2018-19 | ANNUAL REPORT

ENVIRONICS TRUST

[Innovations in Community Development]

Environics Trust

Contents

A Brief Overview of the Organisation and Recent Activities

Annual Reports are meant to present the specific year's activity but often when someone looks at an annual report, curiosity is aroused about the institution. In response to such a query last year, we thought of including this brief overview. Hope it is useful for the reader to get an understanding of the organisation's efforts.

Environics Trust (www.environicsindia.in) was registered in March 2003 with the following objectives:

1. To conduct research and development on environmental issues and human behavioural aspects;
2. To implement programmes for community development;
3. To promote art and culture, innovate and implement technical and institutional designs for an integrated development of the society;
4. To assist, guide local governments, state and central government and international agencies in their development efforts;
5. To provide assistance to communities to redress injustices and uphold their rights;
6. To diffuse useful, educational, literacy, social, academic, professional and other knowledge;
7. To apply results from scientific research for protecting local and global environment;
8. To promote Environics as a discipline converging various subjects related to environmental sciences and human behaviour.

Environics Trust considers sustainable development as a process that conserves existing options and generating more alternatives for systems to be in ecological harmony. These processes must address the four non-orthogonal aspects of equity, environmental soundness, economic efficiency and endogeneity.

In its mission to find innovative solutions to the problems of community development, Environics has been following these four practices; 1) Participatory Research; 2) Community Based Action 3) Enterprises Development and Servicing and 4) Communication and Training.

Some Recognition of our Efforts

Environics Trust was awarded the "National Groundwater Augmentation Award in 2010" for its exemplary contributions to groundwater augmentation and management. Environics Trust anchored the first official State of Environment Study for Uttarakhand. It was identified by the National Tiger Conservation Authority to evolve the Model Relocation Process from the Tiger Parks in the country which is now operational across India. Environics Trust was chosen to Research, Train and Sensitise officials of the Governments of Himachal Pradesh and Gujarat on issues of land acquisition and rehabilitation. Environics Trust developed the first adolescent's tool kit for the National Commission for Women.

The Managing Trustee has been the founder Executive Member of the National Green Tribunal Bar Association, a Commissioner for Madras High Court, National Green Tribunal and currently Supreme Court Commissioner in the WP (C) 110/2006 focusing on the State of Jharkhand.

Participatory Research

North Western Himalayas

A compendium on the Mahakali Basin was developed with intense research with the participation communities, scientists and administrators so as to evolve a baseline for basin level understanding and management. A similar appraisal of Sutlej Basin with the implications of the various developments has been ongoing. The effort is to evolve a set of indicators based on the four parameters of sustainability namely

environmental soundness, endogeneity or self-reliance, equity and economic efficiency. Environics has also been periodically looking at climate impacts in the Himalayas and its implications to farmers and their adaptive capacities and assisting communities during disasters.

Central India Mining and Industrial Areas

Environics has been conducting studies on the environmental and social impacts of mining and their effects on communities. These studies cover various aspects including air, water, forests and the demand for various mineral and industrial products and the least impactful ways of undertaking these tasks. One of the emphasis in the past three years is been to identify mechanisms for Just Transition in areas of coal mining, since the future of coal seems uncertain. Hence the least disruptive way to shift workers and communities dependent on coal has become a necessity. We have been an active member of the Tax and Fiscal Justice Asia (TAFJA) contributing to the Tax and Extractives theme.

COMMUNITY BASED ACTION

Developing a Block Planning and Implementation Workbook

Planning at the local levels has been an avowed objective of the government. However, no tools and mechanisms involving people and institutions exist to enable the process. A map-based workbook depicting important aspects at the village and block levels have been developed and tested in the districts of Panna and Chhatarpur of Madhya Pradesh. The database is being updated on a regular basis with information and feedback from local levels. The key issues being addressed are malnutrition, impacts of mining on occupational health, gender and social protection.

Assisting Communities in Conservation of Commons

The Forest Rights Act and Biodiversity Acts provide for community-based conservation of Commons. Tribal and other forest dependent communities find official procedures cumbersome and do not understand the nature of documentation required and the processes to be followed. Environics Trust has been assisting communities to prepare proper documentation so that their claims can be effectively dealt with by the relevant authorities. This will enable developing conservation and management plans, linked to livelihoods. Over 2000 communities have been facilitated in the process and we are expanding the scale of reach to nearly 8000 habitations.

Air Quality Monitoring in Collaboration with Communities

The quality of air has become a national issue particularly with deteriorating conditions in the cities. There are other areas where pollution levels are critical but there is not enough monitoring particularly in areas identified as critically polluted. Environics has nearly 100 air quality monitoring stations in different locations hosted by the communities and local organisations. We are also developing devices for cost-effective air quality monitoring.

ENTERPRISE DEVELOPMENT AND SERVICING

Sanitary Napkin Units

Locally self-organised units produce and use high-quality sanitary napkins. Group of women from Nebsarai with a local user base of over 2000 women produce the napkins in our unit in New Delhi. The women are

involved in procurement, production, management and sales process. Six units have been initiated in Madhya Pradesh.

Oyster Mushroom Production

Training and provision of spawn for cultivation is provided to prospective growers. The focus of this effort is in the malnutrition affected districts of Panna and Chhatarpur in Madhya Pradesh. A spawn making laboratory is functional at our office in New Delhi.

Solar and Renewable Technology Promotion

Environics has been involved in promotion of renewable energy by assisting in installation and maintenance of microhydels, promoting decentralised solar technologies. The organisation has established a 5 KW net-metered roof-top installation for our premises. In Chhattisgarh the organisation has enabled formation of two producer companies.

COMMUNICATION AND TRAINING

Environics through its website www.environicsindia.in provides information on ongoing activities and developments on these aspects in the country and through its social media pages. Environics has designed and conducted training programme Land Acquisition Officers, Municipal Corporations and community members.

The issues of land and forest legislations, the opportunities for enterprise development and livelihoods, such as production of sanitary napkins, oyster mushrooms, value added food crops are most focussed.

We have been recognised by the Mysore University for conducting an MBA (CSR & Development) in 2014. We have designed and taught the first Environmental Impact Assessment course for students of M.A (Environment and Development) for the Ambedkar University, Delhi and a course on Mining and Environmental Laws for the students of NALSAR, Hyderabad.

Gufa Gallery

In February 2019, we inaugurated a gallery in our premises with the paintings of Late Sri Amit Chakravarthi, who was with us and also designed our logo. The gallery will host other exhibitions and also inculcate discussions on environmental, social and cultural issues.

National and Global Networks

Environics also interacts with a wide variety of national and international development workers and networks and share their concerns and mutually enable learning. These networks include those on issues of extractives, energy, transparency, investments, climate change and development finance.

All statutory information regarding the organisation are updated and available at http://environicsindia.in/statutory-docs/.

Environmental and Social Concerns: Linear Projects in Himalayas

Linear projects have lax regulation and often cause widespread and intense damage in sensitive Himalayan Ecosystems. Communities have been concerned and seek to understand its ramifications.

UTTARAKHAND

1.1. INTRODUCTION

The Indian Himalayan Region (IHR) or the mountain ecosystem passes through 11 states (table 1) in India. Mountains cover 24% of the total land area of India. The erstwhile planning commission emphasized on Hill Area Development approach and now the NITI Ayog, on various occasions suggested preparing '*mountain policy*' to mitigate disasters and check haphazard developments, which is the root cause of natural calamities. But the moot question is whether making 'mountain policy' alone will solve the ills of road construction in the Himalayas. What more needs to be done?

Table 1 Indian Himalayan Region – At a Glance

S N	State	Area (sq km)	Population
1.	Arunachal Pradesh	83,743	13,82,611
2.	Assam	78,550	3,11,69,272
3.	Hill District of West Bengal	3,149	18,42,034
4.	Himachal Pradesh	55,673	68,56,509
5.	Jammu & Kashmir	222,236	1,25,48,926
6.	Manipur	22,347	27,21,756
7.	Meghalaya	22,720	29,64,007
8.	Mizoram	21,081	10,91,014
9.	Nagaland	16,579	19,80,602
10.	Sikkim	7,096	6,07,688
11.	Tripura	10,492	36,71,032
12.	**Uttarakhand**	**53,566**	**1,01,16,752**

1.2. ACUTE NEED OF A COMPREHENSIVE MOUNTAIN POLICY

Roads act as lifeline in the Himalayan Region for movement of material and humans, help enhancing interface with the administration as well markets. Roads have also become indicators of development and have also invited commercial land use around them, the road density is considered as the indicator of road development (Uttarakhand has a road density of 48 km per 1000 sq. km). *High road density might be a good indicator for road network penetration, but it is setting a bad precedent on environmental damage and ill management.* PMGSY has boosted village network connectivity with the higher hierarchy of roads. On the same hand, the new routes have also triggered landslides, instability, induced risks for existing facilities thus

making it one of the sectors creating impacts along its length and equally making the riverine environment vulnerable. Here we briefly discuss about border roads

Growth of Roads in Uttarakhand (in Kms)

S.No.	Category of Road	Road length as on 1.4.2000	Road Length as on 31.3.2016
1	National Highway	526.00	2186.00
2	State Highway	1235.04	4521.07
3	Major District Road	1364.15	2151.81
4	Other District Road	4583.01	2651.40
5	Village Road	7446.23	19537.38
6	Light Vehicle Road	315.77	732.21
7	Bridle Roads/ Border Tracks	3970.00	3186.00
	TOTAL	19440.2	34965.87

The staggering increase in road network after the formation of Uttarakhand is obvious from the table above. There has been tremendous expansion in different categories. Uttarakhand shares borders with Nepal and China, many roads are managed by Borders Road Organisation (BRO) – a Government of India undertaking. The state of Uttarakhand like many other states has already undergone several road improvement programmes, several are underway and several under implementation with the support of multilateral agencies like the Asian Development Bank (ADB) and the World Bank (WB).

S.No.	Projects	Length (km)
1	Uttarakhand State Highway Improvement Project (USHIP)	1005.115
2	Uttarakhand State roads investment programme (Three sub projects) ADB	2500 (approx.)
3	Uttarakhand Disaster Recovery Initiative – a programme initiated with the help of financing from multilateral banks	3300 (approx.)

Owing to this high growth and requirement of roads for rural connectivity, tourism potential and security needs, the road sector lacks effective framework to address the environmental impacts from road construction. The Asian Development Bank, for example has its own categorization of projects (Environment Assessment Guidelines 2003) and it brings out initial environment examination (IEE) and in case the project has no expansion of Right of Way and do not encroach on to any Environmentally Sensitive Areas (ESAs) declared as per government policy, EIA is not prepared. For instance, large scale development of linear projects (roads, railways, highpower transmission lines) in fragile Himalayan Ecosystem have intensified forestfelling/deforestation, accelerated soil erosion manifold, destroyed surface and underground drainage system leading to drier conditions, and initiated mass-movement at places neighbouring the infrastructural development pointing to destabilization overcast stretches.

1.3 SCOPING AND PUBLIC CONSULTATION: DONE AWAY FOR THE HIGHWAY

In the Indian environment regulation (or rather clearance) system, the adopted process comprises of four stages viz. screening, scoping, public consultation and appraisal. Each stage holding relevance of its own in the final decision making. But what if set clearance norms get milder with every passing year.

In the 2006 EIA notification, expansion of roads and highways which do not involve any further acquisition of land remains exempted from public consultation. As per amendment to EIA Notification 2006, dated 03.02.2015 furtherance to the list of exemptions is done for the road and highway projects. Now 'all linear projects such as highways, pipelines, etc. in border states' are exempted from public consultation. With increasing emphasis on regional/inter & intra country communication linkages and long-distance pipeline projects (oil/gas), this exemption allows escape route to the linear projects from public scrutiny. There is no denying the fact that connectivity must improve, and people get benefits but not in a lop-sided manner.

Similarly, as per the regulations, projects require scoping i.e. providing terms of reference for any project to assess impacts. August 2013 notification (to amend the EIA 2006 notification) exempted 'all highway expansion projects' from the scoping process. It required EIA and EMP report on the basis of model TOR specified by Ministry of Environment and Forests. In the 2015 notification further amendments were made to which say that Highway projects in border states as well as expansion projects in border states are exempted from scoping. This will mean giving a skip to the localised conditions based on which impacts were to be assessed and evaluated.

In the pre-2013 notification, scoping was limited to 'expansion of National Highways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State' but after the 2013 notification the threshold limit for highway length has been increased from 30 to 100 kms and Right of Way (RoW)/land acquisition limit has been increased from 20 to 40m and 60 m has been proposed for re-alignment or by passes. These upper limits form the new criteria for scoping of Highway projects. As a matter of project implementation strategy, the implementing authorities break down the projects in sections containing within the threshold limit and thus escaping scrutiny.

Tanakpur-Jauljibi Highway – Sectional Approach to Avail Clearance

Most of the Himalayan states have international border and lack of a mountain policy has led to disastrous consequences, as corroborated by recurring calamities.

Though aim of Border Area Development Plan include focused attention to the creation of infrastructure like roads (among others) but past experiences show that in the absence of a policy framework coupled with a lack of vision, infrastructural development will also create irreversible impacts.

For instance, large scale development of linear projects (roads, railways, high-power transmission lines) in fragile Himalayan Ecosystem have intensified forest-felling/deforestation, accelerated soil erosion manifold, destroyed surface and underground drainage system leading to drier conditions, and initiated mass-movement at places neighbouring the infrastructural development pointing to destabilization over vast stretches.

The Tanakpur-Jauljibi road is proposed (135 km approx.) with several Border outposts enroute and will cut down distance to Jauljibi by nearly half. The road is awaiting decision on the Pancheshwar Dam's final feasibility before a decision on its complete work order is approved. So far, the 12 km stretch from Kakrali

Gate to Thuligad has been double laned. Further to it the stretch from Thuligad to Rupaligad is proposed which is around 43 kms. This cuts off the total length of 135 kms for the last section i.e Rupaligad to Jauljibi at [135-(12+43)] = 85km. This way the project is broken into several sub projects and being a border state, all the exemptions proposed in the 2015 notification on public consultation and highway projects and their expansion are applicable. As land acquisition is a problem for highway projects, so is environmental management. Beyond Thuligad this will be an almost new alignment and will be a long (in kilometres) riverward activity for which issues of access, debri & muck management, controlled blasting, triggering of landslides, tree cutting, and many more issues need answers.

