BENEFIT SHARING WITH PROJECT AFFECTED FAMILIES (PAF'S) FOR EXPEDITING HYDROPOWER DEVELOPMENT IN UTTARAKHAND

A Thesis submitted to the
University of Petroleum and Energy Studies

For the Award of
Doctor of Philosophy
in
Management

By
Sandeep Singhal

June 2023

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Sandeep Singhal
SAP ID: 500049587
Date: June 2023
Place: UPES, Dehradun

CERTIFICATE

This is to certify that the thesis titled **"BENEFIT SHARING WITH PROJECT AFFECTED FAMILIES (PAF'S) FOR EXPEDITING HYDROPOWER DEVELOPMENT IN UTTARAKHAND"** submitted by "Sandeep Singhal, SAP ID: 500049587" to the University of Petroleum and Energy Studies for the award of the degree of Doctor of Philosophy is a bona fide record of the research work carried out by him under our supervision and guidance.

The content of the thesis, in full or parts have not been submitted to any other Institute or University for the award of any other degree or diploma.

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EXECUTIVE SUMMARY

Development of Hydro power projects has significant impact on social, economic & environmental characteristics of a region. Traditionally emphasis was only on compensation and mitigation of the impacts. Lately with increased awareness and greater say of the affected population the focus has shifted from compensation, mitigation to improvement in standard of living and benefits sharing. However, there are gaps in comprehensively understanding the aspirations of affected people, in effective policy formulation and in implementation. This has resulted in decreasing hydro share in National Scenario. The problem is more precarious in Uttarakhand.

The first chapter, 'Introduction and Background' justifies following as the business problem, 'In-effective benefit sharing mechanism with various Project Affected Families whether losing land or not, leads to significant time as well as cost overruns in the development of hydro power schemes in both planning and constructions stages'. The second chapter introduces the concept of aspirations of the project affected families (PAFs). PAFs face most of consequences arising out of development induced displacement. Aspirations of PAFs have been discussed in detail along with classification. Chapter also discusses challenges faced by project developers / administration in meeting / fulfilling these aspirations. Further, impact of improper redressal of aspirations has been discussed followed by the discussion on efforts to fulfil the aspirations of PAFs.

The third chapter outlines the benefits sharing approach which is used as a tool to meet the aspirations of PAFs. Types and mechanism of benefits sharing has been discussed in detail. Further, chapter also discusses, how benefits sharing has been evolved in hydro power projects and what are the existing policies in India for the same and concludes with discussion regarding benefits sharing in practice citing example of successful implementation in Himachal Pradesh.

Chapter four does a structured evaluation of the literature available. This review is undertaken on four themes: Identification of aspirations of various Project Affected Families (PAF's) considering them as Stakeholders, Existing governing mechanisms / practices for redressal of aspirations of PAF's in hydro power projects, Risks associated with improper redressal of aspirations of project affected persons and Evolution of benefit sharing in hydro power projects. The underpinning theory for the present study is identified as 'Stakeholder Theory'. Theoretical premise gap for the present study is, 'Lack of clarity related to fair value allocation (benefit sharing) measures with various stakeholders throughout the project life'. The consolidated 'Research Gap' and 'Theoretical Premise Gap' led to the formulation of 'Research Problem', 'Research Question' and 'Research Objective'. The derived Research Problem for the study is, 'Project Affected Families (PAF's) not losing land has not yet been recognized as stakeholders in Hydro Power Projects. The existing policies / governing mechanisms are also short of the expectations of various PAF's'. The critical analysis of theme-based Research Gap and purpose for present study frames following as Research Question, 'Can we suggest a framework / mechanism for benefit sharing with PAF's in Hydro Power Projects?' The Research Objective corresponding to Research Question is: 'To develop a suggestive framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects'. Requirement for Qualitative Research Design has been highlighted by the Research Question.

Chapter five elaborates qualitative research design and methodology for framework analysis (Smith and Firth, 2011). Appendix 3 is appended for further elaboration of Interview protocol formation and validation.

Chapter Six includes interpretation of data analysis. • In the beginning 24 categories have been recognized based on the detailed transcripts of interview. These initial categories have been refined to form 16 larger categories. Consecutively, these 16 large categories have been carried further to shape 8 initial themes. Finally on further processing 5 themes were emerged as the result of framework analysis.

Finally, the last chapter presents the proposed framework for benefit sharing with Project Affected Families in Hydro Power Projects and concludes the recommendations on the basis of research findings as per the research problem. In addition, last Chapter also contains a presentation of the major contributions of the study, along with their implications on Business Problem spelled out in chapter one. These are followed by some suggestions for future research roadmap followed by outlines the limitations present in the present study.

The present research presents few submissions and endorsements both for theory as well as practice. Academic Implications significantly echoes the role of present research into the theoretical premise. Present study proposes new concepts that can affect the lackluster speed of hydro power development specifically for Uttarakhand. Further, Economic Inferences do contribute by answering the business problem and echoes that the benefit sharing shall tackle the prevailing problems faced during implementation of hydro power projects. This will have constructive impact on the progress of local economy. Policy Implications suggest that policymakers have an opportunity to use the outcome of this thesis as the guide for re-designing and assessing the benefit sharing programs.

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Sandeep Singhal

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LIST OF ABBREVIATIONS

ABBREVIATION	WORD
ADB	Asian Development Bank
AHEC	Alternate Hydro Energy Systems
BU	Billion Unit
CAGR	Compound Annual Growth Rate
CEA	Central Electricity Authority
CEIA	Cumulative Environment Impact Assessment
CERC	Central Electricity Regulatory Commission
GHG	Green House Gases
GoHP	Government of Himachal Pradesh
GoI	Government of India
GoU	Government of Uttarakhand
GW	Giga Watt
HEP	Hydro Electric Project
HPPCL	Himachal Pradesh Power Corporation Limited
IHA	International Hydropower Association
IIT	Indian Institute Technology
LADF	Local Area Development Fund
L&T	Larsen & Toubro
MU	Million Unit
MW	Mega Watt
NGRBA	National Ganga River Basin Authority
PAF's	Project Affected Families
PAA	Project Affected Area
PFC	Power Finance Corporation
PTCUL	Power Transmission Corporation of Uttarakhand Limited
R&R	Rehabilitation and Resettlement
SJVNL	SJVN Limited (Formerly Satluj Jal Vidhyut Nigam)
UERC	Uttarakhand Electricity Regulatory Commission
UJVNL	UJVN Limited (Formerly Uttarakhand Jal Vidyut Nigam)

UPCL	Uttarakhand Power Corporation Limited
UREDA	Uttarakhand Renewable Energy Development Authority

CHAPTER 1
BACKGROUND AND INTRODUCTION

1.1 BACKGROUND

Development of Hydro power projects has significant impact on social, economic & environmental characteristics of a region. Traditionally emphasis was only on compensation and mitigation of the impacts. Lately with increased awareness and greater say of the affected population the focus has shifted from compensation, mitigation to improvement in standard of living and benefits sharing. However, there are gaps in comprehensively understanding the aspirations of affected people, in effective policy formulation and in implementation. This has resulted in decreasing hydro share in National Scenario. The problem is more precarious in Uttarakhand. Projects under construction like Loharinag Pala and Pala Maneri were stopped on recommendations of NGRBA. Hon'ble Supreme Court has stayed implementation of 24 projects which were at various stages of development / construction. Further, clearances to new projects are not forth coming.

Steps are being taken to address environmental issues by suggesting additional measures for mitigation of impact of projects as well as restoration/ conservation/ enhancement of environment and ecology. Similarly, to tackle social issues, the age-old Land Acquisition Act, 1894 has been replaced by Land Acquisition, Rehabilitation and Resettlement Act, 2013. However, there is still need of comprehensively taking care of apprehensions and aspirations of the Project Affected Families (PAF's), whether loosing land or not and also to share benefits generated during running of the project with them.

During public hearing for 300 MW Bowala Nand Prayag project in Chamoli, 120 MW Sirkari Bhyol Rupsiabagar in Pithoragarh, 300 MW Lakhwar in Tehri Garhwal & Dehradun it has been noticed that the emphasis of local people was on providing direct and indirect benefits for long-term to all affected people (PAFs) whether losing land or not, over and above fair compensation against acquisition of their land and or properties.

Moreover, as per "The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006" notified by Ministry of Law and Justice, in order to get Forest Clearance, the project developer has to obtain consent of each Gram Sabha having jurisdiction over the whole or a part of the forestland required for project construction. Thus favorable opinion of various PAF's has become critical for clearance of the project.

1.2 IMPORTANCE OF HYDRO POWER

Generation of power from Hydro Power Projects plays a significant impact in the overall generation mix. Following are the important contribution typically accruing from hydro power projects:

- **Energy security:** Renewable energy - non consumptive use of water.
- **Grid stability:** Quick start, shutdown, and instantaneous load variations. To balance Renewable Energy and to achieve solar energy target of 280 GW by 2030, Hydropower development is imperative.
- **Clean power:** Emission/ radiation free operation.
- **Socio-economic development:** Provides employment, Checks Migration.
- **Low operating cost** & long operating life (70 years).
- **Water security, River rejuvenation and flood control** in case of storage based hydro projects.
- Can absorb reactive power induced in transmission lines which otherwise reduces transmission capacity.

Further, a comparison of hydro power plants vis a vis other forms of generation is given in the following table 1.1:

Table 1.1: Comparison of Hydro vis-À-vis Solar, Wind, Thermal & Gas Power Plants

Sl. No.	Parameters	Hydro	Wind	Solar	Thermal Coal Based	Thermal Gas Based
1.	**Resource availability**	Usable as it exists	Usable as it exists	Usable as it exists	To be procured & made usable	To be procured
2.	**Limitations on availability of resource**	Inexhaustible (Renewable)	Inexhaustible (Renewable)	Inexhaustible (Renewable)	Exhaustible (Non Renewable)	Exhaustible (Non Renewable)
3.	**Land requirement (Acre/MW)**	2.5-3.7	5	5	0.7-1.4	1.5
4.	**Efficiency (%)**	60-70	20-30	12-20	32-42	32-38
5.	**Plant load factor (%) / Capacity utilization factor (%)**	50	17-22	18	80	20-60
6.	**Fuel requirement**	Nil	Nil	Nil	700MT/MU	28 cuft/ kWh
7.	**Plant life (Years)**	35	20-25	25	25	20
8.	**Peak load requirement**	Best for meeting peak load	Best for meeting base load	Best for meeting base load during day time	Best for meeting base load	Best for meeting peak load
9.	**GHGs emission**	Negligible emission	Zero emission	Zero emission	Significant emission	Significant emission

In view of overall impact, hydropower is the most preferable source of energy. Vast hydropower potential is still untapped. There is a need to tap the hydro potential to meet the energy requirement as it is environment friendly and sustainable source of energy which supports other renewable forms of energy such as solar, wind etc. and helps in stability of power grid.

1.3 HYDRO POWER SCENARIO IN INDIA

Capacity wise, India is the third largest country worldwide, having installed capacity of 403.76 GW as on 30.06.2022. In terms of fuel, thermal (coal, gas and diesel) and hydropower makes 58.5% and 11.6% respectively in India's power generation mix and the rest 29.9 % is provided by other energy sources namely solar, small hydro, wind, nuclear and biomass (Figure 1.1).(CEA, 2022)

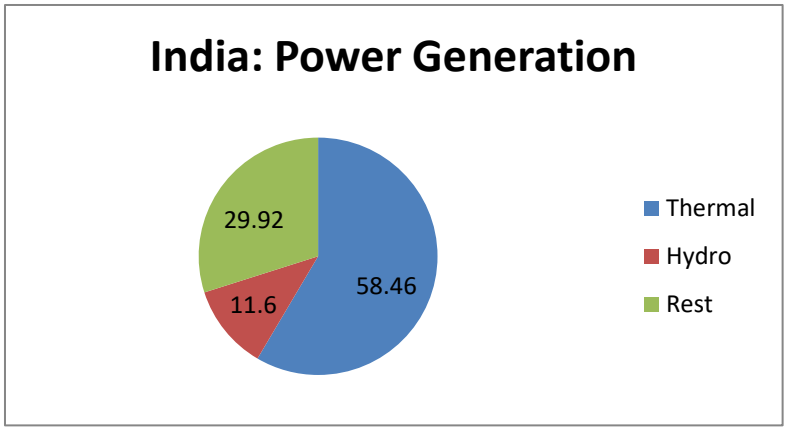


Figure1.1: Fuel mix of India's installed power generation capacity

The share of hydro in overall power generation scenario has dropped from 45.61% in 1969(3rd plan) to 11.6% in 2022. Whereas, the installed capacity of hydro has grown from 1061 MW in the 1st plan to 46,850 MW till 30.06.2022. (CEA, 2020)

In the present scenario, Government of India is keen on promotion of renewable sources including hydro, gas-based projects, and adoption of clean coal technology.

