

Policy

WATCH

Volume X, Issue 4
May 2021, New Delhi

Environment, Natural Resources and Sustainability

In this issue

**Who Benefits from Hydro
Power Projects in
Uttarakhand?:
Jeet Singh**

**Invoke Forest Rights
Act for Environmental
Conservation
in Kashmir:
Dr. Raja Muzaffar Bhat**

**Traditional Institutions for
Commons in Bodoland:
Piyush Saurabh Sharma**

**Environmental and
Development Concerns of
Mining Affected Areas and
Performances of DMFs:
Dr Vishal Massey and
Jeet Singh**





RAJIV GANDHI
INSTITUTE FOR CONTEMPORARY STUDIES

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- 4** **Who Benefits from Hydro Power Projects in Uttarakhand?:**
Jeet Singh

- 16** **Invoke Forest Rights Act for Environmental Conservation in Kashmir:**
Dr. Raja Muzaffar Bhat

- 23** **Traditional Institutions for Commons in Bodoland:**
Piyush Saurabh Sharma

- 34** **Environmental and Development Concerns of Mining Affected Areas and Performances of DMFs:**
Dr Vishal Massey and Jeet Singh

Editorial

The Rajiv Gandhi Institute for Contemporary Studies (RGICS) works on five themes:

1. Constitutional Values and Democratic Institutions
2. Growth with Employment
3. Governance and Development
4. Environment, Natural Resources and Sustainability
5. India's Place in the World.

Under the Environment, Natural Resources and Sustainability theme, there are three sub-themes:

- a) Water, Forests and Land Jal, Jangal, Jameen)
- b) The Trade-off between economic growth and sustainability
- c) Climate change and India's response

We bring out the Policy Watch on each of these themes sequentially and every sixth issue is a Special Issue, where we carry articles from each theme. This issue is on the theme, Environment, Natural Resources and Sustainability.

This Policy Watch carries four articles on different issues pertaining to environment and natural resources in India. The first article by Mr. Jeet Singh, Fellow, RGICS critically analyzes the development slogan of Himalayan state Uttarakhand- the 'Urja Pradesh'. The article attempts to assess gains envisaged from more than hundred hydro electric projects in the state such as the state's ability to export energy, high economic gain and huge job creation. It also delves into ecological, environmental and disaster related consequences of rampant construction of hydro power projects in the highly fragile mountains of the state.

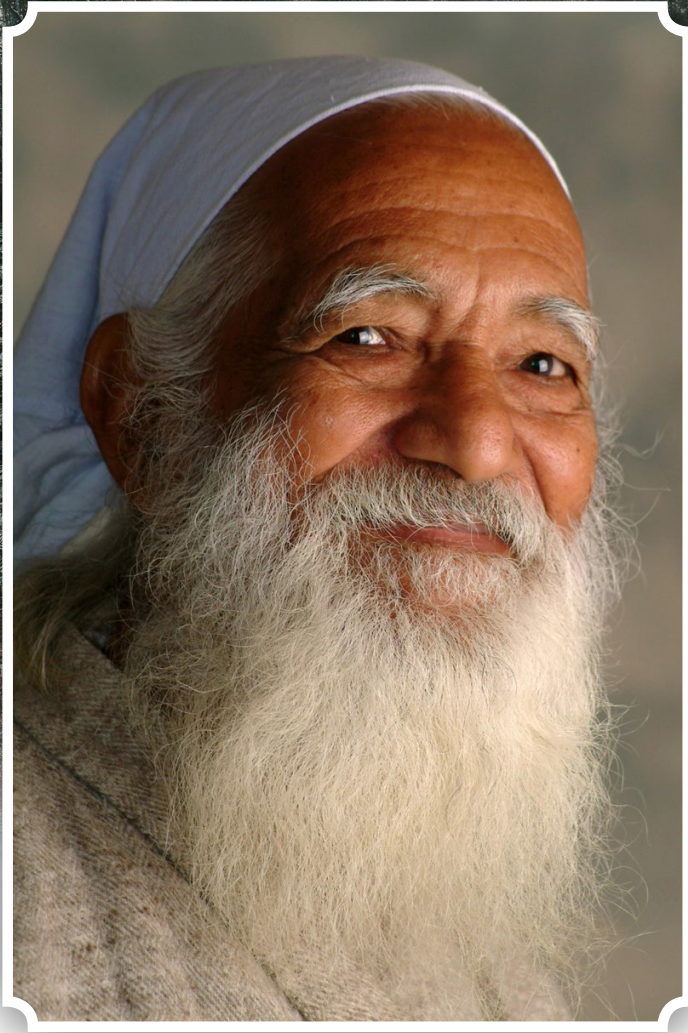
The second article by Dr. Raja Muzaffar Bhat is an interesting case study from the Baramulla district of Jammu and Kashmir where he documented innovative use of the Forest Rights Act, 2006 by Tarzoo village panchayat. This panchayat invoked section 5 of the Forest Rights Act to restrain the Sopore Municipal Corporation from dumping its solid waste in the forest on which villagers of Tarzoo are dependent.

The third article is based on RGICS' study on Common Property Resources (CPR). Mr. Piyush Saurabh Sharma describes dependency of people in Bodoland Territorial Council Region (BTCR) of Assam on common property resources such as fish ponds, paddy fields and irrigation canals. The article analyzes the effectiveness of traditional institutional systems to sustain these resources over more than hundred years.

The last article on performances of District Mineral Foundation Trusts by Dr. Vishal Massey and Jeet Singh is based on a multi state study on performances of DMF and fund utilization. Based on field study in five different states, this article analyzes use of DMFT funds for developmental and environmental concerns of mining affected areas.

We hope the readers find the articles interesting and Policy Makers use some of the lessons to design better policies and programs with people's participation.

Vijay Mahajan
Director,
Rajiv Gandhi Institute for Contemporary Studies



Tribute to
Shri Sunderlal Bahuguna

9 January 1927 – 21 May 2021

“क्या है, जंगल के उपकार?
मिट्टी, पानी और बयार
मिट्टी, पानी और बयार
जिंदा रहने के आधार”

Who Benefits from Hydro Power Projects in Uttarakhand?

Jeet Singh

The Nanda Devi Glacier Burst:

For a very short time, but the avalanche on February 7, 2021 in the Joshimath block of Chamoli district in Uttarakhand ignited the usually buried debate on the relevance of hundreds of hydro power projects being constructed in the state. This unexpected and non-seasonal avalanche took the lives of more than 200 workers at the site of two hydro power projects. Nearly 35 people were reported dead at the operational hydro power project 'Rishiganga' in the Reni Village. More than 175 workers reported dead at the Tapovan construction site of the Tapovan-Vishnugad hydro power project. This project is being constructed by the National Thermal Power Corporation (NTPC). The Rishiganga project was first hit by this avalanche resulting in the flash flood in the narrow valley of Rishiganga and Dhauliganga rivers. The then chief minister of Uttarakhand Mr. Trivendra Singh Rawat had said that this disaster is the result of climate change and has nothing to do with hydro power projects in the region. However, local people have many cultural, religious and ecological reasons to believe that the avalanche has connection to the construction of these two and other hydro power projects in the region. Unfortunately, the discussion on the benefits and losses of HEP in view of this disaster also died within a month from local to regional and national discourse. The event of glacier burst on that day followed by flash flood is a subject of scientific investigation, but this entire episode deserves a serious discussion on mushrooming of hydro power projects in these highly fragile Himalayan mountains and subsequent advantages and disadvantages.

Hydro Power Projects in Dhauliganga and Rishiganga Sub-basin				
River Valley	Project	Estimated Potential (In MW)	Project Developer	Status
Dhauliganga	Tapovan Vishnugad	520	NTPC	Under Construction
	Lata Tapovan	171	NTPC	Construction stayed by the Supreme Court
	Jhelam Tamak	108	THDC	Construction stayed by the Supreme Court
	Malari Jheam	65	THDC	Construction stayed by the Supreme Court
	Tamak Lata	280	UJVNL	Construction stayed by the Supreme Court
	Jummagad	1.2	UJVNL	Under Operation

Rishiganga	Rishiganga-I	70	UJVNL	Construction stayed by the Supreme Court
	Rishiganga-II	35	UJVNL	Construction stayed by the Supreme Court
	Rishiganga	13.5	IPP	Washed Away. Before the flash flood it was operational

Dhaulti and Rishiganga are two small but important tributaries of Alaknanda river in Chamoli district. Both of these streams meet at Reni village. The village from where women started the renowned 'Chipko' Movement. In total these two streams have a stretch of around 60Km located in higher Himalayan altitudes in the state. The government has allowed nine hydro power projects on these two streams. Out of these, two are in operation, two are under construction and construction of five projects has been stopped by the Supreme Court on recommendation of a study carried out by Wildlife Institute of India (WII). A report of National Institute of Disaster Management (NIDM) in 2013 observed that mega projects including hydro power projects in Uttarakhand enhanced destruction manifold due to flash floods in the state in 2013. Nearly seven year after this important observation of NIDM, once again two power projects in the Rishiganga valley enhanced vulnerability from the natural disaster. For the loss of valuable human lives and social, economic and physiological traumatising of hundreds of families due to this disaster can directly be attributed to the two hydro power projects in the region.

The NIDM report in 2013 had recommended a compulsory Disaster Impact Assessment (DIA) along with Environmental Impact Assessment (EIA) of all hydro power projects and other mega projects in the state[1]. Forget about previously planned developmental projects, we conveniently ignored this recommendation of NIDM for all projects planned and executed after the 2013 Uttarakhand disaster. So, the question is why hydro power projects in Uttarakhand enjoy strong political and industrial support despite successive disasters. This paper attempts to briefly analyze environmental, developmental and disaster related questions and concerns to indicate possible reasons for blind love of these projects.