From Kakraligate to Thuligad, 3.8 hectares land for widening of 1 ½ lane to 2 lane has got Forest Clearance in January 2016 whereas from Thuligad to Rupaligad 49.7 hectares land is expected for diversion. More than 6000 trees are expected to be felled in this section alone.

Hill side cutting in progress

Self Made Alternatives but at a cost

Town 'Dharchula' in India and 'Darchula' in Nepal are located on the opposite banks of river Mahakali. The only mode of transport across the river is either through ropeway or through the tubes, locally known as '*tuins*.' Every year many Nepali and Indian villagers lose their life to the perilous journey – to the extent that it is no more a news. People crossing river on a *tuin* are constantly rocked by the fear of getting drowned in the river or falling down from ropeway into the Mahakali River and drowning.

Locals of Rapla, Sunsera, Dhaulako, Huti, Pipalchauri and Hikila use tuins to cross the river. Apart from them, they are also used in Dumling, Maal, Rithan, Bartibagad, Malghat, Madgau, Syaku, Dokat, Tirgam, Spagadha and Huti.

Sowan Singh Khati of Sunsera village says – "We have no choice. We know that we may fall in the river, too. It is always a narrow escape from death every time we use it. And during *Dashain* (Dushahara) the movement is more than the rest of the year as people go across the border to buy things and many return home from India." Khati lamented - "If essential commodities and facilities were available in our own villages, we would not have to make such risky journeys to India often. We don't have even schools and hospitals in our place. So we have to put life at risk every now and then."

First and foremost, within the prevailing paradigm of development and global macro-economic policies, mere policy changes will not save the mountains in general and Himalayas in particular. A paradigm shift is acutely needed for reorienting developmental-economic policies. The following tenets will constitute a pro-people, environmentally-ecologically sensitive sustainable policy, aimed towards the conservation of Himalayas, deriving from the policy failure so far.

The linear projects have brought disaster and destruction in this fragile ecological zone, as these are insensitive towards local ecology and environment. It highlights the need to explore newer modes of connectivity, especially when mountain people don't require high frequency of physical mobility. Digital connectivity (for keeping in touch) and ropeway development (for transportation) emerge as better alternatives.

Strict environmental regulatory regime in ecologically fragile regions like the Himalayas which is a storehouse of resources and supports downstream communities. The risk framework in the current context is required for assessing valuation of ecosystem services and the rights which will be at loss. Along with this it must weigh impacts and social desirability for looking at least impacting alternatives to connect people.

It is often found that road construction, especially in the mountains and Himalayas moderates/influences the drainage network, leads to deforestation. Rivers become 'sinks' due to the physiography of the ecosystem. Technology shift, strict compliance and oversight by communities and administration are few options for reducing and streamlining this sector to the vulnerabilities of region.

Himachal Pradesh

ADB financed Project NH21: Complete Disregard to Himalayan Communities

Background

The project is part of the National Highway Development Programme (NHDP) Phase III in India. ADB financed this project and several others under Tranche 1. The 84.375 Km project is divided into two sections, Kiratpur to Bilaspur and Bilaspur to Nerchowk. The total cost of the project in 2012 was 2291 Crore (22,910 INR million) with IL&FS as an EPC contractor and several independent and design consultants. IL&FC further awarded the concession to a SPV formed for the purpose of implementation of project, called Kiratpur-Nerchowk Expressway Limited (KNCEL). KNCEL further awarded work to contractors.

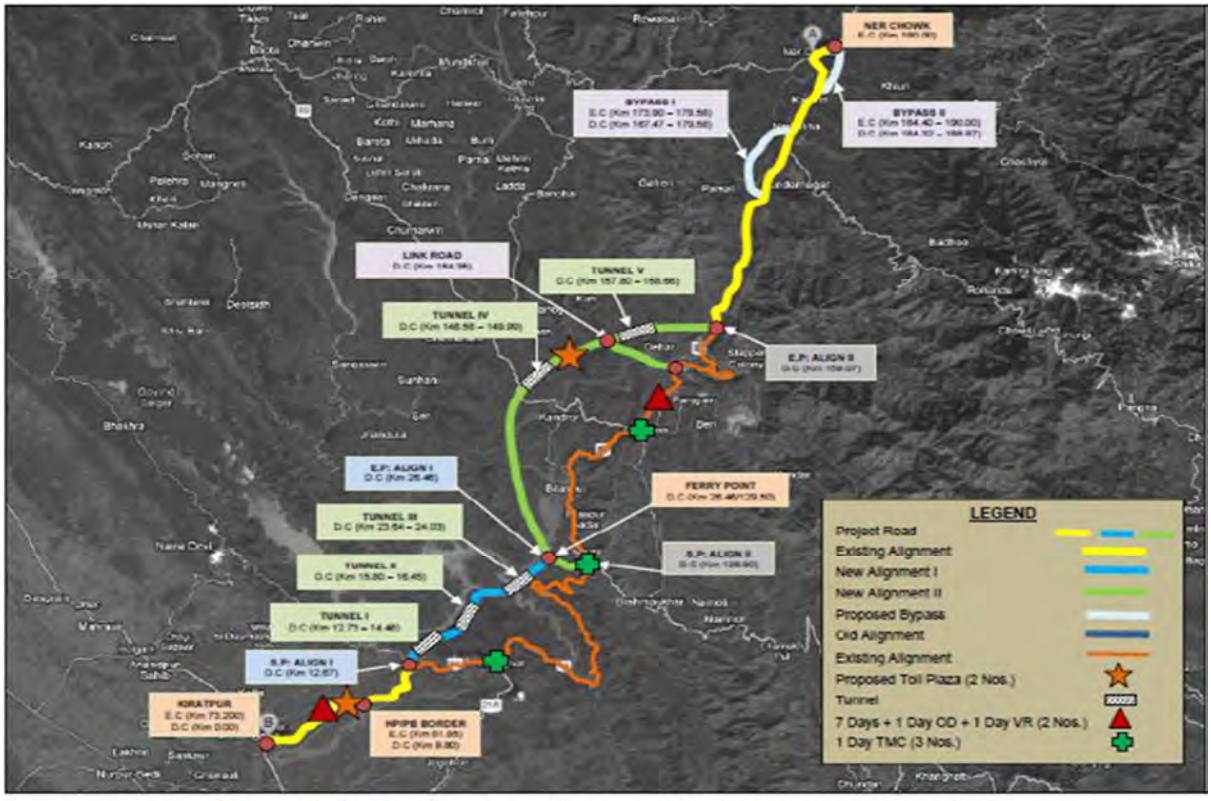


Figure-1: Project Location: Kiratpur Ner Chowk Expressway Ltd.

Source: ADB Project report

Beyond Kiratpur which is the starting point of project is located in Punjab state and beyond Kiratpur, the hilly section of the highway begins. River Sutlej drains the upper catchment areas before the river flows into Gobind Sagar Reservoir (Bhakra Nangal Dam), one of the largest in Himachal Pradesh. Another crucial social aspect in this region is that the communities settled in the Bilaspur region are earlier oustees from the Bhakra Dam which was built in the 60s. Almost 30-35 fishing cooperatives have fishing rights in the reservoir and other livelihood activity is agriculture. In terms of vulnerability, the region is prone to erosion, landslides owing to the geological formations in the lower and the upper hills. Bilaspur-Nerchowk section is a connectivity link to the Manali-Rohtang pass section.

An overview of the region showing location of Bilaspur-Nerchowk

The project was conceived as a Design, Build, Finance, Operate and Transfer (DBFOT) basis under NHDP phase-III., through public, private partnership (PPP) which eventually changed to Hybrid-Annuity Model (HAM), brought out to facilitate market raised finance in the volatile financial situations prevailing globally.

It has been nearly 7 years since the inception of the project. Transparency has been at the lowest which has kept people in dark while continuing the construction activities before those stopped due to irregularities of EPC contractor i.e. IL&FS and is on the brink of bankruptcy unless and until money infusion is done to regain its functionality. The board of IL&FC was dissolved and new caretaker board is functioning in the interim to find ways of streamlining its operations and find ways to overcome financial woes.

The project came up in 2012 and all the executive and administrative procedures were completed with extraordinary haste in just seven months – from notification under 3A, 3D, 3G, for acquiring land to actual land acquisition, including public hearing, award and finally demarcation of central line. It was in 2013-14 when Madan Lal, took voluntary retirement from Indian Army and came back home for his ailing mother and family, he realised that there is no information which should have been made available prior to implementation of the project. He and several others formed the Affected People's Association (called 4-lane bhuvisthapit samiti) to carefully look into the irregularities and non-compliances. The Indian laws provide right to the citizens under the Right to Information Act to file application requesting information from public authorities. The association vehemently used the Act thus also stating that poor state of proactive information sharing with the affected – atleast that information that relates to life and property. None of the ADB reports points to this gross negligence when a financial package is provided for project development.

Mismatch: Land Acquisition Plan and Road Alignment

The NHAI manual on land acquisition states that if any missing plots remain to be acquired during the final road alignment, the same can be acquired but the limit of such missing plots is pegged at 10% of the total

land required for the project. The association believes that this has been grossly flawed but they are unable to tell statistically as no information is provided by the authorities which clearly put the intentions under doubt. The issues emanating from land acquisition and land alignment are as follows;

a) Basic LAP plan and road alignment maps not provided under RTI as well as no physical demarcation has been done to ascertain which plots come under Right of Way of the widening.
b) The authorities have bypassed the revenue settlement process by not clarifying the remaining plots after acquisition; this has created a situation of utter confusion among people. People are unable to settle near their already acquired land/house due to this flawed approach.
c) In several sections, the available LAP and road alignment differs but there seems to be no approval of competent authorities. It is apprehended that such a situation has been created due to wrongful planning and push for completion of the project in fast mode. But resultantly, the losers are the locally affected.

Damages due to Muck Dumping and Modification of Environment

As this is a road widening project from the existing 2-lane highway into a 4-lane highway, there are several tunnels proposed too. Road side hill cutting results in generation of huge quantities of muck including soil. The project was to contain muck within the ROW and in the destined 21 muck dumping sites. But the association has located around 60 such muck dumping sites on ground which is clear violation of environmental conditions imposed by the MOEFCC. The several committees formed after the association asked for inspection of the same, the authorities excused themselves from coming up with quantum of muck contained in these sites and how much of it has flown down in the river and subsequently into the reservoir. Around 110 people have come up to the association regarding damages caused to their lands due to failed retaining walls, unscientific road cutting resulting in encroachment and deterioration of land. And those who agreed to allow muck to be dumped on their land were promised levelled land but that has not been done despite several requests. Local streams called *khadds* that flow into River Sutlej are choked due to dumping alongside them thus making them recipients of unwanted muck. Drainage modification is the root cause which lessens the sustainability of local water regime and watersheds on which people depend for

agriculture. A complete disregard to local environmental regime and socio-cultural aspects is seen and none has been reported in the social safeguards report by the ADB.

Reducing Fish Catch: Degrading Rights of the Cooperatives

Due to inundation of large number of land holdings due to building of Bhakra dam, the affected were given fishing rights in the reservoir. There exist 30-35 fishing cooperatives in and around the area. Many of the fishing cooperatives have been reporting low fish catch post 2012. The Kol dam project which is upstream stops probable silt coming into the River from upper reaches which makes these fishing cooperatives believe that muck from road construction has also played a major role in increased silt load of the reservoir. Consistent low fish catch reported by the government over the last 7 years is a clear indication of anthropogenic changes brought into the environment. The government itself earns revenue from the fishing activities by cooperatives by charging around 15% royalty from total sale proceeds of fish catch. This has lowered from INR 10.94 million in 2013-14 to 7.96 million in 2016-17, a clear loss of 2.8 million INR. If an upward calculation is done, the following is the loss of cooperatives

Loss 2.8 Million INR (4 years) – 15% of total Earnings (Royalty)

*Thus, total earnings lost = 2.8*1/0.15 = 18.6 million INR*

This is a huge earning by right holders and thus cast doubt on ADB financing with disregard to whatever wrong takes place in the project. The fishing department itself has not denied damages from increase in siltation from the NH21 construction and resultant muck ending up in the river system.

About Accountability Mechanism and Compliance Review

ADB has failed in popularising the AM policy during the inception of the project, neither the loan recipient nor the concessionaries foretold people about project level grievances. For the project public hearing there was no such information shared which could have increased the chances of compliance. The process was not known to the affected and they lost time in struggling to get right information.

The 4-lane Visthapit Samiti demands the following;

1. Comprehensive resurvey of all plot numbers, even if it takes a year, to identify affected not covered due to irregularities compensate and create an effort for restitution of environment and forests.
2. Clear demarcation on the ground unless the project is completed.
3. Make available complete section details in the local Panchayats of both the Land Acquisition Plan, overlapped with cadastral maps and road alignment clearly making distinction between the three. Individuals can come and inspect maps in the Panchayat and make the process simple and clear.
4. Restore and provide alternate employment, agricultural land and homestead to those whose properties were wrongfully acquired
5. Assess the damages of individuals whose lands are damaged due to illegal muck dumping and poor environment management, for example weak retaining structures.
6. Damage assessment and compensation to the fishing cooperatives for the losses they have incurred due to muck as fish breeding is constrained in the local streams (khadd). The methodology can be evolved by the fishing department and the 4-lane association, ADB can provide its technical inputs and thereafter compensation to the affected.
7. Clean up and clear the muck dumped in the local khadds before the onset of Monsoon but preferably by mid-March and no more fresh dumping to be done on the slopes and near the khadds.

Responsible Finance: Impact and Risks of Financing Coal

The concept of responsible finance has evolved rapidly in the last decade taking it out of the realm of being narrowly confined to the ethics and integrity of financial transactions. The initiatives taken by the United Nations and financial institutions in response to the growing importance of investments and banking has led to the consideration of various environmental, social, health, human rights, climate change and governance concerns in dealing with responsible finance. Most responsible investments now want their portfolios to be aligned with the United Nations Sustainable Development Goals (UNSDGs). The risk management framework Equator Principles for financial institutions in its forthcoming EP4 has initiated ways of aligning key issues with the UNSDGs. The Global Alliance of Banking on Values seeks to ensure that value-based banking becomes culture 'among its members. The Extractive Industries Transparency Initiative has recently made contract disclosure and gender reporting mandatory. India was the first country in the world to make corporate social responsibility (CSR) mandatory for companies since then it has been making strides in incorporating it. The government's initiative mandating National Guidelines for Responsible Business Conduct is a welcome step as it seeks a comprehensive understanding and behavior by the business community to include issues of human rights, environment, and equity in its practices.

