

# **THE POLITICAL ECONOMY OF WATER SECURITY IN MUSSOORIE, UTTARAKHAND**

*Final Project Report*



*Submitted by:*

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In partial fulfillment of the requirement for the

*Degree of Master of Arts in*

*Sustainable Development Practice*

**May 2015**

## DECLARATION

This is to certify that the work that forms the basis of this project **“The Political Economy of Water Security in Mussoorie, Uttarakhand”** is an original work carried out by me and has not been submitted anywhere else for the award of any degree. I certify that all sources of information and data are fully acknowledged in the project report.

Signature

(Nuvodita Singh)

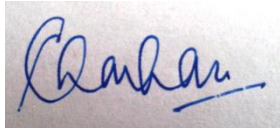
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## Certificate

This is to certify that “**Nuvodita Singh**” has carried out her major project in partial fulfillment of the requirement for the degree of Master of Arts in Sustainable Development Practice on the topic “**The Political Economy of Water Security in Mussoorie, Uttarakhand**” during January 2015 to May 2015. The project was carried out at the “**Centre for Ecology Development and Research (CEDAR), Dehradun**”.

The report embodies the original work of the candidate to the best of our knowledge.

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## **ABSTRACT**

*Mussoorie provides an interesting case of a city which has seen advancement in the number of tourists it receives, but as far as infrastructural provisioning is concerned, it is still stuck somewhere in the colonial era, depending overtly on the groundwork done by the British. The structures built by them do add to Mussoorie's charm, but not tending to the requirements of the rush of tourists that it receives in present day can put it at the verge of losing its main source of income. It has moved on from acting as a summer retreat meant for the British and the elite Indians during the colonial period, to becoming a popular tourist spot for Indians across classes and states in the post Independence era; known across both periods, as the Queen of the hills. It is interesting to note how tourism is promoted while simultaneously dealing with a severe water crunch. The report also looks at what the developments in Mussoorie have meant for a local community of washermen in an area called Dhobighat. It speaks about negotiations between the state and the community to avail of water supply services for the larger good, about hydrosocial relations, inter and intra community relations getting affected, and how this is entrenched in the evolution of water rights over time. The case study is a story about how water runs as a connecting theme between different livelihoods, which affect and are affected by the larger water governance and planning of Mussoorie.*

**Keywords:** *Political Economy, Water Security, Hydrosocial Relations, Dhobighat, Water Rights*

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## **LIST OF ABBREVIATIONS**

LBSNAA- Lal Bahadur Shastri National Academy of Administration

ITBP- Indo-Tibetan Border Police

LPCD- Litres per capita per day

MLD- Million Litres per day



## 1. INTRODUCTION

*Is there a problem?*

*Water is a problem say some*

*Others say it's not*

*Water is in short supply say some*

*Other insist it's not*

*Like the blind men and the Elephant*

*It depends on what you touch;*

*But even more important still*

*Is who you are and what you vouch*

***Useful and un-useful science***

*Water is very short*

*The hydrologist insists*

*Short for whom?*

*Ask the knowing economists?*

*For they detect virtual water*

*In food embedded*

*And wondrous subsidies*

*For food importers added*

***Politics***

*Peoples and governments are blind*

*Alien scientists insist*

*As dangerous water fantasies exist*

*And in beliefs for millennia persist*

*Wise politicians know that they*

*Must resist the simple (scientific) truths*

*And by subscribing to pervasive water lies*

*Remain in power along with (Their) essential truths*

***Impaired Interpretation***

*Why not use Our theories say social theorists*

*They explain all these mysteries*

*But (alien) scientists are blind fools*

*Devoted to familiar narrowing tools*

*'It's far, far better to be blind*

*Knowing only what impairment finds.'*

***The answer***

*Because the population too fast grows*

*The answer to the questions posed--*

*Is 'Yes there's a regional deficit'*

*But for the water stressed*

*A solution also does exist*

*Through trading to 'entitlement'.  
(allusion to Sen 1981)*

-Tony Allan, 1997, SOAS (Allan, 2001)

The poem above succinctly brings to the fore the subjectivity that dominates most kinds of analysis. Given a scarce/limited resource, and varied interests and stakeholders, the idea of how it must be exploited, abstracted or conserved will vastly differ. And yet it is essential to take a holistic view as far as possible to ensure that multiple facets of a given situation involving a resource are highlighted. This will instead enable better and relatively unbiased assessment and portrayal of the reality. However, it is possible that making any kind of a decision based on such analysis will be difficult, since it will always end up creating some winners and some losers. Take for example the setting up of a hydro-power plant. While it has considerable consequences for the people it will displace and negative consequences for the riparian environment in general, it will be considered essential by say, the government, because it will serve the larger good of the public. Therefore, in this case, economic and political might trumps that of the people (at least a section of them). Let's take another example of a groundwater aquifer. A person who owns a piece of land that has a groundwater aquifer under it, holds the ownership right to that aquifer as well. In a rural agrarian community in say Rajasthan, a person with ownership of such an aquifer can not only use the water to irrigate his own fields, but also create a market for his groundwater by agreeing to supply water to others at a monetary cost. This exemplifies how internal dynamics of a community can get affected by virtue of the power that ownership of the groundwater resource accords to one person. One can see elements of ecology, economics, politics etc getting impacted in both examples.

Water in any case, has been the “locus of social action” in its centrality to life and livelihoods (Baviskar, 2007). It has witnessed the shaping of many civilizations and settlements along its borders as a river, clashes between communities and other appropriators for tapping of it as wells or groundwater aquifers. It has also become lost in thin air when a watershed was not maintained properly or a spring source dried up, and has been caught in the midst of the tussle of assertion of rights and ownership over many years by many different users, thereby shaping the relationship between them. It has on several occasions also ravaged settlements in the form of floods. These examples point to the fact that water as a resource is

intrinsically linked to society and its different processes. “Its very fluidity causes it to spill over stable social boundaries, moving across diverse social domains and scales” (Baviskar, 2007). In doing so, power relations among different actors become clear too, in how different kinds of powers -economic, political, social, cultural, are put in play.

This report titled “The Political Economy of Water Security in Mussoorie, Uttarakhand”, might associate itself more with the viewpoint of the social theorist, while at the same time attempting to take into account the larger political-economic dynamics that are at play in the “Queen of Hills” - Mussoorie, and particularly in the Dhobighat region, the case study. The lens of political economy looks at how the distribution of power, be it political or economic, determines the developmental process through bargaining, contestation, and negotiations. Given that water security is a developmental goal, and water is a scarce resource, it is bound to be subject to (as described above) political power, economic power, as well as legal rules or regulations (which often act as the basis for such powers).

In the scorching Indian summer, hill towns are the go-to place for seeking some solace from the sun. Indian hill towns, especially in the north, have undergone rapid transformation to attract more and more tourists, slowly becoming majorly dependent on tourism for economic growth. Establishment of hill towns was also an important trend during urbanization under the colonial rule. Most of the hill towns were located over 6000 feet to start with, and then satellite towns were developed to accommodate a growing population, at lower altitudes. The influence of the colonial period is perceptible in both the tangible and intangible aspects of Indian urban development (Lahiri, 1986).

In the post colonial era, remnants of British style architecture can still be found. Mussoorie, located in the Dehradun district of Uttarakhand is a fitting example. From being under consideration alongside Shimla to become the summer capital of the British, to attracting elite Indians and now Indians across financial classes, Mussoorie has come a long way; and is complete with colonial structures, and arc

street lamps. Hill towns are also characterized by limited resources and difficult topography, and have been reeling under the pressure of over construction that may not be taking into account the carrying capacity of those hills/mountains. This report therefore starts by first familiarizing the reader with the concept of political economy and water security, and also by situating Mussoorie in the context of the new hill state of Uttarakhand (Chapter 2, Background and Rationale). This is followed by a clear listing of the objectives and methodology used in the study (Chapter 3, Objectives and Methodology).

With a hill town like Mussoorie, smooth provisioning of water services is a major problem. As will be uncovered in the following pages, its water storage and supply infrastructure is deeply entrenched in its colonial past. This has been followed up by institutional inefficacy and short term planning, when long term planning may be the need of the hour. The current situation is such that Mussoorie faces a water crisis not just in peak tourist season but in off season as well. The lag in water supply that is a result of the above has pushed the government agencies such as the Jal Nigam to explore more sources of water, including those to which certain communities had exclusive claim. This interaction between the state and community is grounded in a particular rights and ownership based context, that enables the government to lay claim over such water sources. The report therefore takes up the case study of Dhobighat, an area subject to such an interaction in the past, and discusses the changing power relations and hydrosocial relations by capturing the lived experiences of the people of this community, and other activities surrounding their water (Chapter 4, Results and Discussion). While doing so, it will bring to fore the different actors and interests that have a stake in the water. The Dhobighat area acts as a waterscape that can be seen to shape not just state community relations, but also intra-community and inter-community relations. The report ends with some concluding remarks and comments (Chapter 5, Conclusion).

## 2. BACKGROUND AND RATIONALE

### 2.1. UTTARAKHAND AND MUSSOORIE:

When Uttarakhand was carved out of the state of Uttar Pradesh on the 9<sup>th</sup> of November 2000, it became the 10th Himalayan state and the 27<sup>th</sup> state of the Union of India (See [Annexure 1](#)). The demand for a separate state had been a long standing aspiration of the people of Kumaon and Garhwal (currently the administrative divisions of Uttarakhand) due to the lag in advancement of socio-economic growth and development (Kar, n.d.). It shares its border with Tibet to the north and Nepal to the East, the state of Uttar Pradesh to its south and Himachal Pradesh to its west. Its divided into 13 districts, 95 blocks, and 15,761 villages. 90% of the topography of Uttarakhand is characterized by hilly terrain, and the rest by plains to an extent (districts of Nainital, Dehradun, Haridwar, Udham Singh Nagar). The plains are more developed as compared to the hill regions when it comes to infrastructure provisioning. Such disparity between the hills and the plains ensure that the hills remain locked in a vicious circle of poverty, driven by lack of education and employment opportunities, and hence lack of consumption (Mittal, Tripathi and Sethi, 2008).

Forests make up for approximately two-thirds of the state's area - 35,392 sq km. (2002). Only about 14% of the state's land is used for agriculture. Compared to this, about 78% of the state's population of 10.11 million is dependent on agriculture for their livelihood<sup>1</sup>. Majority of the population is rural 74.38% (63.10 lakh) whereas the share of female population is 49.11% (41.63 lakh).

Geologically, the state is placed on unstable grounds by virtue of it being located in the Western Himalayas, and within seismic zones IV and V. It has a moderate urbanization of approximately 26%, which is 2 % below the all India average for urbanization.