The Questions of Environment

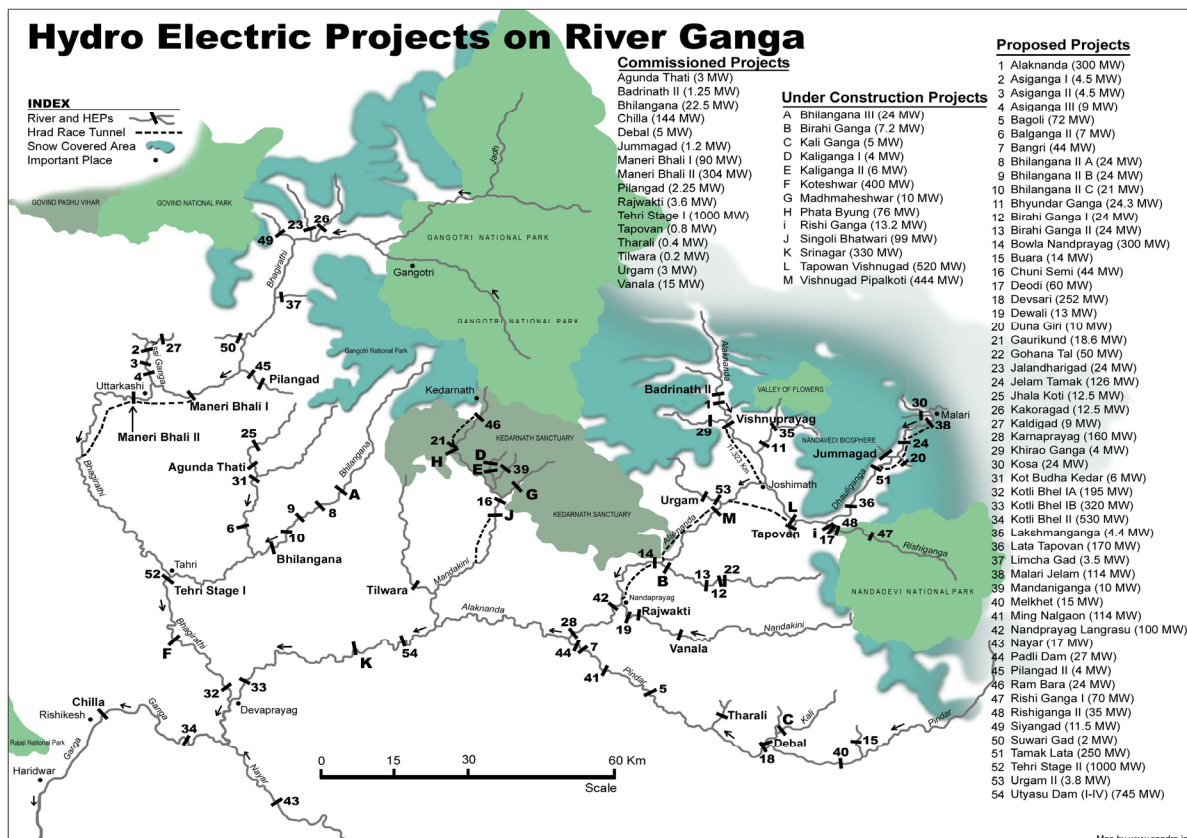
The expansion of hydro power projects in the state triggered environmental and livelihood issues. People affected from these projects protested across the state to register their concern. Many scientific studies have also observed that the construction of these projects have serious environmental consequences[2]. An audit of 48 power projects carried out by Comptroller and Auditor General (CAG) in 2009 reiterated concerns and questions raised by people, activists and scientific studies. The audit observed that there are serious inadequacies in pre-feasibility reports for these projects. Furthermore, the construction activities led to drying of river beds, unscientific muck disposal into the river and poor state of afforestation. It also observed that project developers are highly careless about environmental and safety issues[3].

The CAG in its audit in 2009 also raised concerns about EIA granted to the construction of hydro power projects and implementation of Environment Management Plan (EMP). With

mushrooming of hydro power projects in the state, various people and authorities demanded cumulative EIA of hydro power projects being planned, constructed and operational in the state. On the request of the Ministry of Environment, Forest and Climate Change, the Wildlife Institute of India conducted a study to assess cumulative impacts of hydro power projects on aquatic and terrestrial biodiversity. The study carried out in Bhagirathi and Alaknanda basin of Uttarakhand observed as follows:

- 526.8km out of 1121km (47%) long stretch of rivers in these two basins is expected to be affected, if all proposed projects are implemented. It will lead to significant loss of or modification of fish habitat. This affects 66 fish species.
- The construction of dams in the region creates barriers for fish which move from one part of the stream to another.
- The diversion of water during and after construction of hydro power projects will adversely affect the entire aquatic biodiversity.
- The land use change of forest for the construction of a hydro power project significantly affecting terrestrial wildlife species. These projects have destroyed or fragmented a large area of habitat.

This study further recommended for review of 24 power projects planned in paraglacial zones threatening rare, endangered and threatened species of plants and wildlife. Similar observations were made by the expert committee constituted on the direction of the Supreme Court in 2013 to review the role of these mega projects in the 2013 flash flood in the Kedarnath valley of the state. The committee further raised issues related to unscientific muck dumping, deteriorating water quality, drying of springs and development of landslide zones in the large number [4]. The committee requested the court to stop construction of 24 projects planned in the para glacial zone of Alaknanda and Bhagirathi basins.



Another study carried out by the IIT Roorkee commissioned by the Union Ministry of Environment and Forest observed that projects in these two sub basins are located in seismological zone-5 and geottract zone 1 and 2. These geological and seismological characteristics explain the fragility of the location. Moreover, the study observed that the region in these two sub basins is highly landslide prone. In its recommendation, the study had cautioned about projects in the geottract zone two and five.

Successive authoritative reports along with traditional ecological knowledge and academic exercises have found that the standalone and cumulative environmental impact of hydro power projects in the region are devastating and irreversible. They have significantly affected aquatic and terrestrial biodiversity. A large population of this region is dependent on natural resources including water, land and forest, so, degradation of these resources due to hydro power projects have also adversely affected their lives and livelihood.

The Fear of Disaster

There were always questions on the disaster impact of a large number of hydro power projects being planned and constructed in Uttarakhand. These questions were pertinent because a large part of the state is situated in seismic zone 5 and 4. These zones are highly vulnerable to devastating earthquakes. Moreover, the fragility of Himalayan range is also not hidden. The state disaster management plan of Uttarakhand recognizes frequent incidents of disasters such as earthquakes, landslides and flash floods. Mega infrastructure projects in this highly vulnerable region can enhance vulnerability of people, infrastructure and natural wealth available in the region. The flash flood of 2013 in Uttarakhand, which took the lives of more than five thousand people instigated a systematic evaluation of the role of various hydro power projects in the natural disaster.

Summary of Damages and Estimates of Reconstruction Cost after 2013 disaster		
Sector	Damage	Cost (Rs. In Millions)
Housing	3077 units	1505
Public Buildings	995 units	1029
Roads and Bridges	2174 Roads, 85 motor bridges and 140 Bridle bridges	27103
Urban Infrastructure (Water Supply, roads, Drains and Sewerage)	41 towns	1268
Rural (Water supply and Sanitation)	8728 habitations	1305
Livelihood (Agriculture, Livestock, Fisheries, tourism linked livelihoods, Micro enterprises and other	83,320 HH affected	1668
Irrigation		1393
Tourism Infrastructure		1166
Energy/Power	17 HEP projects	2662
Forests and Biodiversity		542
	Total	39641



On the direction of the Supreme Court the Union Ministry of Environment, Forest and Climate Change constituted an expert committee to evaluate the role of hydro power projects in the 2013 flash flood in Uttarakhand. The committee in its final report observed that despite, located in a highly disaster prone region, no hydro power projects visited by the committee have any mechanism and readiness to handle emergencies like flash floods. The report further concluded as follows[5]:

- (i) Sediments created huge destruction in the flash flood and in the lower catchment of Mandakini and Alaknanda valley sediments were locally generated by a mechanism other than land sliding.
- (ii) Downstream of the Mandakini valley the sediment bulking is caused by a combination of muck and collapse of unconsolidated river banks. It further led to migration of the Mandakini river channel under hyperconcentrated flow.
- (iii) The sringal hydro power project further down in the Mandakini and Alaknanda catchment, the Srinagar hydropower project failed to retain the muck which got washed into the river and assisted in aggravating the damage in the lower reaches of Sringar town.
- (iv) A significant contribution to the flood sediment was made locally available by much disposal.
- (v) The maximum destruction of land and property occurred in areas downstream of hydro power projects at Singoli-Bhatwari, Vishnuprayag and Srinagar hydro power projects.

The India Disaster Report 2013 published by National Institute of Disaster Management in report commented that the flash flood in June 2013 in Uttarakhand is the result of heavy rain. It further clarifies that historically such incidents of flash flood are common in Uttarakhand. The lesson it drew from the disaster is that the vulnerability was enhanced manifold by anthropogenic activities in the region. It further recommends as follows[6]:

1. Flood Plain Zoning Act regulating construction within the flood plain of a river should be implemented strictly.
2. For clearance of all hydro-power and other mega projects in ecologically sensitive regions like Uttarakhand, the Disaster Impact Assessment (DIA) should also be made compulsory besides Environmental Impact Assessment (EIA).

The National Green Tribunal (NGT) summarizes the state of anthropogenic enhancement of disaster vulnerability in the state in one of its judgments on 26th August 2013. The Tribunal observed that the indiscriminate construction and establishment of hydro power projects in Uttarakhand aggravated social, economic and ecological loss due to natural disaster[7]. It is further held responsible to governments and authorities for not performing their statutory function and constitutional duty of protecting ecology and environment.

The Promises of Development

The government of India through its policy on generation of hydro electric power aims to increase power generation by tapping hydro electric potential available in the country. Along with low cost of power generation, it is expected to reduce India's dependency on fossils for energy. The Uttarakhand government in 2002 released state policy on hydro power generation in accordance with the national policy. After the formation of Uttarakhand state in 2000, high emphasis was given for the hydro power sector. By harnessing the hydro power potential of the state, Uttarakhand aimed to contribute significantly in the country's power generation and open development prospects for its own remote areas[8]. While different state policies on generation of hydro power expressed the vision of tapping hydro electric potential, the successive state governments claimed that it will bring additional three distinct major benefits to the people of the state. These are- 1) making Uttarakhand an energy surplus state, 2) Substantial enhancement in state revenue by sale of electricity and royalty and 3) New job opportunities for local people. This section briefly analyzes the status of these three stated benefits to the people of Uttarakhand.

