate their water need, only 5% from Kohima district, 4% Wokha district and 2% each from Mon and Mokokchung responded that private suppliers/distributors should be the main agency for public water distribution. This suggests that they would rather prefer private operators than governmental agencies for supply of water.
4. There was mention by 9% from Wokha district, 5% Kohima district and 2% from Mokokchung district that water lookout should be the individuals own responsibility.

Figure 8: Type of water usage

1. The water usage data from the four districts shows only basic utilization of water used for drinking, cooking and washing for 79% from Mokokchung, 76% Kohima, 71% Wokha and 68% Mon district. Other uses stated were ‘for hotel use’ and ‘commercial establishment’; ‘floriculture’, ‘for livestock’; and ‘agriculture’.
2. The respondents from the four districts kept their water usage to minimum and this indicates moderate water usage for basic needs, no lavish water need or usage was noticeable.

Figure 9: Household income

1. The data for income range was taken in order to determine and compare how much expenditure was being incurred for purchase of water. 29% in Wokha, 24% in Mon and Kohima district, 12% were in the Rs. Rs.30, 000 and above income bracket (highest income group). The rest were evenly distributed across the different lower income brackets; with only a slight variation for each category.

Figure 10: Total amount spent on water

1. 73% from Wokha district, 63% Kohima, 61% Mon district and 45% from Mokokchung district spent Rs.100-Rs.1000 buying water in a month.
2. However, in Mokokchung 53% spent Rs. 1,000 – Rs. 5,000 for monthly purchase of water.
3. In Kohima 1% was shown spending a huge amount of Rs. 10,000 to 20,000 on buying water, no other district had shown any indication/response in this category.
4. The amount indicates that expenditure on purchase of water was comparatively high in all the four districts and there may have been purchase of water from multiple agencies, for instance purchase both from the PHED and private suppliers as well.

Figure 11: Daily water consumption per person

1. For most respondents daily water consumption was limited to50-100 litres' per day; this was seen from the 73%, responses from Mon district, 72% Kohima, 60% Mokokchung district and 52% from Wokha district. Water usage was therefore for most basic daily needs only like cooking, drinking, for toilet etc. Water insufficiency also plays a role in lack of proper hygienic habits as many in these water stressed areas are forced to limit taking regular daily bath in order to conserve water.
2. 1% in Mon district, 11% Wokha and Mokokchung district consumed 300 litres' and more daily. No data was found from Kohima in this category showing the severe nature of water scarcity existent particularly in Kohima the capital city of Nagaland**.**

Figure 12: Daily water consumption per household

1. Daily consumption for a household showed usage of 100-1000 litres from 88% respondents in Kohima district, 79% Mokokchung district, 72% Wokha district, and 71% from Mon district. Water usage was kept to a minimum.
2. Kohima district was again distinct in its response showing that no household consumed from 2100 – 3000 litres or more water in a day. Showing the severe nature of water scarcity.

Figure 13: Main reasons for water scarcity

1. 5% from Kohima district; 7% Mokokchung district, 8% Wokha district, and 11% from Mon district, stated that scarcity of rainfall was a reason for water scarcity.
2. 19% in Mon attributed it to large scale corruption; 7% in Wokha, 5% in Mokokchung and 4% in Kohima district mentioned the same.
3. However despite other reasons, the main reason stated for this condition by a majority 73% in Mokokchung district was poor management/ improper management of water resources; 69% Kohima district, 61% Wokha district and 60% in Mon district had the same opinion.

Figure 14: Water scarcity

1. 77% from Mokokchung district, 75% Mon district, 72% Wokha and 67% from Kohima district responded that they faced water scarcity; showing that most of the districts were having to deal with a reeling scarcity situation.
2. Only 13% in Kohima, 9% Wokha and 7% Mokokchung district stated that they did not face scarcity. An interesting point to note was that there was none among the respondents from Mon district who said they did not face water scarcity.

Figure 14.1: Period of water scarcity

1. 87% from Mokokchung, and 74% from Kohima district said that the most severe scarcity was found during the lean period i.e. December-February (post-monsoon season).
2. 16% from Mon district, 12% Mokokchung district, 8% Kohima district and 3% from Wokha district said that they faced scarcity all year round. This situation was unusual given the fact that Nagaland state as a whole gets a

healthy volume of monsoon rain every year. Scarcity was seen to be largely due to poor management in the districts stated above.

Figure 14.2: Water scarcity, a reality?

1. Out of the 13% from Kohima district, 9% Wokha district, and 7% from Mokokchung district who stated that they did not face any water scarcity (as shown in figure14); reasons for scarcity were attributed to three conditions namely, that it was a speculative situation created by environmentalist and conservationists, by private water suppliers to generate more business, and the public in general.

Figure 15: Reliability of water supply (PHED)

1. An overwhelming majority consisting of 92% from Mon district, and 83% from Kohima district, expressed that they found the public water distribution through the PHED utterly unreliable. A lesser but equally significant number from Mokokchung with 61% and 59% from Wokha district also expressed the same.

Figure 16: Source of water to residence

1. 85% of respondents from Mon district, 81% Mokokchung district, 60% Wokha district and 53% Kohima district purchased water primarily from the PHED or the private suppliers for their household water needs.
2. But 47 % respondents from Kohima, and 40% Wokha district, stated that they relied on their own water sources such as ring wells, natural ponds, and springs in their vicinity. This shows that certain localities and residences in were still out of the reach of the piped water supply of the governmental agencies.

Figure 16.1: Agency of water supply

1. The data indicates that respondents were dependent more on the supply of the private water suppliers as shown by 67% from Mokokchung district, 66% from Wokha district, and 60% from Kohima district who stated that they purchased water from private suppliers.
2. Only Mon district showed a variation in response as 77% of the respondents were completely dependent on the PHED water supply.

Figure 16.2: Total time of PHED supply

1. There was no case of whole day continuous water supply to the respondents from any of the mentioned four districts.
2. 100% of those who were availing the services of the PHED from Wokha and Mokokchung district stated that total time of supply was less than one hour daily.
3. 80% from Mon district and 75% from Kohima district stated that total time of supply in a day was also less than an hour.
4. This shows that PHED supply was infrequent (supply confined to two or three days a week), and insufficient in all the four districts.

Figure 18: Satisfaction with quality of water supplied by the PHED

1. 89% from Mon district, 83% Wokha district, and 67% from Kohima district expressed dissatisfaction with the quality of water supplied by the PHED. Some of whom stated that there should be more stringent quality check by the PHED and for old rusty broken water pipe lines to be replaced, and for leakages to be repaired.
2. However 70% from Mokokchung district stated that quality of water supplied by the PHED was satisfactory.

Figure 19: Satisfaction with quality of service supplied by the PHED

1. 91% in Kohima district, 84% Mon district, 79% Mokokchung district and 55% from Wokha district expressed dissatisfaction with the service of the PHED, the nodal governmental agency for supply of water to all parts of Nagaland, particularly the rural areas.

Figure 19.1: Reasons for dissatisfaction

1. The main reson for dissatisfaction was given as erratic supply by the majority of respondents; 86% Mokokchung district, 85% Wokha district, 63% Kohima and 59% from Mon district.
2. 34% in Kohima district and 12% Wokha district, 10% in Mokokchung and Mon district gave other reasons such as high cost and poor maintenance of supply pipes, lack of supply in village/locality, and PHED staff being irresponsible towards duty. Some even complained that they were unable to get connection despite repeated appeals to the concerned department. They went on

to say that old pipelines were not replaced despite repeated complains and the problem was further compounded due to the indifferent attitude of staff towards consumers genuine complains.

Figure 21: Alternative arrangements made for water supply

1. A regular feature in Nagaland are citizens making their own arrangements to augment the water supply or finding new sources to get more water for daily needs. This alternative arrangement quoted was to supplement the PHED or private water supply. 40% in Mon district, 37% Mokokchung district, and 28% in Kohima and Wokha district made such alternative arrangements.

Figure 20.1: Corresponding to the previous question in chart 20, alternative arrangements made by the respondents included making their own ring wells, gathering from natural ponds/ springs, etc. Some respondents even mentioned that they had to go to another locality at midnight or before dawn to avail the water from the sources mentioned above.

Figure 21: Installation of water harvesting units

1. 71% in Mon district, 60% Mokokchung district, 47% Wokha district and 40% in Kohima district had made some provision to collect the rain water during the monsoon season.
2. However data also shows that 60% in Kohima district and 53% in Wokha district did not make such provisions leading to wastage of water because it was not collected or harvested properly.