National Voluntary Guidelines on Responsible Finance

The Indian Banking Association (IBA) brought out guidelines for responsible finance in 2016. IBA's initiative was based on its assessment that financial institutions can no longer ignore the imperatives of sustainable development as reflected in issues like climate change, water conservation, poverty reduction, energy efficiency, social inclusion and innovation as these have become increasingly central to managing competition, business continuity, customer demand, and regulatory requirements.

The guidelines are a voluntary instrument and go beyond compliance thus raising the bar of conduct. These guidelines do not lead to any legal liabilities for the adopting organizations. The benefits accruing from adopting the guidelines include proactively building a positive reputation through transparent communication with stakeholders. These guidelines are envisioned to drive organisations to longevity and sustainable value creation. However, not much progress has been made by the banks even though many of them were engaged in formulating the guidelines.

National Guidelines on Responsible Business Conduct (NGRBC)

The Ministry of Corporate Affairs (MCA), Government of India, released a set of guidelines in 2011 called the National Voluntary Guidelines on the Social, Environmental and Economic Responsibilities of Business (NVGs). This was expected to provide guidance to businesses on what constitutes responsible business conduct. To align the NVGs with the Sustainable Development Goals (SDGs) and the 'Respect' pillar of the United Nations Guiding Principles (UNGP), the process of revising NVGs started in 2015. After careful revision, the new principles were formed the National Guidelines on Responsible Business Conduct (NGRBC). As with the NVGs, NGRBC being designed to assist businesses to perform above and beyond the requirements of regulatory compliance. NGRBC is designed for all businesses irrespective of their ownership, size, sector, structure or location. It is expected that all businesses investing or operating in India, including foreign multinational corporations (MNCs), will follow these guidelines.

Coal and Thermal Power in India

Coal provides about half of India's commercial primary energy supply and is a dominant fuel for power production. India is the 3rd largest power producer and 3rd largest coal importer in the world. India's current

installed power capacity is nearly 350 GW. Total thermal capacity in the country stood at 222.93 GW while renewable, hydro and nuclear energy installed capacity totalled 75.06 GW, 45.40 GW, and 6.78 GW respectively in February 2019. Coal, however, is projected to remain as the mainstay of the Indian energy system at least till 2030 even though its share in power generation will fall.

India has major coal deposits in the central states of Telangana, Maharashtra, Chhattisgarh, Odisha, Jharkhand, and West Bengal. The Geological Resources of Indian Coal estimated coal resources in the country at 315 billion tonnes as of April 2018. Due to a cheap and better quality of non-coking coal, India has also been importing coal on a continuing basis as the total imports during April 2019, non-coking coal shipments were at 15.08 million tonnes (MT) out of the total imports which were 20.72 MT.

Coal India Limited (CIL) is the world's largest coal mining company which produces 84 per cent of India's thermal coal. The central government owns a little over 75 per cent shares in CIL which provide a significant reserve to the national treasury through dividend payments and taxes on coal production. Most coal is sold to power producers, predominantly under fuel supply agreements at administered prices.

The Ministry of Statistics and Plan Implementation (MOSPI) states, "Mining unless properly regulated, can have adverse environmental and social consequences. On the one hand, mining disturbs the soil, water, and ecological regimes and on the other hand, unless accompanied by proactive measures to promote inclusiveness through social education, health, and other interventions, it can lead to alienation of the local population and assume socially unacceptable dimensions. Issues of technology for zero waste or low waste mining, relief and rehabilitation, mine closure which otherwise leads to land degradation are important issues which require continuous attention."

The country is witnessing a huge financial burden in the form of stressed assets leading to huge losses for national banks. Unfortunately, such situations have often been neglected because of irregularities in allocation of coal blocks corruption, lending policies and due diligence processes by financial institutions.

India's Energy Policy

In 2006, the Government of India sought to have an Integrated Energy Policy for the first time with the goal of providing energy security for all. Its vision was to reliably meet the demand for energy services of all sectors including the lifeline energy needs of vulnerable households in all parts of the country with safe, clean and convenient energy at the least-cost. The policy's objective is to achieve this in a "technically efficient, economically viable and environmentally sustainable manner using different fuels and forms of energy, both conventional and non-conventional, as well as new and emerging energy sources to ensure supply at all times with a prescribed confidence level considering that shocks and disruption can be reasonably expected."

NITI Aayog published a new Draft National Energy Policy (NEP) in 2017 post the Paris Agreement with the objectives of "access at affordable prices, improved security and independence, greater sustainability and economic growth." The policy's intent is to ensure that electricity reaches every household by 2022; it also proposes to provide clean cooking fuel to all within a reasonable time.

NEP also presents a scenario in which the dependence on coal will be significant in 2047. The dependence on fossil fuels also implies that it will have adverse implication on sustainability.

The policy concedes that given the poor air quality already existing in the country and the catastrophic effects of climate change, India needs to rapidly find more efficient technologies to reduce pollution and rapidly move to renewable energy sources.

NEP envisages 333 GW of coal- based power generation in 2047 in the Business-as-usual (BAU) scenario and 459 GW in an ambitious growth pathway. This contrasts with the government's flagship company CIL whose Coal Vision 2030 states, "Technological change, change in environmental and regulatory regimes, global trade and economic ambiguity have jointly created uncertainty in the energy markets."

Multilateral Development Banks Restricting Investments in Coal

	Multilateral Development Banks	Latest Restriction
1	World Bank (2013 **First Restriction)**	Oct 2018
2	European Investment Banks	July 2013
3	Asia Infrastructure and Investment Bank	Jan 2017
4	New Development Bank (BRICS Bank)	July 2018
5	International Finance Corporation (part of the World Bank)	Oct 2018
6	Asian Development Bank	Oct 2018
7	European Bank for Reconstruction and Development	Dec 2018

Top Lenders in Coal

S N	Lenders	US $ (Million)
1.	State Bank of India	7,231
2.	ICICI Bank	1,264
3.	IDFC	1,153
4.	Axis Bank	759
5.	Punjab National Bank	592
6.	SMBC	498
7.	IDBI Bank	460
8.	HDFC Bank	399
9.	Syndicate Bank	397
10.	Allahabad Bank	382
11.	AMP Australia	335
12.	Canara Bank	333
13.	Punjab National Bank	592
14.	SMBC	498

Source: Coal Vs. Renewables Finance Analysis. Centre for Financial Accountability, 2017

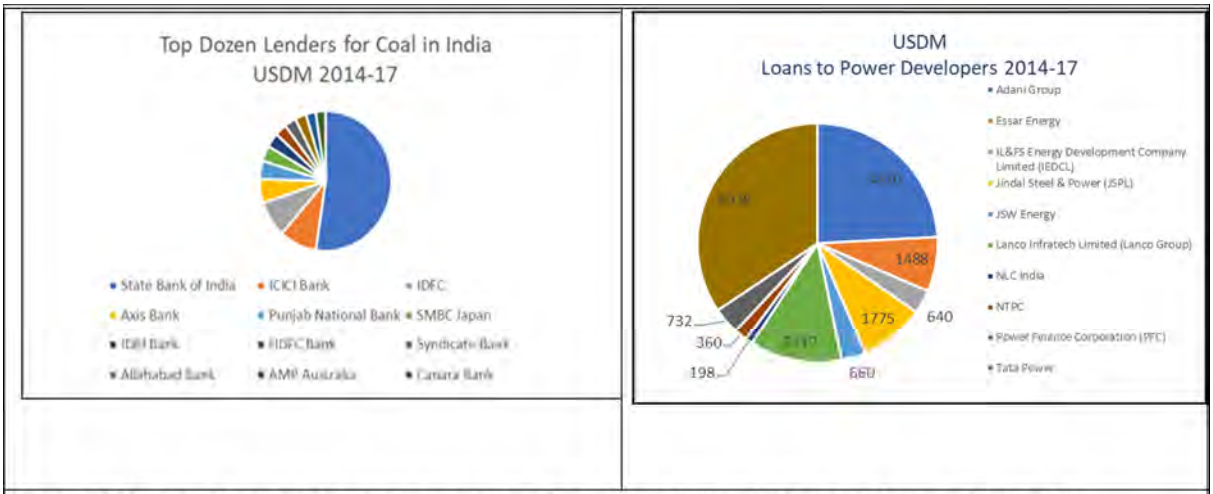
The inconsistency between the NITI Aayog's Draft Energy Plan, the Central Electricity Authority's (CEA) National Electricity Plan and Coal India's Vision 2030 clearly indicates the uncertainties in future energy scenarios.

Financing the Coal and Thermal Power Sector

In the past, state and multilateral development banks made significant investments needed in the power sector. Owing to risks involved in financing conventional power projects and increasing pressure on the impact of coal and thermal power primarily linked to climate, most multilateral development banks are restricting or divesting coal.

A 2018 analysis by the Centre for Financial Accountability showed that 12 coal-fired generation projects with a combined capacity of 17 GW obtained loans of INR 607.67 billion. In 2017, the top ten project finance lenders to coal-fired power plants in India were government-owned banks and financial institutions that collectively gave over INR 300 billion primarily as re-financing of existing debt.

Based on an analysis of publicly available databases the 12 biggest lenders to the coal sector in India for 2014-17 State Bank of India (SBI) was the biggest lender and had exposure to the coal sector that was equal to 11 other lenders combined. Among the international lenders, the prominent ones were Sumitomo Mitsui Banking Corporation of Japan and AMP Capital of Australia.



Nearly 80 unique lenders have an exposure of nearly 20 billion USD in coal projects in India

Source: Institute for Energy Economics and Financial Analysis

Stranded Assets

In 2018, 34 coal based thermal power plants were categorised as financially stressed with a cumulative outstanding debt of INR 1744.68 billion. Projects with capacity of 15 GW out of the total stressed capacity of 40 GW are under construction.

Details of financially stressed thermal power plants	
Total Number of Projects	34
Commissioned Capacity	24,405 MW
Under Construction Capacity	15,725 MW
Total Stressed Capacity	40,130 MW
Total Outstanding Debt (INR)	**1,74,468 Crores (1744 billion)**
Source: Report of 46 Standing Committee on Coal and Steel 16 Lok Sabha (2017-18)	

The reasons for these stressed assets are – non-availability of fuel, lack of power purchase agreements, inability of promoters to infuse capital, contractual/tariff related disputes, issues related to banks/financial institutions and delay in project implementation leading to cost over-run. The reasons for shortfall of coal supply, as per the report of 46 Standing Committee on Coal and Steel (2017-18) were due to delay in environment and forest clearances, land acquisition, law and order and evacuation problems.

Impact and Risks

Climate and Environment

Coal has manifold devastating impacts on the environment. Its long-term impacts include massive deforestation, loss of flora-fauna and enshrined genetic resources/biodiversity, soil degradation, contamination of water sources, loss of livelihood of dependent communities, increased wasteland, and air pollution leading to severe consequences for public health. According to the Health Effects Institute (2018) it is one of the largest sources of fine particulate matter (PM2.5) in India today because of its poor quality and because it contains high quantities of ash and heavy metal and traces of radioactive elements. The generation of power and the corresponding emissions as estimated by the Central Electricity Authority for

its baseline report indicates that in 2017-18 the electricity sector alone resulted in emissions of nearly a billion tonnes of CO_2 into the atmosphere.

Greenhouse Gas Emissions

The standards that India follows for pollution and resource use are far behind global norms. However, its power plants fail to meet even such relaxed standards as they lack the basic technologies needed for controlling pollution. Coal based thermal power plants emit CO_2 and are undoubtedly the biggest emitters of greenhouse gases (GHGs). An increase in GHGs is directly related to global warming, where India will see an estimated 1.3 per cent drop in its real GDP for every $1^{o}C$ increase in temperature.

The Intergovernmental Panel on Climate Change's (IPCC) special report (2018) clearly warns of a runaway climate change leading to a global crisis. Energy systems contribute to a large proportion of power generation and among these sources coal is undoubtedly the most important. It is, therefore, an urgent necessity to transition from coal to renewable energy. The huge chasm between the promise and the performance needs a Herculean effort to reverse the mindset of the State and regulatory agencies if we are to become serious about the looming climate crisis and even our Nationally Determined Commitments.

Air Pollution

Coal fired power plants make up 60 per cent of India's 330 GW of installed power capacity and account for the bulk of the industrial emissions of lung-damaging particulate matters and gases such as sulphur dioxide and nitrogen oxides that cause acid rain. The Indian government has been making efforts to tackle air pollution in the country but this has had little impact due to inconsistent enforcement and improper implementation of policies.

Coal-based power plants need to adhere to stricter pollution norms from December 2017. Several environmentalists have raised concerns about increasing air pollution across the country because of these polluting plants. Almost 40 per cent of the ash generated by coal-based power plants is not utilised and ends up in landfill sites as a waste product. Eighty per cent of the total ash generated by these power plants is fly ash while the rest is bottom ash which poses a serious threat to the environment.

For example, the inability to manage fly ash produced by the Kaniha NTPC plant situated in Angul district, Odisha, has emerged as a grave problem forcing villagers to live in perpetual fear. More than 50 per cent of the fly ash generated by the Kaniha NTPC plant has remained unutilised causing lung disease for people living around thermal plants. The average total fly ash pond generated by the Kaniha NTPC plant is 20,000 TPD, as put on record by the then State Forest and Environment Minister, Debi Prasad Mishra. About 5,000 villagers in Dereng in Kaniha block of Angul district in Odisha are living in between two ash ponds of NTPC and the Jindal India Thermal Power Ltd. and have alleged that there is severe fly ash pollution. In September and December 2018, NTPC sought to take up expansion work at these plants and on both occasions people's opposition led to the work being stopped.

Water Scarcity and Pollution

Coal-based power plants are water intensive. However, data on power plant water use in India is very limited. A study reported that about 32 per cent of the installed thermal capacity in India is in high water stress regions and with limited water resources any further expansion in coal power plants will add to this growing problem. Wherever the mines have breached the groundwater table the adjoining areas have suffered the consequences of a lowered water table which has directly resulted in wells and other near-surface sources drying up. It is clear that the harm being done to the water table by the mining industry

must be considered seriously as in several places major resources lie beneath the water table. The breaching of the groundwater table must be subject to stricter regulations as the very basis of the survival of local communities is sacrificed at this stage. The long-term effects on groundwater are even graver, like, permanent lowering of water table, soil degradation and loss of livelihood of dependent communities, drought, desertification, etc.