The Promise of Energy Surplus State:

The government of Uttarakhand has estimated that the hydro resources available in the state have annual potential to generate 24551MW electricity. However, as of today 37 hydro power projects operated by different agencies (both government and private) have potential to generate only 3,791 MW energy in a year. However, Uttarakhand does not get all of this. A significant part of the generated power by different CPSUs feeds in the national grid. Moreover, 87 different hydro power projects are in the different stages of construction and planning. These projects, if completed, have potential to generate another 9,885 MW of hydro energy in the state. In this list, 33 projects are being allotted to private sector power producers. UJVNL and Central Public Sector Units (CPSUs) are allocated 32 and 22 projects respectively. Many projects of potential to annually generate 3,959 MW energy have been stalled by the central government and courts on account of irreversible ecological damage by these projects. So, out of its ambitious target to tap nearly 25 thousand megawatt hydro energy, Uttarakhand could only identify and process projects of potential to generate around 16 thousand megawatt hydro energy. More importantly 20 years after the formation of the new state, the current hydro energy potential tapped is only 3,791 MW.

Uttarakhand Power Generation Capacity (2015)	
Source	Latest Firm Entitlement (in MW)
Own Generating Station (OGS)	1167.66
Private Generating Station (PGS)	267.90
Central Generating Stations (CGS)	928.12
Grand Total	2363.68

Source: http://www.powerforall.co.in/AccessFolder/PFA_Document/1_UTTARAKHAND_PFA.pdf

An agreement between Union Ministry of Power and State government to assure power for all signed in 2015 reveals that the state had capacity to generate 2361.08MW energy in a year. State owned power generation stations (mainly hydro electricity) had contributed 50% of the total installed capacity in 2015. However, the production from state owned generation stations was only 31% of the total energy demand of the state. It was purchasing 26% of total power consumption from outside the state. The state was expected to substantially increase its installed capacity by commissioning of various hydro power projects by 2019. It aimed to increase annual power generation capacity by 145 MW through state and IPP owned eight hydro projects. It had further expected to add power generation capacity by 395 MW through commissioning of four hydro projects being developed by CPSUs. However, five year down the line none of these projects could be completed. The installed capacity of the state remained the same. According to the Economic Survey of Uttarakhand 2020-21, the state is dependent on external sources for around 50% of its electricity demand.

The latest data on installed capacity of power generation stations owned by private and centrally owned stations is not available. However, the latest economic survey of Uttarakhand (2020-21) reveals that the installation capacity of the state's own station has not increased in the last ten year[9]. The above analysis reveals that the state is still a power deficient state despite hue and cry for about two decades.

The Expectation of Revenue Receipt:

The state policy on hydro power projects developed by the private sector has granted various incentives including waiving royalty fee in certain cases. Yet, all these projects are expected to help in generating non-tax revenue of the state. Currently, there are 18 hydro power plants commissioned by individual power producers (IPP). These projects have installed capacity of 881.65 MW. In various river valleys 33 more projects are in the different stages of construction owned by IPPs. These projects are expected to add another 1360 MW in the total power generation capacity of the state.

The state government earns non-tax revenue from the power sector by selling electricity and levying royalty and cess from individual power producers. Budget estimates and actual expenditure of the state government for the last few years suggests that non-tax revenue contributes marginally in the total receipt of the government. Further, the electricity sector is the third largest non-tax revenue source after forestry and mining.

Revenue Generation from Power (Sale, Royalty, Cess and Power Transmission)

Year	2021-22	2020-21	2019-20	2018-19	2017-18	2016-17
Estimated	500	500	440	400	300	130
Actual		11.1 (RE)	3	186.6	286.2	351.3
Share of hydro power in total revenue (2021-22 BE) = 2.21%						

Source: Compiled from State Budget (Uttarakhand)

The 'urja pradesh' Uttarakhand so far has been unable to generate any significant revenue from hydro power projects. Of the total revenue generated, most of it comes from the sale of electricity through the DISCOM for household and commercial consumption.

The Hope of Job Creation

The state government believes that the royalty levied from individual power producers will help in carrying out social and developmental activities in the state. The analysis above reveals that so far in the last two decades, it remained a dream as the revenue generation through royalty and cess is significantly low. It was also estimated that 10% the investment on hydro power projects by developers would go to different social, economic and developmental activities. However, the IIT Roorkee in one of its reports flagged that such estimation needs to be studied in detail [10].

Local job creation and reducing distress migration for livelihood was one of the main benefits listed by people and policy makers in favour of hydro power projects in the state. But a closer look at the state of employment and migration reveals that the situation has not improved after the formation of the state in 2000. According to an estimate of the State Migration Commission, people are continuing to migrate from villages of the state in search of jobs. The report reveals that 50% people are migrating in search of livelihood [11]. It further found that in many mountain districts hundreds of villages have been deserted after 2011.

Reasons of Migration from Villages in Uttarakhand

Reason for migration	%age of people migrated
In search of livelihood/employment	50.6
Due of unavailability of health services	8.83
Due to unavailability of education services	15.21
Due to unavailability of infrastructure (road, electricity, water etc)	3.74
Due to decrease in agricultural productivity	5.44
Other	16.61

<http://www.uttarakhandpalayanayog.com/pdf/English%20version.pdf>

Despite all these ground realities, the Economic Survey Report of the state for 2020-21 claims that hydro power projects are effective in providing employment for local youth. In contrast a study carried out by the World Bank found that employment generation through hydro power project is not actually true. The report reads, "Provision of employment is often cited as one of the primary social benefits of HEP projects; however, it must be recognized that most of the employment is often construction related and therefore temporary. The

literature recognizes that one should not overstate the contribution of HEP employment creation[12].” It is true that few people from project sites do get short term employment, contractual jobs and micro contracts in the process of project construction. After the construction, no project can retain even those few workers, vendors and contractors.

So, Who Benefits from HEP?

Many activists who were part of the Uttarakhand movement believe that the movement did not deliberate on the vision of the state in terms of economic, social, cultural, geographical and geological perspective. After the formation of the state, this crucial task automatically transferred to the politicians, people representatives and state government of the newly formed state. The idea of ‘Urja Pradesh’ emerged from this necessity. Within a few years of formation of the state, the government developed its policies to tap hydro electric potential available in the state. Soon many public and private investors were invited to set up hydro power generation stations in the state. This idea of ‘Urja Pradesh’ was supported and promoted by successive state governments.

Initially the idea of Urja Pradesh also succeeded in effectively responding to public sentiment which believed that pahaar ka pani aur jawani, dono pahar ke kaam nahi aata (neither water nor young workforce of the mountains are tapped to develop the region). However, as the plan rolled out, people started realizing devastating and irreversible social, economic, ecological and cultural damages due to more than hundred power projects being planned and constructed in the mountains.

Two decades after the formation of Uttarakhand, the idea of developing the state’s economy around hydro power projects seems to have fallen apart. This idea has not benefited common people and the government in any sense; be it is employment, electricity generation or revenue to the government. Moreover, the construction of many of these projects has badly disturbed regional ecology, wildlife, geology and hydrology. This damage has further affected the lives and livelihood of the local people.

The aggregation of disaster vulnerability due to several hydro power projects is yet another imported problem under the broad idea of Urja Pradesh. As per the government’s own estimate, the flash flood of 2013 cost loss of property worth 40 thousand million rupees. This cost is way higher than total investment attracted so far by the state to develop power projects. Remember, that the various reports found that hydro power projects in Mandakini and Alaknanda valley aggregated the damage. The human lives lost on 7th February 2021 due to flash flood in Rishiganga valley is yet another major incident where hydro power projects aggregated the disaster vulnerability.

Watch a Documentary – Ladenge Jeetenge by VIDHI Centre for Legal Policy, Delhi:



<https://www.youtube.com/watch?v=21Udw9CBND0>

The slogan of Urja Pradesh may have helped people in Uttarakhand to feel proud about the newly formed state and its vision. It may also have provided employment to a few thousand people and improved their family income. It may have also helped the state to represent itself in various national and international business forums. But, it is very clear that the slogan of Urja Pradesh did not help people in large. It failed in delivering on its own promises.

[1] <https://nidm.gov.in/PDF/pubs/India%20Disaster%20Report%202013.pdf>

[2] https://www.jstor.org/stable/23528499?seq=2#metadata_info_tab_contents

[3] <http://iced.cag.gov.in/wp-content/uploads/2014/02/1.-Environment-impact-of-HPP-in-Uttarakhand.pdf>

[4] http://gbpihedennis.nic.in/PDFs/Disaster%20Data/Reports/Assessment_of_Environmental_Degradation.pdf

[5] http://gbpihedennis.nic.in/PDFs/Disaster%20Data/Reports/Assessment_of_Environmental_Degradation.pdf

[6] <https://nidm.gov.in/PDF/pubs/India%20Disaster%20Report%202013.pdf>

[7] <http://www.indiaenvironmentportal.org.in/files/Uttarakhand%20NGT%2026Aug2013.pdf>

[8] https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/power/25_MW_Plus_Policy_of_Uttaranchal.pdf

[9] [https://des.uk.gov.in/files/Economic_Survey_2020-21_-\(Ch_10-17\).pdf](https://des.uk.gov.in/files/Economic_Survey_2020-21_-(Ch_10-17).pdf)

[10] IIT Roorkee, AHEC/2011: Assessment of Cumulative Impact of Hydropower Projects in Alaknanda and Bhagirathi Basins

[11] <http://www.uttarakhandpalayanayog.com/pdf/English%20version.pdf>

[12] <http://documents1.worldbank.org/curated/en/406951468326991910/pdf/702810ESW0P1100tBenefits0Lit0Review.pdf>



Poonch river [image by: Raja Muzaffar Bhat]

<https://www.thethirdpole.net/en/pollution/kashmirs-waste-epidemic-continues-untreated/>

Invoke Forest Rights Act for Environmental Conservation in Kashmir

Dr. Raja Muzaffar Bhat

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition Of Forest Rights) Act, 2006, also called the Forest Rights Act or FRA is being criticised by several environmental and wildlife activists across India. They believe giving land rights to tribal and forest-dwelling populations will destroy natural resources, forests, and wildlife.

The FRA was extended to Jammu and Kashmir along with dozens of other central laws on 31 October 2019 soon after Article 370 was abrogated. Until November 2020, neither the Centre nor the Union Territory administration said a word about the FRA. Then, starting last year in mid-November, the government invoked the 94-year-outdated Indian Forest Act, 1927, and began issuing eviction notices to Gujjar tribals and other traditional forest-dwellers.

Some Gujjar-owned huts in villages that are close to forests were demolished and thousands of apple trees axed, especially in the Kanidajan area of the Budgam district in Central Kashmir.