Figure 22: Pilfering from water source

1. A consequence of water scarcity was shown by the episodes of pilferage from their water reservoir/tank/ wells at home; 12 % from both Wokha district and Mokokchung district and 10% from Kohima district had experienced it.
2. In Mon district 71% respondents replied that they faced cases of pilferage. It can therefore be deduced that water scarcity was also a cause for a number of social problems as is apparent from the pilferage cases mentioned above.

Figure 23: Source of water during off season

1. Those respondents who could not spent money to make/dig their own well were dependent on alternate water source during off-season, since their

primary supply source was not sufficient. Many had to search for water from public water source in their own locality or in another locality.

2. An interesting point to note is 15% in Wokha district, 11% in Mokokchung district, 5% in Mon district and 1% in Kohima district collected water from the 'nullah', which means open drain. At the cost of their own health, during severe scarcity they had to resort to such means. Although the water would not be used for drinking purpose, it would be used for cleaning, for toilet and other household uses.
3. Other sources mentioned included collection of water from river in Mon district; 'ancient community well in the jungle', and 'from water source in forests' in Wokha district etc.
4. Many of them in the four districts voiced their difficulties and said at times ponds and wells in locality were locked up by certain individuals, or groups, making it difficult for them to draw water.

Figure 23.1: Who draws water from source?

1. The data shows that during the lean season (off-monsoon) the whole family was involved in fetching water from the sources mentioned. Mentioned was made that this was done mostly at early morning hours and at midnight when there were more chances to get water as other neighbours would be sleeping.

Figure 23.1(a): Gender of the respondents fetching water

1. In terms of gender, 65% from Mon district, 58% Wokha district and 56% from Kohima district were females fetching water for their families. They had to walk over long distances and face great difficulty to fetch water at night or early morning hours. Many times the water source would be dried up due to excessive withdrawal, thereby not allowing the water to be replenished for further supply.
2. The only variation was seen in Mokokchung district where 69% were males who fetched water for household use.

Figure 24: Inconvenience faced drawing water from common source

1. Some of the respondents from Kohima district even specifically mentioned certain inconveniences such as 'having to go to other locality to draw water',

'staying up late and waking up very early to draw water from neighbourhood source'.

2. As seen by the responses given above despite the great difficulties included in fetching water for the family, apart from 62% in Mon district who said 'yes', the other responses were few with 37% from Kohima, 36% fromWokha and 28% from Mokokchung district. The rest seemed to have conditioned themseleves to the prevailing situation created water scarcity.

Figure 24.1: Timing for collection of water for household

1. In Mon district the most prefereed time was '3:00 a.m. - 5:00 a.m.' in the morning as 39% woke up early to fetch water at this time. In Kohima district 25% said '2:00 a.m. – 4:00 a.m.', another 25% '4:00 a.m. - 6:00 a.m.'; in Wokha district 42% had to wake up as early as 4:00 am-6:00 a.m. to fetch their daily water requirement. Finally in Mokokchung38% said '2:00 a.m. – 4:00 a.m.'.
2. 7% in Mon district, 11% Kohima district, 8% Wokha and 14% in Mokokchung district said that water was collected at midnight between '9:00 p.m.- 1:00 a.m.'.
3. Most respondents had to wake up very early to fetch water for their household, some even staying up at midnight to collect water from neighbourhood springs or wells. This shows that the public water distribution system did not meet the requirements of the public in general, who had to take great trouble, in time consuming effort to supplement their water consumption.
4. This data indicates accountability of the public water distribution was not clear as to which agencies/ governmental agency should look to the needs of the public in general as seen by the examples of the responses taken from areas spread across four districts.

Figure 25: Water depletion in common source

1. According to the data collected 52% in Wokha district, 51% Kohima district, 37% Mokokchung district, 27 % in Mon district said that they faced situations when the water in their common source was exhausted by the time

their turn came to draw water, suggesting that the natural springs/wells in various localities /villages did not suffice the needs of the respondents.

2. Only 28% in Mokokchung district, 19% Mon district, 16% in Kohima and 13% in Wokha district said there was no depletion of water in their regular source.

Figure 26: Concern over looming water scarcity in the future?

1. Due to the prevailing condition of water depletion in the state, there is great concern over severe scarcity as seen in the reposes from the four districts under study. 95% from both Kohima and Wokha, 93% Mon district, 83% from Mokokchung district expressed great concern over the situation.

Figure 27: Monopoly over water source

1. From the responses gathered, 68% respondents in Mon district, 62% Kohima district, 52% Wokha district and 43% in Mokokchung district stated that monopoly over water source was prevalent in general. The responses indicates that monopoly over water sources by certain individuals/groups have become more common over the years in many districts in Nagaland.
2. Only 8% from Mon district, 16% Wokha district, 17% Kohima and 32% from Mokokchung district stated that they had not encountered such a case.

Figure 28: Conflict over water source

1. Conflict and contestation over water resources are increasingly becoming common in Nagaland over the years showing a transition from the earlier times when water resources were shared without any restriction or reservation. Conflicts can be over smaller water sources like natural ponds or springs, wells or even over sharing of larger streams or rivers. 29% from Kohima district, 13% Mon district, 12% Wokha district, and 7% Mokokchung district stated that there were clear cases of water conflict in their area.

Figure 29: Water conflict in locality

1. The responses indicate that there were incidents of water conflict in some localities in the four districts as seen by the response of 87% from Mon district, 56% Kohima district, 53% Wokha district, and 41% from Mokokchung district who replied in the affirmative. This data indicates water conflict and contestation is common in pockets of the four districts as a whole.

Figure 29.1: Reason for conflict

1. Scarcity of water seems to be the main reason stated by most of the respondents from the four districts; 62% from Wokha district, 55% Mon district, 52% f Kohima district and 48% from Mokokchung district gave this very reason for conflict in their areas.
2. Monopoly over water resources was quoted by 36% from Kohima, 23% each from Wokha and Mokokchung districts, and 20% from Mon district.
3. Interestingly, responses from Mon district such as 'damage of PHED water reservoir during general election period in locality', shows the emerging trend of politicization of water as such incidents were caused between opponent parties in the elections.
4. Conflict was also caused over ownership issue, breaking of water supply line/pipes', and 'diverting water to other source'.

Figure 30: Conflict resolution

1. In Mon district 58% said conflict resolution over water was done with the intervention from Gaonbora of the locality; Kohima district shows a more democratic style of resolution as 73% said resolution is made between the two or more parties involved; this trend is also seen in Wokha district with 44% saying it was done the same way. 30% of the respondents from Mokokchung said 'chairman of the locality', and 28% stated 'resolution is made between the two/or more parties involved' and 25% 'elders of village/town/colony.
2. The above data shows that there are systems established in Naga society to address such issues if and when it presents itself.
3. The above responses show that in case of conflict situations, resolution was made according to the nature or severity of the problem; the responses also show the systems established in society to address such issues which had developed over the years.
4. Intervention in a more urban set up (towns/cities) was done by 'chairman of the colony', elders, the gaonbora (village elder,) or the parties concerned. However, usually in a rural set up, the village council, the concerned khel members and representatives, or individuals involved, all collectively continue to resolve conflict cases in Nagaland.

CONCLUSION

For the state of Nagaland, due to the application of Article 371 under the Indian constitution rights of the Nagas were protected leading to a unique division of rights which now exist between the State Government and the people of Nagaland. Traditional approach to management of water resources had been in practice in Nagaland from the earliest times with only a few changes implemented wherever necessary. Water being a state subject, although the various states in India have been empowered to enact laws or frame policies related to water, Nagaland government has been compelled to tread cautiously in implementation of new plans to enhance and improve the management and supply of water.

The forests and water resources except those under government reserved areas are still under the control and management of the land owners. Water management in Nagaland is therefore made more complex as the water resources are often situated within the privately owned land, belonging to villagers either collectively or individually. This has generated a unique situation in particular to that pertaining to water resources and water supply as traditional land owners continue to have control over their land and have a final say in this issue. It has therefore become pertinent to study and do further research on the traditional approach to management of water resources, without undermining it because these traditional practices which have long protected the people has also become an issue of conflict, between communities as well as between communities and the government.