For the year 2019-20, India has the per capita electricity consumption target of 1208 unit (kWh) which was much lower in comparison to the global average of 4255 unit (kWh), representing substantial potential for further growth.

The advantage of hydropower makes it an advantageous ingredient in the fuel-mix of a country. As per CEA, India has around 1,45,320 MW as the potential of hydro power projects of capacity more than 25 MW, out of which 46,850 MW capacity stands harnessed, 9,077.5 MW is being constructed and 92,464.9 MW (about 63.63% of potential capacity) is yet to be harnessed. This major untapped potential hints on enormous prospect for India to generate cheap and clean electricity through mega scale hydropower implementation. Few countries such as Canada and Brazil had harnessed approximately 69% and 48% of the economically viable potential back in 2009. As per the hydro power generation capacity, India ranks fifth internationally. (IHA, 2021)

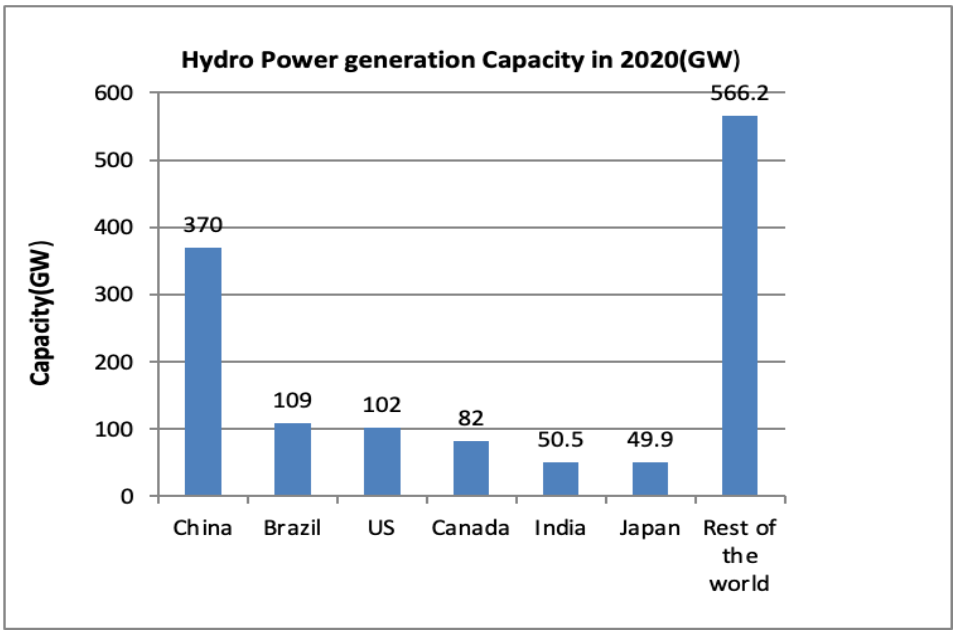


Figure 1.2: Global hydro power generation capacity in 2020

1.4 HYDRO POWER SCENARIO IN UTTARAKHAND:

Uttarakhand which is the 27th State of India, was formed on 9th of November 2000 after bifurcating State of Uttar Pradesh. Geographically, Uttarakhand is spread over 53,480 Sq. Kms with 13 Revenue Districts & 15,761 inhabited

villages. Nearly 86% of the area is hilly, and 65% of the area has forest cover and the rest comprising of the Terai areas.

Uttarakhand State is gifted with ample renewable sources for generation of electrical energy. Small, medium & large hydro-electric projects, solar projects, biomass/agricultural residue, urban, municipal, and industrial waste, wind energy and geothermal energy can be used to harness majority of these resources in an environmentally clean and sustainable manner.

As per the Electricity Act 2003, there are independent unbundled utilities functional in the Uttarakhand State. These utilities are as follows:

1. Generating Utility / Company - UJVN Limited
2. Transmission Utility / Company - Power Transmission Corporation of Uttarakhand Limited (PTCUL)
3. Distribution Utility / Company - Uttarakhand Power Corporation Limited (UPCL)

In addition to the above, Uttarakhand Renewable Energy Development Agency (UREDA) was established exclusively to encourage renewable sources of energy in the State.

Uttarakhand Electricity Regulatory Commission (UERC) is the authority responsible for regulating the power sector of the State.

On formation of Uttarakhand, the state was conceived as 'Urja Pradesh' as it has 'water' as the main natural resource that can be commercially exploited. Paradoxically, the state is forced to purchase nearly Rs. 1000 crores of power annually to meet the existing demand resulting in poor social and economic upliftment of the population.

Out of total annual demand of approx. 13,380 MU, 4,277 MU are available in the form of generation from UJVN Limited the generating utility of Government of Uttarakhand; royalty share from HEP of CPSU and IPP is 1,047 MU; 3,705.240 MU is available as the allocated share from CSGS (central pool) & remaining 4,350 MU is being purchased annually. Against the estimated sustainable hydro power potential of about 17,000 MW in Uttarakhand, only 4,217 MW capacity is installed and 2,151 MW capacity is under construction. Remaining is yet to be tapped. The major hindrance to

Hydro Power development is on account of Social & Environmental issues. (Internal reports of UJVNL)

Whereas steps have been taken by MoEF to address various environmental issues, a lot is required to be done to achieve co-operation of local people by way of Benefit sharing.

1.5 FEW ILLUSTRATIONS TO ARRIVE AT THE BUSINESS PROBLEM

Delays during planning stage: Successful public hearing is mandatory for Environmental Clearance of a hydropower project which is accorded by Ministry of Environment and Forest. In 300 MW Bowala Nand Prayag project located at Alaknanda river in Chamoli district, public hearing which was held in August 2012 was unsuccessful with affected people demanding clear deduction of indirect & direct benefits to each family over and above fair compensation against acquisition of their land and property. Subsequently, Land Acquisition, Rehabilitation and Resettlement (LARR) Act 2013 was formalised by Government of India and the benefits under LADF policy were calculated for all the affected families. Public hearing was again convened in Oct 2014 and it was successful this time.

Similarly in the case of 444 MW Vishnugad Pipalkoti project of THDC on river Alaknanda in Chamoli District the public hearings were conducted twice- January 2007 and again in Sept. 2009. In 252 MW Devsari project of SJVNL on river Pindar in Chamoli Distt, also public hearing were held thrice in Oct. 2009, July 2010 and finally in Jan 2011.All this leads to time& cost overrun.

Further, before obtaining Forest Clearance, consent of all Gram Sabhas is required; this takes a lot of time in convincing all concerned people. Hence unless & until, clear benefit sharing mechanisms from the project are perceived by the Affected Families, it is impossible to obtain their consent.

Delay during Construction stage:

After start of the project also various project affected families cause hindrances in the construction work, by not allowing/delaying engagement of outside workers, delay in vacating land for installation of construction facilities such as crusher plants, batching plants etc. hindrances in quarrying, muck dumping, material transportation etc. and at times complete stopping of the project works. In Vyasi HEP 120 MW on river Yamuna in Dehradun and in Vishnugad Pipalkoti (444MW) on river Alaknanda in Chamoli such delays have been faced. Basically, the project affected families desire clear demarcation of share in the benefits related to various activities of project construction.

Recently, analysis of the various factors contributing to difficulties in hydro sector has been provided in the "Concept note on measures required in Hydro Power Sector" circulated by Ministry of Power, GoI in Aug 2022 (Appendix 1). As per the analysis of delay in 30 hydro projects, 15 of them has factors related to local issues as one of the reasons for delay. These issues include delay in land acquisition, local law & order problem / R&R Issues and delay in NOCs.

Local issues are continuously faced in various hydro power projects being constructed in Uttarakhand. As per the quarterly report of CEA released in March-2019, Uttarakhand has seven under-construction HEPs with time and cost overrun and it is interesting to observe that three of these projects i.e. Tehri PSS, Vishnugad Pipalkoti & Vyasi HEPs have local issues as one of the reasons for time overruns.

1.6 BUSINESS PROBLEM

In-effective benefit sharing mechanism with various Project Affected Families whether losing land or not, often leads to time as well as cost overruns in the development of hydro power projects at planning and constructions stages.

1.7 SIGNIFICANCE OF THE STUDY

India has taken its foot forward to achieve net zero emission target by 2070. It has been estimated that renewable energy sources may touch 500 GW by 2030 considering the commitment of the Government toward responding to the climate change. However, integration of other renewable sources of energy such as wind and solar poses a challenge towards grid stability. Hydro power assumes greater importance and significance to ensure peaking and balancing power for the stability of the grid. Hence, there is a great need for improvement in growth of hydro sector.

1.8 RATIONALE OF THE STUDY

Delays in project execution due to hinderances caused by local population results in increase in the project cost thereby making them unviable.

The State loses royalty or free power and consequent revenue due to delay in commissioning of projects.

This study aims to solve a problem which is impeding hydro power development.

1.9 ORGANISATIONAL SCHEMETA OF REPORT

This research work is organized into seven chapters for the purpose of exhibition and assessment. The first chapter, ‘Introduction and Background’ comprises the business problem along with scope. The second chapter explains aspirations of project affected families. The third chapter details benefit sharing approach used to meet the aspirations of PAFs. Chapter four does a structured review of the literature. Chapter Five describes research methodology. Chapter Six evaluates interviews and shows various results and conversations to prepare the framework. Finally, the last chapter of this report concludes the final framework for benefit sharing with PAFs in Hydro Power Projects.

Chapter wise presentation of research has been adopted by the researcher presents for better management of the content and the knowledge derived by the study.

1.10 SUMMARY

1. Hydro power is the cheap, clean, and green source of energy.
2. Several limitations have impacted the pace of hydro power growth in our country.
3. Uttarakhand state despite having large potential of hydro power is still forced to purchase nearly Rs. 1000 crore of power annually.
4. Major hinderances to development of hydro power in Uttarakhand is on account of social & environmental issues.
5. A lot is required to be done to achieve co-operation of local people / project affected families.

CHAPTER 2
ASPIRATIONS OF PROJECT AFFECTED FAMILIES

This chapter introduces the concept of aspirations in relation to the families affected by project implementation. Project Affected Families (PAFs) face most of consequences arising out of development induced displacement. Aspirations of PAFs have been discussed in detail along with classification. Next part of the chapter discusses challenges faced by project developers / administration in meeting / fulfilling these aspirations. Further, impact of improper redressal of aspirations has been discussed followed by the discussion on efforts to fulfil the aspirations of PAFs.

2.1 INTRODUCTION

Locke & Latham (2002) defined aspirations by way of the quality or level of performance desired by a distinct person to attain. One can equate aspirations to the goals, target, or ambitions for the future. Aspirations may relate to high salary, regular source of income, attaining higher education, status in society, health facilities, safety or any other such area which was deemed significant by an individual. According to Hart (2016) aspirations are future leaning, determined by mindful and insensible motivation and they are suggestive of an individual or groups obligations about a particular path or end point.

Although aspirations are directed towards future, but same may relate to continuance of a current state of being. For example, during our study we observed various aspirations of PAFs ranging from employment, subcontracted works, provision of water supply, orders of small works or service, giving vehicles on hire, buildings on rent etc.

An aspiration in the context of present research relates to the expectations of the Project Affected Families (PAF's) on account of development of any Hydro Power Project in the region.

2.2 HOW DEVELOPMENT INDUCES DISPLACEMENT

Displacement occurs when the residence of affected family is acquired, or major portion of his agricultural land is acquired for any development project as a result of which the affected family loses its livelihood and is required to be resettled. Many times, several persons get displaced simultaneously and they desire to be resettled together to a new location with all amenities developed. LARR 2013 policy of GoI in its schedule 1,2 & 3 specifies the compensation and mitigation measures to be provided before displacement. Schedule 1 specifies the components that constitute the minimum compensation package, schedule 2 specifies various components of rehabilitation & resettlement provisions for the PAFs and schedule 3 describe about the implementation of infrastructural facilities and elementary least conveniences planned to extend to resettled population.