The coalfields in North East India have high sulphur content leading to a large volume of acid mine drainage. An acidic content deteriorates the soil quality severely thus affecting crop growth and yields. It seems unjust that not only are communities living in coal-bearing areas providing resources for the profit and growth of other regions but the revenue thus earned by the government is not being used for the welfare of the people in the region to enable them to become more climate resilient. Instead, their lives are being sacrificed in the name of development. An estimate of the potential number of people who will be impoverished because of reduced crop yields, places the figure between 8 and 26 million between now and 2030.

A study has revealed that during 1 July 2016 to 25 April 2017, 24 units of 13 power plants spread all over country were forced to shut down for different number of days due to water shortage, resulting in a loss of power generation of 7486.94 million units (MU). Furthermore, as per Environment (Protection) Amendment Rules, 2017, notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC), all new plants installed after 1 January 2017 should not consume more than 3 m^3/MWh power produced.

Human Rights

As coal is the largest domestic fuel source in India, it employs many people in its supply chain. Due to limited or no formal availability of employment statistics, doing a detailed analysis of the coal supply chain is challenging. The Universal Declaration of Human Rights (UDHR) guarantees the right to equality. However, state policies and high-handedness of the government, corruption and intimidation by the industry has led to many communities facing displacement and other human rights violations through mining. Ensuring equity i.e. incorporating distributional concerns means first identifying and then weighing the risks and benefits to individuals and groups on the basis of differences in incomes, wealth and social conditions.

Free, Prior and Informed Consent

Human rights violations in coal mining begin with non-provision of adequate information to ensure free prior and informed consent which includes the basic right to be informed, to participate and ensure the rights of the people and communities is not violated. Not one of the nearly 700 coal mines can demonstrate a fair process of consultation and consent. The State has also created loopholes such as the exemption of environmental public hearings in case coal mines are being expanded.

Actually the request for increased exemption up to 50% first came up in July, 2015 during a meeting held between the then environment minister and the Coal Ministry, where CIL made a request to allow them to increase the production capacity by 50% without public hearing to meet the government's coal production commitment of 908 million tonnes. CIL also mentioned that to meet that production demand, an additional 212 projects will require EC and 154 projects will need forest clearance, clearly making a case for fast tracking clearances. Finally, at a meeting held on July 25, the EAC approved this long-pending proposal of CIL seeking exemption from public hearing when ECs are sought for coal projects seeking a capacity expansion of 50 per cent. Where public hearings have been held, they have been dominated by officials and people in favour of the promoters. For instance, at the public meeting to acquire land for ash pond of Kaniha Super Thermal Power Plant or the environmental clearance letter for Ultra Super Critical Talcher

Thermal Power Plant in Odisha, indicate that the people protested on issues of employment, compensation and pollution but "later supported the project for the development of the area."

In most cases where consent is needed, the State has twisted it in the form of a 'no objection certificate' which is often forged, or signatures are taken by misrepresenting the purpose of procuring signatures. The perceptions, intent and management culture of the owners have a big role to play in the implementation of the policies. Though the global practices are moving towards a free-prior-informed-consent, Indian Acts still rely on age-old systems of record keeping and reporting by mine owners. Furthermore, nothing in Indian Acts directs mine owners or managers to incorporate governance and management issues. The new regime has also ensured greater control over the processes through online monitoring and self-certification. The Acts need to be revisited considering the new safety standards as well as methods to operationalise them in a fair and just manner. Operations in Coalmines are regulated by the Mines Act, 1952 Mine Rules – 1955, Coal Mine Regulation-1957 and several other statutes framed thereunder. Directorate-General of Mines Safety (DGMS) under the Union Ministry of Labour & Employment (MOL&E) is entrusted to administer these statutes. Even the inquiry reports of the Directorate General for Mine Safety are not made public.

Displacement

Land and adjoining forest resources are prime sources of livelihood for most of the rural population. The land acquired for large-scale coal mining is non-transferable. This land plays an important role in the lives of the communities and in its absence the local poor communities are forced to change their livelihoods. As land reclamation is not easy in a tropical climate because there are difficulties in grading the land and the restoration of soil this directly affects local communities' abilities to sustain themselves and leads to temporary or permanent migration. Land reclamation means recuperation of land to its original productivity, in which topsoil is the key. It takes 500 to thousands of years to create an inch of topsoil in nature. The reason is that soil is often derived from rock and its weathering, erosion, chemical action, addition of humus, etc. and depends on a number of factors – parent rock type, topography, vegetation, climate, and so on. In tropical climate, different seasons affect the rate of attrition to varying degrees which affects soil formation.

Furthermore, land reclamation becomes feasible only when a particular country has reached a stage of sound economic development and is equipped with adequate financial and technological resources. In a developing country like India, there is a strong lobby working against diverting limited resources for reclamation of land because important development projects of irrigation, power, industries, mining and other sectors must have priority.

Land acquisition also results in dissembling communities as some of the villages are displaced and spread across several settlements. The Government of India concedes that 50 million people had been displaced due to 'development' projects in the country in last 50 years.

The land is mostly acquired under the Coal Bearing Areas Act, 1957 that gives the State the power to acquire any land under which coal exists. This has been used for over-riding other protective legislations in the allocation of land for coal mining. Despite the new Land Acquisition, Rehabilitation and Resettlement Act (RFCTLARR) Act of 2013 which ensures fair acquisition processes, the procedures continue to weigh against the newly displaced people. Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (RFCTLARR), 2013 has come into force on 1st January 2014, substituting century old Land Acquisition Act 1894. However, Section 105 of RFCTLARR Act, sub-sec (1) says

that new Act shall not apply to the enactment relating to land acquisition specified in the 4th schedule of the RFCTLARR Act. The 4th Schedule contains the Coal Bearing Act (1957), along with 13 other Acts, which will continue to remain in force. Government of India enacted the CB Act (1957), deriving the provisions of LA Act 1984 for acquiring the private land of the coal blocks by the then government company National Coal Development Corporation, established in 1956. The land acquisition for private company captive coal block is done through LA Act 1894. Since LA Act 1894 has been repealed, now all the private land acquisition in the coal blocks, have to follow the land acquisition process contained in RFCTLRR Act.

Displacement of tribals – A bird's eye view

The draft National Policy for tribals (2017) recorded that nearly 85.39 lakh tribals had been displaced till 1990 because of some mega projects (Figure 2). Tribals constitute at least 55.61 per cent of the total displaced in the country till 1990. The government does not recognise tribals as 'indigenous people.' It makes a huge difference as there exist a UN Convention for Indigenous People and other tools, to protect their rights and cultures. The official stand of India is that our country has been a melting pot of races and it is impossible to ascertain, who is indigenous and who is foreigner.

In Dumka, Jharkhand, police resorted to brutal methods in December 2008, on people opposing proposed Aamgachhi-Pokhariya Thermal Power Plant. The Jharkhand Police opened fire on a procession of 8,000-10,000 tribals protesting against the setting up of a 1000 MW coal-based power plant in Aamgachhi-Pokhariya villages. One tribal was killed on the spot, seven suffered bullet injuries and 15 people, including women, were severely beaten. People who suffered bullet injuries were also arrested and when in the hospital they were shackled to the beds. Many of the protestors are still defending cases against themselves even today.

Occupational Hazards

According to the Ministry of Labour and Employment, "Coal mining is recognized as one of the most hazardous peacetime occupations mainly because of the highly unpredictable and varying nature of working conditions." Right to life includes the right to live in a safe environment which is denied not only to the people who are displaced but also to those working in the mines and living in their surrounding areas. Since safety in the mines is largely compromised as most of the actual mining operations are outsourced to contractors, communities' concerns are not recognised. For instance, as on 31 March 2019, about 70,000 contract workers were engaged in Coal India Limited.

It is estimated that for every 5 million tonnes of coal input in a plant, one person loses his or her life and about eight people suffer disabling injuries. The Comptroller and Auditor General (CAG) estimates that initial and periodical medical examinations were done for company employees while only 1.58 per cent to 7 per cent of contractors' employees underwent a medical examination, which is mandatory, as revealed in Chapter 5 "Safety in Mining" CAG Report (2011), titled Union Performance Commercial Coal India Limited Corporate Social Responsibility. The Meghalaya mining accident happened on 13 December 2018, when

15 miners were trapped in a 370 feet-deep illegal coal mine in Ksan. Rescue operations by National Disaster Response Force (NDRF), army and navy were wind up on 1 March 2019, after sixty days of search.

Employment in the mining sector has been decreasing substantially because of rapid improvements in mechanisation. Data from 2000 to 2014 indicates that nearly 100,000 jobs were reduced during this period.

Impact on Women

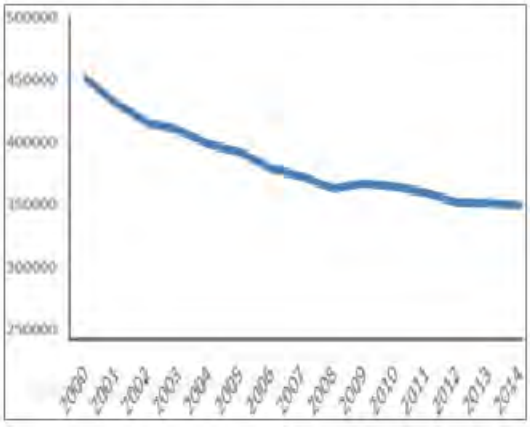
Women in the mining areas are the most vulnerable and are subject to exploitation. In a 30-day study and based only on references given by known people, nearly 100 un-wed mothers were identified in Angul district indicating the gravity of the situation. Testimonies of women in coal mining areas in Talcher in Odisha show that displacements and loss of land were the most serious problems affecting their lives, as their link to livelihoods, economic and social status, health and security depended on land and forests. Whenever villagers have been displaced or affected, women have been forced out of their land-based work and pushed into menial and marginalised forms of labour like working as maids and servants, construction labourers, and even prostitution. While traditional livelihood systems based on land gives women an important role in agriculture, collection of forest produce and managing the livestock and related activities, the immediate offshoot of mining has been a destruction of these roles for women in land-owning communities and also among agricultural labourers.

Gaps in Environmental Assessments

In 2011, CAG found that 239 CIL mines that existed prior to 1994 were working without environmental clearances in violation of the first notification by MOEF&CC in 1994, wherein for the first time in India, guidelines for taking environmental clearance for developmental, industrial and mining projects were laid down. In 2016, CAG found that in 25 per cent of the audited cases, the Environment Impact Assessment reports did not comply with the terms of reference and in 23 per cent cases they did not comply with the generic structure of the report. It also stated that there were no provisions for project proponents to fulfil their commitments in a time-bound manner and to ensure that the concerns of the local people were included in the final Environmental Assessment and Environmental Clearance granted by the State.

Recommendations

Figure 3 – Decreasing employment in mining sector (2000-2014)



The State needs to take a serious view of the prevailing situation in coal mining sector, like regulatory mechanisms, weak monitoring, non-compliance, etc., considering financial and more significantly climate uncertainties. Energy planning and implementation is a very complex process in the context of a country which needs high growth rates with a low or no carbon footprint. It needs to evolve mechanisms to address the long-term needs for energy without jeopardising its climate goals. Investors, particularly banks and financial institutions, have to respond to critical issues for de-risking as they already have huge non-performing assets.

Phasing out coal is an important element in ensuring lower levels of emissions in the future. This requires evolving methods of unwinding investments and opting for a just transition of communities and workers

dependent on coal mining and coal-based power generation by imparting newer skills to them and engaged in economic activities in the emerging energy-fields, like solar, wind, etc. Ministry of Skill Development and Entrepreneurship can be instrumental in accomplishing this task.

Financial institutions and banks can no longer isolate themselves from the impact of their financing. Awareness among the people is increasing and these institutions cannot be insulated from any backlash. Increasingly, campaigns are also beginning to target investors and they will be under greater public scrutiny. Therefore, they will be expected to go in for strict due diligence for their investments and lending.

For Government and Regulatory Agencies

Review and Address Surplus Capacity and Promote Appropriate Policies

Surplus capacity in energy must be an ideal situation for any country. However, surplus capacity as it exists in India today has a twin problem of the debt burden of the banks who have lent to assets that have been stranded and as one news reports says 'unviable utilisation rate of 35% in 2017-18 in the State of Karnataka which does not have coal mines'. Eventually, the costs for coal transportation from the central-eastern region, absence of long term PPAs, tariff's downward revision, poor quality imported coal and outdated sub-critical technology eventually leads to high costs for upkeep of these plants. The current estimates of bank exposures are as much as INR 1744.68 billion and the total value of the stranded assets is estimated to be even higher as estimated in a 2018 report. As per the 2018 Parliamentary Standing Committee report on Energy, the stressed capacity amounted to 40 GW.

Banking regulators must advise the banks to ***refrain from further investments in fossil fuels particularly coal-based plants*** *including* those by state governments. Several investors including banks already have a huge exposure to companies that are insolvent. The current losses have to be stemmed and further care has to be exercised in lending. Since the future of coal mining and coal-based power is progressively going to be uncompetitive, because cheaper and eco-friendly modes of electricity generation are coming to fore, directives should be issued on risks of coal-based plants and potential impairments to PSU banks to keep away from such investments.

A significant improvement is possible in the environmental management of coal mining and the power generation process, as their record of compliance is abysmal. The record of compliance by coal companies is corroborated by the fact that Coal India subsidiaries face Rs 53,331 crore penalties for over producing, obviously implying huge violations of environmental compliance. It will be relevant to mention here *if Coal India needs to pay the levies, its finances will be critically hit. Its reserves, which stood at Rs 38,000 crore as on April 1, 2019, fall short by Rs 15,000 crore.* ***Strict compliance of mining and environmental laws*** for violating units must be ensured on an urgent basis to send a message that shoddy environmental and social compliance and due diligence will not be tolerated. The state governments must also play an important role in ensuring compliance. ***Tackling the issue of illegality and violations of the law*** in the mining sector is solely the responsibility of state governments. Unless the nexus of illegal operations is dealt with stringently, the other issues of environmental impact and impact on workers and communities, as elaborated in all the six case studies here, cannot be dealt with properly. As per government's own admission on the floor of parliament, there are 96,000 illegal mining operating in the country and the implementation are vast – loss of revenue to government, massive environmental and ecological depletion, destruction of land, soil and water, uprooting in-situ communities, etc. Not even 50 per cent of the coal mines and thermal power plants have been submitting their mandatory six-monthly compliance reports. CAG has indicted the central and state governments and made a number of recommendations to improve

the process of reporting and monitoring and ensure compliance. However, these recommendations have yet to be put into practice.