The state of affairs over water management and supply in Nagaland is reflective of the existing conditions in the central government. Management of water continues through a top-down approach and has become virtually a government monopoly. However, the point of divergence in the case of Nagaland state seen here is in the fact that the government is not able to provide necessary expansion of services to a growing population both in the rural or urban areas, mainly due to the unique situation Nagaland is facing. The state Government and the traditional land owners are in a deadlock situation; as even though authority has been vested in government to make and implement developmental plans and policies in the water sector, it continues to struggle in finding a common platform with the landowners to obtain sharing rights of water resources. It can be said that due to the traditional land ownership system the

Government and the landowners are often at this stalemate situation unable to formulate a plan on how share, or regulate the supply of water.

As a result glaring problems are cropping up in the water sector. In the past, water had been developed rather than managed. This trend is changing as the central government continues to push for a comprehensive multi sector management approach. This includes decentralization, in a multiplicity of institutional arrangements, varying from state to state. The governmental agencies in Nagaland are drawn into a challenging situation which often involves both development as well as management of water resources. Growth and progress is therefore incremental, fragmented, and sectoral. The situation further compounded by the complex traditional land management system requires that consultation be made and permission sought before and during implementation of any water management scheme within privately owned lands.

Another issue is the current institutional set-up involving various governmental agencies involved in collecting data on various water related parameters such as quality of surface water and ground water, monitoring of drinking water quality, sanitation and drinking supply etc. besides development and management of the water sector. Such an approach results in the duplication and ambiguity of functions and it discourages a unitary and integrated approach. This is a major bottle neck in effective policy formulation and implementation.

Gaps are often visible in knowledge, information and data collection. Published data is not readily available for the water sector. Although certain districts of the state have ground water availability maps, extraction rates have not been defined. Even if licenses have been issued to check illegal groundwater extraction, in a commercial hub like Dimapur city, overexploitation of groundwater has not been properly regulated. Private residential areas as well as business establishments like water bottling plants in the city continue to extract ground water but their licenses do not monitor or regulate the quantum of water extracted.

In Nagaland state the concept of water privatization was unknown. Water was considered a public and common good although the water sources were privately owned by the villages, *khels*, clans or individuals. As a precious commodity, all water

sources were jealously guarded by the different villages and tribes. There was not a single instance where water was sold as commodity for a price. Even in case of water depletion in a traditional spring or pond of a particular *khel* in a village, members of the said *khel* were free to fetch water from another *khel*. However, this has changed to a great degree due to the existing conditions. The introduction of market forces in water resources has created new conflicts between market forces and survival compulsions. Further issues occurring out of the impasse is that there is no agency whether Governmental or private to regulate the activities of the water suppliers dominating the sale of water (particularly in the case of Kohima), without proper price regulation and quality control measures.

Traditional ownership rights over water sources such as mountain streams are still maintained but water is being sold as a commodity. Cases of commodification of water resources in Nagaland are becoming more common in recent years leading to contestation of water between various landowners, whether villages, communities, clans, or individuals; often wanting to monopolize the private water business.

Water conflicts are also becoming more common; and the traditional method of conflict resolution continues to be applied in privately owned lands. However, a very unique case in land and water dispute presented before the Supreme Court was between two clans, Soya clan of Longkhum village and the respondents represent the Pongen clan of Mangmetong village in Mokokchung district.[340] In a landmark judgment in 2004, the Supreme Court stated that in view of the peculiar nature of the subject matter of dispute, decision was needed based on customary law applicable to the parties. The Court stated that, 'the disputes of village community particularly relating to access to land having water source is not a traditional civil litigation as is handled by ordinary civil courts under the Code of Civil Procedure. These are dispute to be dealt with and handled only on the basis of customs of the village communities and through a very informal procedure contained in the Rules'. Further the Court stated that it was their considered opinion that the appeal could be disposed of by declaring that the village communities in two clans of two villages would have a joint and equal right to the water source in the disputed land. None of the members of the two contesting clans or communities in the two villages should restrict access to any

[340] Appendix XII

one of the two village communities to the common water source. Even in the case of the land dispute, the Supreme Court stated that resolution should be made in accordance with the provisions of the Rules given in the competent village court, the Village Customary Court viz., *Dobhasis* Court. The court in view of the customary nature of the substantive and procedural law involved decided not to pursue an adversarial mode of dispute settlement but instead opted for a solution in the 'spirit of accommodation and adjustment' so as to mutually benefit the two parties. However, such an opinion was made within the premise that 'As so far as natural resources like land and water are concerned dispute of ownership is not very relevant because undoubtedly the state is the sovereign dominant owner'.

Constant water scarcity continues in many parts of the state, particularly Kohima the capital city. The scarcity caught even the attention of the international media, as is evident by the publication of a news item in the Business Ghana which reported of a continuing, acute drinking water scarcity in Nagaland with water shortage reported from other district towns of the hill state as well; prompting the authorities to regulate the supply to all residential colonies, on a rotational basis.[341] Amidst this drought like situation (particularly in the off monsoon season) is a great imbalance between demand and supply of water. Against the average requirement of 15 million liters per day (MLD) as per the population of Kohima, the Public Health Engineering (PHE) department is reportedly able to acquire only 1.5 MLD for supply. According to some PHE officials, the shortage of water supply in Kohima was not always because of lack of water, but due to different factors such as social and land issues, lack of water management, cooperation, water treatment and sanitation issues. Other than these main issues, Kohima district was said to have more than enough water to sustain its population.[342] This has been reiterated on various public platforms by key government officials like State DGP K. Kire who made an appeal to the people of Jakhama to donate their unused/extra water supply to the people of Kohima town. In a news report, the state DGP was seen urging the people of Jakhama to deliberate on the matter and then tie up with the government to help ease water problem. Maintaining

[341] Business Ghana, *Drinking water scarcity grips many parts of Nagaland,* 15th March 2010.
[342] The Eastern Mirror, *Perennial water shortage in Kohima,* September 8th 2013.

that unused water from sources in the southern region flow towards Assam, he believed those in need must be benefited rather than letting it go waste. [343]

The prevailing water situation in Nagaland state has invariably become a political issue in recent years. The issue of scarcity was even taken up in the State Assembly, and in one of its session, Leader of Opposition (Congress party), Tokheho Yepthomi had even cautioned that a time would come for legislators to think of having "Winter Capital and Summer Capital". This according to him was because of "chronic and perennial" water crisis particularly in the capital. Yepthomi, a former PHE Minister, claimed that some villagers from the Southern Angami areas used to make excuses one way or the other for not allowing the PHE Department to take water from their sources. He continued asserting his point that if the villagers kept refusing the Department to tap water for the citizens living in and around the state capital and also for other purposes in the capital, a time would come to think of having "Winter Capital" as the acute water scarcity normally occurred during winter season. He further opined that "We cannot have capital without water." [344] It has been reported that the Chief minister Neiphiu Rio, who is from Kohima district, had previously told the people of the district that the state government would have no option but to shift the state capital elsewhere because of shortage of water supply. He is reported to have said that without adequate water supply, Kohima cannot remain the state capital.[345]

Post poll violence has been seen in many parts of the state in recent years, particularly in districts such as Mokokchung and Mon district and Wokha district. In Mokokchung district, due to escalating tension between supporters of rival parties from Ungma and Kupza villages, water pipelines were damaged, roads blocked and leading to a virtual black out in Kupza village. In Wokha, a group of people destroyed a water tank and water supply pipes at Rachan colony which affected over 100 households as water pipes supplying water to the colony were completely destroyed. In Mon town, some miscreants had damaged the water pipelines coming from Chi and Lengha Villages to Mon town causing severe water crisis in the entire town and this destruction of the

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[343] The Nagaland Post, *Jakhama's help sought to ease water problem in Kohima,* 9 April 2011.
[344] The Asian Tribune, *Water scarcity still haunts Kohima residents,* 10 February, 2011.
[345] The Telegraph, *Water in short supply? Shift the capital,* July 17, 2013.

main water pipeline was alleged to be by supporters of defeated candidate of Mon Town Assembly Constituency.[346]

Social problems continue to increase as a result of the water scarcity. The President of the Konyak Students Union (KSU) Methna Konyak was reported to have said that "This water scarcity has hit the residents of the Mon town and it greatly disturbs our student community as most of the time they roam around to find water leaving aside their study time." [347] A leading newspaper in Nagaland had highlighted the water crises in Mokokchung town by describing the plight of Aochila, a Class II student residing in Artang Ward, who along with her friend Sunepla, waited for hours by a trickling water source to fetch water, (not suitable for drinking) as early as 4 a.m. in the morning.[348] According to another news report, 'The acute scarcity of supply water in Wokha amidst bountiful perennial sources steals the better times of school and college going children more than half the year.' It further stated that the supply sources were overflowing the reservoir/s day and night even during the driest seasons but water had become a luxury item in Wokha town. The district as a whole also faced load shedding throughout the year despite having the Doyang hydro project at their backdoor.[349]