After protests from the affected people and the national, international media highlighting the issue, the government of Jammu and Kashmir decided to roll out the FRA by the end of December. Although there are lots of challenges in implementing this law, there are some developments that environmentalists and wildlife lovers would find favourable.

The residents of four village panchayats seem to have better ideas about how to conserve and manage their natural resources than the local authorities, who are untrained in scientific natural management.

Recently, four village panchayats in the Tarzoo area of Baramulla district adopted a joint resolution by invoking section 5 of the FRA 2006, empowering the Gram Sabha to protect the wildlife, forest, and biodiversity of the village and ensure that adjoining catchment areas, water sources, and other ecologically sensitive areas are adequately protected. Through the resolution, the village panchayats have asked the government, especially Municipal Council, Sopore, to stop dumping solid waste which was a severe threat to the environment and biodiversity in their area.

Illegal dumping of garbage

For 10 years, the Municipal Council of Sopore in North Kashmir has been on the lookout for space for a landfill, but without success. Earlier, waste was either dumped by the roadside or near water bodies in town. Sopore town residents and traders protested the unscientific waste management but the municipal institution has not been able to do anything.

The main reason is the lack of scientific knowledge among the municipality officials, plus the unavailability of financial resources. The municipal institutions in Jammu and Kashmir, particularly in small towns, are controlled by the Directorate of Urban Local Bodies in Jammu and Srinagar. These two directorates are dependent on the Housing and Urban Development Department (HUDD) in the Civil Secretariat.

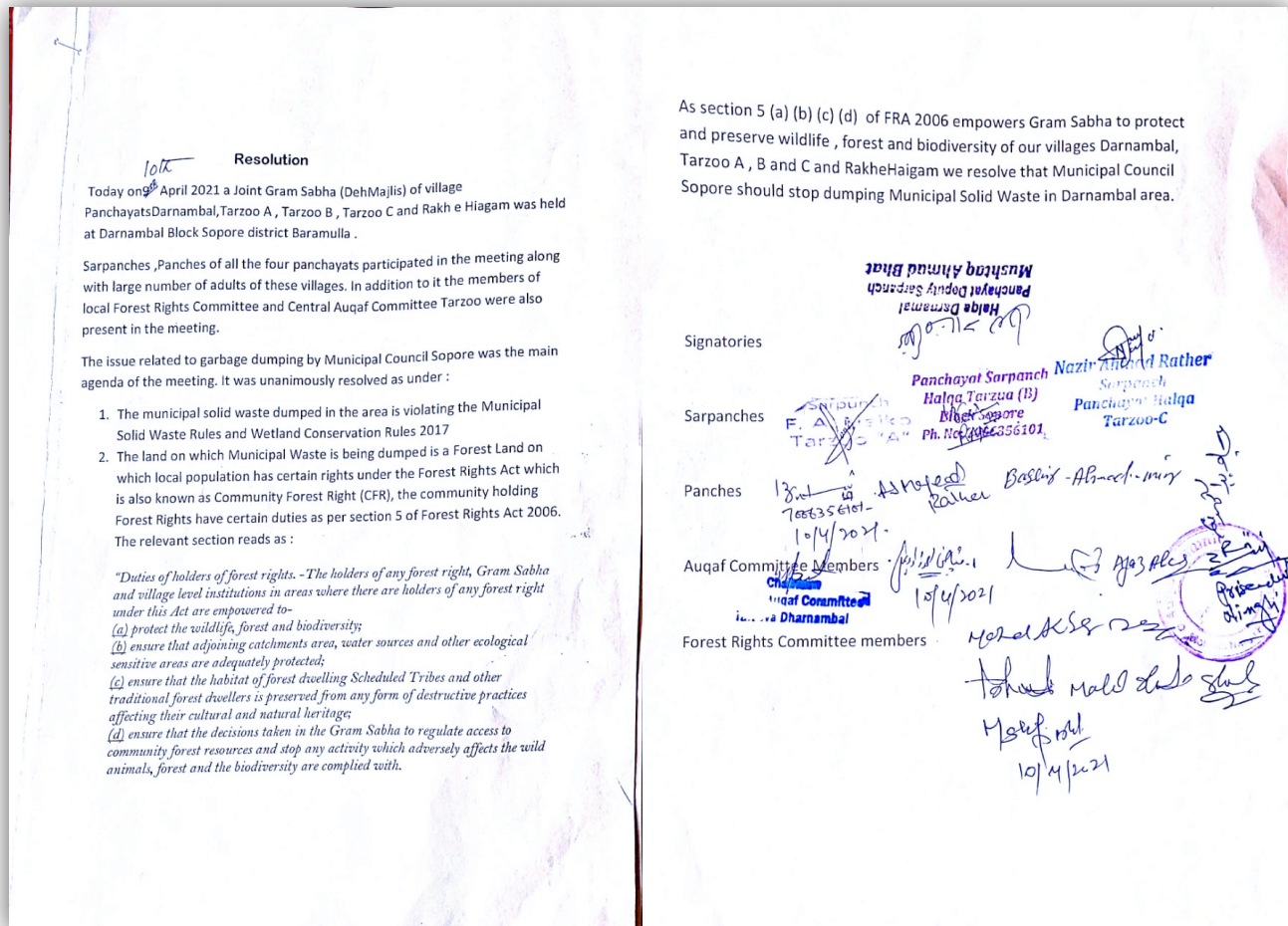
This has caused problems for the people living in small and large towns of Jammu and Kashmir. Recently, the residents of Magam town caught the local municipal officials red-handed, dumping municipal solid waste into the Ferozpur river in the dead of night. Magam town also has no landfill site and for many years the municipal solid waste has been piling up on the banks of rivers, water-bodies, and open plots.

During last year's COVID-19 lockdown, trucks of the Sopore Municipal Council carrying solid waste collected from the town started illegally unloading them near the Wular Wetland catchment area in Tarzoo. This area also falls under the Ninglee forest range. It is the district administration of Baramulla that gave them the green signal, as they too are under constant public pressure from residents of Sopore town.

Managing municipal solid waste is becoming a daunting task in almost all towns of Jammu and Kashmir including Srinagar and Jammu.

It is the bureaucrats and other officials of local bodies who are to blame for the mess, as they do not make attempts to treat the waste. They only search for sites to dump the waste in, without any scientific treatment. This is a clear violation of the MSW Rules, 2016.

Jammu and Kashmir does not have not a single scientific landfill site, so waste is dumped unscientifically in every town.



The Wular lake is a UNESCO Ramsar site in Jammu and Kashmir and one of the largest freshwater lakes in Asia with an average size between 30 to 260 square kilometers, depending on the season. The residents of Tarzoo, a huge village consisting of four panchayats, protested the municipal waste being dumped around their village, but soon there was a national lockdown last year from the end of March due to the COVID-19 pandemic.

The municipal council of Sopore took advantage of the lockdown and kept dumping its waste near the wetland. This was being done in clear violation of MSW Rules 2016, Wetland Conservation and Management Rules 2017, and other environmental laws. After a few months, residents under the Central Auqaf Committee again started their campaign.

Intervention by NGT, Jammu and Kashmir High Court

I wrote on the issue on World Environment Day last year and subsequently filed a complaint before the National Green Tribunal (NGT), which took note of it. On 10 July 2020, the NGT

Principal Bench headed by Justice AK Goel issued notices to the District Magistrate Baramulla, State Wetlands Authority (SWA), and Jammu and Kashmir Pollution Control Board.

The SWA was constituted in Jammu and Kashmir only recently, after years of delay. The residents of Tarzoo, through their Central Auqaf Committee also moved to the High Court of Jammu and Kashmir. It took strong note of the case. Then Chief Justice Geeta Mittal visited the spot last year and ordered that site immediately closed. The waste already dumped there was buried under the soil which was transported in trucks just before her visit.

The Division Bench of the High Court directed the constitution of a committee at the district level to identify an alternate location for waste treatment along scientific lines. After Geeta Mittal retired, the district administration and municipal officers identified another site in the same village to dump waste, which happens to be forest land and a wetland catchment area.

For the last two months, the municipal waste has been dumped on village panchayat land adjacent to the proposed forest land. A No-Objection Certificate is awaited from the forest department after which the land will formally turn into a garbage dump. The residents and their panchayat representatives are resisting this.

Nazir Ahmad Rather, sarpanch, Tarzoo, told The Leaflet, “The Municipal Council Sopore has again started dumping its waste in Tarzoo area, not even seeking permission from four village panchayats. The land for the new landfill site is demarcated forest land and locals have community forest rights over it under the Forest Rights Act 2006.”

According to section 5 of the FRA, the Gram Sabha is entrusted with protecting wildlife, forests, the environment, and the ecology of villages. “Now the gram sabha has passed a resolution asking the Municipal Council Sopore to stop the illegal and unscientific waste dumping in our area,” says Rather. The resolution has been signed by all the four Sarpanches and Central Auqaf Committee of Tarzoo.

“This is binding on the government, but it seems our resolution has no takers. PM Narendra Modi and Union Home Minister Amit Shah have been speaking about granting more autonomy to panchayats, but we do not see that. We are unable to even protect our environment,” he says.

Violation of Biodiversity Act, 2002

The Biodiversity Act, 2002 was enacted to realise the objectives enshrined in the 1992 United Nations Convention on Biological Diversity (CBD). This convention recognises the sovereign rights of states to use their biological resources. There are several committees constituted at the national, state, and local levels under the Biodiversity Act, 2002.

The wetlands of the Wular lake attract a variety of bird and animal species. This is where the government is dumping solid and biomedical waste.

At the village level, section 41 of the Biodiversity Act provides for the constitution of Biodiversity Management Committees (BMC). The BMC has to prepare a peoples' biodiversity register and has powers to ensure conservation and eco-restoration of biological resources.

Therefore, it can resist the way waste is being dumped unscientifically in the Tarzoo area, as it violates village-level biodiversity. The waste is being dumped on grazing land for local cattle and sheep, where hundreds of species of birds, including migratory birds that visit the area from October to March every year, come to rest.

“The municipal council Sopore is violating the Municipal Solid Waste Rules 2016 and threatening the habitat of wildlife and biodiversity. How can garbage be dumped on forest land? We want a biodiversity park here instead, for tourists and nature lovers,” says said Ajaz Ahmad Dar, patron of the Central Auqaf Committee, Tarzoo.