1. Strict implementation of the National Guidelines for Responsible Business Conduct (NGRBC)

NGRBC is an important development in tune with global demands for business accountability. It is important that the government ensures strict implementation of NGRBC by businesses. This will not only improve the conditions on the ground but more importantly enable businesses to draw more investments from ESG investors. Increasingly, international financial institutions and investors are facing greater scrutiny and will be forced to exclude financing companies that do not have a good track record. The government has rightly initiated the process of developing a National Action Plan on Business and Human Rights. It is important that it is strictly implemented for which a monitoring process needs to be put in place to ensure that companies, financial institutions and banks comply.

2. Implementing National Guidelines for Responsible Financing making it mandatory for all banks to conduct ESG due diligence and publish their reports in the public domain

The National Guidelines for Responsible Financing published by the Indian Banking Association in 2016 must be implemented and made mandatory. A transparent process of conducting ESG due diligence must be established and implemented. This is necessary as the nature of financing has become complex and fixing responsibility of investors towards ESG compliance is becoming difficult. The process and the outcomes need to be placed in the public domain so that there is a wider scrutiny of compliance.

3. Instituting a transparent and effective grievance redressal mechanism to accept and address grievances of project affected communities

Grievance redressal systems are almost non-existent for project-affected communities and even where they exist, they are relegated to a part of the local administration's responsibilities. Given the diverse roles that the district administration plays, addressing the issues of project-affected communities does not get adequate priority. Therefore, a transparent mechanism for accepting and remedying grievances must form an integral part of investments policies of – government and investing companies, both.

For Banks and Financial Institutions Investing and Lending to Coal and Power Companies

With several of the investors already saddled with non-performing assets, future of coal-extraction and its utilization in thermal power generation, appears uncertain. This has led to a situation where the public has to pay for their inefficiencies and corrupt practices. The apparent immunity of the investors and bankers to the adverse economic and environmental implications of mining may be short-lived as the recent stripping of the immunity given to the International Finance Corporation by the US Supreme Court shows. The recommendations for banks and financial institutions include:

1. Disclose policies and mechanisms related to project finance specifically highlighting systems to identify and mitigate ESG risks

Banks and financial institutions should disclose their policies and mechanisms for identifying ESG risks and the means to mitigate such risks especially for project finance. This will create an atmosphere of greater diligence for businesses following their responsibilities and also be a means of redressal of the grievances of the affected.

2. Disclose policies, mechanisms and actions related to project financing in Business Responsibility Reports

The practice of presenting Business Responsibility Reports as mandated by the Securities and Exchange Board of India (SEBI) should not remain a tick-box mechanism. Banks and financial institutions should include specific actions and case reports in relation to their lending and due diligence so that their intent and process are transparent.

3. Adopt international standards on responsible finance

Banks and financial institutions should adopt global standards such as the Equator Principles and the Global Alliance for Banking on Values (GABV) to reduce and mitigate risks related to project finance. Banks and financial institutions must also strive to set an example globally on this front. While the Equator Principles seek to commit financial institutions to a set of norms, GABV aims to evolve a culture within banks to undertake responsible financing and stewardship.

MICRO PLANNING: NILOTI-RAULMEL WATERSHED, PATI BLOCK

Background and Context

Champawat District's Pati block has several socio-religious well-known places like Reetha Sahib Gurudwara and Devidhura Temple where annual festivals and ceremonies are attended by thousands of people. This is the main route connecting the district to Haldwani and also to Almora. It is a block headquarter located on Lohaghat-Devidhura-Almora road connecting NH – 9 and NH - 109. The physiography is undulating and the climate is cold in winters to hot and humid during summers. The upper part of Pati town witnesses strong winds, especially around the Tehsil office and the main town road. The region is drained by Ratia Gad and several other smaller streams, forming part of the Ladhia catchment. Community protected forests can be seen with tree species like oak and utis – majorly water harvesters.

This area is also known as Assi Patti denoting 80 revenue villages. The basic wheat rice agriculture rotation and mostly organic farming is practiced. Small holder agriculture is persistent in the region. Over the years people have also turned to growing vegetables for own consumption. The earlier varieties of apple viz. Feny, Delicious, No.22, Golden etc. have disappeared from this region, right from Khetikhan to Mournala. Along this belt, Bedchula (towards Haldwani) is famous for its potato cultivation. Deodar is also seen alongwith Rhododendron trees in this belt. Khetikhan once also known for its diversity of potatoes has lost its traditional varieties like long paper, herchula, pila chapta etc. over the years. Agricultural diversity has slowly reduced where it used to be a mix of coarse grain millets like Manduwa, Jhingora etc. Once talking to a farmer in the region about relevance of planting of hemp intercropping in usual food crops, it was a scientific reason – to keep pests at bay. Irrigation is limited to the lowlands and at many places canals exist but water sources are no longer protected and people look to government schemes for its revival.

Dynamics of Planning in the Changing Administrative Reforms Structure

Block planning is meant to be representative of what is required at the village level. But the funds available at the block level like MGNREGA can only be utilised in a better sustained manner when the demand comes from the village institutions. In an effort to decentralise planning at the Gram Panchayat level, a portal called 'plan plus' contain sketchy details of things discussed in village meetings and uploaded on the portal. The idea of initiating planning at the smaller level (micro level, i.e. much smaller than a block and/or an administrative unit with an overarching outlook of a hydrological unit) emerged from the same very reasons of decentralisation and the changing dynamics and functioning of lower tier institutions like Block Panchayat – Gram Panchayat and Gram Sabha. While the problems in the villages are almost common but examples of large number of fishponds dug up in this belt with state finances are now defunct because their site selection was poor and shows planning finances in bad light of common community knowledge. The result is investment on infrastructure with no productive 'community asset' or 'panchayat asset'.

Integrated farming is yet another idea which requires attention at both the grassroot level as well as at the scheme's level whether it is the resource component or the workforce payment component. Few examples can be seen in the region itself but upscaling it at a watershed level or at an administrative unit level has been difficult. Upscaling requires a planned effort and also avoid promoting monoculture in order to attain

volumes or numbers. Micro planning is a thinking process where communities start thinking and eventually look for long term goals for their communities. It is not an end in itself but a process by which engagement of people is sought as well as issues are identified.

Methodology to Capture Participatory Planning

Key Movers	Tools	Tools
Primary information Gathering	Group Discussions at village level	Basic Questionnaire
Secondary information Gathering	Plan Plus	Patwari Agriculture Office
Mapping Existing Resources	With GPS	Village Sketch
Map Generation	Slope	Aspect
	Infrastructure	
Consensus Building	Common meeting	

The methodology reflects approach adopted for arriving at documenting the possibilities and overcoming existing problems by participative planning. Planning is a long process where communities feel the need for engagement as well as think judiciously to overcome the problems they face. While the field level engagements with the communities raised primary concerns, understanding of planning as a process was also shared with them. It was intended to conduct small group meetings at the village level to bring out key determinants.

The current trend of "participativeness" of community into the planning process is through the 'Gram Sevak or Village Panchayat Officer', 'Gram Pradhan' and other prominent positions in the village democracy. Most of the minutes under the planning initiative of the government indicate a set trend of issues to be talked about without much of qualitative assessment of progress or development process. The other perception communities at large have ingrained over the years is to expect a scheme or programme everytime a visit is made to the village. While every organisation do not have the wherewhithal to realise what is planned, Government can reach out fast to the people with the schemes on their annual plan mode – whether the schemes have been prioritised by the communities, is not the surety.

The Planning Unit

People relate more closely with their resource usage outreach and their own administrative set ups as the schemes are bound within the boundaries of Panchayat. A watershed will be a culmination of many panchayats and may require eventual assessment over a long term. Selective village level understanding has to be developed and slowly move to integrate the watershed approach. On the same hand, it is also essential to import the scale and physiographic features of the whole watershed or keep it in mind while a village level approach is being taken in the short-term pre-planning exercise. The watershed covering the area of interest is 2B1J3D3I spread over an area of 9.404 Km^2. It partially overlaps and cut through the administrative boundaries of the panchayats as outlined in the table below. It is relevant here to mention that the Watershed programme in District Champawat is being implemented in Runigad watershed under the National Rural Livelihood Mission. The watershed comprises of Sakdena, Sirkot, part of Jadia Kamad, part of Niloti, part of Barait and Kota of Raulmel Panchayat and very small parts of Bhumwari, Mairoli, Burush Khola and Holi Piplali.

Demographic Data, 2011 Census

Demographic Components	Niloti Panchayat					Rolmail Panchayat					
	Niloti	Burush Khola	Dubar Kamlekh	Sakdena	Tak Balwari	Lara	Rolmail	Kota	Barait	Mairoli	Jadia Kamad
Households	45	37	18	92	63	22	72	6	26	16	Uninhabited
Population	220	200	91	525	260	114	359	49	163	84	
Males	101	97	41	270	122	57	172	23	87	44	
Females	119	103	50	255	138	57	187	26	76	40	
SC Population	0	14	0	152	15	30	10	15	0	0	
Males (SC)	0	5	0	81	4	15	4	6	0	0	
Females (SC)	0	9	0	71	11	15	6	9	0	0	
Sex Ratio (Total Population)	1178	1062	1220	944	1131	1000	1087	1130	874	909	
Sex Ratio (SC Population)		1800		877	2750	1000	1500	1500			
Persons per family	5	5	5	6	4	5	5	8	6	5	

In most of the villages as shown in the table above, the sex ratio indicates less male population in the villages, more feminisation of agriculture is taking place which makes it further necessary for looking at gender sensitive options of livelihoods, employment and enterprise development. On the other hand this situation of high sex ratio indicates migration of male members from the village. The average family size is 5 persons. Sakdena has the highest scheduled caste population.

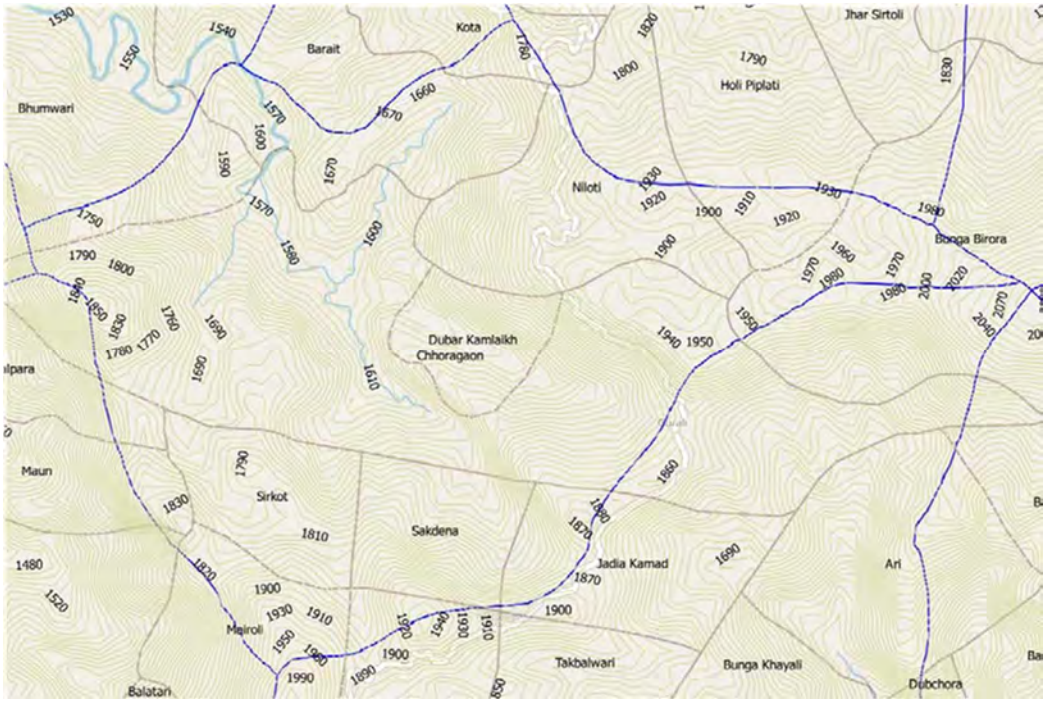
Land Utilisation

Land Utilisation Categories	Niloti Panchayat				Tak Balwari	Rolmail					
	Niloti	Burush Khola	Dubar Kamlekh	Sakdena		Lara	Rolmail	Kota	Barait	Mairoli	Jadia Kamad
Forest Area	7.85	19.74	2.17	32.1	15.22	34.43	12.53	1.41	6.56	30.64	17.16
Non-Agricultural Uses	5	0.68	1.2	25	4.51	3	0	1.61	3.17	2.86	0.72
Barren & Un-cultivable Land	0	0	2.04	0	**69.98**	1.46	1.61	1.77	2.84	4.16	0.41
Permanent Pastures and Other Grazing Land	25	11.54	1.66	25	0	73.67	22.41	21.02	13.78	18.53	0
Culturable Waste Land	20	1.6	10.99	10	**31.62**	5.43	1.68	3.47	2.63	0	2.41
Fallows Land other than Current Fallows				0	0	3.24	3.47	0	0	0	0
Current Fallows	0	**36.13**	**13.2**	0	**34.82**	0	2.21	3.23	1.47	5.63	7.56
Total Unirrigated Land	150	6.72	15.34	100	35.46	31.13	27.43	10.26	10.15	20.2	7.56
Area Irrigated by Source	23.25	0	2.01	7.34	1	10.01	3.41	0	3.17	0	0
Geographical area	231.10	76.41	48.61	199.44	192.61	162.37	74.75	42.77	43.77	82.02	35.82
Irrigated area to area sown	13	0	12	7	3	24	11	0	24	0	0
Forest Area to Geog. Area	3.40	25.83	4.46	16.10	7.90	21.20	16.76	3.30	14.99	37.36	47.91

Area in hectares

The livelihoods dependent on agriculture or farming are dwindling and is seen clearly in terms of fallow lands as well as low irrigation coverage to the area sown. Hardly anything has been thought about drip irrigation for the interlinked water conservation-irrigation dual dependence for sustainability of water systems.