The economy of the state has also been affected by the prevailing water situation. Tourism a revenue generating sector has been plagued by water woes and it has been struggling to generate income as a result of water scarcity. This had prompted the Department of Tourism, to take active measures by a tie up with Nagaland Tourism Association (NTA) by organizing seminars with themes such as 'Tourism & Water: Protecting our common future' with a call to all the stakeholders of tourism activities in the state to come together in ensuring sustainable access to water resources. [350]

Another critical issue is the environmental degradation through water pollution. Due to the land management system, the municipal councils in urban areas have been facing intense problems acquiring land, even on lease for waste disposal. Municipal

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[346] The Shillong Times, *Post-poll violence continues in Nagaland and Tripura*, March 10th, 2013.
[347] Ibid.
[348] The Morung Express, *Water, Water … nowhere in sight!,* March 9, 2013.
[349] The Morung Express, *Who cares for Wokha,* April 30, 2012.
[350] The Times of India, *World Tourism Day observed in Nagaland*. September 27, 2013.

and domestic wastes from urban and rural areas are directly discharged into natural water bodies, and there is no arrangement for recycling the waste effluents. This has led to water contamination of many streams and rivulets. A study done across some urban habitat such as Kohima, Dimapur, Mokokchung, Wokha, Tuensang, Lumami, Tseminyu and Ungma in Nagaland has shown that the concentration of lead in few water sources under Mokokchung, Kohima and Wokha were slightly above the permissible limit in the ranges of 0.14-0.19 mg/L (maximum permissible limit is 0.1mg/L). This relatively higher concentration of lead in some water sources confirms that many surface water sources are unprotected from domestic and municipal sewage, human and industrial effluents as most of the heavy metals and in particular the lead metal is generate from street dust. Based on the study, it was concluded that the quality of surface water is found deteriorating slowly with the passes of years and need an immediate attention to restore the water quality in the State.[351] There are two Acts presently in use, the Water (Prevention & Control of Pollution) Act, 1974, under the Nagaland Pollution Control Board (NPCB) and Environment (Protection) Act, 1986, (Soil and Water Conservation Department also works within these directives).[352] However, the directives under the acts have not prevented the discharge of effluents directly into a drain/stream/river without being treated. Residences' and business establishments continue to discharge the fecal wastes directly into the drain/stream/river particularly during the monsoon season; dug pit latrines are not covered with soil after the pit is 80% filled; and pit latrines/septic tanks/soak pits continue to be constructed less than 10 meters away from the source of water such as open well/head pump.

The response from the civil society in Nagaland towards the prevailing water paucity in Nagaland has been slow and restrained. However, the issue has come to the notice of the Christian community in Nagaland, consisting of 90% of the total population and some sort of activism is seen through their writings. In recent years, a few theologians have started to express their own viewpoints about the situation. Z.K. Pahrü Pou, from Baptist Theological College, Pfutsero, in Phek district, in his

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[351] Dr. T. Tiakaba Jamir, Department of Chemistry, Kohima Science College, Jotsoma. *Assessment of surface water quality in Nagaland.* The Morung Express, 23rd August 2013.

[352] The Morung Express, *NPCB issue directives to control pollution of water resources,* October 9, 2013.

writings had emphasized the importance of water by stating that, 'Water if life and who owns water owns life. The importance of water is quite visible as water is mentioned in the Bible more than 700 times.' He further went on to say that 'therefore control over water or denying water is literally a control over God given lives of the creatures on the earth. Water sustains not merely human life, but also the life of animals and birds; and it sustains and is sustained by the ecological system. It plays a crucial role on planet earth. When we take water for granted, waste it, or spoil it we suffer spiritually and physically. Stand up against privatization and commoditization of water. Water is life. When we respect water as God's gift, our rivers and reservoirs will be full with water and life would flourish.'[353] Other Christians in the state are also seemingly doing their bit. It had been reported that some wealthy families from Mokokchung district, who have been able to afford to bore a deep well are reported to sell their water on weekdays and distribute it free of cost to neighbours on Sundays, ostensibly to solicit god's blessings.[354]

In conclusion, throughout the tumultuous history of Nagaland, from the earliest days, its transition as the Naga Hills district under colonization of the British, and to the days of transfer of control to the present Government of India, the Nagas have adjusted albeit with reluctance to the changes brought to the land. Successive Governments through implementation and imposition of laws and statutes have played a role in making what Nagaland is today.

From the colonial era, till today traditional customary law has been respected and preserved. British administrative policy was such that protection of customary law meant it served the dual purpose of keeping the Nagas free to govern themselves in their traditional ways; while at the same time immensely reducing the responsibility of the government from the detailed and costly affairs of administration. The declarations of the British, to conserve and preserve forests and water resources, included in greater or lesser degree, the regulation of the rights and privileges of the local community. In the interest of British administration, village administration was delegated with the powers to deal with petty local disputes, and yet, practically in

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[353] Z.K. Pahrü Pou, *Commoditization of Water in NEI and Biblical Response,* The Morung Express, 9th February, 2014.

[354] The Morung Express, *Water, Water ... nowhere in sight!,* March 9, 2013.

almost every aspect of public matters, the district administration invariably intervened in the name of maintaining law and order and developmental activities. The status of the village administrative functionaries was changed significantly as they were given a quasi-official position and were no longer answerable to the village community of which they had been the representatives or servant. In policy matters, the Government of India after independence has retained some of the administrative sub structure of the British Indian Government. The Customary law continued to be protected by the Constitution of India, giving the Naga tribes freedom to be governed by their respective customs and traditions. Nevertheless, this was done so within the principle that undoubtedly the state is the sovereign dominant owner of all natural resources like land and water. Therefore the Nagas tribes who primarily depended upon natural resources for their livelihood were most seriously affected by such a transformation.

In the case of Nagaland, the state Government, in its very first Nagaland Assembly passed the Nagaland Land (Requisition & Acquisition) Bill, 1964 (later amended in 1969); and some Forest Acts for acquiring land and forest areas. Till date, the area under Government control is very limited and the Nagaland government takes the present land holding system as an obstacle to development. However, the developmental activity initiated by the State does not necessarily focus on collective public interest. It has increasingly pushed for privatization of resources. This directly implies the exclusion of the right of survival for the poor and marginalized sections of the society. The developmental model seriously undermines the self-renewable capacity and the sustainability of the water resource, by eliminating the social constraints on resource that are the basis of common property management under traditional tribal customs and practices. Although the idea of international aid and technology transfer in the name of development is noble, it also links diversion of natural resources from survival needs to the market forces. Thus local resources, be it forest or water, increasingly move out of the control of local communities into state or national governments.

Lately, the government has started to involve the communities to be more involved in its water supply projects through a decentralization process. The Government in order to make it into a workable model has already issued a notification by which it is clearly stated that the acquisition/usage of all water source catchments and all other

land related to water supply works should be the sole responsibility of the beneficiaries and be free from all encumbrances.

There is no clear cut answer to the problem except for the Government and the local communities to come to the negotiating table to find an acceptable solution; and to work within the limits of traditional ownership of water resources to ease the water scarcity problem faced by the general public. For instance, it was the common opinion of the village elders interviewed from Kohima district that in order to solve the water supply problem in Kohima, the capital city; the Angami tribe in a magnanimous gesture should come together and voluntarily provide water to the citizens of Kohima. Pheluokhwe Kirha, from Jakhama Village, stated that 'contribution of water should be done without any existing pre-conditions.'[355] Thepfürülie Zutso, the Village Council Chairman from Kigwema Village, was of the opinion that, 'water supply in the village was very systematic as people fetched water from the traditional well. They could also fetch water freely from other *khel's*. This culture must be upheld.' He was also expressed concern over developmental plans of the government in the water sector saying that, 'these things are complicated. Development should first be all-round development of the villages and towns. Subsequently, all the villages in the Western and Southern Angami areas must contribute their water to the town. If this is done, it can solve the water problem once for all." [356] The same concerns have been reflected from the interviews done in the other three districts; namely Mon, Wokha and Mokokchung. They were of the opinion that since time immemorial, the land of the Nagas has belonged to the village community, clan and individuals of the village and therefore, traditional forest and water ownership pattern preceded the Article 371(A) of the Indian Constitution. It only legitimized what already existed from before. They felt that if the government is serious about acquiring land from the people for development purpose, than they should also be willing to provide all round development to the villages and towns, and also provide adequate compensation to the villagers.