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<sup>1</sup> State Focus Paper Uttarakhand 2010-11 prepared by NABARD, page 5

The State Gross Domestic Product (SGDP) of Uttarakhand is impressive at 8.9%. This growth has mainly been driven by construction and manufacturing. At the same time, the state has seen a decline in the share of agriculture in GSDP from 29% in 2000 to 15.8% in 2008-09. This growth hasn't been matched with impressive equity outcomes however. Industries have created lakhs of jobs but most of these have been restricted to the plains. 9 hill districts out of the total 13 districts in the state contribute only 20% to the SGDP. This share was 20% in the year of the state's inception (Uttarakhand Diagnostic Study of Building a Mountain State 2000-2010, n.d.)

The hill districts' potential might lie in alternate activities however, tourism being one of them. This can attract a lot of investment to the state as well. Current Chief Minister Harish Rawat has been directing his government's efforts at promoting tourism, given the rich natural resource heritage of the state<sup>2</sup>. These efforts have been accelerated especially after the massive flood that ravaged the state in 2013, so as to reinstate its position as a safe tourist/pilgrim destination. Uttarakhand is incidentally India's first state to have created a Tourism Development Board by legislation (Mittal, Tripathi and Sethi, 2008). Ironically, it is its natural heritage that seems to be coming in the way of promoting and developing tourism in the state, with more protected areas being declared by forest authorities, much to the chagrin of tourism stakeholders<sup>3</sup>.

The promotion of tourism for economic growth, however, does not just have conservation reserves as roadblocks. To facilitate tourism, bare minimum facilities such as provision of accommodation, food and water are essential, apart from other

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<sup>2</sup> In April, 2015, Chief Minister Harish Rawat called on the Austrian ambassador to invest in Uttarakhand state's tourism, given Austria's interest in adventure tourism. He invited investments in education, information technology, and industrial sectors as well. Read more about it here: [http://zeenews.india.com/news/uttarakhand/harish-rawat-extends-invitation-to-austria-to-invest-in-uttarakhand\\_1578705.html](http://zeenews.india.com/news/uttarakhand/harish-rawat-extends-invitation-to-austria-to-invest-in-uttarakhand_1578705.html)

<sup>3</sup> Nanda Devi Bird Conservation Reserve became the most recent addition to the list of conservation reserves in the state. The increase in conservation reserves and protected areas has become a cause for worry for tourism stakeholder as it restricts tourists and construction work. Read more about it here: <http://www.hindustantimes.com/dehradun/it-s-protected-areas-versus-tourism-and-livelihood-here/article1-1340002.aspx>

basic infrastructure facilities such as roads and transportation. As elementary as that sounds, a hilly terrain would add some level of complication in ensuring this.

It is also ironic that a state where two of India's greatest river systems originate (Ganga and Yamuna), is now facing water problems. Many hydrological studies have presented evidence that point out the diminishing nature of water sources in the state. There is also a lack of natural freshwater storage capacity in the hills, which leads to poor availability of the same. The problem is further exacerbated by the pressure of increasing numbers and categories of water users as a result of the "developmental process", which has paid little attention to the natural carrying capacity of the state. Such pressures have led to the alienation of communities from their natural water resources, and can be seen to be contributing to a breaking down of traditional management and conservation skills. The growing number of users and appropriators of the water sources also acts to cause rifts between communities, villages and different actors. The State agencies seem to have been incapable of reigning in such a situation, as will be seen in the case of Mussoorie. Even though it is situated in the plain district of Dehradun, it acts as a microcosm for other hilly tourist centres.

### **MUSSOORIE:**

Mussoorie township, situated at a height of 2000 meters above mean sea level, is spread over an area of 65.81 sq. kms. on either side of Mussoorie ridge, of which 25.48 sq. kms. (part of the watershed of Yamuna) falls outside the Doon Valley (Ramachandran and Ramachandran, 2001) (See [Annexure 2](#) and [3](#)). The responsibility of civic administration of the town is held by the Municipal Board of Mussoorie, whereas it is the Mussoorie Dehradun Development Authority (MDDA) that looks after city development and related issues of enforcement of construction bye-laws (Ramachandran and Ramachandran, 2001). The Uttarakhand Peyjal Nigam looks after the planning and implementation of water and sewerage projects, whereas the Uttarakhand Jal Sansthan is responsible for most repair and maintenance work.

Like most hill towns, (protected areas notwithstanding) one can find a slew of hotels, restaurants, and *dharamshalas* across Mussoorie's landscape, accompanied by cramped lanes and a view that comprises buildings as much as it comprises hills<sup>4</sup>. Mussoorie is placed on unsteady grounds<sup>5</sup> so to say, with most of the mountain made up of limestone, the quarrying of which was widespread until it was stopped due to a Public Interest Litigation filed by the Rural Litigation Entitlement Kendra (RLEK)<sup>6</sup>.



**FIGURE 1: VIEW OF MUSSOORIE FROM DHOBIGHAT**

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<sup>4</sup> The construction activity between 1990-1997 was at its peak when compared to 1990, the forest cover reduced by 4.38 Sq.Km. by 1997 and the built up area increased by 4.32 Sq. Km. It was not a case of only the fast pace of construction but also of the unplanned construction in violation of Forest Conservation Act, 1980, in notified private forest estates. However, the Supreme Court Monitoring Committee (SCMC), to control haphazard constructions, filed a Writ Petition (W.P. No.749/1995) against MDDA & Others in the Hon'ble Supreme Court when the Hon'ble Court vide order dated 10.07.1996 clarified that the private forests attract the provisions of F.C. Act, 1980 and as such for non-forestry use of the areas notified as Forests will have to be obtained from the MOEF, Govt. of India. This landmark judgment of the Hon'ble Court put a curb on construction activity which came down drastically from 1997 onwards (Ramachandran and Ramachandran, 2001).

<sup>5</sup> It also falls in Zone IV of the seismic hazard map.

<sup>6</sup> Writ Petition No.8209 and 8821/1993 filed by RLEK against the State of U.P. and Others in the Hon'ble Supreme Court.



Its population density has gone up from 98 per sq.km. in 1901 (Population 6,461) to 511 per sq.km. in 2011 (Population 33,651). Being a hill town, it's tourist season peaks in the summer months of May, June, and July. This is when the population density spikes up to 1,000 per sq.km. As can be inferred, a lot of tourists rush to Mussoorie in the summers and tourism is the mainstay of its economy. It provides the basis for many livelihoods and is a good source of revenue too. However, Mussoorie stands at the cusp of losing this source of revenue if it does not take action to alleviate its water crunch situation.

One of the ways in which the state agencies like the Peyjal Nigam are looking to get access to more water is by investing in a huge scheme that involves pumping up water from the river Yamuna (as discussed in Chapter 4). Prior to this, these state agencies have also approached different local communities to tap their water resource. One of the water supply schemes mooted earlier was the Aglar Water Pumping Scheme to lift 12 MLD from Aglar River. The scheme which was estimated to cost Rs. 7 crores in 1984 was shelved, because of opposition from farmers who were withdrawing water for irrigation. Another water supply scheme (Hardy Falls) proposed in 2006 to lift 2.1 MLD water had to be shelved due to protest from the villages (Purkul and Kyarkuli) in the downstream who utilized the water both for drinking and irrigation. The case study area of Dhobighat was approached by the Lucknow Jal Nigam in the year 1993 for augmenting Mussoorie's water supply. The details of the negotiations that took place are given later. Despite all of these government moves, Mussoorie has not been able to quench its thirst. There are increasing number of articles in newspapers that report on its miserable water supply provisioning. Add to that the decline in discharge from most

### **Bane of Queen of Hills**

- Residents of Jabarkhet, Landour Bazaar, Library Chowk, Camel's Back Road, Landour Cantt, Spring Road are the worst affected by the water shortage.
- The situation has aggravated as water discharge from various natural springs, from where water is drawn through pumping stations for supply to the town, has fallen drastically
- The Jal Sansthan has curtailed supply in emergency and instead started rationing water
- The Hotel and Restaurant Association is worried the situation may drive away tourists during the ongoing season
- Mussoorie is getting 7.67 MLD (million litres per day) of water in comparison to the demand of 14.50 MLD

**FIGURE 2: EXCERPT FROM THE TRIBUNE, 2015**

of the spring sources on which it is dependent, it's a cause of worry for many stakeholders such as the hotels and restaurants (as it may drive away tourists) and for the local residents themselves.

There are also allusions made by some residents that point to preferential treatment of some consumers, such as five star hotels and other government institutions such as Lal Bahadur Shastri National Academy of Administration (LBSNAA) and the Indo-Tibetan Border Police (ITBP), by providing them with 24 hours of water supply, whereas limiting it to half an hour for locals (The Tribune, 2015). This brings to fore the different interests and the power they hold in determining allocation of water. While such interactions and their effect on a community like Dhobighat will be discussed later, it is important to first understand the concepts of Political Economy and Water Security, as done in the next section.

## **2.2. POLITICAL ECONOMY AND WATER SECURITY**

Political Economy expressly concerns itself with the distribution of power and wealth, and how that impacts the development process. *“Political concerns and economic concerns are linked through the bargaining that inevitably takes place over the use of limited resources. In combination with the use of the relevant context as the starting point for analysis, it is this view that processes of bargaining and contestation and the distribution of power among the actors participating in such processes are central in determining not only what development outcomes occur, but also to why they occur and what might be done to improve those outcomes.”* (ODI, 2011)

The UN - Water (United Nations' inter-agency coordination mechanism for all water related issues defined water security in one of their analytical briefs as follows:

*“The capacity of a population to safeguard sustainable access to adequate quantities of and acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a*

*climate of peace and political stability.”* (Water Security and the Global Water Agenda, 2013)

The above definition was a result of the pursuit to arrive at a common understanding of the term water security. The brief also provides a consolidated list of core elements and aspects of water security, as given in other definitions. These include protection of livelihoods, human rights; preservation and protection of ecosystem in water allocation; ensuring water supplies for socio-economic development and activities such as tourism; good governance and accountability, etc. (Global Water Partnership, 2000; Grey and Sadoff, 2007)

Water Security is therefore, a development outcome too. When it comes to a scarce and valuable resource such as water, it is not just the *presence* of water that determines availability, access and use, but also politics, economics, law, and society in general. On the other hand, it will be a folly to disregard how water itself shapes these processes. A conventional political economy analysis may restrict itself by treating water as the object of any socio-political conflict and decision making. This report however also looks at the socio-political process as being affected by water, in how it changes inter and intra community dynamics, and also state-community relations.