Development projects do have displacement as an integral element. Displacement in it vast sense not only refers to the persons who has to physically relocate involuntarily to clear the way for the project and its related concepts but also consist of those who got displaced from the resource base and livelihoods. Displacement is generally experienced by the loss of land / property and the disturbance in social and economic relationships (Bartolome et al, WCD 1999).

When any individual or community is fully or partially no longer able to occupy an area and compelled to relocate to a new location, than it called physical displacement. On the other hand, when individual or community is fully or partially limited in their access to land or other resources that are vital to their livelihoods and economic wellbeing it's called economic displacement (UNDP SES 2016). Therefore, apart from compensation, livelihood restoration and sharing of long-term benefits with PAFs facing displacement is necessary.

Rayner (2003) describes displacement induced due to development as an outcome of age old developmental policy and planning. This has its origin in the utilitarian and Benthamnian logic of 'the greatest happiness for the greatest number'.

Cernea & Mathur (2008) has estimated the worldwide population of around 15 million people which is forced from their residences to create way for infrastructural construction.

Hemadri, Mander, and Nagaraj (2000) presented that in India since 1947 approximately 20-50 million people were displaced for construction of large developmental projects such as dams, mines, roads, bridge, industrial complexes etc.

2.3 ASPIRATIONS OF PROJECT AFFECTED FAMILIES

On the basis of primary data recorded during two public hearings conducted for Bowala Nand Prayag Hydro Power Project in Chamoli district, Sirkari Bhyol Rupsiabagar in Pithoragarh district and Lakhwar in Tehri Garhwal & Dehradun districts of Uttarakhand, and further, secondary data collected from various reports, aspirations of PAFs have been documented. These aspirations are presented in table 2.1 duly classified in Environmental, Social, Economic & Religious factors:

Table 2.1: Classification of aspirations of PAF's

Factor	Aspirations
Environmental	• Treatment of landslide zone • Continuity of river to be maintained • Water should be available downstream of dams/barrages • Project developer should maintain the sanctity of environment. • During construction period of the project, air, water, pollution shall impact crops, as well as human health, in lieu, compensation should be provided.
Social	• Alternate source of water supply (drinking and irrigation), if original sources are impacted. • Construction / maintenance of Public Bus shelters. • Construction activities should not impact the normal life

	of local residents. • Development of Pastures and grazing land. • Grants to village organizations /clubs like Mahila Mangal Dal/ Yuvak Mangal Dal. • Benefits of the LADF to be given to the resident of area. • People of the area should be benefitted more in comparison to the losses. • Scholarship to the meritorious students should be made. • Medical facility of the project should be extended to the people of area which may be affected during / post construction of the project. • Infrastructure for professional courses such as ITI & Polytechnic College should be created in the area. • Construction of access roads, bridges and development of drainage system. • Development of playground & sports facilities.
Economical	• Guaranteed Employment for PAF's and also other local people. • Engagement of local people as construction workers. • Land in lieu of Land. • Taking over of balance land. • Women should also be provided employment in the project, especially widows. • Villagers should get free electricity connection and free electricity up to some units, as the electricity is generated locally and evacuated outside. • Local People whose livelihood is dependent on fishing and animal Husbandry should be compensated. • Land less people should be considered for compensation. • Providing small work contracts to PAF's. • In hiring of vehicles for the project activities local people should be given preference. • Clear cut spelling out of the direct and indirect benefits over and above compensation. • Preferential Awards of small works to PAFs and local people.
Religious	• Beautification and development of Temples, Bathing Ghats and cremation grounds. • During cultural and religious occasions, for bathing and other purposes sufficient water should be released from the project downstream into the river.

The above list of aspirations is not exhaustive and there may be other aspirations to explore.

2.4 CHALLENGES IN MEETING THE ASPIRATIONS:

Following factors have been identified as challenges in meeting the aspirations of PAFs:

2.4.1 Fears / myths among PAFs: PAFs have certain fears / myths related to Hydro Power Projects and they perceive these projects negatively. This negative perception results in resistance in identification of the genuine aspirations of these PAFs. Major myths related to HEPs and facts are given in table 2.2.

Table 2.2: Myths vs Facts associated with Hydro projects

Sl. No.	Myths	Vis-a-Vis Facts
1	Drying up & depletion of water sources	• During excavation some instances may be there but concrete lining and grouting is done around all tunnels/openings to prevent ingress of ground water. Hence, it is not so in the long run.
2	Blasting causes cracks /damage to houses.	• Building design is generally inadequate i.e. not as per seismic requirements. Cracks in house can be due to some other reason like land subsidence etc.
3	Muck disposal into river.	• Maximum quantity of excavated material is re used during construction activities. However, lapses must be penalized. Dumping is being done in designated dumping sites and reclamation of the sites is being done by biological and engineering measures.
4	Water Quality deterioration	• Studies have shown that water quality does not changes before and after tunnels. The impact on Dissolved Oxygen (DO) is also regained within 500 meter downstream of Power House exit.
5	Effect on aquatic biota and diversity	• No significant adverse effect seen on aquatic biota and diversity due to construction of HEPs on proper implementation of Environmental Management Plan.

6	Riverbed up gradation	• Landslides are caused by heavy rains; cloudbursts cause heavy deposition of debris into the river causing riverbed up gradation. Permission to remove debris from riverbed should be allowed to attain normal river bed level.
7	HEPs induce Earth quack	• No scientific evidence exists worldwide.
8	HEPs induce land slides	• Landslide are caused by heavy rains, cloudbursts and un-stabilized slopes. • Lands slides are common phenomenon in hill areas and can occur in areas even where there are no projects.
9	Deforestation due to HEPs.	• Deforestation is compensated through Compensatory afforestation by planting trees on twice the area diverted thus overall forest cover / density increases.
10	Flood control Role of hydro projects	• Existence of large storage in Uttarakhand such as Tehri Dam was helpful in absorbing a substantial amount of discharge in Bhagirathi River and thus mitigated impact of flood at Rishikesh and Haridwar towns during heavy floods in river Ganga from 16-18 June, 2013.
11	Environmental Degradation due to hydro projects	• On execution of environment management plans like CAT Plan, Quarry & Dumping sites restoration, reservoir rim treatment, Fish management plan etc. are executed, there is remarkable and significant environmental restoration and even up gradation.
12	Uprooting of people/ Displacement	• However, people are suitably compensated and additional benefits are given in line to the Central Government's notified Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
13	Impact on Livelihood	• Hydro power Projects creates job opportunities and mitigate the problems of unemployment, poverty and its consequent miseries.
14	No Public participation/ Involvement	• All Corporate Social Responsibility activities are carried out with active public participation and Interaction with local community. • Public participation occurs during Public

		hearing of the project and their feasible suggestions are effectively incorporated.
15	Drying of river	• Non consumptive use of water. Drying up of river stretch was observed in some cases in intermediate stretches between dam and powerhouse • MoEF stipulates minimum Environmental flow to take care of marine vegetation and wildlife in the direct downstream of the Barrage or Dam to maintain the ecology and environment. Implementation needs to be monitored.

2.4.2 Lack of Institutional & Legal arrangements / framework: Institutional arrangements / frameworks are there to redress problems of PAFs, but these arrangements lack connect with them. Very low or negligible community participation makes these arrangements less capable of handling real aspirations of local population. Further, certain well devised arrangements are not implemented yet, for example even Local Area Development Fund policy is not implemented by most of the states.

2.4.3 Poor identification of aspirations: In order to take steps for meeting the aspirations of PAFs, first step is identification of aspirations. However, there are limited studies on identification of their aspirations in comprehensive manner.

2.4.4 Dynamic nature of aspirations: Hart's research (2004, 2012) found that aspirations are dynamic and often connected to other aspirations held by the individual as well as by others. There is not a single determinant of aspirations. What one aspires for is influenced by various external and internal factors. These include a person's social circle, life experiences, personality, awareness, perception, reasoning, and judgment, all of which affect how they approach and perceive their future (Ray, 2006). Aspirations keep evolving with the passage of time and so are the practices for meeting them.

2.4.5 Undue expectations of PAFs: At times PAFs have undue or unrealistic expectations and meeting those expectations is not

possible for the developer. Result of such undue expectations comes out in form of dissatisfaction of both the parties. As observed during the project implementation, expectations of PAFs begin in the form of seeking employment, which rapidly increased to allotment of sub-contract, free power supply, allotment of small works, hiring vehicles from locals and so on. Resolution of inappropriate demands of the PAFs pose a challenge to the project authorities.

2.4.6 Political Support: Efficient and effective tackling of political interferences pose a significant challenge in the process of meeting the aspirations of PAFs. Local politicians may at times support unrealistic demands of PAFs also.

2.4.7 Inadequacy of Policy: Policy for taking care of PAFs is inadequate per se they do not have provision for those PAFs whose land is not acquired for the project. These left out PAFs may create several problems at the project site.

2.4.8 Malpractice in benefit sharing: The available policies are not even fairly implemented on ground by the officials. Beneficiaries get their share either late or in lieu of some consideration. Sometimes PAFs are forced to agitate for getting their legitimate dues.

2.4.9 Non accountability: Officials responsible for the execution of relief programs have no fear for delay or harassment of the public. Malpractices as discussed in the above point are very much a byproduct of lack of accountability among implementers.

2.4.10 Inadequate monitoring: Due to inadequate monitoring mechanisms, existing institutional framework do not serve the purpose of its existence. A well designed and professionally managed monitoring system allows assessing how accessible the interventions have been to the target population. It also provides a link between organization and affected stakeholders and can be helpful in assessment of changes in aspirations.

2.4.11 Inadequate grievance redressal: Aggrieved stakeholders should be given due care while listening to their complaints / feedback. Improper handling of grievances may encourage fraudulent behavior

of concerned officials and make the process of appeasement ineffective.

2.5 IMPACT OF IMPROPER REDRESSAL OF ASPIRATIONS

Impact is defined as “Effect of a cause” or the act of one object colliding forcefully with other object and have a marked influence or effect. Various literatures also define impact as a calculated variation of an indicator defined previously with the intervention and without the intervention. We can also define impact much more broadly in terms of any long-term effect, whether intended, unintended, positive, negative, direct or indirect impact.

The impact of unfulfilled aspirations of the PAF’s results in causing hindrances in implementations of the project i.e., time overrun which leads to cost overrun thereby making the project financially unviable. Both planning as well as construction phases of Project implementation experiences the impacts in the form of delay.

2.6 EFFORTS TO FULFILL THE ASPIRATIONS OF PAFS:

Groups residing in the vicinity of Project face most of the ill effects occurring during construction or operation of a Hydro power plant and normally don’t have reach to generated electrical power, while the primary beneficiaries living very far from the project site get the electricity. Further, in some cases electricity may not be a significant requirement in the lives of affected groups as compared to other basic necessities.

Most of the adversities related to economic and social issues are faced by the local affected groups. Among these affected groups, those not directly affected even remain deprived from the compensation-based approach. As a solution to this, benefits from benefit sharing programs extends to entire project affected area including all groups. Benefit sharing programs are driven by the revenue earned by the project.

The national policy on Resettlement & Rehabilitation 2007 in India for the first time included the concept of local area development works and other social welfare measures necessary for addressing the aspirations of Project Affected Families.

Government of India has forwarded "Draft guidelines for management of Local Area Development Fund (LADF) in respect of Central Sector Hydroelectric Projects" in October 2013. However, finalization and implementation of same is still pending.

2.6.1 Dealing with Inappropriate Demands by PAFs

Provision of fair and transparent benefit sharing programs can help in minimizing undue / inappropriate demands. To ensure effective delivery of a benefit sharing program, processes should be participative, unbiased, transparent, and accountable.

Local politicians of one party or the other may at times support unrealistic demands of PAFs and provide them with political patronage. In case of such expectations turning into greed, State Government or local administration should take strict action.