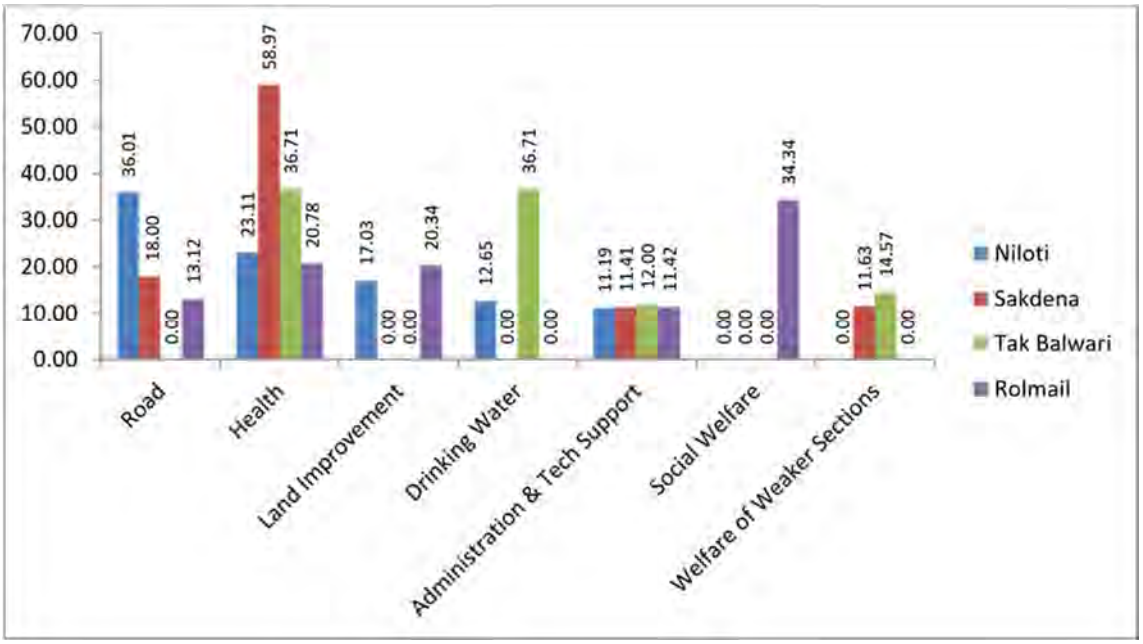
Map showing Revenue Village Boundaries and hydrological boundaries indicating need for resource-finance pooling for effective outcome



Contour map showing altitudinal variations in the watershed

Financing Planning – A Micro Perspective at Block Level

With the end of 12th plan of the erstwhile planning commission, the states (especially special category states) are in a relative withdrawal phase i.e. streamlining of activities on performance based indicators and eventually helping the new entity (Niti Aayog) to frame strategies for the state and finance the activities. DRDA (District Rural Development Agency) which is an old government institution for rural development is an approving and verification authority for beneficiary scheme and benefit transfer into beneficiaries account directly from the centre. Major financing is through 14th Finance commission and Third State Finance Commission. Let us look what has been approved over the last financial year and how much to get an idea about the range of activities, reflection of priorities



Untied funds have been granted to the respective gram panchayats over the year 2017-18, these have been compared in the graph above. The figures indicate percentages for a particular village under a specified category for which funds have been allocated. Keeping aside the rationality of fund allocation, the preliminary markers these funds reflect is whether financial planning corresponds to community needs. As these are untied funds, these have no stringent conditions attached to them, unlike tied funds which have specific conditions of fund utilisation and rationality behind allocation etc. Once we look at the sectors, say Health under which waste management, community toilets & bathrooms are allocated portrays a different picture of spending on health as an overarching sector, rather environmental sanitation and hygiene would have reflected a direct sector. Similar is the case with 'land improvement', the activities funded are tin sheds which refer to capital expenditure rather than actually improving the land fertility or erosion.

Convergence of schemes with MGNREGA has also been a focus. The activities from 201819 have been emphasised to be prioritised for water realted works. In the last financial year, 2017-18 crop safety wall emerges as the prime issue for which people opted for securing their fields due to wild animals destroying their crops. Around 25 lakhs have been spent in the four villages of Niloti, Sakdena, Tak Balwari and Raulmel. Tak balwari has the maximum number of 8 works under this category. Another activity is construction of

cattle shed which has an expenditure of under Rs.8 lakh for construction of 23 cattle sheds - highest being in Raulmel which has women milk cooperative followed by Niloti.

Works	No of works	Labour Cost	Material Cost
Cattle shed	23	4.87	2.83
Construction of Safety Wall	18	16.32	8.16
Construction of IAY House	1	0.17	0.00
Individual toilet	11	0.77	0.55
Pay jal pipe line	3	2.17	1.38
Samprak marg	10	9.54	3.96
Vermi Composting	12	0.82	0.27
Peyjal Naula	6	1.43	0.82
Total	84	36.08	17.97
Source: Work Expenditure Report, MGNREGA Portal, August 2018 (Rs. in Lakhs)			

In Sakdena, out of the the 81 works over the last 4 years which have been completed, high priority has been given to Water Conservation and Water Harvesting (18 activities) followed by Flood Protection (23 activities)

Description of Villages within the Planning Unit

Village SAKDENA

Sakdena is a village in Pati block where now 40 households are living, 26 households have completely migrated to other places. Around 30 households of these 80, commute frequently for work. The younger generation lives away from home for education and employment. In Sakdena, one will find children, old age people, women and few young men. Those left behind are relatively poor and unable to practice agriculture, this results in situation of land becoming barren. Agricultural land is in the NW portion of the village. Depth of top soil varies considerably from less than 2 feet to around 4 feet at places. Soil type is 'sandy loam'. pH of soil near the settlements is around 6-7 and 7-7.5 in other places, it is found that potash is sufficient whereas phosphorous is less. On the hill slopes, there are small springs. Villages are normally surrounded by Civil Van Panchayat and Reserve Forest where people practice their rights.

Drinking water is available in the village through a water pipeline. Amongst coarse grains, Manduwa, is majorly sown and in pulses kidney bean and soyabean is sown; soyabean is majorly grown as an oilseed

crop. Chilli, garlic, onion and turmeric are few cash crops limited to a very small area. All these food crops provide food for quarter of a year, only soyabean and chilli is sold rest all is consumed. Among vegetables, tomato-capsicum-brinjal-bottle guard, pumpkin, mustard and spinach is grown. Among horticulture crops, Pear-Apricot-Plum-Malta are grown – only pear and other citrus varieties like lemon is sold. A broad estimate suggests that each family has around 10-15 plants/trees. In one of the habitations of Sakdena, 2-3 families have walnut trees, the produce is sold locally.

One striking example of collective help among farmers in each other fields is worth mentioning. Women in the village (Santukra habitation or tok) prepare compost and spread in the fields of different people. Those farmers having bulls help in tilling land of other farmers, also they help each other in sowing. In commons, people allow animals to graze.

Hamlets of Sakdena

Aati: There were 50 households in the past, now only 25 live here, rest of the families have migrated. Due to constraints, these families practice agriculture over 3-4 nali (around a plot of 600 to 800 m^2) where they grow vegetables & cash crops. All families have a skill in wood work and iron works and belong to scheduled caste. Few families (5-7) are engaged in iron works and want to continue that whereas few families have expressed their desire in horticulture. In comparison to Sakdena, here people have less inclination towards farming but more towards poultry, and the works of carpentry and ironworks.

Santukra: There were 20 households in the past, now only 15 families live here, rest of the four families have migrated. A broad estimate suggests around 8-hectare agricultural land whereas only 4-5 hectare is being sown for wheat, buckwheat, maize, vegetables. Around 5 families have expressed desire for horticulture. People are interested in fisheries but that will require water to be lifted from the streams. In this village, apart from agriculture, walnut is grown by few families and small level dairy work is also done.

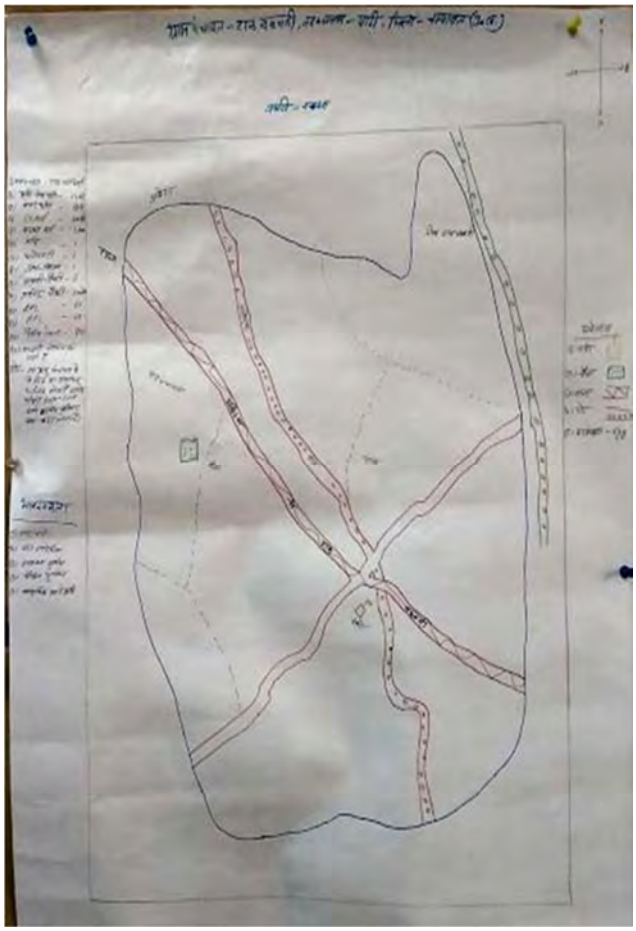
NILOTI GRAM PANCHAYAT

Dubad Kamlekh: There are only 45 families living currently and rest have migrated. Many head of households commute between home and workplace. Many young boys and girls also commute for the purpose of education and work as well. Most of the village land is under agriculture (10 hectare of the total 20 hectare), the remaining land is barren (6 hectare is barren whereas 4 hectare is used for cattle grazing), there is a need to bring barren land under agricultural activities. Around 30 families are desirous of taking

up some activity to enhance their livelihoods viz. through vegetables, fruits and fisheries. Around 30-50% agriculture land is on EW aspect. Depth to topsoil varies from 2-5 feet. Soil is sandy loam and is locally called Domat (Balui). The pH is around 6-7. Soil is low in phosphorous. There are two water tanks, if water from the adjoining nallah is sourced and awareness is done in the village, many activities can be done.

Niloti: Currently, only 40 families live in the village. On an average every family has around 50 nali cultivable land but hardly 10-15 nali is cultivated and rest where people sow chilli, turmeric, ginger, maize and some manduwa (finger millet) -wheat-rice. It leaves major chunk of cultivable land unused/fallow and parts of it used for grazing purposes. Water – many natural sources of water exist, there is a perennial nallah which flows by the side of the village, it is called Kalgani. This is utilised for irrigation and holds high utility for the farmers. The current water supply is scarce and require additional source, given some source of water – few people may take up fisheries. This village has primary, junior and high school whereas for intercollege students have to cover 5 kms distance. ANM centre is available in sakdena.

Among the cereal crops, mostly wheat and rice cropping pattern are followed in the village. Pulses include horse gram (gahat), kidney bean, pulses and oil seeds include soyabean and sesame. In cash crops, chilli, onion, ginger, garlic and turmeric is grown but on a very limited scale. These crops sustain village families for about 4-6 months. Few families also sell vegetables.



Like Sakdena, people cooperate each other in doing farming by sharing their resources and manpower. No dairy exists here but milch cattle is found here and surplus milk is taken to Ladhauli market. Like other villages, problem of wild animal attack is found here too. The agriculture land is mostly valley montane land which has high productivity.

Buskhola: Out of the estimated 900 nali land (18 hectare) only 200 nali is under cultivation of vegetables, cash crops, maize etc. in small quantities. From the earlier 20 families living in this hamlet, around 15 families cultivate around 10 nali only and the rest is used for grazing of animals. By conserving water in the three available ponds in the village, sufficient water can be available for doing irrigation-fisheries-horticulture. Around 10 families are desirous of taking up the land-based activities.

GRAM PANCHAYAT – TAK BALWARI

Tak balwari is a large village by hill standards, it used to have 160 households, over the last ten years, almost 25% of the families have migrated outside. Almost every member of the family works in the plain areas like Haldwani or Udhamsingh Nagar to earn livelihoods. Migration from this village has mostly for education purpose. Those who do not have much financial resource have remained in the village.

Its land is slowly turning barren. An 6 estimated 17 hectare agricultural land is available but only 6-8 hectares is bein cultivated. Other land is being used for animals to graze. Around 15-18 families have expressed interest in livelihood activities like horticulture and fisheries. There are 3 water tanks which need to be worked upon for routing water into them.

Village's agricultural land has major aspect on NW and S axis. The village has a primary school, junior school is one and a half kilometer away and intercollege is available in Ladhauli which is 3 kilometers away. The village is abutting civil and van panchayat. For ANM centre, the village depends on sakdena.

Raulmel GRAM PANCHAYAT

Badait (Badet) has now only 20 families in the village which cultivates around 10-15 nali (estimated) for agriculture whereas the total estimated agricultural land is around 12 hectares. Most of the people here are desirous of taking up horticulture activity. Land is fertile but lacks irrigation due to defunct canal. 40-80% land is on NS aspect. Mainly wheat and manduwa is sown among coarse cereals.

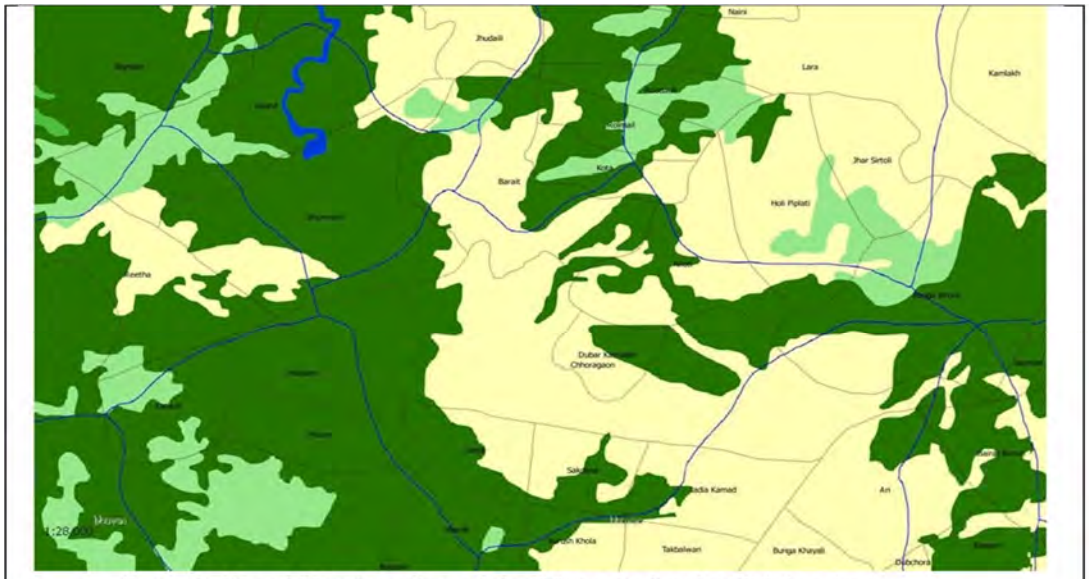
Reflections from Village Level Interactions

- Changing cropping pattern and crops in order to keep wild animals at bay Based on soil depth, compatible crops can be sown like fodder, plants, fruits etc.
- Construction of chal-khal in the catchment areas to ensure all round supply of water. This work can be taken up under MGNREGA
- Lack of extension service / knowledge to adopt varieties that are resistant and provide better yield.
- Departmental experts can be asked to provide technical and other inputs for enhancing the quality of agriculture in the area. An extension office or any day of a month can be fixed for regular interactions for schemes as well as resolution of problems faced by farmers
- Insufficient water sources for irrigation of fields is also one of the main deterrents and this problem is also escalated due to fragmented holdings
- that agriculture is left to a miniscule level of typical 4-5 nali (nali=200 sq. m.) per family,
- that a little capacity enhancement can lead to increase in production (horticulture), pruning, stacking, netting techniques are not known locally for propagation of horticulture crops
- some of the assets like 'Krishi Vipnan Kendra' (Samudayik vitran kendra) exist but its purpose is no more served
- the share of barren land is increasing, and one has to strategise around it while planning i.e. how to bring back this into productive use.