*“A dialectical understanding of nature emphasizes on the two directional dynamics of social and natural processes in socio-ecological change. This allows nature itself to be reconceptualised as inescapably politicised, rather than merely the object of political processes, thus overcoming the dualistic perspective of nature as external to social power. In this way, a hybrid perspective enables the political processes and power relations that underlie fused socioecological change to be elucidated, as power and socioecological change can be understood as mutually and dialectically constitutive”* (Castree 2001, Harvey 1996, Paulson et.al. 2003 as cited in Budds, 2008). *“This rejects the view of nature as a purely material domain over which policies are made and social struggle occurs, to an integrated ‘social nature’ in which the agency of non-human natures also shapes social power”* (Braun and Wainwright 2001, Castree 2001b, Whatmore 2002 as cited in Budds, 2008)

Therefore, water is deeply embedded in socio-political relations, determining and getting determined by them. Power relations can be seen to be at play in the quest for achieving water security. However, given the many competing interests around a scarce natural resource, water security will mean different things to each of the stakeholders and competing interests. This notion may even extend to a point where ensuring water security for two different interests may become antagonistic in nature. For example, a stress on tourism by the government might entail better provision of water to the hotels and restaurants rather than the local residents. Therefore, while water security is being ensured for livelihood and promotion of tourism, it is at the same time being violated for the local residents. In Dhobighat community, for example, the washermen are dependent on a water stream for their livelihood. The availability of water throughout the day ensures water security for them, but the same water when collected by private water tankers downstream and distributed in Mussoorie perhaps even for consumption, compromises the water security of the consumers by severely affecting their health. This also questions the credibility of “environment” as a stakeholder in the water security discourse. For example, water security for livelihoods may cater to the needs of the community dependent on water, but says nothing about the resultant effect on the water or say, the watershed. Such decisions regarding allocation, distribution, and monitoring of water supply are an important component of water security. In other words, proper management and governance of water form a crucial part of ensuring water security.

*“Water resources management needs to draw from social and development theory because water resources management is embedded in broader social and development processes...Modes of water resources management are closely associated with concepts and trajectories of development, as existing in the form of patterns of accumulation (the dynamics of economic relations), modes of regulation (the dynamics of socio-political relations), and environmental trajectories (the dynamics of ecological systems)”.* (Allan 2003)

The dynamics mentioned above are influenced by the kind of rules or laws relating to ownership and claim over water resources. The next section looks at the evolution of water rights in Uttarakhand.

### 2.3. WATER RIGHTS IN UTTARAKHAND

Current use and access to water in any region are very closely related to how rights of use and ownership of water were treated historically, and how they have evolved overtime. Water rights can be characterized with the same fluidity that characterizes the resource itself. Traditionally, water has been considered nature's bounty, available as a free good (NAAS, 2005). However, rights associated to water differ across water sources, usage and states (NAAS, 2005). For example, while the National Water Policy 2012 states that water must be held as a community resource under the trusteeship of the state, there is the case of groundwater that steers clear of this understanding of rights (Ministry of Water Resources, Government of India, 2012). Groundwater aquifers become the property of the person who owns the land above it. Hence, groundwater aquifers become *private property* which is target of unrestricted private use. Springs (more relevant source for Mussoorie and Dhobihat) are however categorised as surface water and are hence "*common property resources*" (CPR). Therefore, rights to surface water need to be dealt with differently than rights to groundwater.

Water laws in India can be traced back to the Indian Easement Act, 1882 which follows the doctrine of riparian rights<sup>7</sup> in the case of surface water, and provides for private property right over groundwater. Presently, Indian water laws "represent a complex amalgam of colonial legislation, customary laws and post-independent constitutional and legal provisions" (NAAS, 2005). Water resources are covered under the State's sovereign right over them. They are also part of the State list (Entry 17 - List II States), subject to the provisions of Entry 56 of List I (Union List)<sup>8</sup>.

Ambiguity in water rights and property regime can be partly held responsible for the current water crisis in the country. From the above, the "nature of rights may be

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<sup>7</sup> Governments across the world have been "guided by three different but interrelated legal doctrines viz.: (a) doctrine of riparian rights; (b) doctrine of prior appropriation; and (c) doctrine of public trust" (NAAS,2005). Doctrine of riparian rights states that water belongs to the person whose land borders a body of water (Law.cornell.edu, 2015).

<sup>8</sup> This means that the Central government can assume responsibility in matters related to inter-state rivers.

distinguished as - right of ownership, sovereign rights, right to use (usufructuary rights). Rights maybe perpetual, or limited in time. Rights may be transferable, heritable, or not” (Vani and Asthana, 2000). The fact that a state like Uttarakhand has any sort of a water crisis is ironical considering the abundance of water resources it has, including being the point of origin of two great river systems - the Ganga and the Yamuna. This can be attributed in part to the poor infrastructural facilities, and in part to poorly developed legal framework surrounding water which is neither in the interest of the users, nor in the interest of the resource (Vani and Asthana, 2000). The development of rights relating to water resources in the state can be divided into 3 periods: Pre-colonial, Colonial, and Post-constitutional.

The **Pre-constitutional period** can be described as a period of decentralized governance, when water was considered a common property resource, and rights over natural resources found validity in local customs. The **Colonial period** marks a shift in the power matrix. Common property rights were diluted and replaced instead by private property rights. State sovereignty over natural resources was established. A medium to facilitate this was by keeping an inventory of land and other resources, that enabled the state to assert its authority over natural resources. Land measurement and classification gave rise to corresponding water rights. Customary rights were recognised. Given the difficult terrain in the hill districts of the Kumaon and Garhwal region, prior use rights, and not riparian rights, formed the central legal principle of water rights. Slowly and steadily however, the Indian customs were subjugated by the Anglo-Saxon law, and this process simultaneously led to the erosion of the communitarian mode of governance. The State exercised its control over water resources through legislations on other resources such as land (through the Land Acquisition Act,1874). Any specific water law did not emerge before 1975 (Vani and Asthana, 2000). It is known however, that this period was marked by tremendous loss of forests and social tension. It wasn't up until 1975, in the **post-constitutional period**, that the Kumaon and Garhwal Water Act, 1975<sup>9</sup>, and the

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<sup>9</sup> A study sponsored by the Planning Commission of India provides a narration about the background of the legislation. The study shows that the Act is an instance of gradual substitution of the rights of

Uttar Pradesh Water Supply and Sewerage Act of 1975 came into being. The advent of these Acts brought the supply of drinking water under the State's objectives. At the same time, customary rights were abolished<sup>10</sup>. The UP Water and Sewerage Act also established the Jal Sansthan and the Jal Nigam. (Vani and Asthana, 2000)

While water became a State objective, it must be recognized that it is the users of the water who are the first to note any changes in the resource and hence can act as better monitors as compared to state agencies. Sick writes, "*Farmers in Ascension tell me that regulations limiting extraction rates were recently imposed, yet without sufficient state resources to control access and monitor use, groundwater in Mexico (as elsewhere) has in effect become res nullius (no one's property)*" (Sick, 2007).

The above phenomenon can also be observed in the Dhobighat region. When the users of the water feel increasingly alienated from it due to lack of perceptible ownership rights, they may lose the incentive for any kind of maintenance of the resource. This eventually leads to a breakdown of traditional values and reverence accorded to the resource.

In this chapter, I discussed what it would mean to use a political economy framework to analyse water security, how competing interests with different powers vie for maximum access and use of the water resource, how water is not just the object of socio-economic and political processes but also influences it, how

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indigenous community with respect to the management of the water resources, including the drinking water supply with a formal state system. As per the study, the first Rules for the regulation of water resources - the Kumaon Water Rules - were framed under the Scheduled Districts Act of 1874, in 1917. The Rules of 1917 while retaining the state sovereignty over water resources recognized the customary rights since the British Government found it rational to do so in the absence of any potential for extensive commercial exploitation of water resources in the hills in comparison with the forest resources. The Water Rules of 1917 were modified in 1930 as Kumaon Water Rules of 1930 and there was no change in the law on water resources in the period from 1930 to 1975. During this period a significant extent of loss of forest cover, loss of people's access rights to forest, and the social tensions relating to forest resources occurred the impact of which was not taken seriously in official policy till 1975.(Panickar, 2007)

<sup>10</sup> Section 3 of the Kumaon and Garhwal Water Act states that on and from 15 July 1975 all the existing rights (whether customary or otherwise and whether vested in any individual or in village communities) of use of water, if any, in the areas to which the Act extends, shall stand abolished. However, the Act ensures a preferential treatment for village communities or persons whose rights are abolished while the state exercises the powers in terms of regulation and control.

allocation and management of water resources has a lot to do with social-political-economic-ecological relations, which find their roots in how water rights and laws have emerged overtime.

This provides the base for studying a given situation involving a waterscape, and could help in a complete analysis of the different actors that must be considered, and also the different relations that will be affected by a particular water governance related decision.



### 3. OBJECTIVES AND METHODOLOGY

A study on the political economy of water security will help identify important exchanges that take place between different kinds of powers, which may instead determine the fate of a resource or a community. This can help provide decision makers with a complete picture of the particular area - exactly who will be affected and how? Who is the main influencer? What is the basis of such influence wielding power? Being a qualitative study, the aim of his report is to analyse the underlying reasons behind a particular phenomenon, and not restrict itself to stating outcomes or findings, all within the broader picture of water security in Mussoorie.

The two objectives of the project simultaneously define the intellectual goals of this project too.

#### **Objectives:**

1. To explore the relationship and/or dependence of the Political Economy of Mussoorie on its water sources

- What is the current state of water provisioning?
- How may one characterize Mussoorie's dependence on springs and streams?
- What are the reasons behind current situation?

2. To assess the effects of the above relationship on the local communities and their internal dynamics

- How have State – community relations been affected?
- How have Intra community relations been affected?
- How have Inter community relations been affected?
- What role have negotiations between the State and the community played in the above?

## **Methodology:**

### **Data Collection:**

The data collection for the purpose of this study involved both **Primary** and **Secondary** Research tools. Since the report follows a case study approach, semi



**FIGURE 3 FOCUS GROUP DISCUSSION**

structured interviews were conducted with members of 30 out of the 40 families present in Dhobighat. This followed a purposeful sampling strategy in order to ensure that the sample closely resembles the population. Personal Interviews were also conducted with some officials from the Jal Sansthan and Pey Jal Nigam. Casual conversations with the drivers of the private water tankers helped me put together pieces of the private water tankers story. The study follows an exploratory research design.

Secondary resources include different books, journals, news articles, and online resources. These were either relevant to the study area, or to the topic, or both, and is the source of most of the numbers that are presented later in the report.

**Data Analysis:** All the interviews were recorded on a dictaphone with due and prior permission of the interviewee. Notes were taken wherever any objection was expressed. These recordings were then transcribed, compiled and coded according to the information needed.