In Vishnugad Pipalkoti HEP of THDC India Limited in Uttarakhand, PAFs of Village Haat were given compensation for their land 3 times of circle rates, compensation for properties (houses and other structures) as per PWD valuation and other benefits in line with the R&R policy prepared for the project. Out of total 253 families, 26 households of Village Haat were not ready to vacate their residences in project area even though they have taken compensation and entire land and assets have been mutated in favour of Project since 2018. They created hinderance in work for 3 years intermittently. Ultimately, District Administration, after issuing notices to all 26 families to vacate houses, had to demolish their houses in September 2021.

A recent example of inappropriate demand by PAFs has been witnessed in Vyasi Project of UJVN Limited, wherein residents of a village falling in submergence area of the project first demanded increase in compensation and

premium valuation of their houses / structures. After the acceptance of their demands by the project authorities and State Government in year 2017-18, PAFs started the demand of land for land and asked for allotting land having market value approximately 4-5 times of acquired land. However, with the intervention of the State government and district administration the land could be vacated, although some higher compensation & mitigation measures were agreed in 2022.

2.7 SUMMARY

Hydropower project has the potential to significantly contribute towards improvement of infrastructure, poverty reduction and enhancement of quality of life, provided that due care is taken about identification and management of social issues. Primary challenge faced by the project developers is to ensure that project affected groups get benefits such as fair compensation, improvement in living conditions, community health services etc. While developing a new project primary requirements are comprehensive social, environmental & economic impact assessment, fair community engagement, multiple user benefits, public acceptance, public health safety, vulnerable social groups, heritage, and monitoring of outcomes.

As evident from the discussion regarding challenges, low or minute level of motivation, poor transparency, and negligible accountability results in corruption / ill-practices, which pose major threat in successfully meeting the aspirations of PAF's.

Focus was on proving benefits to the local population during construction phase of the project such as providing compensation, executing community development & other R&R works, providing indirect or self-employment, awarding small contracts, hiring buildings & vehicles etc. To receive such benefits over a longer period, the interest of PAFs lies in extending the construction phase. This is contrary to the expectations of other stakeholders such as the developer, the State Government, and the public at large.

The focus of benefits sharing is to provide benefits to PAFs during the running / operation phase of the project i.e. throughout the working life of the project. Hence, the interest of PAFs would be there in expediting the completion of the project, so as to receive greater benefits in the form of annuity and other development related works. This results in converging of aims of all the stakeholders such as developer, PAFs, State Government and public at large.

CHAPTER 3
BENEFIT SHARING

In the previous chapter, aspirations of PAFs, challenges faced in meeting them, impact of their improper redressal and efforts being carried out are discussed. Unaddressed aspirations may create problems in project implementation resulting in unwanted cost and time overruns. This chapter outlines the benefits sharing approach which is used as a tool to meet the aspirations of PAFs. Types and mechanism of benefits sharing has been discussed in detail. Further, chapter discusses, how benefits sharing has been evolved in hydro power projects and what are the existing policies in India for the same. Chapter concludes with discussion regarding benefits sharing in practice citing example of successful implementation in Himachal Pradesh.

3.1 INTRODUCTION

We can define local benefit sharing in hydropower projects as a bunch of organised efforts by developers / owners of the project taken to extend benefits in a sustainable manner for the communities affected by construction / operation activities.

Traditionally emphasis was only given for compensation and mitigation of the impacts. Lately with increased awareness, stringent laws and greater say of the affected population the focus has shifted from compensation & mitigation to improvement in standard of living and sharing of benefits. However still there are gaps in comprehensively understanding the environmental aspects and aspirations of affected people at large, in effective policy formulation and in timely implementation. This has resulted in opposition by the project affected people in case of implementation of hydro power schemes leading to increase

in construction costs of the project and decrease of hydro share in National Scenario.

Why Benefit Sharing is pertinent for Hydropower Projects?

1. Hydropower schemes may drive several long term benefits for communities.
2. Beside benefits of hydro power projects, their wide range of unwarranted impacts on local population cannot be ruled out.
3. Only the conventional compensation measures are not enough to nullify all the ill effects of project development.
4. Fair and reasonable delivery of benefits is often a contentious issue.
5. Programs undertaken for benefit sharing may ensure opportunities for local people to get benefited from the hydropower development and improve sustainable living.
6. Benefits provided at local level may help important stakeholders.

Present scenario echoing development with sustainability, this may be possible by moving focus from moderation and compensation to increase developmental paybacks and more fair and reasonable results. Developers have also begun to work directly with local population to secure increased return on investment.

3.2 BENEFIT SHARING VS COMPENSATION / IMPACT MITIGATION

Benefit sharing measures at time is misunderstood as compensation and mitigation initiatives. On the other hand, benefit sharing could be different from these two programs. Usually, confusion over the differences arises due to the overlapping or enhancement of compensation / mitigation measures. For example, when mitigation measures are increased and included in the welfare program to reinstate livelihoods of affected population one may get the impression of benefit sharing process. These concepts are different due to the following factors:

i) People getting benefits under benefit sharing measures are spread over a broad area affected by the project and also population benefited by such programs is not only the directly affected one.
ii) Source of financing for compensation is normally the project implementation budget, on the contrary benefit sharing schemes are mostly financed by the income generated by operational hydro power plants.

As few benefit sharing measures may be an extension of mitigation programs, therefore, clear distinction between mitigation program and benefit sharing measures is difficult, We can define benefit sharing as a step by step activity or a process which brings opportunity to increase and fairly allocate benefit of development among variety of stakeholders. Impact mitigation is essential to offer harmless existence of any business and acts as a basic building block for trust of host communities. Benefit sharing on the contrary focuses on the distribution of value created by a business to all the stakeholders. It does not include compensation towards losses due to existence of project such as land acquisition or resettlement.

Benefit sharing measures aimed to allocate the benefits generated from the implementation of hydropower scheme among the population getting affected by it. This also helps in satisfying the needs of the concerned affected population. Project developers can achieve smooth functioning by committing part of the profit, accrued by the continuous operation, towards the residents in the vicinity of hydropower project.

3.3 TYPES AND MECHANISMS OF BENEFIT SHARING

Based on scale, we can categorize benefit sharing as short-term or long-term. As the name suggest, short term benefit sharing can span over few years after starting from the project design phase and progressing over construction phase. Short term benefit sharing encompasses steps taken to make the most of local employment opportunities as the work force for project construction. This also includes encouragement of supply of locally produced goods and facilities

towards the implementation of project and investments done in infrastructural improvements and upgradation of public amenities such as bridges, toilets, roads, and medical facilities. Host of these services are project focused but local population also get benefited incidentally.

On the other hand, long term benefit sharing starts after the project gets commissioned and normally lasts up to the useful life of project. Long term benefit sharing arrangements include:

a) Monetary benefit sharing
b) Non-monetary benefit sharing

Monetary and non-monetary benefit sharing mechanisms are generally used in hydropower development. Monetary benefit sharing involves disbursal of a portion of the revenue received from operation of any hydro power plant with local population. Monetary benefit sharing includes the following:

a. Revenue sharing / Direct payments
b. Subsidized rates of electricity
c. Payments made towards environmental services
d. Creation of a local development fund
e. Equity sharing

In non-monetary benefit sharing, project entity ensures that local population get benefited during various implementation phases of a hydro power scheme in non-monetary form. A developer can allocate benefits generated by the project for the welfare of local people in non-financial terms such as upgradation / provision of existing / new medical facilities, improvement in infrastructural components, scaling up the level of educational facilities, environmental conservation, promoting sports and cultural activities, facilities for tourism, fish cultivation, forestry and providing employment. Non-monetary benefit sharing includes:

i. Modification in project design and operation as per the requirement of the region.
ii. Watershed management
iii. Development of associated infrastructure and public service investment
iv. Creating employment opportunities

There is strong need to design and plan benefit sharing arrangement carefully as part of any project proposal, so that social and economic benefits of project get shared with target beneficiaries (local communities). Basic characteristics of a well-intended benefits sharing program are (a) well defined goals (b) clearly defined target beneficiaries (c) carefully planned benefits sharing mechanism (d) identification of responsible agencies and (e) implementation arrangements. Benefit sharing program should be designed considering major inputs from important studies such as environmental impact assessment, evaluation of social impact, socioeconomic studies and plan for rehabilitation and resettlement.

Table 3.1. Comparison of Different Benefit Sharing Mechanisms

Mechanisms	Key features	Main advantage	Key weaknesses	Design principles
Revenue sharing / Direct payment	Based on agreement, Developers transfer revenue to local communities	Clearly defined recipients	Potential for gain by privileged Probable fraud	Transparency in procedure for public disclosure of information
	Based on law, Hydro power developers pay tax and royalties or based on deal allocation of revenue to government	Clear regulations and rules to follow	Won't necessarily benefit local communities	Clear guidelines for using the corpus to ensure it helps local population
Subsidized electricity rates	Local government and hydropower companies negotiate an agreement	Clear benefit to targeted beneficiaries Clearly targeted population It is generally easier for local people to accept	People without electricity connections cannot benefit from it. Legislative barriers can limit this	Combining it with rural electrification program Local government's commitment to ensure targeted population

			possibility	have access to electricity
Payments for environmental or ecosystem services	Direct cash payment to recipients	Developers gets benefited	Limited to upstream landowners	Payment based on outcome
Community development fund	Hydropower developers distribute revenue and/or government feeds funds to community Development fund founded based on settlement	Visibly aimed recipients Encouraging local populations	Low power at local level Possible for privileged capture	Simplify funding sources Distribute fund information in groups Founded project execution organization at the local level Building local capacity Grievance redress mechanism is adequately established.
Equity sharing	Local groups or agencies share limited equity of a hydro power project based on agreement	Local groups or agencies have more voice on scheme design and operation	Local groups and/or agencies distribute the project risks	Upfront deal on the equity distribution Visible process of use and sharing of dividends received
Modifying project design and operation	Changing or modifying either project design or operational rules	Cost effective to developers Can have long-term benefits to beneficiaries	Might not be applicable to all projects	Explore potential alternatives at early stage Take into concern local growth plans
Watershed management	Hydropower companies invest in various programs in	Targeting different groups of people through different	Benefit limited to upstream local communities	Need to be consistent with watershed management

	the watershed management plan based on agreement like CAT plan	programs Both hydropower companies and local communities can benefit from such investment	and landowners in most cases Might not work when there is no watershed management plan	plan
Associated infrastructure and public service investment	Hydropower developers invest in infrastructure such as roads, bridges and public services	Include benefits for both hydropower companies and local population	Potential restriction of local people's access Lack of clear sources of funding for maintenance and operation	Planning such investment in coordination with local authorities Integrating such investment in local development plan Local people have open access to the public and infrastructure services
Creation of Employment	Project activities provides employment opportunities to local communities	Direct benefit to local people Direct contribution to local economy and development	Limited number of employment opportunities Potential exclusion of vulnerable groups	Agreement with hydropower companies on priority recruitment of local people in project construction and operation Ensure different groups of people have equal employment opportunities

3.4 EXISTING POLICIES IN INDIA

To address the problems being faced by the Project Affected Families (PAFs) due to construction of various development projects, by acquisition of land throughout the country the Government has been enacting certain laws from time to time, which are being discussed as below.

i. The Land Acquisition Act, 1984 was introduced for land acquisition needed for public purposes / companies and to decide compensation to the affected persons on account of such acquisitions. This act had provision for compulsory acquisition of private property by the State for implementation of civic goods and services: such as hospitals, roads, schools, bridges, dams, barrages etc. Section 38 of this act permits acquisition for private projects also, provided that these projects serve public at large.

ii. In 1985, a report of National Commission for Schedule Castes and Scheduled Tribes revealed that approximately forty percent of the persons displaced by project execution and the Project Affected People belongs to the tribal communities. This report had compelled Government of India to start drafting a Rehabilitation and Resettlement Policy. Accordingly, Central Ministry of Welfare constituted a committee to formulate a policy for Rehabilitation of only the displaced persons belonging to tribal communities. However, committee has recommended that the Rehabilitation policy should cover displaced persons from all the communities irrespective of their caste and rehabilitation should be made integral to each project. Committee has also recommended that this policy must be obligatory for the States and the executing authorities / agencies involved in project development (GoI, 1995, Fernandes, 2008; Negi & Ganguly, 2011). Draft of rehabilitation policy as framed by the Ministry of Rural Development, came in 1993 through the times of withdrawal of World Bank from the Sardar Sarovar project. This draft got amended in the year 1994 and 1998. Finally, after putting in two decades of preparation phase, GoI

adopted a National Policy for Resettlement and Rehabilitation for Project Affected Families in 2004 (Samling, C.L., Ghosh, A.K., Hazra, S. 2015). Till that time all issues related to PAFs were largely dealt under the Land Acquisition Act 1984, which primarily dealt with land acquisition and compensation for land to the legal owners.