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[355] Interview with Pheluokhwe Kirha, 81 years, Jakhama Village, Kohima District - 22nd December, 2013.

[356] Interview with Thepfürülie Zutso, 55 years, Kigwema Village, Kohima District - 22nd December, 2013.

Careful consideration by incorporating these concerns into planning must be done to ensure equitous distribution of benefits. Any plans of the Government should take into account the urban poor and the marginalized. In terms of water conservation and sustainability measures, changes can on no account be initiated without educating and empowering the local communities. Local traditional conservation methods should not be undermined. For instance, most of the agriculture activities are carried out during the monsoons. The traditional *jhum* cultivation is completely rain fed while terrace cultivation draws water through channels drawn from springs that are charged during the monsoon season, or through traditional means such as *Zabo*. Apart from this, the various khels in the Naga villages continue to use ancient traditional wells and share all water resources without any restrictions. Time tested practices such as these rather should be encouraged to co-exist alongside community based programmes of the Government for any progress to be made in the water sector.

Appendix I

Specification of Land Disforested

Name of reserve portions of reserve deforested	District	Mauza	Area in Acres
1. Diphu 2. Nambar	Naga Hills Ditto	Barpathar Ditto	401,189

Boundaries: Strip I from where the railway crosses the Dhansiri river to where it crosses the Bokajan 300 feet wide and about 1 mile long.

Strip II from the Bokajan to the northern boundary of the Nambar forest; where the railway crosses the Doyang river, 300 feet in width and above 26 ¼ miles in length, and at the station sites at Bokajan, Naojan and Borpathar, and near the banks of the Doyang river, varying in width from 300-2000 feet.

Source: Ibid, No. 12 of 1893 (Part II) p 392 dt, 23-3-1895.

Appendix II (a)

Schedule Mikir Hill Reserve, 17th October, 1878.

District	Pargana or other sub-division	Name of forest
Naga Hills	Mikir Hills	Mikir Hills Reserves

Description of Boundaries

North The Langkangtang, from its source to its junction with the Tamoiguri; the Tamoiguri, from its junction to the ridge between the Langkangtang and the Barpung rivers; then along this ridge to a feeder of the Barpung; and this feeder from its source to its junction with the Barpung; along the Barpung from this feeder to its source; from the source of the Barpung along the crest to the ridge between the Barpung and the Bordeopani rivers; from source of Barpung up to a feeder of the Taripung.

East The last- named feeder, down its junction with the Taripung, and then the Taripung to its junction with the Kaliani River.

South The Kaliani river, from the junction of its feeder, the Taripung, to the junction of its feeder, the Manikjuri.

West The Manikjuri from its junction with the Kaliani River to its source of Saringvok Hill, then a boundary line from the sources of Manikjuri to the source of the Langkangtang.

Source: Extract from the Assam Gazette No. 41 of 1878, Part I Dated 19 October 1878.

Appendix II (b)

Addition to Mikir Hills Reserve 13th March 1879

District	Pargana or other sub Division	Name of the Forest	Description of boundary
Naga Hills	Mikir Hills	Addition to the Mikir Hills Reserve	West: The Garaikwajuri from the District junction with the Kailani River to its source on the Bar-Nolukbong range, thence survey line running first in a north-westerly and then in a northerly direction along the Sarinyok range, and after this in a northerly direction to the Dikhu River, as marked on the revenue survey map of 1870-71.

Source: Revenue Dept. Officer on Special Duty (Records), Government of Nagaland (Records' cell), Nagaland Secretariat.

Appendix II (c)

Addition to Mikir Hills reserve 1 October, 1882

District	Pargana or other Sub division	Name of the Forest	Description of Boundaries
Naga Hills	Mikir Hills	Addition to the Mikir Reserve	**West**: The Garaikwajjuri from its junction…Northerly direction to the Dikhu. **North:** The Dikhu river from the point where the western boundary joins it to its source on the Hurokarjat range, hence along the ridge of this the Mongghi and Tumoi range until it meets the boundary of the Mikir Hills reserved forest as marked on the revenue survey map of 1870-71. **East and South:** The boundary of the Mikir Hills reserve, as notified in the Calcutta Gazette of the 19th March 1873 page 370 and marked on the Revenue Survey Map of 1870-71.

Source: Revenue Dept. Officer on Special Duty (Records), Government of Nagaland (Records' Cell), Nagaland Secretariat.

Appendix III (a)

Lower Daigurung Forest Reserve

District	Pargana or other sub-division	Name of the Forest	Description of Boundaries
Naga Hills	Barpather Mauza	Lower Daigurung forest	**West and North:** The Dhulla Jan from boundary-mound marked A to boundary mound marked B thence a survey line marked C,D, running from the Dhulla Jan first in north-westerly then in north-easterly and finally in a south-easterly direction to a boundary mound marked E, on the Dhulla Jan; thence down this river to its junction with the Daigurung river. **East:**The Daigurung river from its junction with the Dhulla Jan to the Boundary mound marked F South – A survey line running in a westerly direction from boundary mound marked F on the Daigurung river to boundary mound marked G at the junction of the Bar Jan with the Jungli Jan; thence up the latter stream to boundary mound marked H; thence a survey line running in a westerly direction to boundary–mound A on the Dhulla Jan.

Appendix III (b)

Upper Daigumng Forest Reserve

District	Pargana or other sub-division	Name of the Forest	Description of boundaries
Naga Hills	Barpathar	Upper Daigurung	**West and North:** A survey line running in a Mauza Forest north-westerly marked I to boundary mound marked K at the fort of the Rengma Hills; thence along the foot of thee hills to the exit of the Bar Jan, thence down this mound marked L, thence survey line marked M, N running first in a easterly then in a northerly and finally in a north-easterly direction, to a boundary mound marked O, on the Daigurung river. **East and South:** The Daigurung river from boundary – mound marked O to a boundary – mound marked I.

Source : Ibid, Part (1) No. 3 of 1883 Dt. 20th Jan 1883.

Appendix IV

Extract from the Assam Gazette No. 32 of 1887 Part II (Saturday, August, 1887) Revenue Department

The 5th August 1887

No. 47 – In exercise of the powers conferred by Section 19 of the Indian Forest Act, 1878, the Chief Commissioner hereby declares the lands described in the Schedule hereto annexed to be reserved forest from this date:

District	Pargana or Sub Division	Name of forest	Description of Boundaries
Naga Hills	Barpathar Mauza	Kaliani	**North and East:** Up a small stream from its junction with the Tarapung Nadi at Point A, as marked on the map, to its source on the Kholiabinabon Peak, then along the ridges extending from this peak in an easterly direction to another peak about two miles distance, and from this along a ridge in a south-easterly direction to the Ripage Nadi, and down this to its junction with a small tributary south to Guashen Peak, and up this steam to Guashen Peak, thence in northerly direction to the Burchan Nadi and down the latter to this junction with the Kaliani river. **South:**Up the Kaliani river from its junction withthe Burchan Nadi to its junction with another tributary stream, and up the latter to its source on the Sethung Peak, thence along the main ridge of the hills in a south westerly direction over Bogrisan Peak, to another Peak on which the source of a tributary stream of the Jaheru Nadi is, and down this stream to its junction with the Jahouri Nadi at Point B, as shown on the map. **West:**The Jahouri Nadi from the point B, as marked on the map, to its junction with the Kaliani river, and up this river to this junction with the Tarapung Nadi, thence up the latter to the point A, as marked on the map.

Appendix V

Addition to Nambar Forest

District	Pargana of Sub	Name of forest	Area in Acres
Naga Hills	Barpathar Mauza	Addition to Nambar forest	8728/11

Boundaries: Two strips of land originally marked for the use of Assam-Bengal Railway.

Strip I: A strip, 300 feet wide and about 16 miles long, running more or less parallel to, and on to the west of the Dhansiri river, from the Hariajan stream, about 11 miles west of its junction with the Dhansiri river, to the Bor Neoria stream, about 1 mile west of its junction with the Dhansiri river.

Strip II : A strip, 300 feet wide and about 8 miles long running, more or less parallel to, and on the west of the Dhansiri river, from the Hitoniji stream, about 1 mile west of its junction with the Dhansiri river, to the north boundary of the Nambar reserved forest.

Source: Ibid, No. 12 of 1896 (Part II) p. 238 dt. 21-3-1896.