An ODI paper has reviewed many different political economy analytical frameworks (pertaining to the water and sanitation sector) and consolidated the commonalities. According to it, there are a set of similar components which almost all the

frameworks require to be analyzed. These are - Structural factors, Institutions, Actors/Stakeholders, and Incentives (Harris, et al., 2011). This report looks at these components in the following chapter to decode the multifarious interactions taking place in the selected waterscape.

### **Research Ethics:**

As noted above, prior permission of the interviewees was taken before recording their responses. The study has taken care of ethics in every step of the way, including referencing of any previous work or articles that have been cited. The validity of the research and analysis is biased to the extent that the researcher herself was a part of the context that she was researching. The analysis is inductive and exploratory.

## 4. ANALYSIS / RESULTS & DISCUSSION

### 4.1. MUSSOORIE'S WATER WOES

*“Gehna Chauhan's life hasn't been easy for the past two years. For her day revolves around how to get enough water for her family which includes four children. ‘Sometimes I have to fetch water thrice day and the fact that I have to walk about three kilometers every day makes the exercise extremely tedious,’ she said. This isn't a story from a remote village in Uttarakhand; residents in the heart of Mussoorie have been facing severe water crunch for quite some time now”.* (Raturi, 2015)

This excerpt from a newspaper article published in April this year succinctly portrays the struggle that defines Mussoorie's water supply, which has been plagued by declining discharge from water sources, and absent and obsolete storage and supply infrastructure. Drinking water shortage is becoming a problem not just for tourists, but also for the local residents of Mussoorie, so much so that they recently demanded a CBI inquiry to look into the matter (The Tribune, 2015). Supply of drinking water is the duty of the Jal Sansthan and MDDA, both of whom seem to have done less than satisfactory work to alleviate the situation. The Jal Sansthan has also been the target of recent protests by residents, and find themselves in a tough spot.

*“‘What do we do? When people of one area complain, we just give them water the next day and cut down on supply of another area. There is little that is in our hands,’ said an employee of Jal Sansthan on condition of anonymity”* (Raturi, April 2015).

Ideally, the Jal Sansthan should have the wherewithal to deal with such situations since it is their duty to take care of repair and maintenance of water supply infrastructure. Most of the current pumping equipment is old thereby affecting the discharge. It is also affected by faults in electricity transformers at two of the main pumping stations at Jhinsi and Kolti. Requisition letter to replace the pumps have been sent by the Jal Sansthan to senior officials but any further action is yet to be taken (The Tribune, 2015).

The failure of water provisioning service is apparently being accompanied by a rise in water charges, much to the dismay of hoteliers and restaurateurs. This combined with the limited water sources available to Mussoorie put a question mark on the policy of promoting tourism in the area.

#### **4.1.1 WATER SUPPLY INFRASTRUCTURE**

The civic amenities like water supply and garbage and sewerage disposal of Mussoorie were planned by the British according to the population of the town that existed then. This is miniscule compared to what it is today. In fact, because of population pressure and consequent constructions, all facilities provided for limited users have gone haywire.

Mussoorie has been serviced through springs since the colonial period. Till 1909, it was gravitational flow from two springs (Khattapani and Chalmer), and steam pumping from a Mackinnon spring that provided water to Mussoorie. By 1900 however, it was clear that additional sources will be required to be tapped so as to provide for the increasing water demand. By virtue of its position along the ridge and the valley slopes, most of the water supply for the town is still met by tapping springs and small streams, pumping water into reservoirs and by feeding the distribution network by gravity. Currently, a total of 20 water sources are tapped to supply water to the town. Of these 14 sources require water to be pumped up and 6 of the sources are gravity fed.

The water supply infrastructure however is extremely old. As can be seen from Table 1 below, most of the pumping schemes were established in the early 1900s during the British rule, with the exception of the Dhobighat pump which is fairly recent (2003).

**Table 4.1 : Mussoorie's Current Water Supply**

(Source: Jal Sansthan Records)

<b>Current Supply of Water</b>							
#.		Year of Establishment		Name of Source	Water Supplied (MLD)	Type of Source	Type of Supply
<b>A Pumping Schemes</b>							
1.	Murray Pumping Scheme	1908	1	Khanaulty	0.648	Spring	Pumping
			2	Undercliff	0.155	Spring	Pumping
			3	Bansi	0.288	Spring	Pumping
			4	Kandighat Upper	0.288	Brooklet	Pumping
			5	Kandighat Lower	0.691	Brooklet	Pumping
			6	Rikhauli Gad	0.360	Brooklet	Pumping
			7	Kandighat Stream	0.360	Brooklet	Pumping
2.	Mackinnon Pumping Scheme	1913	8	Newby	0.115	Spring	Pumping
			9	John Mackinnon	0.216	Spring	Pumping
			10	ChalmerKhud	0.115	Spring	Pumping
3.	Bhilaru Pumping Scheme	1925	11	Bhilaru	1.296	Spring	Pumping
4.	Jincy Pumping Scheme	1972	12	Jincy	2.419	Spring	Pumping

5.	Kolti Pumping Scheme	1971	13	Koltikhala	0.864	Brooklet	Pumping
6.	Dhobighat Pumping Scheme	2003	14	Dhobighat	0.763	Spring	Pumping
<b>B</b>	<b>Gravity Schemes</b>						
1.			15	Company Khud	0.086	Spring	Gravity
2.			16	Brookland	0.129	Spring	Gravity
3.			17	Nalapani	0.036	Spring	Gravity
4.			18	Pargakhala	0.158	Spring	Gravity
5.			19	Douglas dale	0.129	Spring	Gravity
6.			20	Sentipani	0.072	Spring	Gravity
	<b>Total Pumping + Gravity</b>				<b>9.188</b>		Gravity
<b>C</b>	<b>Buranskhanda Rural Pumping Scheme</b>						
1.			1	GhatkiDhar	0.036	Spring	Pumping
2.			2	Ghuggupal Brooklet	0.216	Brooklet	Pumping
	<b>Total</b>				<b>0.252</b>		

There is a shortfall in the supply of water even during the off season. The demand (14.4 MLD) during the tourist season – May, June and July – far outstrips the supply (7.67 MLD). There are other issues associated with the supply of water. These include limited storage capacity (for ensuring water supply for two days), shortage of electricity and breakdown of pumping stations.

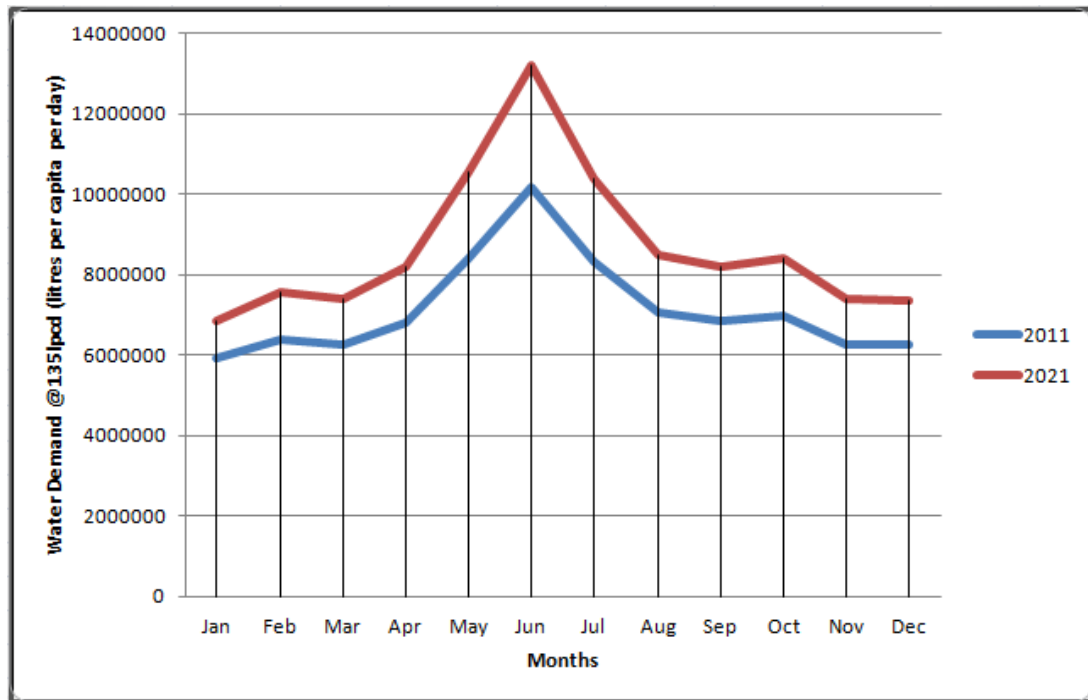
**Table 4.2: Salient Features of Mussoorie Drinking Water Scheme**

(Source: Jal Sansthan Records)

1.	Year of Establishment	1908	
2.	Area of Town (km <sup>2</sup> )	64.25	
3.	Villages within the town limits	4	
		Off-Season	Tourist Season
4.	Population 2011	30,118	30,118
5.	Floating Population	8000	50,845
6.	Total Population	38,118	80,963
7.	Drinking Water Production		
	a. Pumping (MLD)	7.06	7.06
	b. Gravitation Sources (MLD)	0.61	0.61
8.	Total	7.67	7.67
9.	Water Requirement in MLD including losses (15%)	7.76	14.40
10.	Water Shortage (MLD)	0.09	6.73
11.	Number of Water Storage Structures	29	
12.	Total Number of Water Sources (Springs and brooklets)	20	
	a. Gravity fed	6	
	b. Requiring Pumping	14	
13.	Pumping Stations	8	
14.	Pumping Plants	36	
15.	Total Length of Water pipes (Kms)	96	
16.	Duration of Water Supply	2 hours each in the morning and evening	

“The 1998 Study on Carrying Capacity of Mussoorie carried out by National Society for Promotion of Development Administration, Research and Training (NSDART) for Supreme Court Monitoring Committee has already emphasised that, in future, there will be a great shortage of water unless measures for augmenting the supply are seriously planned and implemented” (Ramachandran and Ramachandran, 2001). The following graph is based on the table in Annexure 2 that gives the projection of water demand at 135 lpcd for the population of 2011 and 2021.





**FIGURE 4: GRAPH SHOWING PROJECTED WATER DEMAND FOR THE YEAR 2021 (SOURCE: ANNEXURE 5)**

“The town runs on outdated pumps and the open collection chambers in streams from where water is pumped to the town are full of debris, leaves and stones, which choke the pipe outlets of the pumping stations....No one seems interested in setting right these bottlenecks, the cost of which is less than 1 crore, to double the water supply of the town. The interest is in new and grandiose schemes which have little hope of early sanction or implementation because of the expenses involved. One also feels that small repairs are deliberately ignored to create a demand for more expensive schemes”. (Rautela, 2000)

The above statement seems to resonate in the government’s plans off late to source water from the river Yamuna. Estimated at a total cost of 200 crores, the water from the river will be pumped up 1400 metres and is said to be capable of eliminating any of Mussoorie’s water problems till 2046. Be that as it may, new pumping schemes have also involved the government looking at various springs within Mussoorie and within local communities. The next section looks at a case study of Dhobighat, a community of washermen.