In its order dated 21.02.2008 about Omkareshwar Dam, Madhya Pradesh, in the matter of Narmada Bachao Andolan vs The State Of Madhya Pradesh, Hon'ble Supreme Court of India had directed as follows: -

- the moved families and invaders are authorised for allocation of plot of farming land up to the extent possible in terms of R&R Policy of 1993 as amended in 2002 for the project.

- Ousted labourers who do not own any land, are not eligible for allotment of farming land under the rehabilitation Policy of 1993, but they can made application for allocation of plot of land as landless persons under any Government law, guideline, or policy.

- A minor who has become major on or before the notification date under Section 4 of the Land Acquisition Act will be treated as a distinct displaced family, in case he was portion of a larger family from whom land was acquired and would be allowed for allocation of farming land up to the extent possible in line with R&R Policy of 1993, as amended in 2002. However, the amount of land to be given to them will be decided based on their stake in the land earlier to the acquisition.

- Any displaced person having a grievance about not been received due entitlement in line with the rehabilitation Policy of 1993, as amended from time to time and as per the annotations in this decision, is free to lodge a complaint straight with the Grievance Redressal Authority.

iii. The villagers are having forest rights only forest land around their villages from where they get fodder, fuel wood and other forest produce.

Keeping this in view Ministry of Law and Justice has notified "The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006" under provision of this act in order to obtain Forest Clearance the project developer has to obtain consent from each Gram Sabha having jurisdiction over the whole or a part of the forestland required for project construction. Thus with such developments, favourable opinion of various PAFs has become critical for clearance of the project.

iv. The National Policy on Resettlement & Rehabilitation 2007, in India for the first time included the concept of providing jobs/ compensation, Local Area Development works and other social welfare measures necessary for addressing the aspirations of Project Affected Families.

v. The Hydro Power Policy 2008 formulated by Government of India further introduced the concept of Local Area Development Fund (LADF). Government of India has forwarded "Draft guidelines for management of Local Area Development Fund (LADF) in respect of Central Sector Hydroelectric" in October 2013 to all the state Governments. As per the policy developer would provide 1% free power additionally from the power generated by the plant. This free power will be earmarked towards a Local Area Development Fund, which has aim of providing a regular income stream and well-being schemes, conception of added infrastructure and mutual facilities etc. on a continued and sustained basis over the useful life of the scheme. It is also suggested that the host state governments would also provide a identical share of 1% from their part of 12% free power towards this corpus.

vi. In its order dated 05.05.2010, Hon'ble Supreme court of India opined that reliefs could be given to population affected by the Indira Sagar and Omkareshwar Canal Projects and has directed that, those Khatedars who are not willing to take land from the land bank, they may be granted the compensation as per the current market value plus 30% solatium over and above. Similarly, those who are not coming in the category of

hardship cases (wherein land is in excess of 60%), compensation is to be paid under the Land Acquisition Act with 30% solatium.

vii. Hon'ble Supreme Court of India in its order dated 18th October 2010 regarding Narmada Bachao Andolan vs Union of India and others for Bargi Project, Tawa Project and Punasa Project has directed that in any case the Review Committee for adjudication of the water dispute of distribution and control of water of Narmada as constituted by Narmada Water Disputes Tribunal will at least meet once in every three months to manage the development of construction of the dam and execution of the R&R packages.

viii. The old Land Acquisition Act, 1894 has been replaced in year 2013 when Government of India has notified the Right to Fair Compensation and Transparency in Land Acquisition, rehabilitation and Resettlement Act, 2013 (also Land Acquisition act 2013). **Approximately 120-year-old** Colonial Land Acquisition act 1894 was replaced by LARRA 2013, after it came into force from 1st January, 2014. LARRA 2013 has its objective to ascertain a civilised, participative, learned as well as clear system for acquisition of land with consent of constitutionally established Panchayati Raj and Municipal institutions. LARRA 2013 could not identify just losing land as PAFs but also those who lose their primary sources of livelihoods, thereby acknowledging economic displacement.

ix. In addition to the Central Act, various State governments have also notified separate Acts / policies for acquisition of land. Government of Uttarakhand has notified R&R policy for Hydro Power Projects in the state, which encompasses benefits over and above as provided by the central act.

3.5 EVOLUTION OF BENEFIT SHARING IN HYDRO POWER PROJECTS:

Government of India has forwarded "Draft guidelines for management of Local Area Development Fund (LADF) in respect of Central Sector Hydroelectric Projects" in October 2013. However, finalization and implementation of same is still pending.

Therefore, traditionally emphasis was only given for compensation and mitigation of the impacts. Lately with increased awareness, stringent laws and greater say of the affected population the focus has shifted from compensation & mitigation to improvement in standard of living and sharing of benefits.

It has been observed that indirectly affected local population is not being considered under the compensation-based approach. Whereas Recipients of these programs are not limited to directly affected population and usually spread over the project influence areas. Revenue earned by the operation of a Hydro power scheme is used to finance benefit sharing programs.

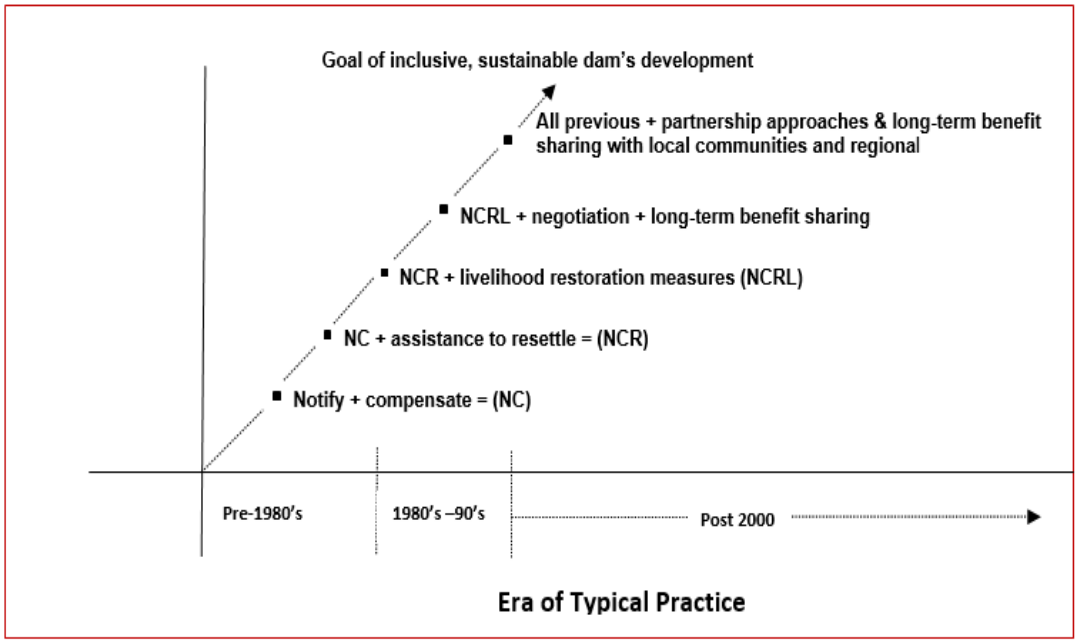


Figure 3.1: Evolving Practice in the Treatment of Dam-Affected Communities

(Source: International Institute for Environment and Development (IIED), 2009)

3.6 BENEFIT SHARING IN PRACTICE – HIMACHAL PRADESH:

In order to share benefits with PAF's, Himachal Pradesh has implemented a direct payment scheme by notifying guidelines for management of Local Area Development Fund (LADF) in respect of HEPs in the year 2011. There is provision for transfer of funds for Local Area Development Fund (LADF) both during construction as well as after commissioning of hydro power project. During construction, developer needs to pay at least 1.5% (for projects >5MW) and 1% (for projects < 5MW) of final project cost in the LADF. The amount is spent for creation of additional infrastructure in the project affected area.

Further, after commissioning of the project, developer will contribute income received from the sale of 1% free power component in the LADF. This sum shall be distributed by Local Area Development Committee (LADC) in the form of cash allocation to the families of the Project Affected Area, annually during the useful life span of the project.

In continuance to this, a notification was also distributed in 2016 about payment of incentive in terms of supply of free electricity to the tune of 100 units per month to the Project Affected Families for 10 years from the date of start of generation from the Project. This will be valid for all the projects completed after the date of notification i.e. 31st March 2008.

These measures are taken to further strengthen the ownership of the project with local communities and helped in promoting development hydropower in the State. A comparison of power scenario of Himachal Pradesh and Uttarakhand is enclosed at Appendix 2. It is evident from the comparison that despite having same identified potential to the tune of 24,000 MW, Himachal Pradesh is far ahead in terms of installed and under construction capacity.

Approaches to social safeguards and community development adopted by SJVNL in Rampur Hydro Electric Project in Himachal Pradesh include fair compensation, participative resettlement measures, opportunities for

employment & skill upgradation, infrastructure development as per demand and support to various welfare and cultural activities.

3.7 SUMMARY:

Benefit sharing is proving to be a reliable approach for implementation of hydropower projects in a smooth and sustainable manner. Further, benefit sharing can also enhance the requirements of mitigation and compensation in agreement with the Project Affected Families (PAFs). Benefit sharing can improve sustainability and can avoid hindrances for smooth implementation of a hydropower project that too through adequate involvement of stakeholders at right time.

Key enabling conditions required for any benefit sharing mechanism to work are government rules / guidelines / policies, legal and regulatory frameworks, capacity of local population and corporate social responsibility strategies of companies involved in development.

Stakeholder engagement plays a key role in starting and formulating benefit sharing program. Developing and executing benefit sharing activities at the ground level is of utmost importance. Support from the local communities can improve the odds of successful outcome of the regulatory process, which is one of the key enablers of benefit sharing in hydropower projects.

Planning and devising a benefit distribution plan should be an essential part of project planning and implementation with effective local benefit sharing mechanism in hydropower projects. A well-conceived benefit sharing program must include clear goals, procedures, a target population, appropriate institutional arrangements, accountable agencies, and effective execution & monitoring procedures.

To make certain effective delivery of a benefit sharing program, processes should be participative, unbiased, transparent, and accountable. For taking care of complaints of affected groups, a grievance redressal mechanism should be in place, which provides a mode for people to raise their concerns and promotes mutual relationship among stakeholders.

CHAPTER 4
LITERATURE REVIEW

4.1 INTRODUCTION:

Reviewing of literature requires searching and evaluation of the available literature around the specified subject of research (Swanson, 1997). Literature review surveys the scholarly articles, books, and any other published information in the chosen area of study (Webster et al., 2002). The literature review provides the summary of existing literature by synthesizing the information (Galvan, 2006). The literature review also identifies the theoretical limitations and articulates the future research area (Labaree, 2009). Thus, the researcher also reviewed the literature on all the identified themes and underpinning theory. The researcher will identify research gaps (if any) based on the discussion of reviewed literature. If any research gap is identified. Then the researcher will first refine the research and make necessary corrections to plug the gap(s). He will then align the thematic and theoretical research gap(s) to filter out combined research gap. To check the consolidated research gap, it would be analytically examined to find out the research problem. The research questions probing the research problem would be outlined next. As per Leedy et al. (2010), research design for the current study is indicated by these research questions.