Violation of Biomedical and Wetland Rules

This author visited the illegal garbage site created by the Municipal Council Sopore. There were dead animals and hazardous biomedical waste in the dump; I saw syringes, needles, expired medicine, etc. The municipal authorities seem ignorant of the Biomedical Waste Management Rules 2016. Such waste has to be treated separately at an independent location.

It seems neither the Jammu and Kashmir Pollution Control Board (JKPCB), now known as the Pollution Control Committee, nor the District Magistrate are aware of this lapse: the municipal authorities collect waste from clinics and hospitals and dump it at Tarzoo in a casual manner.

I am sure the municipality has no awareness about this hazardous waste. The area in which the government set up a new garbage dumpsite is part of the Wular wetland area. The lake is a mere half km from the site. Wetland includes the lake and its marshes, rivers, lakes, deltas, floodplains and flooded forests, rice fields, coral reefs, marine areas no deeper than six metres at low tide, as well as human-made wetlands such as waste-water treatment ponds and reservoirs.

A garbage dump site being built on an eco-sensitive area—that too against the wishes of four village panchayats—makes it clear that the administration has gone out of control in Jammu and Kashmir.

Wetlands are a critical part of the ecosystem. They mitigate floods, protect coastlines, build community resilience to disasters, reduce the impact of floods, absorb pollutants, and improve water quality. The government is dumping waste in a flood plain that is flooded almost every year during the summer months. Waste from the area will be washed away by floods, further threatening local biodiversity.

Prime Minister Modi called the District Development Council (DDC) election held last December “historic”. Modi, the Home Minister, and several other Union ministers, on many occasions, have reiterated that they want autonomous and empowered panchayats in Jammu and Kashmir.

In December 2018, while meeting a delegation of newly-elected sarpanches from Jammu and Kashmir and Ladakh, led by Shafiq Mir Chairman of the Jammu and Kashmir Panchayat

Conference, Modi had assured his full support to the success of the Panchayati Raj model. The government machinery is not at all prepared to empower and handhold these public representatives.

Just days back, Lieutenant Governor Manoj Sinha, while interacting with District Magistrates from Kashmir valley, directed them to ensure the FRA is properly implemented. Now that the Gram Sabha of four panchayats in Tarzoo, Baramulla, has passed a resolution to stop illegal garbage dumping in their area. One can only hope the government respects this resolution.

(Previously appeared on www.theleaflet.in)



Traditional Institutions for Commons in Bodoland

Piyush Saurabh Sharma

Background:

The Bodoland Territorial Region consists of four districts of Assam namely Kokrajhar, Chirang, Baksa and Udalguri is known for its unique social, economic, ethnic, linguistic and cultural identity. To protect the interest of local residents and fulfil their aspirations the Bodoland Territorial Council was constituted under the sixth schedule of the constitution in 2003. The Bodoland Territorial Council (BTC) functions as an autonomous system of governance on subjects transferred to the council by the state government. The region comprises more than three million people and is highly dependent on agriculture. The main crop being cultivated in the region is paddy. Being agriculture as the main occupation, the community is heavily dependent on natural resources such as river, streams, ponds, hills, forest and highly diverse flora and fauna. The one third area of the region is covered with forest that supports subsistence economy.

Other than the Bodo tribe the region also inhabits people from Assamese, Bengalis, Koch-Rajbongshis, Rabhas, Garos, Adivasis, Muslims and Nepali communities. Out of 2890 revenue villages, 2272 villages are predominantly inhabited by people from Bodo tribe. These tribal villages have a rich tradition of managing their common property resources (commons) such as forest, land and water. Tribal communities in the entire Baksa district have formed Village Committees (VC) consisting of entire households in the village/hamlets for regulating and up-keeping of village common properties. These village committees are responsible for the management, regeneration, and exploitation and sharing of benefits from common property resources. The VCs play a vital role in resolving internal village conflicts and also keeping robust relations with nearby villages at the same time deal with local administration for bringing resources within the village. Village councils are not formal institutions but they play an important role at the local level.

Villages in the Bodoland Territorial Region also have a tradition of digging canals for the purpose of irrigation. These canals are locally called 'Dong' and most of these dongs originate from a river or water stream. These dongs in many places are used effectively for Kharif

crops, especially paddy, as the water flow is high at that time. In the winter season selected people use dongs for cultivation of vegetables and mustard crops. Considering the usefulness of these dongs, villagers have formed Dong Committees for effective management of the Dongs e.g. cleaning, constructing canals, repairing and sharing / distribution of water in each village, enforcing discipline and conflict resolutions within the village as well as inter village. Some of these dong committees are more than 100 years old. Unlike the village committees (VC), Dong Committees are formally registered as society under the Society Registration Act, 1860.

Like in many other parts of the country, the people of Bodoland Territorial Region are highly dependent on common property resources such as forest, water, hills and land for their livelihood. These resources contribute significantly in the subsistence economy of the region. One of the common resources that have been used extensively by villages in this region is water. The river systems and streams were used for drawing water to agricultural fields by the local populations across the villages, thus Dong (Canal) based systems came into existence in district of Baksa and its adjoining districts of Chirang (towards west of Baksa) and Udalguri (towards east of Baksa). The Dongs are the lifeline for agriculture in villages of Baksa district. For the management and upkeep of these crucial resources, these villages have Village Committees and Dong Committees in place. These two community based institutions are part of their tradition and lifestyle. While it is common to have these two committees in tribal villages in this area, their work and priorities may differ from village to village. Since there is no common rule for the functioning of these committees, the function of these two institutions depends on the requirements of villagers and understanding/leadership of members of their management committees.

This paper attempts to describe functions and priorities of Dong Committee in the Amrabati village and Village Committee in the Pub Hazira village in the Baksa district of the Bodoland Territorial Region. Both of these are typical tribal villages of the region with populations of more than one thousand each. The village committee of Pub Hazira manages three ponds and about 2 hectare agricultural land. Every year the committee leases them out to individuals and earns cash, which is then used for several purposes. On the other hand Dong Committee of the Amrabati village is a complex set-up formed by seven different sub-committees. The role of committee is to manage the water of the canal originating from Gurakhowa spring in village Manikpur. It charges a certain amount from the water users, which is then used for the upkeep of the canal. While the Village committee of Pub Hazira has focused on earning hard cash for common use, the dong committee of Amrabati attempts to ensure better agricultural production of each household by managing dong water.

This paper is part of a study on 'Regeneration of common property resources as a basis for revival of the rural economy in the time of COVID', commissioned by the Rajiv Gandhi Institute for Contemporary Studies. The study adopted qualitative research methods such as focus group discussions, interviews and case studies to collect first hand information. The field work was carried out by the Kabil Foundation and SANJOG in Assam. In this paper we will discuss these two models of CPR management and challenges faced by them.

The Hazira Village:

Hazira is inhabited by Bodo populations situated 13 Km from the district head quarter Baksa in Assam. It is a typical Bodo village of 228 families comprising a population of 1067. Almost the entire village is dependent on agriculture and livestock for their livelihood. However the average land holding is as low as 0.35 hectare. Overwhelmingly 195 families are either marginal or small farmers. Moreover, 30 families in the village are farm labourers. The livestock is another means for livelihood for almost all villagers. They have a tradition of rearing cows, goats and pigs. In our field observation and focus group discussion, we observed that on an average each family has 4-5 livestock. The cows and piggery can be found in every house however, only around half of the families in the village have goats. A brief overview of the demographic and livelihood profile of the village is given in the following matrix.

Demographic and Livelihood Profile of Hazira

Total Population of the village	1076
Total Number of Households	228
Households dependent on combination of agriculture and livestock	225
Number of small and marginal farming households	195
Number of Farm Labourer Households	30
Number of households dependent on occupation other than farming and livestock but draws benefit from CPR	3
Number of households whose member (s) seasonally migrates for livelihood in the cities	70
Number of households whose member (s) migrated permanently for earning livelihood in the cities	0
Number of worker migrated back to the village after lockdown to contain COVID-19	18

The combination of agriculture and livestock is the main source of livelihood for the villagers in Hazira. However, the subsistence economy based on these two occupations is not enough to meet requirements of local villagers. To meet their additional requirements, many villagers migrate to nearby cities or cities outside Assam as seasonal labourers. In the Hazira village members of 70 out of 228 households migrate seasonally in search of the job. In March 2020, after the announcement of the nationwide lockdown to contain the spread of COVID-19, 18 workers went back to their village. Compared to the size of the village, the outmigration for livelihood is very high. The data above shows that both the average land holding and possession of livestock is very low in the village, therefore it creates situations for distress migration from the village.

Commons and Village Committee of Hazira

The common property resources (commons) are crucial for the sustenance of rural occupations namely agriculture and livestock. There are examples where villagers invented new occupations using their common property resources. Like in other parts of the country, the Hazira village also has access to common property resources in and around the village. Some of these resources are owned by the village committee however, in some cases, villagers are de-facto users of resources owned by the government.

The village has two main common resources- three community ponds and common paddy fields. Both of these resources are directly linked to the livelihood. While the area where three ponds are located belongs to the state government, common paddy fields are owned by the village committee of Hazira. Brief detail of the three ponds is as follows:

Names of the community ponds	Area covered
Dolongbari	8 bigha (1.12 Ha) Average depth : 4.5-5 Feet (say 1.5 meter) Volume of water : 16,800 cubic meter
Singimari	3 bigha (0.4 Ha) Average depth : 6-8 feet (say, 2 meter) Volume of water: 8000 cubic meter
Chetna	3 bigha (0.4 Ha) Average depth : 6-8 feet Volume of water : 8000 cubic meter

River Chetna emerging from Bhutan hill changed its course from Hazira to nearby village due to floods in the year 1998. Chetna flows towards west of the village to merge in river Tihu which eventually merges in mighty Brahmaputra towards South of the village. Change of course of Chetna left behind low lying areas transformed into patches of wetland. The Village committee decided to approach the government through the local Block Office to seek support for construction of embankments in the wetland areas to renovate it into community managed fishery ponds. The Block Office obliged with a grant of Rs.30,000/- as labour cost to the entire village for construction of embankments surrounding the ponds. Around 150 nos. of households from the village engaged by giving four days of labour for construction of embankments to transform the entire patch of wetland into a community pond. Since then community manages the ponds and income generated is utilised for reinvestments in the ponds like purchase of fish seeds & fingerlings, cleaning, donations for festivities like Puja and Bihu and also if left over loaning farmers during the Sali (June /July to Nov/ Dec) season paddy crops.