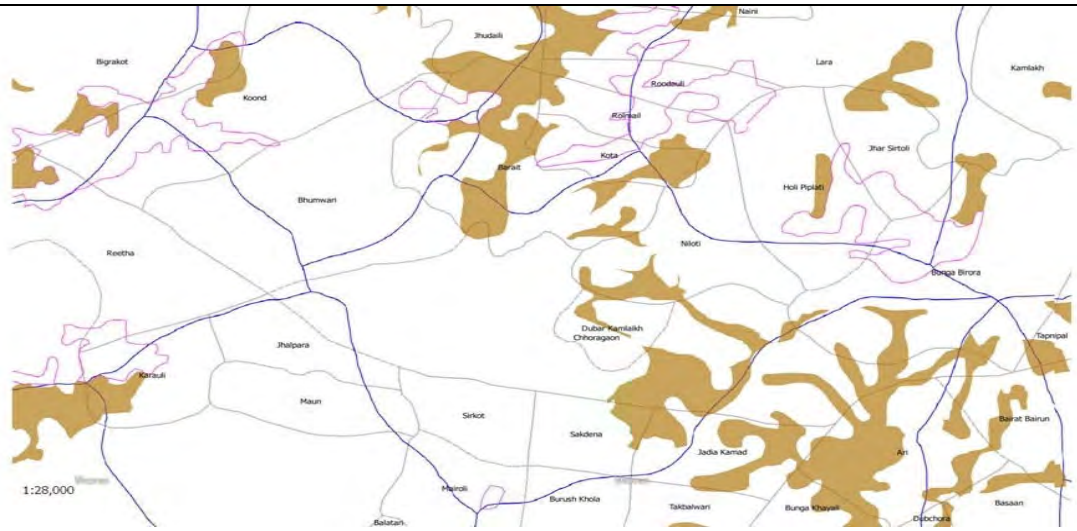
- Some solutions have to be offered at the larger watershed level (say, whole Pati belt with 40 villages) with the help of forest department – for example, afforestation in the upper reaches as an effort to make wildlife depend on these upper forests. The provisions in the working plan can be matched or give space to these local issues.

Species like Bamour, which resembles to litchi frui,t and many others (Kuni like fox's tail along the farm bunds), if planted with adequate care, these may provide some relief from wild animal attacks over the medium term.

After this preliminary round of information generation, series of maps were generated which form part of the planning and ground level mapping of resources in the region. These resource maps provide a broad spatial look which can also be used on site to determine slope and aspect as well as water sources which become critical in identification of agricultural potential or enable scientific and climate sensitive agriculture. This was found relevant because many a times, adjoining villages in the same eco-region have had successes as well as failures (could also be due to seed quality), planting on the right aspect and slope may prevent many failures. These maps can be seen below;

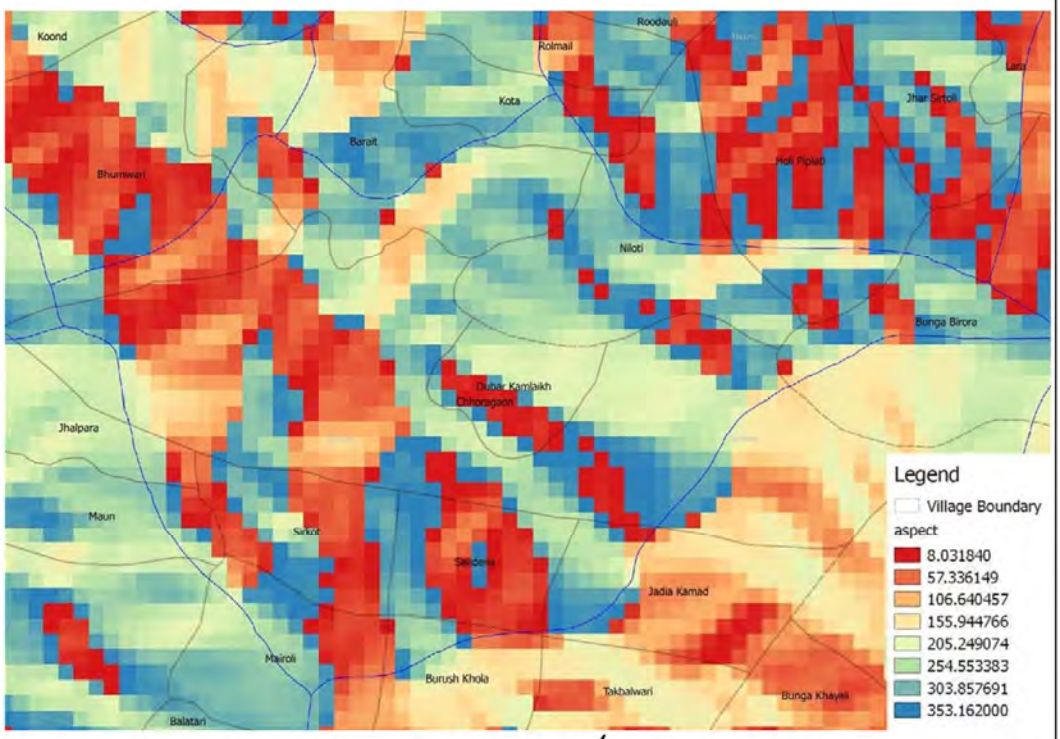


Extended Land Use Overview of the Watershed and Adjoining Areas

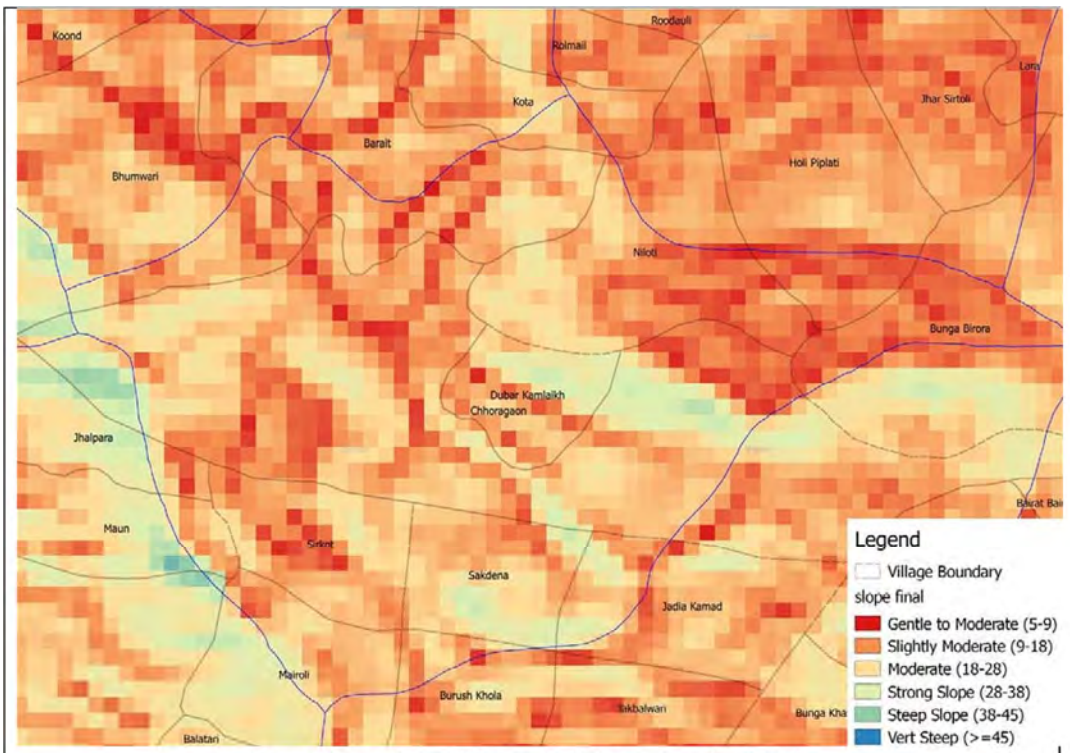


Erosion Noticed in the Watershed and Extended Areas Surrounding it

Layers superimposed from BHUVAN



Aspect Map of the Watershed (aspect in Degree)



Slope Map of the Watershed (boundary in blue)

Conclusion

As described in the methodology, the sequential steps were taken to reach out at mapping, participative identification of activities and putting in a framework to follow in the future. In the concluding part, a meeting was called in July 2018 in Toli to share the findings and discuss together on particpatory planning and how it can be taken forward. Group work was also proposed in the meeting and people also shared their concerns with the adjoining villages too. Alongwith this synthesis of problems and potentials were also put together. Following is the outcome in brief;

Group Discussion

Three groups were formed among the participants from villages (people were free either to choose themes of agriculture, horticulture, water conservation or discuss as per groups choice)

1. How do they look at women's role in planning?
2. It was also requested to people that they should share good examples practiced by them or known to them
3. People were also requested to think about short-medium- and long-term issues for which efforts will also be different.

The following emerged from the group work among the villages.

Village	Problem Statement	Suggestions by Village
Tak Balwari	Lack of water resource (two streams and one sub-surface channel and a water pipeline). Sub surface channel fills water in a tank called 'naula' which is a traditional water conservation technique, but it is insufficient to meet the needs of all families in the village. Local streams are untapped as they are far off. Even the piped water supply is insufficient	Regarding water pipeline, there is a need for a renewed water scheme A canal is needed to take water to the field
	Crops remain unsecured due to no protection (safety wall around field) from animals, especially wild boar.	Wire fencing of fields
	Forests – Mostly consist of pine trees, some requirements of timber and fuelwood is met	People think there is no usefulnesss of this forest, Fire continues to destroy forests. The need is for broadleaved forests.
	Women perform most of agriculture and animal husbandry	Need good stock of animals to take advantage of milk dairy. Earnings by women for the family, no exclusive right of women

Village	Problem Statement	Suggestions by Village
Sakdena	Main issue is of water despite 7 naulas, only 3 are operational rest are dried up due to sub surface flow pattern disturbance. Two water pipelines are operating (mostly LSGD line works supplying water for 1 hour in the village)	There are several streams but water needs to be lifted as the village fields are located much higher than the source
	Animal Husbandary – only 1 milching cattle is being raised per family (most of the families practice). Except 3-4 months, rest of the months are fodder scarce months and is difficult to raise cattle	Women are totally committed in dairy but better cattle variety is needed.
	Agriculture - Problems raised by wild animals by destroying crops - Lack of irrigation - Lack of access to improved varieties - Problem of stray cattle (damage crops)	Wire fencing for safety of crops

Village	Problem Statement	Suggestions by Village
Niloti	Requirement of crop protection safety wall Connectivity issues for taking produce to market (like flowers or farm produce)	
	Improved Seeds	Unable to procure citrus fruit plants (even not for walnut) as well as for vegetables
	Drinking water problems Irrigation is a deterrent in doing agriculture	Every hamlet/habitation may require a dedicated source
	Fisheries	People must be given support on fish farming to raise their livelihood security
	Upgradation of existing high school in the village and improvement in facilities	
	Dairy farming	Women centric enterprise to be promoted
	Honey bee farming	Potential to be explored

4-Axis Synthesis of Issues Emerging

1. Livelihood (Strengthening Technical inputs)

Problem	Potential Existing	Potential to be Used
Horticulture underdevelopment		
Extension service absent	Few farmers have been doing well, demonstratively.	Scientific planning (soil, slope, aspect, nutrient)
Insurance benefits not suitable to small farmers	Probably collective farming could be a potential to be able to apply.	Small farms can take benefit given the increasing number of climatic incidents
Improved varieties not known locally	Only progressive farmers tested / planted	Schemes to be tailor made
Marketing of produce	Locally sold	Local enterprises for value addition and market linkages

2. Support Services (Finance-Technical-Institutional)

Problem	Potential Existing	Potential to be Used
De-farming		
Migration	Farmland	Collective or cooperative farming, else weeding and fertility issues arise
Lack of Irrigation	Reintroduce Millets & groundnuts (orientation towards natural products exist)	Enabling market linkage for produce for making place in packaged food market
Organic Certification issues	Biodegradable waste, cow dung being used	Niche marketing required
Fragmented farmland (marginal to small)	Only few places where people provide farming help to each other	Activities in de-farmed lands or in clusters where multiple families can benefit
Attack by Wild Animals	-	Alternate Farming and crops, alternate planning to keep animals at bay (enriching the forest)
	Community forestry	Creating symbiotic relationship between forest and agriculture

3. Aqua Based Integrated Livelihoods (Contributory-Subsidised Model)

Problem	Potential Existing	Potential to be Used
Fisheries Development		
Access to Finance	Pati declared as fishing belt. Has historical impressions and ongoing farming.	Interlinked integrated farming potential. Resource organisation on fisheries development exist.
Seed Availability	Good institutional repo with Directorate and State Fisheries Department	Community collective missing or defunct (need revival)
Fish ponds*	Defunct ponds existing	Require a master plan for the same
		Subsidy scheme for the same to be utilised by farmer groups

* as a result, it aids water retention and moisture around the fields and overflows can be used for gravity irrigation

4. Livelihoods (Reintroducing Traditional and export-oriented crops, Imparting Adaptative & Mitigative Approach)

Problem	Potential Existing	Potential to be Used
Alternate Cropping Pattern		
No Scientific help to farmers	Common pool of land which is lying unused can be taken up	Grower groups to be promoted with chain of activities leading to next level (like value addition or buy back)
Acceptance of new crop	Demo plots to be done at different areas (valley, hills, different altitudes within a watershed)	Watershed department's technical knowledge and market
Lack of scientific know how on improved varieties	Partial success e:g Kiwi fruit	Cross exchange between existing fruit belts for imparting best practices Niche marketing required.