4.2 DETAILED THEME BASED LITERATURE REVIEW:

Theme 1 : Identification of aspirations of various Project Affected Families (PAF's) considering them as Stakeholders			
Author	**Year**	**Findings**	**Gap**
Micheal Cerena, Kohler , David wheeler, Johan Kaler, P. Edward Freeman, Donaldson, Lee E. Preston, Clarkson, Frederick	1994 2007 2002 2004 1984 1995 1995 1995 1992	Externalities effects in case persons who were not involved in hydro power development got affected by it and deprived of any reparation. Stakeholder theory of a firm, mandates knowledge of various impacts exerted by stakeholders and also response of firms to those impacts can be defined as engagement. The stakeholder engagement is suggested under three major categories Normative (ought to), Descriptive (how it is) and instrumental (conducive). The second order theories then suggested on how to identify the stakeholders using three lenses (1) Power (2) Legitimacy and (3) Urgency. These three lenses enable the company to prioritize its identified stakeholder to devise its strategy of engagement and relationship buildings.	Inadequate recognition of various categories of PAF's as stakeholders and limited study on identification of their aspirations in comprehensive manner

Dr. Helen Locher	2013	Community development plans require implementation and monitoring through ongoing consultation and liaison with affected community. Capabilities and opportunities for local institutions and communities impacted by development of hydropower projects can be enhanced by capacity building programs.	
Andrew Scanion, Ruth Kile and Barry S.Blumstein	2006	Poverty can be reduced, and quality of life can be enhanced significantly by hydro power projects in the community served by these. Changes caused by hydro power projects do impact local communities. To ensure sustainability these welfare schemes should take cognizance of entitlements and distribute benefits among directly afflicted population . The aim should be that the population affected by project development receives long term benefits.	
Lata et. al,	2013	"Socio-economic and cultural impacts arising from project construction and environmental transformations were rooted in the complex interactivity between social and biophysical environments. The concerns of residents must be taken	

		care of at planning stage and the policy must have provisions minimizing the impacts of these developmental activities on local people."	
ChaogangWana	2012	Equitable sharing of benefits can ensure holistic growth, sustainability, and efficient project construction for hydropower plants. Inadequate public awareness and partaking in the project already completed or under development which leads to misinformation and rumors.	
Diduck et. al,	2007	Growth of hydro sector can bring development in industrial space and consequently brought about social welfare in a State. However, hydro power development could also have serious adverse effects on social-ecological spaces. "Public involvement at project planning stage and subsequently execution did not exemplify characteristics of meaningful involvement. Active participation by public at large would increase likelihood of advanced, decentralized, and visible local involvement. Central and State governments ought to be	

		more assertive in regulating large-scale hydro development."	
OED, Goldsmith and Hildyard, Dhawan, Dhawan, Altinbilek	1993, 1984, 1989, 1990, 2002	"Implementation of hydropower projects and its Socioeconomic and environmental impacts have been elucidated in the literature These impacts must, be counter-balanced against the benefits that accrue from such projects, i.e., availability of agriculture and drinking water, hydroelectric power, tangible and intangible economic development, etc."	
Theme 2: Existing governing mechanisms / practices for redressal of aspirations of PAF's in hydro power projects.			
Author	**Year**	**Findings**	**Gap**
Cernea	2002	Education Loss" added to the eight potential risk of the Impoverishment risk and Reconstruction model (IRR)	Ineffectiveness of existing governing mechanism / practices for redressal of aspirations of Project Affected Families(P
ChaogangWana	2012	"Sharing of social and economic benefits of hydropower projects to local communities can be ensured by incorporating sharing arrangements as part of the project planning." "explicit provisions for local benefit sharing in policy framework is an important yardstick which give better insight to investors that local and affected communities are likely to	

		support the project." Grievance settlement procedure should be established in accordance with local structures and it's better to avoid having too many layers.	AF's) in hydro power projects
Brokers and Scudder	1968	Impoverishing effects of projects that necessitate resettlement.	
Adams, J. S., Huseman, R.C., Hatfield, J.D. & Miles	1965 1987	Equity theory emphasized on determining whether the delivery of resources is just to all partners / stakeholders in the process.	
E.W. David M. Mayer, Adams J.S.,	2007 1965	Distributive justice relates to fairness in distribution of resources / outputs to various individuals.	
Mathur, H	2006	Failure to implement guidelines in time result in socio economic degradation. Mentions policy implementation issues.	
Sinclair and Diduck	2000	Despite the rapid pace of development people's association and public hearing processes both were in their growing phases. Constraints are remoteness of information and institutional capacity, which hinder serious public involvement. Local population	

		primarily focus on safety issues (blasting), construction of road and creation of employment opportunities, with slight concern over environmental impacts.	
Diduck et. al, Peter Newell, Isabelle Anguelovski, Deanna Kemp,	2007 2005 2011 2011	Opportunities are there for innovative, distributed, and more active local involvement. The literature provides evidence that where conflict has escalated, it is observed that either break or lack of communication and consultation as one of the main reasons. The scholars have studied explorative techniques of engagement, relationship and communication and given due importance of dialogue and consultation at every level. Literature also suggested that the companies need to develop special training programs to train their employees to understand the local culture and traditions and demonstrate respect to them. Credible, transpired in open space for	

		dialogue must be created so that negotiations lead to resolutions and not conflict. Few studies reveal that proactive engagement led to smooth dialogue and relationship building. The participative and consultative approach was one notch up because the local community feels recognized, respected and involved in the process of negotiation. "Cluster analysis based on exchange of dialogue of the many various affected communities could be used to recognize the manner in which long term impacts are perceived, and accordingly sturdy mitigation proposals having least conflictive measures can ensure the social acceptance of the project."	
C.L. Samling, A.K. Ghosh, S. Hazra	2015	The drafting of the Resettlement and Rehabilitation Policy was initiated by Government of India in 1985, subsequent to findings of the National Commission for Schedule Castes and Scheduled Tribes that about 40% of the displaced persons and the Project Affected Persons were tribals. Accordingly, a committee was constituted by the Ministry of	

		Welfare, Govt of India to prepare a Rehabilitation policy exclusively for the tribal displaced persons. However, the committee had recommended that the policy should provisions for covering all the displaced persons and not just the tribals.It was also recommended that rehabilitation should be made integral to every project and further that it should be binding on the State and the project implementing agencies. Thereafter another draft prepared by the Ministry of Rural Development, when World Bank withdrew from the Sardar Sarovar project, in 1993. The same was revised in 1994 and 1998. Finally, after putting in two decades of preparation phase, GoI adopted a National Policy for Resettlement and Rehabilitation for Project Affected Families in 2004.	
Hydro Power Policy, MoP, GoI	2008	Additional 1% free electricity has been recommended from the project and commensurate fund allocation for the development of local area. This fund is intended to provide a steady stream of returns and wellbeing schemes, establishment of supplementary infrastructure and community oriented facilities etc. in uninterrupted and steady manner	

		useful life-span of the hydro plant.	
Draft guidelines on LADF, MoP, GoI	2013	Guidelines are prescribed for administration of LADF as well as the activities for which the amount therein may be used.	
Govt. of HP	2011, 2013 & 15	Govt. of HP has made an extra provision in accordance with the terms of GoI Hydropower Policy 2008.	
Government of Uttarakhand	2016	Development of any infrastructural project including hydro power projects do impact the environment, present infrastructure, resources of community and individual as well , etc. These impacts must be taken care of by incorporating suitable and commensurate funds. Under the Uttarakhand State Hydropower Policy to carryout development activities in the local area ensuring noticeable extra benefits to local people in the project area.	
IHA Guidelines	2003	These Guidelines were aimed at creating a more sustainable hydropower industry. To achieve this hydropower developers and operators should extend due and equal consideration to social, ecological and monetary aspects of the hydro	

		power industry at all life-cycle stages of a project.	
Rawls	1971	Model of universal conception of justice.This necessitates that entire social interests – liberty and opportunity, income and wealth, and the foundation of one's dignity – essentially be distributed uniformly unless an unequal distribution of any, or all, of these values is to everyone's advantage. Status of evicted communities should be getting better in terms of their earnings and wealth creation. Stakeholder theory has unfolded in recent years begun to focus on the significance of the associations that go well beyond those that companies naturally have with shareholders. Stakeholder theory development has centered on mainly on three streams; (1) ascertaining the stakeholder perception (2) segregating stakeholders into categories providing insight of individual stakeholder relationship and (3) the approach to engage with the stakeholder. The fundamental theory that "the firm mandatorily makes necessary	

		provisioning of those groups and individuals that can affect, or are affected by the accomplishment of organizational purpose".	
Everard, Mark and Kataria, Gaurav	2010	Deficiency of engagement of local people, inadequate published information, and consideration of social and environmental consequences have come only too late in the preparation process.	
Rawls	1971	Rawls crafted model of universal notion of justice. This requires that entire social interests- autonomy and prospect, income and prosperity, and the foundations of one's dignity – are to be evenly distributed.	
Chauhan et. at,	2011	Positive as well as negative effects of the project were reported. Local people may get employment opportunities both during construction as well as after completion of the project. Affected people expect that project developers / local authorities would take care of them with creation of better infrastructure such as good road, education facilities, health and sanitation facilities, drinking water, street lights to make good for loss of	

		land and other economic benefits.	
Chaogang Wang	2012	"The approach of sharing of benefits derived from construction of hydropower project and its operation with local people in non-monetary terms .such as improved infrastructure, improved health and education facilities, convenient access to fisheries and forests, and legal ownership land." "Hydropower projects will become more environmentally and socially sustainable by ensuring benefits can be shared with local communities." "Economic development can be nurtured by utilizing community development funds capitalized from electricity sales in the project areas, including the project-affected communities, both downstream and upstream."	
The Right to Fair Compensation and Transparency in Land Acquisition, Resettlement and Resettlement,GoI	2013	In consultation with institutions of local self-government and Gram Sabhas, a humane, participative, well informed and transparent process for land acquisition ensuring just and fair compensation to the affected families.	
M. Cernea	1994	Scientific evaluation in the study of relocation steered the focus from	

		‘stress centered’ model to the impoverishment – reestablishment model. Impoverishment is the focal point in development-induced displacement and resettlement. The model indicatets that a pattern of eight interwovened potential risks are inevitable to displacement. Any lapse or delay in curative action than potential risks may escalate to actual impoverishment disasters. These risks include: Landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity and mortality, loss of access to common property and social disarticulation. The construction of hydroelectric projects opens the doors of employment opportunities for local people. Inhabitants of the project areas get jobs directly thorough developer as regular staff, contractual basins or as daily wage workers or indirectly through contractors and ancillary activities like small scale business, supply of vehicles, small contracts etc. considering the livelihood of people depending on the construction activities of project.	

M. Cernea	2021	For loss of assets, we cannot tame the adverse effects of resettlement by only the cash compensation. Rigorous multidimensional support and action by all the related social actors can push developmental activities, instead of pursuing just risk mitigation. Relocation is apt to generate prospects to improve lives and not only unsettle them.	
Mathur	1997	R &R Issues have an effect on the cost of projects. People have been reduced to poverty and destitution as a result of displacement. Case for national policy on R&R	
Somayaji and Talwar	2011	Policy should be lifestyle based rather than land based compensation. Need to restore as much natural surrounding as possible. The solatium does not mention loses not measured in monetary terms.	
Iyer	2007	The concept of justice and compassion is not given importance in current policy. Need for more Humane approach.	
Rabindra Garda	2015	Odisha Government and project authorities arbitrarily used LA Act and R&R policy for the construction	

		of dam projects. Due to its uniqueness, every case of development displacement caused by needs separate strategy for the rehabilitation and resettlement of the displaced people. Policy implementation is a major problem.	
Bisht, T.C	2009	Development induced Displacement and Women. Women worse off in displacement.	
Asthana, V	2012	Gendered analysis. Women worse off as a result of displacement. Policies are generally in favor of men.	
Theme 3: Risks associated with improper redressal of aspirations of project affected people			
Author	**Year**	**Findings**	**Gap**
ChaogangWana, WCD	2012, 2000	Local and vulnerable groups in the project area deemed to receive the minimum benefits unless special provisions enacted by the government and developers. Local development opportunities and ultimately enhanced sustainability can be achieved by well designed programs for the fair sharing of benefits. Such programmsoffer scope for local people generating synergies byavoiding likelihood of arising	Limited study on risks associated with improper redressal of aspirations and their impact on hydropow er