## 4.2. DHOBIGHAT

### 4.2.1 INTRODUCTION

*“Mussoorie mein toh kisiko nahane ka paani nahi hai, kisiko peene ka paani nahi hai. Yahan toh kudrat ki den hai ki chaaro taraf paani hai. Lekin paani ki kadr nahi hai”.*

Travelling from Dehradun to Mussoorie via the Mussoorie road, an uphill turn off the main road right opposite the tourist spot Mussoorie Jheel (Lake) leads one to a community of Dhobis (washermen), neatly tucked away from the hustle and bustle of the traffic and other commotion. The area is thus called, Dhobighat. The **community** is constituted primarily of Muslims who belong to the Dhobi *biraadari* (caste). At present, there are only two Hindu families residing there, one of which stays in a house that lies in the community’s centre<sup>11</sup>, positionally. Out of the approximately 40 households present there (and it is especially difficult to ascertain the exact number), about 30 are working as dhobis and operating their **individual** laundry business (even though most families live in a joint family setup). The rest of the families operate vehicles that will transport bundles of clothes from the dhobis to their clients and back for an agreed price. Others are mechanics, welders and shop owners.

When one hears the term Dhobighat, it is possible that the image of the more popular Mahalaxmi dhobighat of Mumbai, Maharashtra comes to mind where washing happens on a large scale, and washermen can be seen flogging clothes behind rows of compactly organized concrete washpens. The water they rely on is pumped and supplied through pipes. Mussoorie’s Dhobighat, however, is unlike other typical dhobighats, essentially in how the scattered wash pens are arranged

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<sup>11</sup> This family incidentally also constructed the only Temple of Dhobighat, at a spot where the Goddess Kali (also their *kul devi*) apparently rested (or so the legend goes). It is also the target of annual robberies. There is a mosque called Medina Masjid situated in the community. Both the mosque and the temple receive visitors from in and around Dhobighat.

along the gradient of a hill, adjoining a water stream, locally called the '*khad*'. There is no '*ghat*' (series of wash pens) as such. Some say that even if a *ghat* was built, the flow of the water is so strong (especially during the monsoons) that it probably wouldn't allow the structure to stand. Needless to say, the water in the *khad* flows down the hill like a lifeline for the *dhobis*, considering their dependence on, and the importance of that water for their livelihood.

The community itself is quite a visual treat with colourful houses of different sizes and designs packed close together on the hill slope, with their tin and concrete rooftops concealed by clothes - white vests and bedsheets, red uniforms, blue jeans, grey trousers, etc. The clothes are spread and dried on rooftops, or hung out on wires that go from pole to pole. Some even put them out to dry on bushes on the hill side and on the grass that abounds the settlement area. Walking in the tiny lanes in



**FIGURE 5 CLOTHES SPREAD TO DRY ON ROOFTOPS**

between houses, one might have to jump and skip over frothy water (from all the washing) criss-crossing the area in mini canal-like spaces. This is because clothes aren't just washed in the stream, but also in separate and individual workshops

owned and operated by houses located away from the stream. This doesn't mean however, that the houses next to the stream do not have such workstations. What these workstations house are big loader washing machines, spin dryers (locally called hydro machines), and electric dryers, apart from a concrete washpen which includes a *hauz* (tank area to store water) and washing area. It's this water from the workstations that's allowed to flow out into the lanes, giving off a whiff of detergents.

#### 4.2.2 WATER SOURCES IN DHOBIGHAT

There are a total of **3 springs** in the **Dhobighat** area. One provides drinking water to the community; the second is the source of all the water in the khad (stream) that flows across the community landscape and where all the washing is done; and the third caters to people from the market in Mussoorie and anyone else who is not a part of the community<sup>12</sup>. Spring 3 has the least amount of discharge among the three. The area earlier had about 5-6 springs, half of which have now dried up. This is also because of dumping of construction debris on some of them that blocked the source overtime. (As told by a Jal Sansthan



FIGURE 6 WATER STREAM ORIGINATING FROM  
SPRING 2

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<sup>12</sup> These spring sources will subsequently be referred to as Spring 1, 2, and 3 respectively.

representative, springsheds are not really well monitored).

Springs 2 and 3 are being tapped by the Jal Sansthan. The water is routed to the Pumping Station down next to the Youth Hostel via pipes, from where it goes to Nabha region<sup>13</sup>, and eventually supplied to Barlowganj area. There is also a water pipeline that goes from Douglas Dale to the pumping station. That water (Douglas Dale line) is also being consumed by 3-4 households in Dhobighat, for which they are billed.

Spring 1 on the other hand caters not just to Dhobighat. A pipeline from there goes to the nearby village of Kyarkuli, much to the dhobis' annoyance, for reasons discussed later in the report. It is also furnishing the water needs of some retired Eco Task Force officials who stay nearby. This, however, the dhobis do not mind, since those officials help in maintenance of the tank where the drinking water is collected. They also planted many trees on the hill, and are therefore spoken of with a tone of reverence.

#### **4.2.3 BUSINESS**

*“Doosre ke kaam mein ek barqat, apne kaam mein sau barqat”*

Washing thousands of clothes on a daily basis is a physically strenuous task that these dhobis undertake all year round except for 3 months (November, December, January). This is because the clientele of the dhobis consists mainly of the elite boarding schools in Mussoorie and Landour who break for winter in those months, and hotels in the area that experience off-tourist season in winters. The division of work is gendered in how the men take on the flogging and washing of clothes, while the women help in putting the clothes to dry and then neatly folding them and preparing bundles.

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<sup>13</sup> of the famous The Claridges Hotel at Nabha.

The use of washing machines is a fairly recent phenomenon that started around 10 years back mostly as a way of giving in to the clients' demands of wanting their clothes machine washed, but also due to the ease of use and capacity to get more work done in less time. Investment in machines and dryers meant being able to handle more work with fast delivery. While the small hydro spin dryers are used on a daily basis before the clothes are put out in the sun, the electric/gas dryers are used mostly during the monsoon and



**FIGURE 7: A DHOBI IN HIS WORKSHOP. HIS WASHING MACHINE CAN BE SEEN IN THE BACKGROUND**

the colder months when sunlight may not be enough to dry the clothes fast, or at all. Some hotels have purchased their own machines and thereby done away with the need to summon dhobis for washing clothes. Switching to machines is therefore a way of keeping up with the times. Since any long term contractual work relation is absent, the washermen are essentially dependent on the whims of their clients. A lot of the work from the clients is continuing thanks to the bonds previous generations and their goodwill have forged. The low rates paid add to the process of this casualisation of labour<sup>14</sup>. This has affected some of the families adversely. Even

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<sup>14</sup> There does exist a '**Majdoor Sangh Union**', of which none of the washermen from Dhobighat are a part. They prefer not to be as well. This is because they mostly bully the clients around with their demands and the dhobis don't want to be a part of it. They were advised by outsiders to work collectively so that they could leverage their bargaining position, and several attempts were made in this direction in the 1970s, 80s and 90s. But the community seems to lack trust in each other to go through with the idea.

though most families in Dhobighat are closely related to each other, a presumption of financial equality would be incorrect.

If anyone has ever utilised the services of a dhobi, they would know that it is fairly inexpensive. That also means that it is not a very well paying job. However, according to one of the women interviewees, some households probably earn about Rs.50,000 - Rs 60,000, while they (counting herself in one of the poorest households) don't even earn Rs. 10,000 with her and her husband's income combined, indicating the bandwidth of income. Having or not having a washing machine can be used as an indicator of status, both financially and in terms of workload, with those with machines capable of taking on more work. While there are financial disparities among the different households, the *khad* could probably be seen as a great equalizer, in how every one has to situate themselves along the same stream to wash clothes, and are affected by the quality and quantity of water in the stream. This might have been affected since the Jal Sansthan brought in piped connection in the community from Spring 1. The dependency on the *khad* isn't the same anymore.

Some of the dhobis are graduates and post graduates by educational qualification, and have experimented with different jobs overtime. They however feel that the autonomy they have in running their own laundry business isn't worth giving up. These are also those people who own their own dry cleaning shops in Mussoorie. Some others continue to work as dhobis because this is the only work they have known. It's an inheritance.

A lot of the dhobis have bought their own vehicles (vans, jeeps) and now handle the collection and delivery of clothes on their own. This reduces the expenditure that they would have otherwise had to incur due to payment being made to vehicle owners/drivers, the non-dhobis. They charge approximately Rs 100 for one round trip. They need only spend Rs 300-600 in one month on fuel.

The drivers on the other hand are experiencing a reduction in business since the dhobis started getting their own vehicles. These drivers would employ Nepali boys and men as “coolies” to carry the heavy bundles of clothes from the dhobis’ house to load them in the van. Nowadays, some dhobis have also employed Nepali men as assistants who do all the heavy washing and drying. This practice is limited to the richer families, however.



**FIGURE 8: COOLIES CARRYING BUNDLES OF CLOTHES**

Abstinence from alcohol or any other kind of intoxicant, they say, allows

most of them to save enough to just about cover food and their children’s education, after deducting for investing in detergent, electricity, transport and coolies. The next generation may not continue as washermen and seem very likely to join the service sector, seeing as almost all of them study commerce in high school and graduate level. The children of the wealthier dhobis are already employed in jobs outside of Mussoorie and even Uttarakhand. There are also a couple of families where the men are working as teachers in English medium schools in Mussoorie. One complaint though is that alternate employment opportunities are biased in favour of men, with girls mostly restricted to the house even after getting an education.



Work-wise, 2014 was a good year for Dhobighat. The weather wasn't as cold in the winters, and therefore there were tourists all year round, which meant that they had work in the otherwise off season winter months. The off-season months are otherwise dependent on the School vacations. So June is another month when business runs low. Business also depends a lot on the vacations that



**FIGURE 9: A DHOBI CAUGHT IN ACTION**

people in Delhi and around take. While work benefits from warmer climate, one of the men expressed his concern over the lack of snowfall last winter, which would mean **less water** in the summers this year. The reduction in water flow in the khad, coincides with peak tourist season. And while it can be surmised that the occupation itself and hence the dependence on water is on the decline, reduction in water flow during peak season is problematic for at least as long as the occupation does persist. This is a threat/risk to the Dhobis' water security.