The ponds are contracted to the highest individual bidder within the village in annual meetings of the VC. The event occurs annually and the margin left from the bidding is taken as profit for the entire village. The bidding process is done as villagers are not able to look after the

pond collectively. Perhaps greater engagement of some development agency in the village can increase margins of profit for the VC manifold.

The village committee also owns 2 hectare of paddy field in the villages. This area is given to interested households of the village for paddy cultivation. The leasing out of land is done on an annual basis using a lottery system. The contracted village households give 1500 Kgs of paddy per Ha to the Village Committee. That is 3000 Kgs for 2 Ha of land where average production stands at 7200 Kgs. The same is sold during the Bihu for arranging events in the village. If money is saved it is lent to households within the village with interest of @5% per annum.

The affairs of the village are managed by Mazusupa Mini Swarang Village Committee. The village has common properties which is looked after by the villagers and income generated is utilised to manage common resources within the village and also represent the village in different outside forums and meetings. The Village Committee comprises all Village households, led by the President/Secretary chosen by village households in Annual General Meeting every year. The President/Secretary is chosen during the AGM with consensus of all village households through a voice vote by saying Yes/No. But there are elaborate discussions by village households before coming down to names. Once names are finalised through the vote the, same is noted down in the minute's book. Before finalising the names attributes like writing abilities and common acceptance of the persons elected in the community is assessed. The village committee is not a legally registered body, but it has a system of keeping records and documenting proceedings and events. The committee's records are kept in the form of minutes book and cash book. Any conflict that arises is solved amicably by villagers through meetings.

Based on focus group discussions organized in the village, it was found that in the last financial year the village committee earned Rs. 70,000 from three fish ponds and 1,05,000 from paddy fields by contracting them. The committee further invested Rs. 40,000 in these three ponds by purchasing fish seeds and fingerlings. Apart from this, a hefty amount of Rs. 60,000 from the total earning of the committee was used for various festivals and rituals in the village. It was also observed that mostly poor families are interested in contracting paddy field. However, the relatively richer family gets the contract of a fish pond every year.

Observations and Suggestions:

Ponds are often infested by aquatic weeds e.g. water hyacinth etc. and need regular maintenance to keep the required hygiene condition of the water body for good growth of fishes. Feeding and protection from diseases and pests are also very important practices. As of now such practices are not being followed in these ponds.

The villagers do not follow improved fish rearing practices. Otherwise, these ponds with a total volume of water about 32,000 (thirty two thousand) cubic meters can produce a minimum 8,000 kilogram of fishes (assumption made is 0.25 kg of fish/ cubic meter of water

per annum. (This could be as high as 1 kilogram / cubic meter of water with good scientific management practices). The market price of common carp is minimum Rs.100 / kilogram. Thus, the value of 8000 kilogram of fish would be Rs. 8, 00, 000. This is much higher than what they are getting now (Rs. 70,000). Integration of duck rearing along with fishery could generate much more income. The estimate made above is basically to indicate the potential of such resources.

The Amrabati Village:

The Amrabati village is just three kilometres from Baksa district headquarter in Assam. It is predominantly a Bodo village, comprising 1954 Bodo people and 743 people from other backward communities (OBCs). Amrabati village is one amongst many villages settled about more than 100 years ago on the Indo-Bhutan border across Assam. Much of the settlements occurred during the British Raj who brought labourers from Adivasi belts of Jharkhand, Madhya Pradesh, Chhattisgarh and other such areas to work in tea gardens. The local tribal populations (mostly Bodo and Rabha tribes) also settled in the area clearing forests and establishing new villages. A brief overview of the demographic and livelihood profile of the village is given in the following matrix.

Demographic and Livelihood Profile of Amrabati

Total Population of the village	2697
Total Number of Households	830
Households dependent on combination of agriculture and livestock	830
Number of Large farming households	2
Number of small and marginal farming households	756
Number of Farm Labourer Households	72
Number of households dependent on occupation other than farming and livestock but draws benefit from CPR	0
Number of households whose member (s) seasonally migrates for livelihood in the cities	45
Number of households whose member (s) migrated permanently for earning livelihood in the cities	0
Number of worker migrated back to the village after lockdown to contain COVID-19	12

Villagers of Amrabati are dependent on a number of occupations for their livelihood. Main occupations are agriculture, livestock and daily wage labourers. A large proportion of households in the village are small and marginal farmers with land holding less than 2 hectare. As many as 72 families are farm and other daily wage labourers. However, a daily wage labourer also comprises a household with some land holding. Other than the agriculture and wage labourers, livestock is another major source of income in the village. Rearing cows, pigs and goats is common in the village. The focus group discussions with villagers revealed that on average a household keeps one cow, four goats and two pigs.

Despite being very close to the district headquarters; the villagers of Amrabati migrate to other cities and states for employment. Members of 45 households in the village migrate seasonally to earn livelihood. Many of these migrant workers find jobs in cities like Bangalore. Due to the nationwide lockdown in March 2020, only 12 workers could manage to come back home. All these workers are willing to stay back in the village, if employment is available.

Commons and the Dong Committee of Amrabati:

The Amrabati village has been managing three main common property resources for years. These include a community pond with an area of 1.1 hectare, an irrigation canal (6 km) and community paddy field (0.53 hectare). The community paddy field and community pond are managed by the village committee of Amrabati. The constitution and function of the village committee is similar to the village committee of Hazira, which is described in the above section in this document. The unique thing about this village is that the village committee purchased the land for the construction of a fish pond. The fish harvested from the pond is sold to traders on a yearly basis. The earned money is used for reinvesting for buying fish seeds and the rest of the money is kept for maintenance of village infrastructure like temples, meeting hall and others such as sometimes village roads. The income from this pond is not high but better management and systematic fishing can yield better return to the village. One part of the community land owned by the village committee is used as a playground for the school. Another part of the land (around 0.66 acre) is used for paddy cultivation by the village committee with an average production of 1000kgs of paddy in a year. The harvested paddy is sold and returns are utilised for investing in events like Puja and festivities like Bihu.

The management of irrigation canal by the dong committee of the Amrabati village is distinct from the case of Hazira. Irrigation canals as mentioned in the beginning are very crucial for the subsistence economy of the area and there is a rich tradition of constructing and managing these canals. Locally canals are called Dong. The Gaurkhowa Dong of about 6 km serves farmers of the Amrabati village. Nearly 285 out of 672 hectare of agriculture land of the village gets water from this dong in the kharif season. In the rabi season only 4 hectare land gets water for cultivation of mustard seeds. In total 427 families benefit from this canal.

The Gurakhowa dong emerges from Gurakhowa spring (jhara) in village Manikpur under Baska Development Block of Baksa district. The Gurakhowa canal emerges from spring (a patch of 5 feet wide and 40 feet long wet land from where water oozes out) unlike other



canals in Baksa district which originates from hills of Bhutan barring few other canals. Villagers of Amrabati have diverted stream water through a canal from this source to agricultural land. There are six other villages which have diverted water from Gurakhowa canal. Based on field observation and focus group discussions in the villages, we attempted to map trends in water availability and velocity in different seasons. Estimated figures are as follows:

Current Status of the Gurakhowa Dong

Depth of the dong when cleaned:	2.5 - 4 feet (June -Jul)
Depth of the Dong when rain stops :	1 - 2.5 feet (Nov- Mar)
Flow in the month of June and July:	Highest flow (100%) (Reduced by 20% in past 10 years)
Flow in the month of Sep-October:	Medium flow (50%) (Reduced by 20% in past 10 years)
Flow in the month of Nov – January:	Starts declining (70%) (Reduced by 20% in past 10 years)
Flow in the month of February – March:	Lowest Flow (20%) (1 feet depth) (Reduced by 20% in past 10 years)

The Gurakhowa dong committee is more than hundred years old in age which comprises village wise seven sub dong committees including Amrabati village. Each Sub-dong committee is headed by the President, Secretary and the general body is represented by the entire user household in a particular village. All the user households comprising seven villages form the main general body of the Gurakhowa Dong Committee. The General Body of Gurakhowa Dong committee has a Managing Body represented by the President and Secretary of all the sub-dong committees of different villages. From among the Managing Committee a President and Secretary is selected to lead the Dong Committee. The main role of President and Secretary is convene Annual meetings, meetings of the Managing Committee, collect monetary contributions in the form of user fees, fines for not attending meetings, causing damage to dongs and not contributing labour (as and when required and decided by the

committee). The user fee is ₹.10/- per bigha of land (0.33 Acre) and disciplinary action fees is ₹.250/- per household. The user fee is mostly collected once in a year for conducting annual meetings of Dong Committee and operational expenses during cleaning of Dong once a year before the pre monsoon showers begin that is in the month of April. The Dong Committee does not have any bank account as money collected as annual fees and fines are spent instantly during the cleaning of Dong and no amount is left in hand. But there is a process of annual social audit done by the entire village of the amount generated in an annual general meeting. The books of account are presented by the President and secretary to the entire village during the annual meeting.

Observations and Suggestions:

In the past twenty years the discharge of water has gone down in rivers, canals and other sources of water. The reasons are unknown though common assumptions are deforestation, constructions of dams over rivers upstream inside Bhutan and some also think climate change. Low discharge during dry seasons has resulted in water thefts by villagers during the dry seasons. Over the years continuous reduction in flow and in some cases drying water sources has generated fear in the minds of a large number of villagers for their livelihoods. Dong water also meets demand for drinking water in many villages bordering Bhutan, hence fear is observed more intensely in those villages.

The dong is used only during the Kharif season crops like paddy and for winter season vegetable and mustard crops by the villagers. The use of Dong water for winter paddy cultivation has reduced due to reduced flow of water from dong. Over the years the canal has degraded owing to low discharge of water which is till now perennial. According to villagers threats of the source point getting dry looms large in coming six to seven years. Since the farming households have left Aahu season paddy crops (of 285 hectares) at least during the season there is loss of ₹.1.06/- crore with a production of about 8,54,000 Kgs of paddy to the entire village has completely stopped cultivation during the Aahu season in want of water.