Appendix VI (a)

The 19th June 1902. No. 2359R

In exercise of the powers conferred by Section 17 of the Assam Forest Regulation, VII of 1891, the Chief Commissioner declares the land described in the schedule annexed to be reserved forest from the date of this notification.

District	Paragana or other Sub Division	Name of forest	Area in Acres	Description of boundaries
Naga Hills	Mokokchung Sub Division	Desoi Valley	40,480	

No. 2359 R: In exercise of the powers conferred by Section 20 of the Assam Forest Regulation, 1891, (VII of 1891) the Chief Commissioner is pleased to Direct that the following amended description of the Western boundary of the Desoi Valley reserved forest in the Naga Hills district, be substituted for the description published with notification No. 2359R, date the 19th June 1902:

North:
The Sibsagar-Naga Hills boundary from the Dhumjan stream to the Desoi river from the VII of *East and South* : the Desoi river from the point where the present Sibsagar – Naga Hills boundary meets it to the point where the Rongdu river meets the Desoi
West: Up the Rangdu river from the point where it joins the Desoi river, to its source; thence a demarcated line in a notherly direction for about 1 ¾ limes to the Seraipani stream; thenece up this stream northeastwards to the junction of its main tributary at a point 602 on the map (standard sheet No. 83j-6, scale 1"= 1 lime publishes in 1917) thence up his main tributary due north to its source; thence a demarcated line to mth4e source of the Dumjan stream, thence down the point where the Sibsagar-Naga Hills boundary meets it.

Note: The following Naga paths now existing inside the reserve will be kept open for use of the Nagas:

Appendices

(i) Lakhu-Moriani path
(ii) Semsa and Japu-Moriani path
(iii) Changki-Moriani path

The Nagas of the villages of Lakhu, Semsa, Japu (including Longmi Khaba) and Changchang are allowed to fish in the Desoi and its tributaries within the boundaries of the reserve by means of dams and traps for their own consumption, and not for sale. The exercise of the right to fish will not interfere with the transport of timber and other forest produce.

F.C. HENNIKER

Offg. Secretary to the Chief Commissioner of Assam.

Appendix VI (b)

Addition to the Desoi valley Schedule

District	Pargana or other Sub division	Name of the forest	Approximate area in acres
Naga Hills	Mokokchung Sub Division	Addition to the Desoi Valley reserve	2,517.6

Description of Boundaries

North : Sibsagar district boundary
East : The Western boundary of the Desoi valley Reserve
South and West : The Seraipani River

Source : Ibid, No. 8 of 1922 (Part II) p. 247, Dt. 22-2-1922

Appendix VII (a)

Rangapahar Reserve

Schedule

District	Pargana or other Sub Division	Name of forest	Approximate area in acres
Naga Hills	Dimapur	Rangapahar	6,816

Description of boundaries

North : From a point of the Dhansiri river due west of the 3 ¼ mile post on the Dimapur-Manipur cart road, a cleared line running east to the latter point.

East : The Manipur-Dimapur cart road from the post at mile 3 ¼ to the post at 4 ½, thence a cleared line eastward to the Diphu river, thence up this river to a point on it east of the post at mile 5 ¼ on the Dimapur-Manipur cart road, thence a cleared line to the latter point, thence a cleared line to the latter point, thence the Dimapur-Manipur cart road to the 7th mile post on it.

South: From the 7th mile post on the Dimapur-Manipur cart road, a cleared line running southwest ward to the khaona or Tahaki nadi

West: The Khaova nadi to its junction with the Dhansiri and thence the Dhansiri river from its junction with the Khaova nadi to the starting point of the northern Boundary.

Source: File No. 111F/312 of 1916 Assam Secretariat, Revenue Dept. Nos. 33, 39.

Appendix VII (b)

Addition to the Rangapahar Reserve Schedule

District Division	Pargana or other	Name of Forest	Approximate area in acres	sub
Naga Hills	Dimapur	Addition to the Rangapahar Reserve	7,865	

Description of boundaries

East : From the junction of the Khaona or Tahaki river the Dhansiri river, up the former to the point where the cleared line from the 7th mile post on the Dimapur-Manipur cart road meets it.

South: From the terminating point of the easterly boundary a cleared line running west to the Dhansiri River.

North & West: From the latter point the Dhansiri river to the point the Dhansiri river to the point where it is joined by the Khaova or Tahaiki River.

Source: Financial Dept, Notes, Forest A, 1920 Nos 1-11, Government of Nagaland, Officer on Special Duty (Records).

Appendix VIII

Idangi Forest Reserve Schedule

District	Sub Division	Name of Forest	Approximate area in forest
Naga Hills	Kohima	Idangi Forest	44,800

Description of boundary

North: The Dhansiri river from the village or Wallidisa (Where the Dhansiri bonds from north-westerly Direction to a north-easterly direction) northeastwards down that river to the mouth of the Langru river.

East: Thence a demarcated line running in a south-easterly direction to meet the first unnamed tributary of the Idangi River thence up that river to the mouth of the Nelvadung (or Navadio) river, thence up that river to its source.

South: Thence a demarcated line over eh watershed in a south westerly direction to the Tuilung (or Saikap) river; thence down that river to its junction with Dhansiri river.

West: Thence northwards down the Dhansiri river to Wadisa village.

A. J. LAINE.
Second Secretary to the Government of Assam.

Appendix IX

P R O C L A M A T I O N

The 24th October 1916

a. No.3807-R.-in Exercise of the powers conferred by section 5 of the Assam Forest Regulations, VII of 1891, the Chief Commissioner hereby declares that it is proposed to constitute as reserved forest the lands described in the schedule hereto annexed, and appoints the Deputy Commissioner of the Naga Hills to be the Forest Settlement Officer to enquire into and determine the existence, nature and extend of any rights claimed by, or alleged to exist in favor of, any persons in or over any land comprised within the limits as described in the schedule hereto annexed, and any claim relating to the practice within such limits of jhum cultivation, and to deal with the same as provided in chapter II of the Regulation.

Under provisions of section 15 of the Assam Forest Regulation, the Chief Commissioner appoints the Commissioner, Surma Valley& Hill Districts, to hear appeals from the orders of the Forest Settlement Officer.

S c h e d u l e.

District	Pargana or other Sub division	Name of forest	Approxi-mate area in acres	Description of boundaries
1	2	3	4	5
Naga Hills	Dimapur	Addition to the Rangapahar Forest	5,145.	**East**.-from the junction of the Khaova or Tahaki river with the Dhansiri river, up the former to the point where the cleared line from the 7th mile post on the Dimapur-Manipur Cart road meets it. **South.**-from the terminating point of the eastern boundary a cleared line running west of the Dhansiri. **North & West**.- from the latter point the Dhansiri River to the point where it is joint by the Khaova or Tahaki river

b. Between the date of this proclamation and the date of notification to be hereafter published declaring the area lying within the above boundaries to be reserved forest no right shall be acquired in or over the land comprised in such notification except by succession or under a grant or contract in writing made or entered into by or on behalf of the Government or some persons in whom such right or power to create such rights vested when this proclamation was published and on the above land no new house shall be build or plantation formed no fresh clearing for cultivation or for any other purpose shall be made and no trees shall be cut for the purpose of trade or manufacture.

c. **On the formation of the above area into a reserved forest all private rights over the land or to the products thereof and all rights of way, rights to a water course or to use of water, rights of pasture and all other rights water ever will be extinguished save and except such as are admitted by the Forest Settlement Officer and sanctioned by the Local Government.**

d. Every person claiming any right, or making any claim referred to or mentioned in para "c" above, will present to the undersigned a written notice specifying, or appear before the undersigned on the 7th April, 1916, and state the nature of such rights or claims.

Appendix X(a)

No. 122

Statement B relating to claims to rights than (a) right-of-way (b) to water course and to use of water and (c) right to pasture or to forest produce in the proposed reserve dealt with under section 11 of the Assam Forest Regulation, VII of 1891.

No. Of Claim	Name and description of claimed	Number of the Claimant's village	Particulars of Claims	Orders admitting or rejecting the claim wholly or in part	Manners in which claim has been disposed of under section 11(1). (2) and (3)	Date of order of Forest Settlement Officer	Date of appeal if any	Orders passed on appeal and date thereof		
										1.
1.	Yamsenigen Goanbura of Wamakan Village of Naga HIlls	44	150	Firewood And building material	Claim Admitted fully.					