Those who are availing of a separate water pipeline for washing clothes (from Douglas Dale) may not be as vulnerable as the others. To understand the relation between the community and the waterscape, and how this has been affected overtime, it is important to peek into the history of Dhobighat and look at the negotiations with the State that they have been involved in, because as it turns out, the *khad* is also a source of drinking water for a part of Mussoorie.

#### **4.2.4 HISTORY/SETTLEMENT**

*“Yahan sab hamari biraadari ke hain”*

Dhobighat’s existence can be traced to around a century back in time. One of the men there had preserved letters that were written by Britishers, one of which at least was dated 1935. Initially, there seemed to have been about six to seven families which were made to settle here next to the stream to facilitate washing, by some Britishers to cater to their laundry needs. This is another example of how water attracted a community’s settlement next to its source. The number of families has eventually grown to being 40. As mentioned above, there are non dhobis families as well. Their previous generations would work as cooks, carpenters, mechanics etc. As the family size grew, so did the number of houses. Today, there are families that stay in Dhobighat on rent too. The Nepali families have now spent about 10-15 years in the region too. Their children go to schools in Mussoorie.

The Dhobighat land originally belonged to a man named C.B. Singh, who is no more. Most residents of the community never bought the land from him, so officially it isn’t registered in their name. They probably own the land now by virtue of their stay here that spans generations.

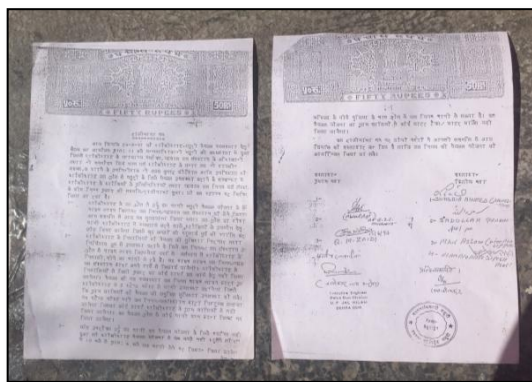
#### **4.2.5 WATER SHARING NEGOTIATIONS**

*“Hamare paani ke peeche kyun pade hain?”*

Sometime around 1993, the Lucknow Jal Nigam started to look around for additional water sources to feed Mussoorie’s growing demand for water (drinking water). One of the ways of doing this is by looking at resources which were in use by local communities and exploring the option of sharing it. The State having the authority to go and partake in the resource is also a result of how the community’s right to a water resource in its midst has developed, or regressed, so to say. While such data for the Garhwal region is absent, Vani and Asthana, 2000 conducted an analysis of water disputes pre and post 1975 in the Kumaon region. They looked at 3 categories of disputes - around water mills (gharats), irrigation, and drinking water. One of the results of the analysis was that *“the disputes which were mostly between*

individuals and also between individuals and groups prior to 1975, changed to those involving individuals, groups and Government after 1975. The conflict of interest or water rights is more between the public and the government now, particularly in relation to drinking water". This corresponds to the laws brought in to assert State sovereignty over natural resources and especially drinking water in 1975.

Dhobihat was one of the communities which was approached, another being the village of Kyarkuli which is situated close to Dhobihat. The communities however assert a strong sense of ownership over the water in their communities. The women of Kyarkuli are supposed to have shown vehement resistance to any advances by the State agency, even forming a human chain to prevent the officials from entering the village. They too are dependent on their water source for their livelihood. The water runs a *gharaat* (water mill) in the village. If such matters were to be contested in Court, it is likely that the State will win over the community, for reasons mentioned above (Water Act of 1975 empowers state agencies to abstract water from any source). If a community was to take another community to Court however, then the prior use doctrine would still hold, even with the law stating otherwise. In this particular case however, the matter was dropped and not taken to Court. The Jal Nigam instead shifted focus to Dhobihat. The plan involved tapping the main water stream at the source, before it gets contaminated by detergents and chemicals being used by the dhobis. Here too, they were faced with resistance. The dhobis were worried that sharing the water will reduce the flow in the stream and hence rebuffed the idea. But according to the narratives offered by the community, the Jal Nigam



**FIGURE 10: THE AGREEMENT**

continued to coerce and almost threaten the dhobis into giving in. There might have been incidents of both physical and verbal abuse.

By 1997 though, a compromise was reached with both parties agreeing to a set of terms. This was also done outside of Court. This mutual

agreement is legitimised by the stamp paper it is printed on. The terms agreed to were:

- The Jal Nigam will construct a concrete tank to store water from the spring that the community was earlier tapping through plastic pipes for drinking water. The Jal Nigam will lay pipes to direct the water from the spring to the tank, and then from the tank to the community settlement area, where it will install 6-7 taps.
- They will also waive off the water tax (for drinking water)
- This agreement also frees the Jal Sansthan off the responsibility of repair and maintenance.

Some of the dhobis remember there being a verbal agreement of a few jobs being offered at the pumping station. However, only one person was given employment, and that too on a temporary basis for 2 – 3 years.

*“Government jo baat karti hai na, vo aaj kehke kal mukar jati hai”*

(If the government says something today, tomorrow it will retract from its commitments).

There’s a great sense of ownership of the spring sources among the community. ‘*Hamara paani*’ (Our water) is how they refer to it. With a lot of certitude state that they will not entertain any more water sharing requests

Once the drinking water taps were installed in different places in the community, individual households got their own pipes connected to the Jal Nigam pipes so that they could get drinking water connections direct to their homes. Ironically, the Jal Sansthan’s decision to waive off water tax in Dhobighat to be able to *supplement* Mussoorie’s water supply from one source, can be seen to have encouraged unrestricted consumption of water from the other source. Those who lived away from the stream started tapping this drinking water supply for their washing machines. A few households located upstream as well as away from the stream had to install their private motors at the tank to lift water up to their houses. Going to the stream to wash the huge bundles was quite a task and using the piped water is far more convenient in comparison. Since the source from where the water is being

abstracted is a spring, it cannot be “exploited” as such by over-extraction. The argument being made above is not so much about over-extraction, as it is about the change (decline) in the value assigned to water since it became abundantly and conveniently available for use.

#### **4.2.6 CHANGING HYDROSOCIAL RELATIONS**

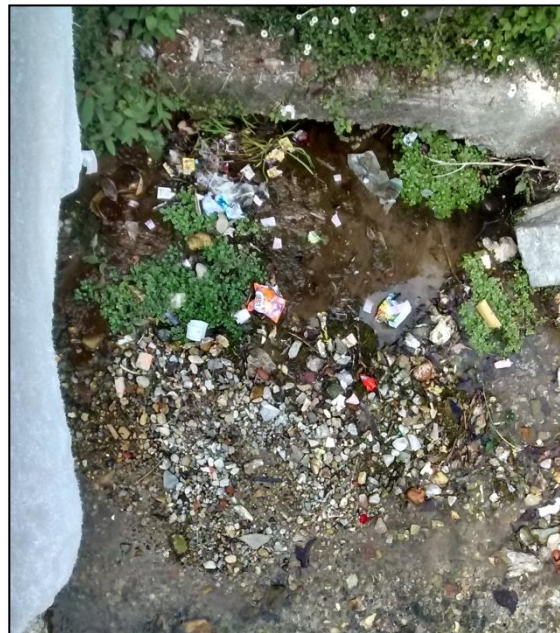
This particular spring source is qualified as a drinking water source since its ‘hardness’ is relatively less in comparison to the water in the khad. The fact that it is now being used for washing clothes by the dhobis can also be seen to breed resentment among the non-dhobi families, who consider it sheer callous behaviour. According to them, the dhobis take water as a given, rather than realizing their good fortune at having enough water available in the midst of the veritable degree of water scarcity in Mussoorie. This is one of the ways in which the falling dependence on the khad for washing has influenced the intra-community relations. The declining dependence instead has been caused by the piped water system that was introduced in the community. The fact that most of the dhobis also do not assist in the maintenance of the drinking water tank adds to this rifting.

Since the installment of the pipe, the dhobis’ frequency of visiting the spring source has reduced, as has their knowledge about the bio-physical condition of the spring source, and any other stresses that may be incumbent upon it. The tank also shrouds any decline in the water discharge from the spring source because it stores water overnight. Therefore, while the community is perceptive of the decline in water flow in the stream, the same is not true for the drinking water. To rephrase, perception of the resource guides its usage and management pattern. This perception is in turn affected by different factors - infrastructure around it, nature of the source itself (whether it is perennial or seasonal, whether it is stagnant or flowing).

The khad water was at some point also used for drinking purpose since it was so clear and clean. Women were prohibited from going and washing utensils in the stream so as not to pollute the water. The khad has come a long way since then. Now, the water in it may be unsuitable to even wash utensils in it. The detergents

and other chemicals that flow down with the water are accompanied by polythene bags full of garbage. The only difference being that while the detergents and chemicals flow further down, the polythene bags get stuck next to the house downstream. Clearly, the advent of plastic, and community's access to shops selling packaged chips, soft drinks, etc. has done the stream no good. Interestingly, the houses located upstream blame the downstream for the poor upkeep of the stream, accusing *them* of throwing the garbage instead. A woman who stays in one of the downstream houses responds to this by asking why they would want the garbage to collect next to their houses in the first place. In fact she herself, or her husband on many occasions have cleaned the the stream of the garbage. She recounts her feeling of revulsion once when while she was washing utensils in the stream, a used sanitary napkin flowed by her. "That obviously came from upstream", she says. She further says that if the members of the community want it enough, then one day out of the week can be taken out to collectively clean the stream. They are dependent on it after all. "*An outsider will first notice the cleanliness of our area, not who is rich and who isn't. We're so many in number. Why is it that nobody wants to help out in cleaning the khad?*", she questions.

The stream might have also lost its cultural and religious use and significance as the water quality deteriorated, mostly for houses downstream. Earlier, they would perform the ritualistic Wuzu<sup>15</sup> before Namaz, in the *khad*'s water. Another aspect to be noted is that the significance of the stream may be different for the younger generation and the kids, as compared to the elders, since they don't perceive



**FIGURE 11 GARBAGE THROWN IN THE STREAM**

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<sup>15</sup> Also called Wudhu, it means ablution, a process of purification before entering Salaat (prayer).

themselves to be affected by it in any way. Therefore, throwing chips packets or soft drink bottles will not be preceded by much thought.

Dhobihat's people are ostensibly a happy and cooperative lot. And yet there are undertones of disapproval, disagreement, and indignation. The underlying cause in most cases is linked with water. Such feelings are not limited to within the community, but are directed towards other appropriators of water in general. One of them is the Jaypee Hotel, which has allegedly 'bought' a spring. The pipeline that caters to them is apparently also serviced regularly by the Jal Sansthan. A representative of the Jal Sansthan had till last year agreed and confirmed the above, however he claims to be unaware of any such practice when he was last contacted. Another case is that of St. George's school. An entire pipeline from Barlowganj is supplying water to them. They are also purported to have a spring on their land. The dhobis want to know why neither of these springs were tapped, when in places like St. George's the water is simply flowing without being used. "*Vo powerful log hain na*" (It is because they are powerful people).