Conclusion:

The traditional set-ups of Dong Committee and Village Committee in the Bodoland Territorial Region are amongst numerous systems of governing common property resources all across the globe. Over the years, these institutions in the Bodoland evolved and innovated new means of livelihood based on common resources. Incidents such as the acquisition of seven fish ponds nearly 22 years ago by the village committee of Hazira and formalizing Dong Committees by registering them as society in Amrabati village indicates continuous organizational development of these traditional and community based institutions. However, the pertinent question here is whether these organizational changes in the traditional institutions are enough in meeting livelihood requirements of villagers or not. To deliver on

this fundamental function, these institutions require addressing number of challenges such as harmonizing its system with continuously changing state policies, responding continuously changing aspirations of its members, efficient management of continuously shrinking community control over commons and understanding external issues such as adverse impact of climate change and natural disaster especially flooding in the region.

The study of commons and related institutions in two villages of Bodoland reveals that resources in their control such as fish ponds, common paddy fields and irrigation canals are not efficiently managed. Villagers draw much less benefit from commons compared to their potential. Fish ponds in Hazira are degrading which has a direct impact on fish harvest. Similarly, water flow in Gurakhowa dong of Amrabati has recorded substantial decrease in the last few decades. On the other hand compared to the large number of landless people in both of these villages, the common paddy land for lease is very less. Not all landless families can be accommodated by the common paddy fields in the possession of village committees of these two villages. So, the size of commons per household is also declining. Finally, the high level of distress out of migration in search jobs from these villages indicates that livelihood resources within village boundaries are not sufficient for ever increasing population and their aspirations.

Globally, there is rich literature available on correlation of degradation of commons and distress migration. In the case of Assam, a study by Ratul Mahanta and Daisy Das in 2012 observed that commons are depleting in the state and the depletion and “decrease of the common property resources have forced rural people to migrate to urban areas [1]”. Our study of these two villages re-affirms this trend, which has observed shrinking of commons, inefficient management and external environmental changes adversely affecting productivity of commons. With limited resources and power of the dong committee and village committee, fulfilling social and economical aspirations of its all members may not be possible. But, the regeneration of resources in their control, enhancing productivity by using new and innovative ideas and better management can help to create more livelihood options within the village. Most migrant workers, whom we interacted with, are willing to stay back in the village, if livelihood options are provided.

[1] Mahanta Ratul and Daisy Das, 2012, 'Common Property Resources Degradation and Migration: A Case Study of Assam', *Journal of Human Ecology*, 38(3): 223-230 (2012)



Environmental and Development Concerns of Mining Affected Areas and Performances of DMFs

Dr Vishal Massey, The Club of Rome -India and Jeet Singh, RGICS

Environment and Developmental Issues in Mining Areas:

The history of mineral extraction in India dates back to the days of the Harappan civilization. The wide availability of the minerals provides a base for the growth and development of the mining sector in India. The country is endowed with huge resources of many metallic and non-metallic minerals. Mining sector is an important segment of the Indian economy. Since independence, there has been a pronounced growth in mineral production, both in terms of quantity and value. India produces 95 minerals, which include 4 fuel, 10 metallic, 23 non-metallic, 3 atomic and 55 minor minerals. The total value of mineral production (excluding atomic and fuel minerals) during 2019-20 has been estimated at INR 1,23,588 crore in which metallic minerals is INR 60,822 crore or 49.21% of the total value and nonmetallic minerals including minor minerals is INR 62,766 crore or 50.79% of the total value¹.

Socio-Economic problems in Mining Areas are almost the same in pan India, often the local populace know little about mining rules and policies, their rights and regulations, their occupational issues, process to mitigate their livelihood issues and problems, disturb family structure and system, health issues due to air, water, soil and noise pollution, burden of heavy traffic in all mode of commuting - roads and railways, accidents, road safety and security, mining closures, land reclamations, etc. Though, it is a major source of government's revenue but somehow adversely impacts the lives of mining families, no matter whether they are directly or indirectly. A report published by a team of independent researchers in November 2017, titled 'Health and Environmental Impact of Mining in Chhattisgarh', noted that they found the presence of "worrisome levels of toxic substances that adversely affect human health" in soil and sediment samples from the area². The fear of reddish water contaminated with iron ore is very high in certain pockets of Dantewada, Chhattisgarh, it is because of high iron contains in water, hence, villagers less rely on hand pumps and women with handis (pots) on their heads going to fetch water to nearby comparatively pure water source³, though the GoCG had tried a project in 33 villages adjoining to Nareli and Guhari⁴, but it could not steal a march on.

¹ Annual Report (2019-2020), Ministry of Mines, Government of India.

² <https://science.thewire.in/health/chhattisgarh-villagers-health-left-to-gods-mercy-as-coal-india-shirks-its-duty>

³ <https://www.downtoearth.org.in/coverage/forests/bastar-beyond-maoists-tale-of-a-rich-region-and-its-poor-people-56746>

⁴ <https://www.patrika.com/dantewada-news/dantewada-32-villages-of-bastar-red-water-will-rid-1414863/>

Keonjhar district, considered being the mining hub of Odisha, a total of 64 mining projects have led to the diversion of 10,451.39 hectares of forest land over 38 years. According to government data, this was the highest loss of green cover in any district in Odisha since 1980. Talakainsari is a village panchayat, comprising several villages, in the Banspal block of the district. Frequent dumping of processed rocks—mineral-rich rocks leftover after mining, which are a source of air pollution as they make the area dusty — has escalated the woes of villagers⁵. The people in the Jadugoda area of Jharkhand are affected not only by radiation from tailing ponds but also by lack of security at the mines. Fatigue, loosing appetite, respiratory sicknesses, rises in miscarriages, impotency, infant mortality, Down's syndrome, skeletal deformities and different skin diseases, children with big heads, thalassemia have been reported, also the chances of tuberculosis among the miners is very high⁶.

The Idea of District Mineral Foundation:

To address development and environmental issues of people and region affected from mining activities, the Mines and Mineral (Development & Regulation) Amendment Act, 2015 provided for constitution of District Mineral Foundations (DMFs) in each district. At the national level activities and governance of DMFs are regulated through guidelines issued under Pradhan Mantri Khanij Khetra Yojana (PMKKY)

District Mineral Foundation (DMF) is a trust set up as a non-profit body, in districts affected by the mining works, to work for the interest and benefit of persons and areas affected by mining related operations. It is funded through the contributions from mineral royalty. Its manner of operation comes under the jurisdiction of the respective State Government. Further, Recognizing that people's relevance and participation lies at the core of this institution, the objective and functioning of DMF has been tied to three primary laws of the land — the constitutional provisions as it relates to Fifth and Sixth Schedules for governing tribal areas, the provisions of the Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006—in short the Forest Rights Act (FRA). Under this scheme, Rs. 40,998 crores have been collected as on 28 Oct 2020. More than 1,30,000 projects have been sanctioned under PMKKY. A national level portal <http://mitra.ibm.gov.in/pmkkky> has been launched where up-to-date information regarding fund collection and utilization is being displayed. District wise breakup of funds is displayed.

With DMFs coming into effect, the right of the people to benefit from natural resources has been recognized for the first time. The provisions make it clear that DMF is not just any other development fund or government scheme. It is a people-centric vision of natural resource governance where their right to benefit has been put at the forefront. Hence, if developed and implemented well, DMFs not only have immense potential for ameliorating the lives and livelihoods of some of the poorest communities, it can be a model for inclusive governance. Mining related operations largely affect less developed and remote areas, and vulnerable sections of the population, especially Scheduled Tribes. It is necessary that special care and attention to be devoted, in an organized and structured manner, so as to ensure that these areas and affected persons are benefitted by the mineral wealth in their regions and are empowered to improve their standard of living.

⁵ <https://thewire.in/environment/odisha-mining-tribals-access-to-air-water>

⁶ Priyadarshi Nitish (2009). Radiation in Jadugoda in Jharkhand State of India, retrieved from <https://www.scribd.com/document/24085066/Radiation-in-Jadugoda-in-Jharkhand-State-of-India#download>

S. No.	States	Total districts in the state	Districts, DMFs established	Collected in DMF (INR in Cr.)
1	Andhra Pradesh	13	13	1159
2	Chhattisgarh	28	28	6470
3	Goa	2	2	2
4	Gujrat	33	32	827
5	Jharkhand	24	24	6533
6	Karnataka	30	30	2336
7	Maharashtra	36	35	2250
8	Madhya Pradesh	52	51	3683
9	Odisha	30	30	11985
10	Rajasthan	33	33	4497
11	Tamilnadu	32	30	763
12	Telangana	33	32	2956
13	Assam	33	33	89
14	Bihar	38	38	91
15	Himachal Pradesh	12	12	183
16	Jammu and Kashmir (UT)	20	20	33
17	Ladakh (UT)	2	2	0.3
18	Kerala	14	14	32
19	Meghalaya	11	6	63
20	Uttarakhand	13	13	130
21	Uttar Pradesh	75	75	876
22	West Bengal	23	23	65
	Total	587	575	45237

Source: Ministry of Mines, GOI and Department of Mines of studied States (March 2021)

The PMKKKY has issued guidelines for investment of fund collected by DMFs. As per current guidelines DMFs are required to spend 60% of the funds on activities related to High Priority Areas, such as (i) Drinking water, (ii) Environment preservation and pollution control, (iii) Health care, (iv) Education, (v) Skill development, (vi) Welfare of women, children, aged and disabled people, and (vii) Sanitation and 40% of the funds to be utilized for (i) Infrastructure - Roads and Physical Infrastructure, (ii) Irrigation and (iii) Watershed development. The projects implemented under PMKKKY help create a congenial mining environment, ameliorate the condition of the affected persons, and create a win-win situation for the stakeholders. Under this scheme, INR 45,237 Cr has been collected as on 25th March 2020. Over 1,30,000 projects have been sanctioned under PMKKKY.

The Study of Performance of DMFs

According to an assessment carried out by the CSR Box, all major states have notified District Mineral Foundations. Moreover, 557 out of 583 districts in 21 major states, DMFs have been constituted as per guidelines laid down by the central and state governments. All these DMFs have collected Rupees 30,819.39 crore as on July 2019. More than one third of this fund (i.e Rs. 11,376.79) was collected in just one financial year i-e 2018-19. Top 20 DMFs located in eight different states holds nearly 50% of the total fund collected under the scheme. As of November 2018, these DMFs had Rs. 15,350.48 crore in their kitty. Details of DMF fund in these districts are given in the following table.