Source: The 2nd February 1916

Appendix X (b)

Statement C relating to claims to right-of-way, water courses, pasture and forest produce in the proposed reserve dealt with under section 12, 13 and 14 of the Forest Regulation VII of 1891.

No. of claim	Name and description of claimed	Number in Claimant's village of					Particulars	Order admitting or rejecting the claim	Designation, position and area of land and buildings for the beneficial employment whereof the claim is admitted	Particulars defining the nature of incidents and extent of the right to pasture or to forest produce.	Provision made for the exercise of the right to pasture or to forest produce under clause (a) or clause (b) of section 13(1) of Regulation or for communication.	Date of order by forest settlement officer	Date or appeal if any	Order passed on appeal and date there of
		Houses	People	Jhum cultivation	Ordinary cultivation	Cattle								
													14.	15.
6 villages 6 villages	Ahina Gaonbura and 5 others of Dopdar mauza Muchal Ahom and 67 others of Athhke	85 721	2236 2180			2,579 2,180	Pasture Fire wood	Admitted party Ditto						

Source : The 2nd February, 1916.

Appendix XI

COMMUNITIZATION OF WATER SUPPLY AND SANITATION
MODEL RULES AND GUIDELINES 2008

GOVERNMENT OF NAGALAND
PUBLIC HEALTH ENGINEERING DEPARTMENT
NAGALAND : KOHIMA

NOTIFICATION

Dated Kohima the 26th. June 2001

No.PHE/works/reform/2001 : The governor of Nagaland is pleased to notify that henceforth water supply projects in villages of Nagaland will be taken up only on the following terms and conditions:-

1. The acquisition/usage of all water source catchments and all other land related to water supply works shall be the sole responsibility of the beneficiaries and be free from all encumbrances. Further, there shall be no claim to any appointment to Government Service basing on water source and other land ownership rights.

2. The beneficiary village will take up all civil works and undertake jungle clearance, where required, as part of their contribution.

3. On commissioning of the project the beneficiary village will be solely responsible for operation and maintenance and shall bear the cost of such operation and maintenance. They will be allowed to levy a fee from the consumers at a rate approved by the Government.

4. The Village Council/Local Body of the village/habitation will sign an undertaking confirming their agreement to abide by the above terms and conditions before any project is taken up.

The PHE Department will be responsible for the following:

1. Supply and fitting of water pipes and installation of all service reservoirs.
2. Facilitate in scheme selection, designs, and work out an effective monitoring and evaluation mechanism to ensure high quality of construction and sustainability of the investments.
3. Ensure effective integration and co ordination of project components in the village levels.

Sd/-
(Temjen Toy)
Secretary to the Government of Nagaland

Appendix XII

Tekaba AO v. Sakomeren AO, 2004

Case Note: Case concerning dispute over land and source of water between two clans of two villages in Nagaland with the governing law being customary law. The court in view of the customary nature of the substantive and procedural law involved decided not to pursue an adversarial mode of dispute settlement but instead opted for a solution in the 'spirit of accommodation and adjustment' so as to mutually benefit the two parties. The court went on to observe that so far as natural resources such as land and water were concerned disputes over ownership were not that relevant as the state was the 'sovereign dominant owner'. The court declared the source of water to be a common water source.

AIR2004SC3674, 2004(5) SCALE297, (2004)5SCC672

IN THE SUPREME COURT OF INDIA
Decided On: 29.04.2004
Tekaba AO and Anr.
v.
Sakumeren AO and Anr.

Hon'ble Judges:
Shivaraj V.Patil and D.M. Dharmadhikari, JJ.

JUDGMENT

D.M. Dharmadhikari, J.

1. This appeal arises from a dispute between two clans of two villages in the Hill District of Mokokchung in North-Eastern State of Nagaland. The dispute between the two clans of the two villages is concerning the access to the source of water and the ownership of the suit land which is described as 'Jakoktsuba' by the appellants and 'Mezenteraba' by the respondents. Without going into greater details, it is sufficient to state that the appellants herein represent Sai (Soya) clan of Longkhum village and the respondents represent the Pongen clan of Mangmetong village.

2. The dispute to the water source and the land arose sometime in the year 1985 as the boundary pillars of the two villages were alleged to have been disturbed by some villagers.

3. At the outset, it may be stated that the civil rights to the water source and the land in the Hill District of Nagaland comprising the two villages mentioned above are not governed by any codified law contained in Code of Civil Procedure and the Evidence Act. The parties are governed by customary law applicable to the tribal and the rural population of Hill District of Nagaland. The customary law has been recognised by framing - Rules for Administration of Justice and Police in Nagaland 1937 (hereinafter referred to as the 'Rules') by Governor of Assam in exercise of powers under Section 6 of the Scheduled District Act 1874. The aforesaid Rules were amended in the years 1984 and 1989. The civil justice system provides for hierarchy of courts. The lowest original village court is called 'Dobhasis', which can try and decide civil cases referred to it by the Deputy Commissioner or Additional Deputy Commissioner or Assistant to the Deputy Commissioner, as the case may be. Dobhasis Court comprises of village authorities like Mauzadars Gaonbura, Chiefs and Headman of Khels with other village elders. The procedure in Dobhasis or village court is less formal. The proceedings are viva voce. Efforts are required to be made under the Rules to abide by the decision of their Panchayats. An appeal is provided to District Customary Court and a further

appeal can be filed to the High Court under Rule 29. Rule 62(2) provides the procedure of these Village Courts and Customary Court, as under:

"**Rule 62(2)**. The District Customary Court and the Subordinate District Customary Courtin deciding civil suits shall follow the customs and usages applicable to such suits and cases and shall adjudicate all such suits and cases according to justice, equity, good conscience and the customs and usages applicable."

4. Sub-rule (3) of the said Rule reads as under:-
"**Rule 62(3)**. The District Customary Court and the Subordinate District Customary Court shall follow in matters of procedure the spirit of the Code of Civil Procedure in matters not covered by customs and usages followed in the district."

5. The aforesaid mentioned 1937 Rules recognizing customary law and providing forums of subordinate customary court and district court for resolving disputes among the tribals and villagers came to be amended on 14.3.1989 by incorporating Rule 24(1) providing filing of pleadings by parties in dispute of civil nature.

6. The brief background of the dispute is as under:-
The village boundaries of two villages concerned are said to have been demarcated by erecting pillars in the year 1942. The disputes with regard to the land measuring about 2 acres and the water source available therein is alleged to have arisen in the year 1985 when according to the appellants, they saw that the members of the clan in village represented by respondents removed the pillars and encroached on the disputed land for use of the water source. The appellants filed a complaint on 3.5.1985 before the Additional Deputy Commissioner who endorsed the dispute for decision to the Village Customary Court viz., Dobhasis Court.

7. The Dobhasis Court after examining the witnesses and conducting spot verification came to the conclusion that the disputed land in which the water source is situated belongs to the Sai clan of Longkhum village represented by the appellants.

8. The villagers represented by the respondents went in appeal to Addl. Deputy Commissioner (Judicial) on 12.12.1985. They also prayed for a *denovo* trial by the Addl.Deputy Commissioner.

9. As has been mentioned earlier, at the time when complaint was filed raising dispute, there was no law strictly governing the pleadings. The provision requiring filing of pleadings was introduced by amendment to the Rules made in the year 1989. Before the Addl. Deputy Commissioner, the appellants had submitted a written statement to the appeal filed by the respondent. The Addl. Deputy Commissioner framed eight issues on the disputes raised by the villagers but no issue regarding the ownership of the land in which the water source exists was framed for trial.

10. The Additional Deputy Commissioner after trying the issues with regard to the dispute to the water source, allowed the appeal of the respondents and declared their title both to the water source as also the land in dispute.

11. Aggrieved by the decision of the Addl. Deputy Commissioner, the appellants preferred an appeal to the Kohima Bench of Gauhati High Court. The learned single Judge of the High Court accepted the contention of the appellants that without framing issue on the ownership of the land, the dispute regarding land could not have been decided by the Addl. Deputy Commissioner. The High Court, therefore, passed an order on 20.6.1996 remitting an additional issue on the ownership of land to the Addl. Deputy Commissioner for recording

evidence on that issue and submitting the record of evidence to the High Court for deciding the appeal. The additional issue framed reads as under:-

"Whether the plaintiff or the defendant is owner of disputed land and possess the disputed land measuring about 2 acres of land lying between Mangmetong and Longkhum villages."

12. The Additional Deputy Commissioner, thereafter, recorded additional evidence of the parties on the additional issue and submitted the record of the evidence to the High Court.