The stream in which the dhobis wash clothes, eventually flows down into the Mussoorie Jheel, an artificial lake and a popular tourist spot. The water apparently goes further from Mussoorie Lake to the Galogi power station.

At the time of development of the lake (1990) meant for tourism and recreation, the dhobi community felt that there would be opportunities to set up shops and tap into the tourism potential, however that did not happen. All the shops, the parking lot and the revenue from entrance fee to the lake collectively are auctioned each year. The amount of bids is high enough to exclude anyone from the Dhobihat community from being able to bid



**FIGURE 12: VENDOR SELLING CORN OPPOSITE MUSSOORIE LAKE ENTRANCE**

for the contract. The person who gets the contract then invites individual bids for the shops and stalls, these too are high enough to exclude interested members from the community from bidding for them. Usually it is people from the village of Kyarkuli are able compete and bid successfully for the shops and stalls. The bidder who gets the collective contract also extracts an annual fee from vendors near Dhobighat, such as those selling corn and *chaat*. One of the shopkeepers we spoke to said that he paid Rs. 25,000 a year for being able to operate. This bias in the ownership of shops next to the lake is another reason why the dhobis do not like the fact that they take drinking water from Spring 1.

Before reaching the lake, the water from the stream falls next to the main Mussoorie Road opposite the entrance to the Lake, where private tankers collect the water and sell it to hotels and private estates in Mussoorie and Landour. Apart from the water that is taken from Spring 2 at the source, this tapping of water further downstream by tankers is another way in which water links the Dhobighat area to the rest of Mussoorie. As will be seen next, this has both economic and health implications for Mussoorie.



**FIGURE 13: MUSSOORIE LAKE**



### **4.3 PRIVATE TANKERS:**

The supply demand gap in water in Mussoorie is severe during the summers. This coincides with the peak tourist season. Apart from the government trying to bridge the gap, there is another agency directing its efforts at the same - that of the private water tankers. On an off-tourist-season day, one might find a tanker or two parked on the side of the road, filling water from the stream that flows down onto Mussoorie road, from Dhobighat. But come peak season, the two tankers will get replaced by a long line of tankers, both big and small, most of them advertising that they should be contacted for “*swachh jal*” (pure water). From observation, it was found that in one hour about 6-7 tankers fill water from the stream. The bigger tankers are 10,000 litres in capacity, and the smaller ones are 2,000 litres. If we apply the ratio 3:4 (big:small), then in one hour the tankers collectively take about 38,000 to 40,000 litres of water from Dhobighat. Knowing from observation that the big tankers take exactly 10 minutes to fill up, the water discharge from the stream can be calculated as 1,000 lpm (litres per minute). The big tankers include tankers that are owned by, and hence solely service Jaypee Hotel.

There may be 40-50 private tankers that operate out of Dhobighat, each making approximately 12-15 trips a day, some coming back every hour to stand in the line of tankers. Assuming that each of the 40-50 tankers take 12 trips in a 12 hour day (1 trip per hour), and taking the same ratio of 3:4 for big tankers and small tankers per hour, we are looking at a supply amounting to 2.6 - 3.25 mld (million litres per day) in Mussoorie. It must be kept in mind, that the water these tankers are collecting is the same water in which the dhobis do all their washing, and where people also throw plastic bags full of garbage. Much to anyone’s surprise, this supply of water to Mussoorie and Landour region is completely unaccounted for in the Jal Sansthan’s records. There is no regulation or monitoring of either the supply or the quality of water being distributed. Using estimates of the amount charged by the tankers for supplying water (based on narratives), the collective private tanker economy in Mussoorie could be worth anywhere between Rs. 7 to 11 lakhs per day during the summer months. That amounts to Rs 2-3 crores per month. This water can be called non-revenue water. Some of the dhobis claim that the price for this

water may go up to Rs. 4,000 (per tanker) as the tourist season progresses and peaks. This should be a cause for concern for the Jal Sansthan, since it is supposed to be facing severe financial crunch as well.

Casual conversations with some of the drivers of these tankers reveal that this water is supplied to hotels and gardens, and may be used for drinking after some kind of filtration. This, however, raises questions about quality of drinking water and the resultant health impacts on tourists. As one local in the area said, many tourists are said to get the ‘Delhi Belly’ in Mussoorie. There are only a few news articles that talk about how the poor quality of drinking water (collected from Dhobighat) is severely affecting the health of tourists (by increasing the number of cases of diarrhea) (Ramola, 2012). It is quite likely that this water is not being treated before being sold or served as drinking water, but there is no concrete evidence that could suggest so, thanks to lack of any monitoring whatsoever. In an interview with Deepak Malik, executive engineer at Jal Nigam, he said that regulation of such activity does not come under their (Jal Nigam or Jal Sansthan’s) jurisdiction. This is a matter of law enforcement that must be taken care of by the Police. Even so, poor quality water that contributes to the health woes of tourists could act as a serious dent on the face of Mussoorie’s image as a popular tourist destination.



**FIGURE 14: A PRIVATE WATER TANKER FILLING WATER FROM THE STREAM**

## 5. CONCLUSION

This report offers a descriptive analysis of the political economy of Mussoorie, concerning itself expressly with the water security situation in the region. It also moves beyond being purely descriptive by trying to look at “why” certain phenomena occur when talking about water and society. It does so by looking at a case study of the Dhobighat region in Mussoorie, a community of washermen, and capturing their experiences and narratives in a changing waterscape and landscape.

Water as a resource embedded in a social system is extremely dynamic and deterministic. It has shaped societies in the past and continues to do so in the present. It is also shaped by these very societies, both literally and figuratively. In a bid to access and use water, different actors engage with their different kinds and levels of power. This power is entrenched either in wealth, culture, politics, or laws, and how these have changed with time. This study identifies the current ownership regime of water existing in Mussoorie as a result of the historic transitions of water rights in the Uttarakhand region. These transitions from the pre-colonial period to the post colonial period also closely resemble how the water rights regimes changed in the country as well. The fact that surface water sources like springs are under State sovereignty enables state agencies such as the Jal Nigam to approach communities for tapping their water source. These communities have in the past laid claim to their water sources, referring to them even today as “*hamara paani*” (our water). Most resistance that communities have shown against State agencies after 1975 (post constitutional period) have been in the drinking water sphere (Vani and Asthana, 2000). Either the community will be successful in resisting, or they will not. The Dhobighat community falls into the second category.

Many changes can be identified as having occurred post the negotiation and compromise that was reached with the Jal Nigam, which had approached them to augment water supply to part of Mussoorie. The report identifies how state-community, intra and inter community relations get affected with one change in the course of things- the changes brought about by the negotiation itself. The water stream which was at the centre of these negotiations ties in the socio-economic with the ecological/hydrological. The dhobi community which was earlier united in their

act of coming to the stream to wash clothes can now be seen to be divided as users and non users of washing machines. These washing machines are instead facilitated by the piped drinking water connection that was offered to them as part of the settlement with the Jal Nigam. One can therefore see class differences starting to become discernible. The value for the water in the stream has also undergone a decline overtime, and is different for children and adults. The houses located close to the source have started blaming houses located further down the stream of polluting the water, not taking any responsibility themselves. There is also a lack of unity that is perceptible in the community in how they do not take the obvious step of trying to keep the water stream clean. This current situation stands in contrast with the reverence that the community had for this water earlier, even using it to carry out their rituals of ablution. They are on their way from being conservationists (as most traditional societies are categorized) to being mere appropriators of water. Therefore, dependence on water doesn't necessarily elicit a pro-environment attitude towards it. That the management of resources by a community is always better can be questioned. For the dhobis, it only matters that there be continuous flow of water in the stream at a discharge rate that suits their business activity. The level of concern and consciousness about the quality and management of the resource also depends on its nature. Since the stream is not stagnant in nature, it is seen to be self-cleaning. Since the drinking water in the tank is stored as stagnant water for a while, the community members need to keep checking on the cleanliness of the tank. This is how intra community relations get affected, and also hydrosocial relations.

The Dhobihat community is connected with other communities and actors through the medium of water as well. The water from their stream is collected by private water tankers downstream that supply that water throughout Mussoorie to hotels, restaurants, and private estates. This water flows further down to Mussoorie Lake which is a popular tourist destination. It is interesting to note however that tourists at the lake may not have any idea whatsoever about the quality of water in the artificial lake, by virtue of them being situated downstream. The private tankers make a lot of revenue since there is no regulation or monitoring of their activity, and monetary investment in it is next to nothing. While the authorities continue to shift

responsibility of regulation of the tankers, various newspaper articles report how poor quality water is leading to infections among the tourists. As an aside, the drivers of these tankers are most probably from surrounding villages especially Kyarkuli. Residents of Kyarkuli also operate the shops that have opened up in the area due to the artificial lake. Business runs good on most days. It is a cause of contention however that nobody from the dhobi community was able to get a shop in the area. The dhobis hint at some kind of collusion against their community and hence also object to sharing their drinking water with Kyarkuli village. These complex relations and connections can be said to be driven by the increasing demands of the tourism sector. The dhobi community is unhappy with the ostensible preferential treatment given to the big hotels and schools in the area. While they shared water from the stream for the purpose of supply to Barlowganj area (a wealthy region) they question why the “private springs” of certain hotels and schools weren’t tapped. These are valid concerns that highlight the fissure character of inter-community relations. Although the physical supply of water is important, it cannot be separated from the social relations, which determine how, why and by whom water is used. Therefore any agency handling the charge of water governance must be privy to these interactions and undertones in the society.

How governance and engagement with different stakeholders is carried out after all, affects state-community relations. The Dhobighat community is now convinced that they will not be prepared to entertain anymore water-sharing propositions by the Jal Nigam or Sansthan. They feel a sense of indignation at how little they have been able to benefit from the tourism based changes that have taken place in the area, while on the other hand agreeing to share water for the larger good of Mussoorie.

While these observations may be specific to the point of view of a social theorist, the knowledge of these could enrich the decisions of policy and decision makers. The alienation of communities from their water sources are equivalent to sounding the death knell for this resource. The focus right now may be on getting big schemes up and running, but taking attention away from the smaller spring sources and ignoring the condition of their springshed areas may breed trouble.