Top 20 Districts DMF Status based on Total Amount collection as on Nov. 2018

S.no.	District	State	Total Amount Collected in INR Cr.	Amount Spent in INR Cr.	Amount Spent in %
1	Keonjhar	Odisha	2341.82	277.1	11.83
2	Korba	Chhattisgarh	1320.22	607.58	46.02
3	Singrauli	Madhya Pradesh	1174.83	250.21	21.30
4	Sundergarh	Odisha	1125.26	226.9	20.16
5	Angul	Odisha	944.44	137.27	14.53
6	Dhanbad	Jharkhand	858.28	314.23	36.61
7	Ballari	Karnataka	784.12	29.14	3.72
8	Dantewada	Chhattisgarh	774.51	292.83	37.81
9	Bhilwara	Rajasthan	743.72	107.84	14.50
10	Jaipur	Odisha	641.68	115.26	17.96
11	West Singhbhum	Jharkhand	616.03	74.96	12.17
12	Peddapalli	Telangana	583.71	0	0.00
13	Ramgarh	Jharkhand	523.69	231.7	44.24
14	Rajasamand	Rajasthan	519.59	137.28	26.42
15	Jharsuguda	Odisha	508.3	89.73	17.65
16	Chatra	Jharkhand	476.17	28.73	6.03
17	Badradri	Telangana	422.06	0	0.00
18	Chandrapuri	Maharashtra	381.69	40.05	10.49
19	Bokaro	Jharkhand	317.49	10	3.15
20	Mancherial	Telangana	292.87	0	0.00

While top 20 DMFs have around 50 per cent of the total fund under the scheme, they vary in terms of spending the collected amount. Korba in Chhattisgarh and Ramgarh in Jharkhand are leading in terms of spending the collected fund. However, many DMFs in the list could not spend the fund at all. The data presented in the table above indicates that there is difference in the performances of DMFs across the country despite being governed by same set of guidelines issued by the central government.



To study differences in performances of DMFs the Rajiv Gandhi Institute for Contemporary Studies (RGICS) commissioned a study to evaluate process and programs of DMFs in five

different states. These selected states are- Chhattisgarh, Jharkhand, Odisha, Madhya Pradesh and Rajasthan. It was an attempt to assess performance of DMF to be able to positively touch lives of people and local ecology.

Performances of DMFs

The prospects of DMF are being shadowed by some crucial administrative and investment issues. There is a need to address and rectify these at the earliest, as these are determining factors for the success of DMFs. If this is not done, DMFs might earn some quick returns for special interest groups or an instrument to fulfill a wish list of district administration or elected representatives, but will fail as an institution that has been brought in for the mining-affected people.

Few districts have their DMFT financial inflow more than overall expenditure capacity of them, hence, merging nearby districts in main district with an approach of area development such as Govt of Chhattisgarh is doing, or provision of State Mineral Fund (Madhya Pradesh and Rajasthan) would be suitable for states in utilization of DMFT in equitably and properly.

It is observed that this fund has become just another source of fund for Collectors to take up developmental activities in the district also the involvement of actual beneficiaries is almost negligible and depend of the rationality of elected representatives. The entire amount is being spent through line departments as per their administrative and financial mechanisms. It has little scope to innovate and experiment new ways of program planning and management.

The constitution of DMFT was the mandate to compensate environmental damage due to mining and recovering environmental loss arises from mining and allied activities and to reduce disparity of developmental of local people. Minerals are the finite resources; therefore, funds received from their royalty are also not for forever. Realizing this fact, it is important to use the fund wisely with long-term vision for the long-lasting development of mining areas. Over-burdened district officials and public pressure on elected representatives for popular projects may not be in a position to take decisions on investing the DMFT fund systematically, as per the mandate.

Though the composition of DMF bodies is state specific, in all states they are predominantly bureaucratic. The Governing Council primarily comprises various line department officials and officials holding other significant positions in the district, such as the superintendent of police, the additional district magistrate, the chief executive officer of the Zila Panchayat, etc., as the case may be. There is also representation of elected public representatives, including selected Panchayati Raj Institution (PRI) members and industry representatives related to mining. The Managing Committee comprises entirely of officials, many of whom are also members of the Governing Council. There is a need to visualize mining areas problems with some knowledge-based institutions or projects, may be in a project mode or a regular support to DMFT at state and district level by synchronizing professionals at state and district level PMUs. At district level, Resource Agencies Network (RAN) or alliance, including various line

departments to be promoted for better coordination among all stakeholders and planning coordination in major line departments associated with the theme of DMF programmes.

The key roles of the Governing Council include laying down the broad policy framework for the functioning of the Trust, reviewing activities, participating in annual planning, approving annual plans and budgets, conducting audits of schemes and works, reviewing annual reports and accounts, ratifying appointments of officers and auditors, etc. Managing Committee in ensuring timely collection and administration of funds, coordinating and participating in annual planning, monitoring progress of works, preparing and presenting annual reports including accounts and audit reports. These activities can be more professionally managed if state and district level Project Management Units (PMUs), if they have been established, no matter if it is managed by an outsource agency or established by the concerned department of the state. However, they must develop mechanisms to involve beneficiaries in systematic manners. The main beneficiaries are mining development funds are tribal communities, vulnerable segment



of society, but they are neither skilled nor technically qualified, to put up their say in planning and development process, hence, it would be a critical exercise, but it should be inevitable.

English Medium School in Slums funded by DMFT in Chhattisgarh

At any point of time, DMF fund should not be treated as a kitty fund and majorly to be used for soft activities rather than infrastructure development or filling gaps in the infrastructure shortage of other schemes. However, in Odisha where the fund is comparatively huge (about

26% of nationwide collection), state is focusing utilization of this fund in major infrastructure projects through Public Sector Units (PSUs), is need to revisit again in their context as state has a paucity of infrastructure in mining areas; nonetheless, this fund to be utilized for development of project affected families, though infrastructure is needed but it cannot be given priority on human and environment development as both are badly affected by mining activities and infrastructure projects will again escalate it.

Comprehensive audit mechanisms for DMFs- financial performance and social audit should be put in place. DMF being a public Trust and operating in line with the PMKKKY- a scheme for public (mining-affected people) benefit, should undergo both financial and performance audit. The financial audit provides assurance that the financial statements properly present the financial situation. Performance audit on the other hand is an assessment of the extent to which an organization, programme or scheme operates economically, efficiently and effectively. Chhattisgarh has shifted all audit procedures under CAG, whereas in Jharkhand the guidelines of Department of Cabinet Secretariat and Vigilance as well as Jharkhand Treasury Code are applicable. These procedures have their own strengths and weaknesses, but overall it should not be overlapped; the administrative controls of the DMFT and monitoring procedures should not hinder the democratization of DMFTs at large. Provisions for social audit involving concerned stakeholders, particularly from mining-affected areas, should be facilitated in DMFs effectively. Social audits provide an opportunity to the ultimate users or beneficiaries to scrutinize development initiatives. It also examines performance of an institution or a programme against its stated objectives, in the context of community values and the distribution of benefits among beneficiaries of various social groups.

Using the DMF for Environment and Development

Due to bureaucratic nature of DMFT, the people participation mainly from mining affected families is very less, the power given to gram sabhas can only be exercised effectively if they also have a representation in the decision-making process of the governing council and their views have been given importance. However, such proactive representation is missing in DMF Trusts. This also reflects a discord between the law, and the mechanism that has been put in place to implement it. Betul DMFT has done experiments to scale up digital participation through mobile app for getting suggestions and incorporating them in the planning process, and these kinds of digital participation processes can be promoted in more DMFTs after examining the results.

Indicators of success of DMF's programmes should be based on district-specific- micro indicators are needed for success of DMF programmes. Proactive involvement of government functionaries, elected representatives, business entities involved in mineral extractions, community and community-based organisations, civil society- domain experts, media and academic institutions are inevitable for the success of DMF activities and functioning. Primary stakeholders like tribal communities should actively take part in the planning process. DMF has to ensure to engage them through the consultative process rather than advise them to opt western model or economic model of development, also enough space to be given for indigenous knowledge promotion.

A knowledge platform to facilitate planning, implementation, monitoring and evaluation of programs for environmental regeneration and sustainable development in mining areas is needed within DMF establishment, this can be state level wing under State Level committee or some regions as per Area Development Approach. Mainly to undertake applied research, knowledge building, policy facilitation, and catalyse collaborative action at the state and district level for innovative and effective use of DMF funds for the development in mining areas. showcase successful examples to other states, as well learn from others' successes. This platform to be used for building capacity at State PMU and the district PMU, also among elected people representatives and PRIs, officials of the line departments, and civil society and corporate organisations to develop and strategies a long-term planning and action for utilization of DMF funds. Under this larger umbrella elected representatives of PRIs, officials from government departments, experts from knowledge Institutions, corporate sector and civil Society can meet and discuss a common action plan for the betterment of the districts and state with the shared resources and convergence of various schemes.

Conclusion

Mining related operations largely affect less developed and remote areas of the state, and vulnerable sections of the population, especially Scheduled Tribes. It is necessary that special care and attention is to be devoted, in an organized and structured manner, so as to ensure that these areas and affected persons are benefited by the mineral wealth in their regions and are empowered to improve their standard of living. The study of DMF in five major states reveals that despite the central guidelines for governance and programs of DMFs, the performances of DMF vary from state to state. In fact, DMF performance also varies within the state. Few proactive states like Chhattisgarh further developed the centre's guidelines as per requirement of the state. It has been observed that Chhattisgarh has invested DMF fund in many innovative social and environmental programs in the state. Moreover in many states like Odisha, Jharkhand, Madhya Pradesh and Rajasthan the entire decision making system is very centralized. It has adversely investment of DMF fund for the welfare of mining affected people.

Initially, in all states mega projects such as school campus, hospital buildings, roads etc were funded through this fund. In many case such huge infrastructures are lying idle in the absence of required human resource and recurring cost to run them. The Chhattisgarh government learned from this, and decided to invest maximum of this fund for soft activities such as education, health facilities, employment generation, self help group promotion, horticulture development etc. The study observed that micro initiative directly linked to the lives and livelihood of people have higher potential to meet developmental demands of people and ecological demand of the nature. We also observed that more decentralized system has higher efficiency in meeting developmental demands of local people. Therefore, we recommend decentralize decision making system and higher participation of mining affected people in the DMFs



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