13. The learned single Judge of the High Court on the basis of additional evidence recorded on the additional issue decided the appeal against the present appellants. As the additional evidence was recorded by the Addl. Deputy Commissioner and submitted to the High Court, in deciding the issue of ownership of land the High Court acted as, the original court. The learned single Judge in the impugned judgment held *inter alia* that the ownership to the disputed land claimed by the respondents was not specifically denied by the present appellants in the written statement which they had submitted in the appeal before the Addl. Deputy Commissioner. The learned single Judge also referred to the evidence of other witnesses in which it was stated that the land was forest land. The learned single Judge, however, gave much importance to the fact that the respondents had been exercising rights of ownership on the land by collecting forest produce without any objection from the villagers represented by the appellants. It also made a reference to the version of witnesses that as per the custom prevailing amongst the clans, as and when, the members of the clan represented by the appellants used the water source, a tea party was thrown to the members of the clan of the respondents indicating recognition of the title to the water source of the other clan. It is on the above grounds and appreciation of the oral evidence of the parties, the High Court came to the conclusion that the ownership of the disputed land is with the respondents.

14. In the present appeal, for want of necessary instructions, the learned counsel engaged by the appellants has not been able to assist the Court in the decision of this appeal. The learned Senior Counsel Shri S.B. Sanyal appearing for the respondents very fairly placed the case of both the parties and invited our attention to the order passed by this Court on 2.9.1998. At a stage when only notice was issued to the opposite party on the special leave petition, this Court on 2.9.1998 recorded in its order the statement made on behalf of the appellants thus:-

'Learned senior counsel for the petitioners states on instructions that the petitioners will have no objection to the contesting respondents drawing any quantity of water from this disputed water course at any time for any number of years subject to only one rider that the respondents may formally accept the ownership of the said water course as belonging to the petitioners. On this statement learned counsel for the contesting respondents seeks eight weeks' time to take instructions. Adjourned for eight weeks.'

15. The case, thereafter, went on being adjourned awaiting instructions in response to proposals made on behalf of the appellants. It appears that no instructions on the proposal made on behalf of the appellants were received by the counsel appearing for the respondents and therefore, after granting leave, this appeal was directed to be listed for hearing by order made on 6.4.1999.

16. Even at the time of hearing of the matter finally by us, the learned senior counsel appearing for the respondents has stated that on the proposal made by the appellants, no instructions have been received. We have already mentioned above that the learned counsel appearing for the appellants also was unable to assist this Court for want of instructions. The plight of tribals and villagers living in remote corner of North-East States of Nagaland can well be realised as access to this Court is extremely difficult for them. We, therefore, proceed to decide the case on the basis of evidence and material on record.

17. After perusing the record of the Rules which constitute special for a and recognize customary law applicable to the residents of the Hill Districts of the State of Nagaland, we find that there are flaws in the order of learned single judge both in procedure and merit.

18. We have mentioned above the nature of the Rules containing substantive and procedural law applicable to the villages of the Hill districts of Nagaland. Neither the Civil Procedure Code nor the Evidence Act is applicable in adjudicating the disputes of people living in the Hill districts. Akin to their Traditional fora village Dobhasis Court and District Courts have been constituted to decide disputes on the basis of customs of the villages. The procedure indicated is not at all formal. At the time when the dispute with regard to the water source was raised, the Rules did not contain any requirements of strict adherence to law of pleading as contained in the Code of Civil Procedure. It is only in 1989 that the rules were amended to provide some law of pleadings although not as rigid and strict as is contained in the Code of Civil Procedure.

19. In view of the peculiar substantive and procedural law as contained in the Rules applicable to Hill Districts of Nagaland, the village disputes, particularly with regard to the source of water and the land in which it is situated, was required to be decided not as an adversarial litigation but as a subject matter requiring solution in a spirit of accommodation and adjustment of conflicting rights of the members of two contesting clans. In the village courts customary law is required to be applied and the adjudicatory process requires the adjudicating *fora* to make all possible efforts to resolve the dispute by mutual agreement and achieve a consensus. The disputes in villages like the one involved in the present case regarding access to the source of water and right and title to the land in which the source exists, needed a resolution so as to best serve the demands of all members of the two village communities who had raised the dispute. Villagers in disputes arising interse between them concerning exercise of community rights to natural resources like land and water can never feel satisfied by a mere formal decision of such disputes in favour of one or the other party. Instead of decision they need a satisfactory solution of such disputes for their mutual benefits.

20. In adopting a course of remitting the issue of ownership of land in which the water source exists, the High Court has deprived the village court as the primary court to make an effort to resolve the dispute between the two clans of the two villages amicably and on consensus. It is to be noted that under the Rule 55, against decision of village court, appeal is provided to the District Customary Court. It is after the appellate authority decides the dispute that the matter can be brought to the High Court by way of an appeal by the aggrieved party.

21. The learned single judge of the High Court by remitting the issue of ownership to the district customary court for recording evidence on the additional issue and deciding the case on such evidence has virtually acted as the original court. As the dispute is first required to be handled in the spirit of co-operation with all efforts to arrive at a consensus in the village court, the procedure adopted by the High Court in deciding the issue of ownership of the land as the original court was not in accordance with the Rules which provide a less formal procedure and application of customary law. The issue about the ownership of land in which the water source exists, if at all, was found to be important, should have been allowed to be raised in the primary court i.e. the village court and then, if necessary agitated before the District Court through an appeal. Undertaking exercise of deciding the said dispute of ownership of the land by the High Court for the first time in appeal was not in accordance with the letter and spirit of the Rules.

22. The other flaw that we find in the impugned judgment of the High Court is that at the time when it remitted the matter to the district village court for recording evidence on the additional issue of ownership, the Rules stood amended providing for filing of pleadings by the parties. In the order remitting the additional issues for recording evidence, the learned

judge of the High Court did not allow the parties to file fresh pleadings in relation to the additional issue remitted. This resulted in serious prejudice to the case of the appellants because one of the grounds on which the issue of ownership has been decided against them is that they have not controverted the claim of ownership of the respondents in their written statements filed in response to the appeal preferred by the opposite party before the District Village Court.

23. For the aforesaid reason, in our opinion, the decision of the High Court on the additional issue of ownership of the land in dispute deserves to be set aside.

24. As we have noted above, during the pendency of this appeal, the counsel of the appellants have expressed no objection to the respondents representing the other village for drawing water from the source situate in the disputed land on the condition that the respondents representing the other village should acknowledge the ownership of the said water course of the appellants. On such a statement made and recorded in the order of this Court, learned counsel appearing for the respondents, despite being granted repeated time gave no response. Eventually, therefore this court granted leave and entertained this appeal. For want of easy means of communication from the clients we can well realize the helplessness of the counsel representing tribal and village population residing in such remote corners of the country. As we have stated above, the disputes of village community particularly relating to access to land having water source is not a traditional civil litigation as is handled by ordinary civil courts under the Code of Civil Procedure. These are dispute to be dealt with and handled only on the basis of customs of the village communities and through a very informal procedure contained in the Rules. So far as natural resources like land and water are concerned dispute of ownership is not very relevant because undoubtedly the state is the sovereign dominant owner.

25. In the aforesaid circumstances and in view of the peculiar nature of the subject matter of dispute which needed decision on customary law applicable to the parties, we do not think it necessary to again allow the parties to litigate the issue of ownership of the land. In the situation obtaining before us, where the learned counsel did not have latest information and instructions on the subject matter of the dispute and keeping in view long passage of time, in our considered opinion this appeal can be disposed of by declaring that the village communities in two clans of two villages would have a joint and equal right to the water source in the disputed land. None of the members of the two contesting clans or communities in the two villages shall restrict access to any one of the two village communities to the common water source. After setting aside the order of the High Court and its decision on dispute of ownership of the land measuring two acres, we leave the dispute of ownership open for being raised by any of the contesting parties, if a cause of action for the same arises in future, in the competent village court for its resolution in accordance with the provisions of the Rules. We, however, hope that such conflict or cause of action would never arise and without raising the dispute of ownership of the land, the two village communities will peacefully and in orderly manner regulate their tights of drawing water from the source for their common benefit.

26. In the result the appeal partly succeeds. The impugned order of the High Court is set aside by substituting the directions made above. Keeping in view the status of the parties and the nature of the dispute, we make no order as to costs in this appeal.

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Pl. 12


P.H.E.D. SUB DIVISIONAL WATER QUALITY TESTING LABORATO
KOHIMA : NAGALAND

Pl. 13

Pl. 14