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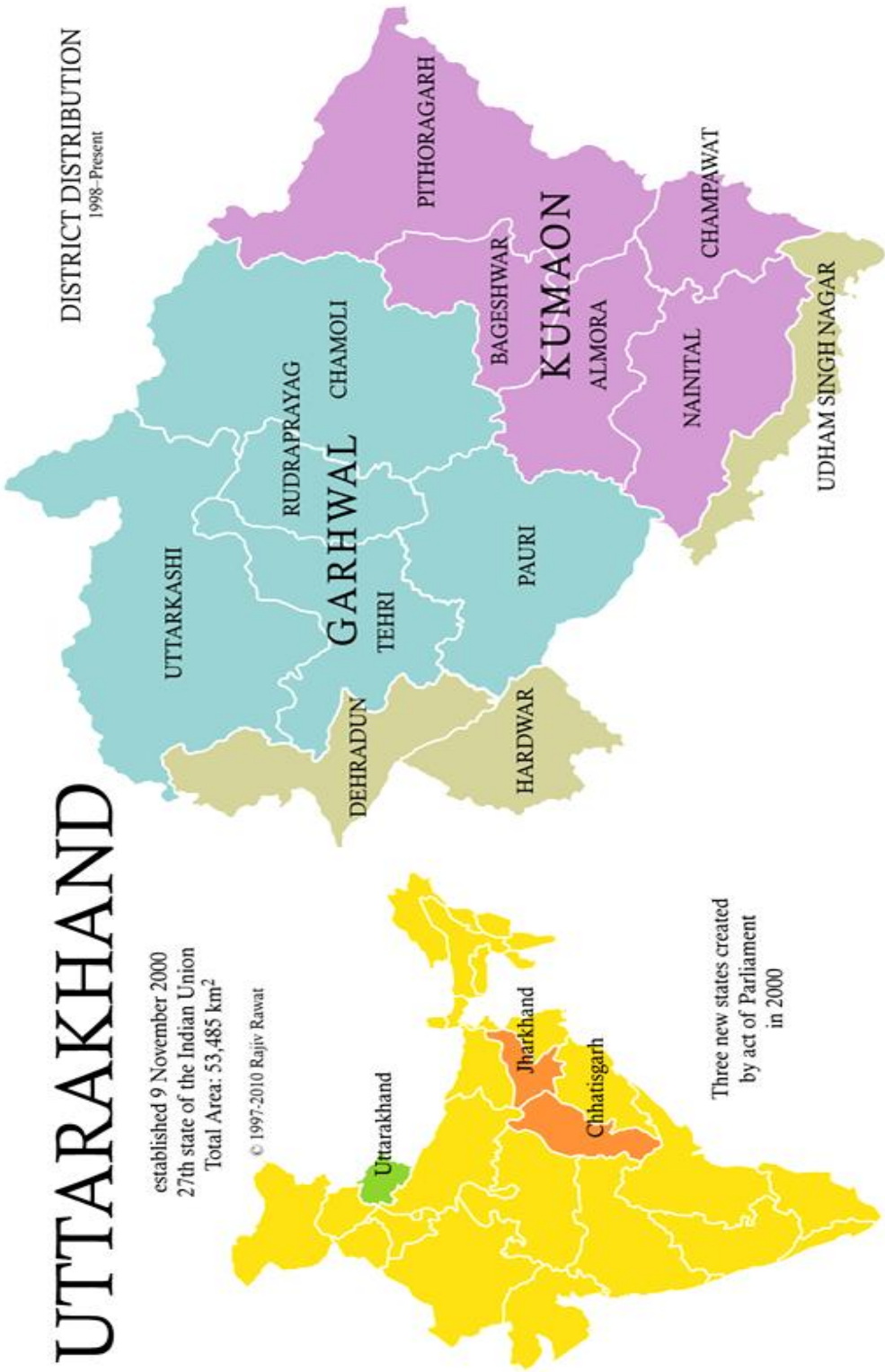
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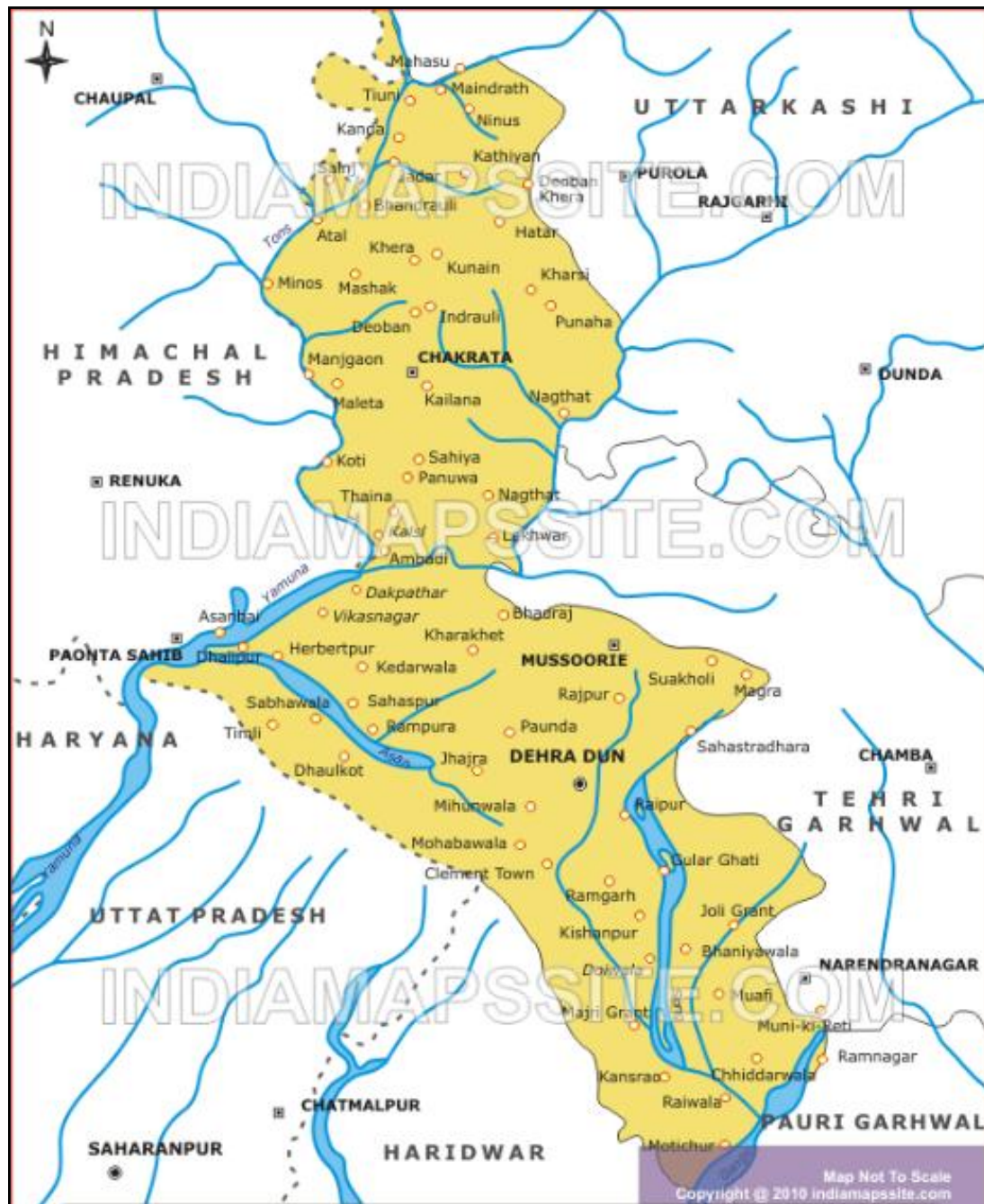
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ANNEXURE 1: MAP OF UTTARAKHAND



## ANNEXURE 2: MAP OF DEHRADUN DISTRICT





## ANNEXURE 4 : QUESTION THREADS THAT GUIDED SEMI STRUCTURED INTERVIEWS AT DHOBIGHAT

### 1. INFORMAL AGREEMENT AROUND WATER

- a. When was it negotiated?
- b. What is it? Who is it between?
- c. How was the agreement negotiated? Who was involved? From their perspective, why was it required?
- d. Do they have a written copy? If not, who knows of the agreement and its terms? How? How is it implemented?
  - i. How is it enforced? What happens if there are changes in the amount of water available? What recourse do they have if the agreement is breached?

### 2. CHANGING *DHOBI* COMMUNITY & PRACTICES

- a. Water, washing practices: To understand how washing needs and processes have evolved over the years.
  - i. Who does the washing? Is the division of work gendered?
  - ii. What are the trends with regards to demand, washing methods (including chemicals used), water use, water quantity and quality?
  - iii. Who gives them work, in the past and today?
  - iv. What is their business 'model'? How do neighbours and HHs work together, if at all?
  - v. How much money do they make – under what conditions is washing profitable?
  - vi. What changes/factors are affecting their business?
  - vii. How much time does washing take, of different types of cloth, garments, etc.? Is there a premium on time? Was it always this way?
- b. Urbanisation and land
  - i. How is uncertain tenure affecting the community's construction activities (if at all). Who is constructing the new buildings?
  - ii. Do the community feel 'uncertain' about their rights to the land they live on? Who do they hear from, interact with on this issue?
  - iii. Do they have an electricity supply? What water do they drink? Do they undertake any gardening or farming?
  - iv. Community population dynamics, trends
  - v. How do they perceive Mussoorie and how it is changing? How is Mussoorie changing? What are their links to Mussoorie, apart from the washing? (schools, employment, healthcare?).

- c. Youth and the future
  - i. What is the perceived future of this community? What are the young people's plans? How do parents speak of their children, what do they aspire for them?

## ANNEXURE 5: PROJECTED WATER DEMAND @ 135 LPCD

Month	2011				2021			
	Permanen t Population	Tourist population	Total	Demand of Water	Permanen t Population	Tourist population	Total	Demand of Water
<b>January</b>	40,000	3870	43870	5922450	45,000	5748	50748	6850980
<b>February</b>	40,000	7498	47498	6412230	45,000	11137	56137	7578495
<b>March</b>	40,000	6544	46544	6283440	45,000	9710	54710	7385850
<b>April</b>	40,000	10562	50562	6825870	45,000	15688	60688	8192880
<b>May</b>	40,000	22407	62407	8424945	45,000	33281	78281	10567935
<b>June</b>	40,000	35556	75556	10200060	45,000	52811	97811	13204485
<b>July</b>	40,000	21548	61548	8308980	45,000	32005	77005	10395675
<b>August</b>	40,000	12184	52184	7044840	45,000	18097	63097	8518095
<b>Septembe r</b>	40,000	10674	50674	6840990	45,000	15854	60854	8215290
<b>October</b>	40,000	11562	51562	6960870	45,000	17173	62173	8393355
<b>November</b>	40,000	6534	46534	6282090	45,000	9705	54705	7385175
<b>December</b>	40,000	6444	46444	6269940	45,000	9571	54571	7367085