Way Forward

- Based on the experience of local organisations working in the watershed/region, with interactive (small meetings with village people) sessions, own observations as well as issues atypical to the region, the following broad framework of proposed activities was drawn so as to facilitate the dialogue further and address the issues raised by the communities from time to time.

- There is an intrinsic link between activities suggested and the primary concerns raised but as an appropriate model for meeting the needs, a review of programmes in these villages is required to revisit the needs of people.

- The selected area in the Bhingrada and Devidhura forest range is neither under the Integrated Livelihood Improvement Project nor in the forest department's micro plan preparation for the Van Panchayats. So the opportunities exist to strengthen these. This is a framework and will have to be modified upon time due to changing circumstances, priorities and need assessments at the local level.

- As most of the agricultural, resource harvesting, animal husbandary activities are performed by the women, it is pertinent to design gender sensitive planning but also take into consideration to not burden the existing activities.

- The portfolio of suggested activities has been drawn after group discussions, field exercises but their actual implementation will depend on the financial and programmatic convergence wherever possible. For example, the existing fisheries support may not be viable at a certain size of pond and may get a person disinterested due to no effective returns. Thus, the model has to look for a different approach where a larger size or collective fisheries is promoted.

- Desires must be captured and verified whether these can be realised in scientific manner or on account of other factors also.

Range of Issues for Micro Planning (Broad Planning Outlook)

S.No.	Resources	Existing	Desired	Proposed
R-1	Land Suitable for Agriculture kept fallow barren (but land other than rocky)	Yes (except 4-5 nali/family, rest is not used and eventually being covered with weeds)	Bring back to use in the integrated farming frame	Fodder Trees + Grass Varieties (Napier, Dodni, Gucchi, Kikwi, Mulberry), Bhimal
R-2	Nursery Development	No	Individual level for increasing access	Fodder Types, Horticulture
R-3	Horticulture based clusters	No (only limited to few progressive farmers)	Nursery, Plants, Market	Mostly citrus (kiwi, malta, plum, lemon), Improved apple varieties
R-4	Fisheries	Yes (limited)	Subsidy cum contributory model integrated with water conservation and irrigation needs	Support for few farmers from the District Plan has been assured by the CDO *A model comprising subsidy, technical knowledge transfer and farmer's contribution can be seen at the end of this table*

Fisheries in Pati Block - Fisheries over the last several years has taken shape in the form of small holder hill fisheries. The fisheries ponds are spread over 10 villages over an area of 4200 sq. m (collectively more than an acre). The maximum area is in Joladi with 9 ponds of 1000 sq. m. and Toli from where it flourished – here 4 ponds of total area of 750 sq. m exist. Other villages are Raulmel, Kota, Pati, Jairoli, Kinwari, Pamtola, Bhumwari. These ponds have become old and require maintenance. Maintenance of ponds is not in the norms of fisheries department and thus small farmers are unable to repair on their own. A request for the same has been forwarded to the district authorities to sanction amount for the repair of these ponds, it is still under consideration. But it is expected that the sanction may be approved for a few farmers and not all of them.

S.No.	Resources	Existing	Desired	Proposed
R-5	Animal Husbandary and Dairy	Yes (quite a few villages)	Better yielding varieties of cattle and fodder requirement	Improved varieties is an investment programme, Government support needs to be followed up with. The current alignment of this resource is thus currently limited to improved fodder development which is available round the year (to be utilised on barrent land)
R-6	Vegetable and Spices	Yes (not spices)	Improved seeds, nursery	Nursery development for improved varieties. Off season vegetables with buyback arrangements to be explored
R-7	Medicinal and Aromatic Plants	No	Fresh Activity	Potential for this (nursery) can be explored with R-9 + R-10
R-8	Water Conservation			Niloti requires water lifting to the village, Badet has a defunct Gul which can be linked to MGNREGA works as water is a priority
S.No.	Resources	Existing	Desired	Proposed

R-9	Institutional Strengthening (Van Panchayats)	No (currently there is no plan for their strengthening)	Management, value enhancement income generation	Initial support may require exchange visits to local Areas like Ladhauli
R-10	Provisioning of Extension Services	No	Relevance for providing technical knowhow to farmers, build capacity in medium term and withdrawal strategy should sync with developed capacity in each area **Push for Organic Certification**	For sustenance in an area, especially land based activities, such an extension will prove beneficial where the area hasn't taken any stride towards integrated farming. As technical know how exist in fisheries, agri-horti support service will prove beneficial.

GENDER EMPOWERMENT

TITLE: GENDER Author: Ivan Illich

The acerbic author of Deschooling Society and Medical Nemesis here takes on all sides in the sex-role debate: from the "animal sociologists," blind to "what is characteristically and exclusively human," to academic feminists who view the past through the social science categories of the present.

To Illich, all miss the critical difference between "vernacular gender" and "economic sex."

Vernacular genders are the cultural patterns that, in pre-industrial societies, regulate the language, attitudes, and behavior of each sex. Tools are intrinsic to gender relationships ("to the degree that one can actively master one's tools, their shape determines his/her self-image"); and the very division between domains "creates the tension that holds [each] society together."

With industrialization, these gender patterns disappear, and the sexes are reduced to more neutered categories. But no compensating reduction in sexism occurs. Instead, the widening wage gap, continued discrimination, and institutional sexism lead Illich, like others, to see the industrial order as intrinsically sexist.

The answer, however, is not wages for housework--for housework is "shadow work," as "unlike productive employment. . . as it is unlike homesteading and traditional household activities." And the entrance of men into this realm merely opens "a new field for competition between the sexes.""

In contrast to those who associate gains in women's rights with increased prosperity, Illich sees in scarcity the possibility of a new rapprochement. "A contemporary art of life can then arise, so long as our austere and clear-sighted acceptance of the double ghetto of economic neuters then moves us to renounce the comforts of economic sex." Some of these ideas have appeared elsewhere in the Illich canon (Tools of Conviviality, The Celebration of Awareness, Shadow Work); but their extension to encompass gender is surprisingly effective. An energetic attack on entrenched positions, and sure to provoke.

https://www.kirkusreviews.com/book-reviews/ivan-illich-3/gender/

It may sound incomprehensible at the outset, but the idea of gender freedom is all about peaceful coexistence and acceptance of all genders- Male, Female, LGBT or any other way an individual wishes to define his/her gender. Subtle difference in the upbringing of male or female children lead to butterfly effect and we see glaring differences in the society on how an individual is treated in a society due his/her gender irrespective of education, capability, skill, financial status etc.

Gender based violence are reported from every nook and corner of the country every day which often lead me to think why is it happening? Is it the lack of policing, is it the due to our cultural bias towards patriarchy, is due to lack of quality upbringing, or is it due intolerance towards other gender? The answer is a combination of all of them.

So, what could be solution to this? The government or the law enforcement agencies can do whatever little they are interested in but what can be done by an individual who shares deep

concern for gender-based violence? After studying this subject for quite some time I came to conclusion that the society need sensitization and as an individual I should work towards that. Until something untoward happens to someone close or loved one, no one cares. Everyone sees the news and forgets it as a scene of any fictional movie. The society need to be told that issue is graver than they tend to ignore it. Rural Women in India currently lead a disturbing and marginalised life. The patriarchal society does not allow them any freedom even to make their own decisions. Lack of Economic freedom further raises shackles on them. Domestic violence, acid attacks, low wages, unpaid household work, etc are some evils with which the Indian society is burdened. Add to it the low sex ratio and high maternal and child mortality rates and the situation is bleak.

Millions of menstruating women in India especially in rural India have to use unhygienic methods during mensuration leading to infections and severe health impacts. Sanitary pads available in the market are either expensive or not available.

Environics Trust has been working on the empowerment of women especially marginalised women workers in Central India. Several research works has been undertaken to understand the issues and meetings have been held to empower the women workers by informing them about the applicable laws and government schemes for their welfare.

1. Establishment of Low Cost Handmade Sanitary Pad Centres

Environics Trust has set-up a low-cost Sanitary Napkin training unit at New Delhi where local community women have been trained to manufacture low cost Sanitary Pads. There is no usage of machinery and the entire process is hand-made. The unit is run completely by the community members. The napkins are sold among the known community hence eliminating marketing expenses and keeping the costs low. As a part of community development, three (3) centres are being developed in Madhya Pradesh (2) and Uttar Pradesh (1)

Environics Trust proposes to establish 100 number of Sanitary Napkin production centres in several states like Madhya Pradesh, Uttar Pradesh, Jharkhand, Odisha, Rajasthan, Chhattisgarh etc. Environics is already engaged with the tribal and marginalised communities in different parts of these states and there has been a huge demand from these communities to set-up similar centres in their area. These areas have a large proportion of tribal population most of which fall under the BPL category.

The production centre will be established in a common place preferably community owned. Efforts will be made to procure raw materials for all units collectively from vendors to keep cost of procurement low. A collective of women workers from the community who will be responsible for managing the centre will be formed. Participating women will be trained by trainers from Environics Trust.

Each centre will be responsible for serving atleast 3000 women in their catchment areas per month. The number can be scaled up easily with additional cost of manpower and raw material as no machinery is being used.

The revenue earned will be used for further raw material procurement and the profit earned will be shared as decided by the members themselves. Environics Trust will hand hold the unit and

resolve any issues in terms of logistics, quality etc for one year. Post one year, the unit will aim to become self-sufficient.

- The entire process is manual and the only machine which is used is a sewing machine and a UV light for microbial control creating more employment opportunities.
- High quality surgical cotton is used which is not used in any similar priced product in the market
- Community owned, community operated and all profits are shared equally by the members
- Improved Menstrual health of women in the area which in result help in improving maternal and female health criteria's
- Use of Pads free up the women to utilise their time during menstruation cycle for productive work.
- Changes in social behaviour and removal of social taboo. The women are empowered to discuss such issues with their family and friends
- Economic empowerment of the women.

2. Mushroom Cultivation

Several parts of Madhya Pradesh, Rajasthan, Jharkhand witness large scale mal-nourishment among children and low anaemia among the women members. Despite efforts by government and civil society, the issue remains rampant and large number of child mortality is reported in these areas. Mushroom is a viable alternative in which low production can be started which will provide a high protein addition to the nutrition intake among the target population. Growth of mushroom is comparatively easier and low cost.

Environics proposes to establish 10 Spawn (Mushroom seed) production centres in different parts of the region suffering from acute malnutrition. These production centres will in turn either sell the mushroom spawn or can cultivate mushroom and then see it. The mushroom will be grown locally and hence transportation costs will be removed. Individual households will be trained on cultivation techniques (they can procure spawn from the centre) and will be encouraged to eat the mushroom grown. Possibility of market linkages to sell excess mushroom will be explored. Strict control on quality and hygiene will be maintained and regular testing of from different batches will be undertaken.

Advantages

- Successfully introduce a new food product along with the technology for effective cultivation.
- Supplement Incomes
- Increase protein intake through self-consumption reducing mal-nourishment
- Enabling to work together

3. Women Workers in Rural Areas

Women workers in rural areas have to work in extremely testing conditions. Their wages are low for similar work in comparison to male workers, they have to look after the household in addition to work, face harassment at work and home and more. Women workers engaged in collecting forest product face harassment from government officials and do not get proper price for their collection. As these workers are unaware of their rights and government schemes, they are taken advantage of at every step. They also fall prey to occupational diseases like Silicosis etc from being exposed to dust at their workplaces.

Environics will conduct trainings for such women workers on safe work and will educate these workers on how to do their work safely. They will also be informed of applicable laws on workplace safety, government welfare schemes, state regulations etc. Meetings will be held with employers and government officials to find solutions to common problems

4. **Gender Discrimination**

   Gender discrimination is a challenging issue in India. Despite several laws and favourable court orders, women in India are still discriminated against. Acid attacks by spurned lovers, rapes, domestic violence, harassment at work and public places etc are some major issues plaguing the Indian society. In December 2018, large number of people from all over the country gathered in Sheohar, Bihar to spread awareness on Gender Empowerment and Social Protection.

Financials

During the current financial year, we received nearly Rs 18 Million from Seven Donors. We are grateful to these donors for continuing to support our work - Oxfam India, Both Ends, Publish What You Pay, The Asia Foundation, Asia Monitoring Resource Centre, New Ways to Palo Alto and the Foundation for Ecological Security.

The Annual Balance Sheet is available here

All Statutory Filings and Documents of the Trust are available here.

Any specific queries can be sent to info@environicsindia.in and we would be glad to respond.

Our activities are organised as ***Participatory Research***, which enables documentation of existing conditions and the changes aspired; ***Community Based Action*** to demonstrate the possibility of transforming innovations into a physical and social reality; ***Enterprise Development*** to respond to the current reality of the economic world and identify sustainable entrepreneurial and occupational niches and ***Communication*** to interface with a larger universe to mutually learn and contribute. These are ideas whose practices are taking shape and are reflected in the glimpses presented here. And finally, a word of caution, no model is reality, but a framework to enable.

Environics Trust is a not for profit research and community development organisation and an enabling institution. Environics conducts participatory research on issues of environmental and human behavior and uses these outcomes for innovative community development programmes. Environics anchors several networks and partnerships and is currently the Secretariat for the Indian Ban Asbestos Network and The Access Initiative Coalition (TAI) and the emerging Mineral Inheritors Rights Association (MIRA). Environics is a co-founder and promoter of the mines minerals and PEOPLE alliance (mm&P), the Indian Network on Ethics and Climate Change (INECC), the EIA Resource and Response Centre (eRc), Occupational and Environmental Health Network of India (OEHNI). Environics provides research and evaluatory services to International, National, State and Local Institutions and directly works with marginalised communities such as those in the mountain regions, tribals and communities adversely affected by mining and industrialisation. Environics is a member of the Asian Energy Network, Asian Peoples Movement for Debt and Development, Tax and Fiscal Justice Asia (TAFJA), NGO Forum on ADB and the Indo-Nepal Joint Action Forum.

www.environicsindia.in