		disputes. .	developme nt in Uttarakhan d.
Michael M. Cernea Diduck, D. Sinclair A.P. Pratap Lata Renu, Rishi, Naresh Kochhar, Ranjana Sharma S. Sharma	2004 2007 2013 2009	"Cost externalization" is considered as an unsound and unacceptable practice under financing classic economic theory . Although nearly all dam-building projects are practicing externalization without any constraint and morality, flying in the face of economic theory and policy discourse. They underestimate the losses suffered on account of displacement, compensate them in utterly inadequate proportion, and externalize the difference as an intolerable burden on the displaced population. Refutation of social vulnerability. The denial of risks is seldom expressed verbatim. It becomes more destructive forms: no discussions about social vulnerability, biliousness towards risks, or treating them with benign indifference, as if those risks wouldn't exist or wouldn't be serious attempts to reduce the enormity of risks, etc. Such perspective is the polar opposite of what is in fact a basic prerequisite of social impact management- namely the upfront identification of risks, candid risks	

		recognition, and the search for serious counter weights to risks. Risks escapism has short legs. It weakness sound management rather than helping it. Risks that are uncovered are likelier to go unaddressed than the risks that are highlighted.	
Public hearing of: Bowala Nand Prayag Vishnu Gad Pipalkoti Devsari Hydro Power Projects	2010, 2012 2007, 2009 2009 2010 2015	The emphasis of local people is on providing direct and indirect benefits to all PAF's over and above fair compensation. The focus of Project Affected Families (PAF's) has shifted from compensation, mitigation to improvement in standard of living and further to benefits sharing. Benefit sharing programs have beneficiaries scattered all around the project influence areas and are not limited to the directly affected communities. In 300 MW Bowala Nand Prayag project located at Alaknanda river in Chamoli district, public hearing which was held in August 2012 was unsuccessful with affected people	

		demanding clear deduction of indirect & direct benefits to each family. Public hearing was again convened in Oct 2014 and it was successful this time. Similarly, in the case of 444 MW Vishnugad Pipalkoti project of THDC on river Alaknanda in Chamoli District the public hearings were conducted twice- January 2007 and again in Sept. 2009. In 252 MW Devsari project of SJVNL on river Pindar in Chamoli Distt, also public hearing were held thrice in Oct. 2009, July 2010 and finally in Jan 2011.	
BalajiPandey Michael M. Cernea	1996 2004	In all the projects studied social disintegration has been designated as a major impoverishment risk, dismantles social networks, kinships and social relationships. The concept of risk-occurrence is about processes that are potential, not yet actual, that may likely to happen but also that may NOT happen- if sufficient balancing steps are taken therefore, the internal logic of the IRR as an analytical and problem-resolution toll prescribes that overcoming impoverishment requires	

		to confront the potential risks preemptively, early on.	
B. Pandey	1998	In the upper Krishna Project (UKP) the artisans, share croppers, landless labours, those employed in services and small businessmen, who lost their occupation and livelihood, were not recognized.	
Iyer	2007	The concepts of justice and compassion are not given importance in current policy. Need for more Humane approach.	
M. Cernea	2008	Compensation only restores previous economic conditions. Resource for additional compensation and financing not available.	
Chaogang Wang	2012	Good community relations are essential for improved local cooperation and reducing the risk of delay in project completion.	
M. Cernea	2021	Impoverishment of relocated people is the primary threat in development initiated disinclined population relocation. To address this central risk, protection and reinstating displaced peoples' livelihoods is the fulcrum for equitable resettlement	

		programs. Customarily, it has been experienced that the risks of impoverishment and social disruption becomes grim reality. In India, for example , researchers found that the nation's development strategies have caused the dislocation and unwilling resettlement of approximately 20 million people in approximately four decades, however about 75% of these people have not been "rehabilitated" (Fernandes 1991; Fernandes et al. 1989). Their incomes and livelihoods have not been reinstated. In other words, the vast majority of development resettlers in India have been impoverished.	
Theme 4: Evolution of benefit sharing in hydro power projects.			
Author	**Year**	**Findings**	**Gap**
Chaogang Wang International Hydropower Association: Sustainability guidelines; AHEC IIT Roorkee, CEIA Studies	2012 2003 2010	Commonly used monetary benefit sharing mechanisms include: • Direct payments/revenue sharing • Privileged electricity rates • Payments for environmental or ecosystem services • A community development fund • Equity sharing Examples of non-monetary benefit sharing mechanisms include: • Amendment in project design and	Ineffective benefit sharing mechanism in hydro power projects

		modification in operation • Watershed management • Associated infrastructure and public service investment • Job Opportunity	
HPPCL	2014	HPPCL has submitted an amount of Rs. 637.95 lac for Sawara Kuddu HEP (111 MW) to LADC Simla out of which Rs. 449.12 lac have been disbursed in three installments directly to the effected panchayats for various development activities particularly with in the boundary of concerned gram panchayat.	
Govt. of Himachal Pradesh, HPPCL, SJVNL	2011 2013 2015	LADF to be contributed by Sainj HEP (100 MW) @ 1.5% of total project cost amounts to Rs. 10.87 cr. The total due amount under LADA as per policy has been deposited. Various developmental works have been undertaken by various agencies from the LADA funds of the project.	
E.A.K. Kalitsi(Ghana)	2013	This is crucial to avert and diminish likelihood of post construction claims and subsequently to avoid disputes among the host communities and the settlers as observed f in the Akosombo and kpong projects. It can be learned that there is a tendency for developer's fatigue to	

		set in after completion of project. Once people were subsituted and power plant commenced its generation, the vigor which characterized the initial socio-economic activity waned on the contrary such activities should have been accelerated . Ascertaining the costs and the allocation of the benefits is an arduous assignment, it is better to err for well being of the local communities. However, regular monitoring of benefit sharing and corresponding of costs will result in better estimation in this regard.	
Schulz C., Skinner J.	2022	Benefit-sharing, if implemented well, expected to support livelihoods for resettled people over the c and circumvent several undesirable consequences recently observed in majority of the cases. Benefits or the allocation of funds ought to determine during the participatory process with project-affected people. The majority benefit-sharing activities coincide with the operation stage of a hydropower project, depicting its everlasting and adaptive nature.	

4.3 GAPS IN LITERATURE REVIEW:

The detailed literature review was focused on understanding what all has been researched in the area of addressing aspirations of Project Affected Families whether losing land or not. Secondly, detailed study on literature on evaluation of Benefit sharing mechanism, its origin, philosophy, components and tools and methods and how it can benefit the hydro power projects.

From the review of above literature primary gaps for further understanding are:

1) Inadequate recognition of various categories of PAF's as stakeholders and limited study on identification of their aspirations in comprehensive manner.
2) Ineffectiveness of existing governing mechanism / practices for redressal of aspirations of Project Affected Families (PAF's) in hydro power projects.
3) Limited study on risks associated with inadequate redressal of aspirations and their impact on hydropower development in Uttarakhand
4) In-effective benefit sharing mechanism in hydro power projects.

4.4 THEORETICAL PREMISE:

The theoretical premise shall be based on Stakeholder Theory. As a strategic management theory, stakeholder theory has its place in organization management and ethics. Most of the articles and books on this theory credit R. Edward Freeman as the "father of stakeholder theory".

Theoretical Premise – Stakeholder Theory			
1	R. Edward Freeman	1984	Provided details of the Stakeholder Theory of managing organization and business conscience describing ethics and values in managing an organization. Defined stakeholder as any group or individual who get affected or can affect the achievement of the organisational

			objective.
2	Thomas Donaldson & Lee E. Preston	1995	Proposed that the stakeholder theory is 'managerial' and recommends the attributes, structures and practices that taken together constitutes a strategic management philosophy. Ultimate justification for the Stakeholder Theory is to be found in its normative base. Normative technique analyses the role of the corporation and recognizes the"moral or theoretical guidelines prescribed for the operation and overall administration of the corporation.
3.	Robert A. Phillips	1997	Stakeholders are voluntary members of a co-operation scheme for mutual benefits, which requires either contribution or sacrifice on the part of participants. There exists obligation of fairness on the part of these persons or groups to co-operate in proportion to the benefits accepted.
4	Phillips et al.	2019	Stakeholder theory describes business as a set of value-creating associations roped in all the genuine common affaires and outcome achieved by the firm and upon whom the firm depends to attain its objectives. All this depends on how various stakeholders and managers work in cooperation to create value. One interested in understanding the business needs to understand how these relationships work. A manager's job is to shape and direct these

			relationships.
5	Clarkson	1995	Classification of stakeholders can be done in groups based on their common interests viz – 'claims or rights'. For the corporation to continue its business as a going concern, t continuing participation of a primary stakeholder group is essentially required. On the other hand, secondary stakeholder groups are not essential for survival of a corporation. However, these groups may cause substantial damages to a corporation.
6	Mitchell et al.	1997	Theory of stakeholder recognition and reputation by incorporating normative and vivid theory elements. The theory is based on three core variables: power, legitimacy, and urgency.
7	Robert A. Phillips	2003	Responsibilities towards the stakeholder should be commensurate with their contributions. Non-contributors should be excluded as stakeholder.
8	Harrison & Bosse	2013	Clarifies a practical limit of stakeholder theory. "Stakeholder theory is not about 'giving away the store'; rather, it states optimizing the performance of a group, for which performance can be e termed as creation of total value. It allows requisite fine-tuning of the border line of stakeholder theory's predictions. It is not gospel truth that the project owners giving more benefits to stakeholders do better than other

			firms.”
9	Freeman et al.	2018	Eventually, it is about establishing balance within the stakeholders ecosystem i.e. being an overly ungenerous or charitable with stakeholders can create ripples of disruption. Hence, ;, fairness, and harmony essentially required inside the entire stakeholders space. Any infringement of these properties would result in deterioration of the system, as it sets into motion oscillatory forces that could unsettle the performance of the whole system. Certainly, participants in a system of value creation who constantly feel neglected and underprivileged will not be motivated to promote development , focusing instead on maximizing what they can “get” from the system.

4.5 GAP OF THEORETICAL PREMISE:

Lack of clarity related to fair value allocation (benefit sharing) measures with various stakeholders throughout the project life.

4.6 CONSOLIDATED GAP:

Literature does not reflect a suggestive framework for value allocation / benefit sharing with PAFs (stakeholders). Theory is also somewhat ambiguous with reference to value allocation decisions.

4.7 RESEARCH PROBLEM:

Project Affected Families (PAF's) not losing land has not yet been recognized as stakeholders in Hydro Power Projects. The existing policies / governing mechanisms are also short of the expectations of various PAF's. This is leading to major time & cost overruns in Hydro Power Projects at present. It is imperative that, apart from compensation, livelihood restoration & sharing of long-term benefits with PAFs considering them as stakeholders is also necessary. There is strong case for formulation of suggestive framework / mechanism for benefit sharing with PAF's in Hydro Power Projects during life of the project.

4.8 RESEARCH QUESTIONS:

RQ 1: What are the aspirations of various Project Affected Families (PAF's) in Hydro Power Projects?

RQ 2: What are the reasons for ineffectiveness of existing governing mechanisms/ practices in redressal of aspirations of Project Affected Families (PAF's) in Hydro Power Projects?

RQ 3: What are the consequent risks associated with the inadequate redressal of above issues and their impact on hydro power development in Uttarakhand?

RQ 4: Can we suggest a framework / mechanism for benefit sharing with PAF's in Hydro Power Projects?

4.9 RESEARCH OBJECTIVES:

RO 1: To identify the aspirations of various Project Affected Families in Hydro Power Projects.

RO 2: To study the reasons for ineffectiveness of existing governing mechanisms / practices for redressal of aspirations of the project affected families in Hydro Power Projects.

RO 3: To assess the impact / consequent risks associated with the inadequate redressal of above issues on hydro power development in Uttarakhand

RO 4: To develop a suggestive framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects.

4.10 SUMMARY

1. Review of literature landscape is made on four research themes 1) Identification of aspirations of various Project Affected Families (PAF's) considering them as Stakeholders 2) Existing governing mechanisms / practices for redressal of aspirations of PAF's in hydro power projects 3) Risks associated with improper redressal of aspirations of project affected people 4) Evolution of benefit sharing in hydro power projects.
2. Theoretical premise gap for the present study is, 'Lack of clarity related to fair value allocation (benefit sharing) measures with various stakeholders throughout the project life'.
3. The consolidated 'Research Gap' and 'Theoretical Premise Gap' led to the formulation of 'Research Problem', 'Research Question' and 'Research Objective'.
4. The derived Research Problem for the study is, 'Project Affected Families (PAF's) not losing land has not yet been recognized as stakeholders in Hydro Power Projects. The existing policies / governing mechanisms are also short of the expectations of various PAF's'.
5. The critical analysis of theme-based Research Gap and purpose for present study frames following as Research Question, 'Can we suggest a framework / mechanism for benefit sharing with PAF's in Hydro Power Projects?'

6. The Research Objective corresponding to Research Question is: ‘To develop a suggestive framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects’.
7. Need for Qualitative Research Design has been highlighted by the Research Question.

CHAPTER 5
RESEARCH METHODOLOGY

This chapter delineates the study undertaken to develop a framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects. Thematic analysis has been used to define researcher's view point in earlier chapter wherein structured literature review is carried out. This chapter elucidate upon method used in research and design whereas the theoretical perspective is discussed with the stakeholder theory. This study also incorporates operating definitions along with the details of recording and validation tools for data collections. The chapter culminates with the research process flow chart.

5.1 INTRODUCTION:

Discovery of a new knowledge through scientific process and systematic investigation is known as Reserach . Ascertaining a truth which has not been found out yet is the motivation of research . Every research carried out, has its own aim, objective, challenges and implications. Outcome of the research does not get affected by the topic of study but it is contingent upon the verity that how scrupulous the research is being designed and planned.

A flawless research design requires collective scientific concepts for data mining and analysis in a phased manner. It combines the significance of research purpose with an Economic Theory. A research design is nothing but a structural blueprint for collection, measurement and analysis of the data. Therefore, a suitable research design is prerequisite for research work .

Carrying out research in a scientific manner is credible and acceptable method of research.. The purpose of identification of a suitable research methodology in research is to solve the problem systematically. A number of research steps and defined logics are involved in a reasonable research study. It is imperative not

only to have knowledge about the various research methods or techniques used in a research but also that the researcher must know as to which research method or technique is the best fit for his study and what is the reason for the best fit. Choice of a specific research methodology used in a research study depends on a nature of problem. Hence,the term “Research Methodology” has wider scope than the term “Research Methods”.

Qualitative research methodology helps in understanding the diverse public and social policy concerns. Qualitative research methodology gives systematic approach to appreciate intricate cultures and customs, their systems, needs and behaviors.

To justify the research objective, the study requires deep knowledge of aspirations of various Project Affected Families (PAF’s) and policies for benefit sharing with PAF’s in hydropower development. Therefore, qualitative research method will be a suitable method.

5.2 RESEARCH DESIGN AND METHOD:

The method for this research shall be Framework analysis.

In accordance with the book entitled, “Practical Research Planning and Design” by Leedy and Ormord, 2010 - The research design and research method should be envisaged in a way by the researchers which enable researchers in collection and collation of the data as per research problem. Taking up the research design and method as per research question is less or more appropriate (Leedy and Ormord,2010). Leedy, 1997 illustrated the objective of research as "study that has never been established before; to pose an important question for which no crucial answer has been found and, through the medium of relevant facts and their explanation, to put efforts to find the reply to that question". In a subjective research approach, knowledge can be developed based on the enquiry by choosing either of constructivist perspectives or participatory perspectives. For an approach to be qualitative one ueful strategies for such

approach are case studies, grounded theory, framework analysis etc. as the inquiry strategies (Creswell, 2003).

5.2.1 Research Design

A research design establish a framework, compositional approaches and associated process to conduct a similar study (Creswell, 1994). A research design used to answer the question sets out by the research question (Closs and Cheater 1999). The 'association' between research question and research design strengthens the entire foundation of research (Draper, 2004). For the purpose this research work, use of 'Qualitative Research Design' has been established subsequent to ascertainment of research questions in previous Chapter IV.

Designing qualitative research is a strenuous stint. Collection of a philosophy together with a collection of methods and techniques is the qualitative research design (Ferguson, 1993) and. A qualitative research design enhances understanding with the exploration of complex situations (Leedy and Ormrod, 2010; Creswell, 2014). Research paradigms, methods, and approaches constitutes a qualitative research design (Borland, 2001). The instant research is poised over the number of dissertations or thesis meant for qualitative research or contain qualitative design content to ensure qualitative research work (Gall et al (1996); Leedy (1997); Strauss and Corbin (1998); McMillan and Schumacher (2001), Huberman and Miles (2002), Denzin and Lincoln (2005)).

5.2.2 Research Method

The instant research work is intended to devise a suitable framework for benefit sharing with PAFs in Hydro Power Projects. Leedy and Ormord (2010) lead the researcher to take qualitative methods based on his research question, "Can we suggest a framework for benefit sharing with PAFs in Hydro Power Projects?" For the purpose of data analysis the 'Framework Methodology' is being chosen from Ritchie and Spencer (1994) expanded and adapted by Smith and Firth (2011). Framework analysis is one of the apt qualitative method that is being used for applied policy research (Srivastava and Thomson, 2009).

Framework analysis is one of the qualitative methods which is appropriate for use in applied policy research. This is well suited for the research that has certain questions, time constraints pre-designed sample and a priori issues. In the framework analysis, data shifting, charting, and sorting is done keeping in view of critical issues and themes adopting five step processesi) familiarization ii) identifying a thematic framework iii)indexing iv)charting v)mapping and interpretation. Framework analysis is a powerful tool to assess policies and procedures for the very people that they are affect. Thus, befitting corrections in policies and procedures that echo the needs & wants of the PAF translate to a greater level of compliance.

5.2.3 Population and Sampling

An area of inquiry constitutes a 'population' or 'universe' for the items under consideration. When complete enumeration of all the items is performed, it is known as 'census inquiry' which ensures highest level of accuracy. Covering entire population is practically not an attainable task. Hence, researchers more often than not judicially select some items for the study. The group of such selected items in known as sample (Kothari, 2004).

Since this research talks about benefit sharing with project affected families in Hydro Power Projects, hence for the purpose of interview; researcher targets professionals well versed of hydro power sector having hand-on vast experience in execution of hydro power projects. The researcher targets professionals majorly from Generation Companies, Contractor Companies, Financial Institutions, Government Officials, Local Authorities and Regulatory Commissions whereas persons from project affected areas are also considered. For the purpose of interview sample size is determined by the saturation of information i.e. theoretical completeness, implying that the instance at which new data seems to be no longer contribute to the findings.

5.2.4 Vygotsky's Theory of Conceptual Development

A conceptual framework is a tool or a set of ideas structured in written or visual product, graphs, maps or network diagrams (Miles and Huberman, 1994)

researchers use to guide their enquiry. Conceptual framework gives shape to a grid of linked thoughts that provide an inclusive knowledge of phenomena (Jabareen, 2009). The conceptual framework required to be constructed not founded. It is derived from collection and collation of various information sourced from earlier experiences. But the structure and coherence wise, it is something that a researcher builds not that already existed (Sage, 1994). The conceptual framework is primarily an idea of what you plan to study and investigate. It identifies potential validity threats to your conclusions and thus helps in refining goals (Maxwell, 2006).

The brain child of conceptual framework was came into being in Vygotsky Socioculture theory (Springer 2015). Vygotsky (1986) theory of concept formation is a powerful tool to develop conceptual framework (Berger, 2005). Conceptual maps commonly known as conceptual lens are being used for developing conceptual framework (Novak and Gowin, 1984). With the use of Conceptual lens, key thoughts comprehended from historical developments represented in a visual manner (Strauss ,1987). Conceptual lens entails sizeable amount of reworking to arch (Sage 1994).

The research objective of current study necessitates formulation ofa framework for judicial sharing of benefit with PAF's in Hydro Power Projects.

Though, before developing a framework, conceptualization is necessary. Qualitative paradigm is used to develop a conceptual framework as per the examples seen in previous research the concept of a conceptual framework is rooted in Vygotsky's Socioculture Theory of 1934 and 1986.

The conceptualized framework is developed with the support of conceptual lenses. A conceptual lens is a visual display of key thoughts grasped from historical developments (Strauss (1987).

5.2.4.1 Syncretic Groups and Open Coding

Syncretic groups is the fusion of diverse beliefs, distinct school of thoughts and ambiguous analogy between objects. Random grouping of the objects identified as syncretic group was illustrated by Vygotsky (Vygotsky

1934,1986). Under Syncretic groups and open coding, data is fit together coherently subsequent to formation of initial groups of data by the researchers based on the first impression of the data., In order to generate open codes, qualitative researchers, typically follow procedure of their choice at the initial stage of analysis of original data sources (e.g., historical documents, audios, videos, interviews etc.) . Data in hand is broken into smaller units of data by the researchers for creation of open codes (Strauss and Corbin, 1998).

5.2.4.2 Complexes and Axial Coding

Second classification of the pre-conceptual thoughts is formaing groups of objects in accordance with complexes. As compared to syncretic groups, the complexes are better structured and rigid.The objects are classified and grouped keeping in view of their shared property, whether physical or analytical in character. Complexes are most diverse form of pre-conceptual reasoning as at this stage attributes of objects are tied with them and can not be separated (Vygotsky 1934,1986). Similar to complexes, consistent fusion of different data categories emerging from open codes is the essential feature of Axial coding . Besides revisiting data and associated category the researcher further refine them by establishing linkages. Thereafter, researcher shifts his focus from one piece of data to the categories data (Strauss and Corbin, 1998).

5.2.4.3 Potential Concepts and Selective Coding

When pre-conceptual thinking attains finality it is classified as potential concepts. Therefore, conceptual thought are the successor to potential concepts . These are delineated by the measure of synthesis which is not available in previous two classifications of pre-conceptual thought. In the potential concepts, maximal similarities in objects are observed and then grouping of objects is done accordingly . A single attribute is also recognized to make nucleus of group (Vygotsky 1934,1986). Selective coding includes amalgamation of ideas emanating from original data. Maximal similar groups are like the sub themes which are derived from extensive data analysis took place during open coding and axial coding. Forming nucleus of groups is

identical with developing "core category" by amalgamation of themes (Strauss and Corbin, 1998).

Coding exercise is done in the research works with the help of Qualitative Data Analysis Software 'Atlas.ti' . Codes are identified and linkages are established between them. Thereafter categories and theme are developed and processed to reach at the core concept of conceptual framework.

5.3 FRAMEWORK APPROACH TO DATA ANALYSIS:

'Framework' represents an analytical process involving several stages that are different yet highly linked. Analytical thinking has major involve going forward with certain ideas and coming back to rework those ideas. Real strength of 'framework' approach lies in the fact that by going through a thoroughly defined procedures, it is possible to review and rework ideas as the entire process is well documented and easily accessible. Framework approach consists of a well-defined process of sifting, charting, and sorting material as per the key issues and themes.

Qualitative data is thorough narration of conditions, public, exchanges, observed actions, experiences, opinions, belief and thoughts and direct quotes from people who have suffered or are undergoing the occurrence (Patton, 2002). As this research is intended to produce suggestions in a restricted time period, in regard to policy issue i.e. developing a suggestive framework / mechanism for Benefit sharing with PAF's and there is predetermined sample population i.e. PAF's, hence framework analysis is the appropriate methodology.

Framework analysis is considered suitable for the following causes:

- Primarily based on the observation and accounts of the PAF.
- It is active, thus allows the alteration or aggregation or improvement throughout the process.
- It is systematic and permits a methodical care of the data.
- Comprehensive in nature.

The access to original textual data demonstrates its transparency, which allows others to formulate judgments. (School of Nursing and Midwifery, 2002; Archer, Maylor, Osgood & Read, 2005; MORI Social Research Institute, 2003)

Table 5.1: Framework Approach for Data Analysis

	Stages		
	Data Management	**Descriptive Accounts**	**Explanatory Accounts**
Processes	• Familiarisation with Data (Reading and Re-reading) • Identifying initial themes/categories. • Developing coding index • Assigning data to themes and categories in the coding index.	• Summarising and synthesising range and diversity of coded data by refining initial themes and categories. • Identifying association between themes until the whole picture emerges. • Developing more abstract concepts.	• Developing associations/patterns with concepts/themes. • Reflecting on original data and analytical stages to ensure accurate presentation of participants account for reducing any misinterpretation. • Interpreting and explaining concepts and themes. • Seeking wider applications of concepts and themes.

The 'Framework Methodology' for data analysis has been taken from Ritchie and Spencer (1994) as expanded and adapted by Smith and Firth (2011)

5.4 DATA COLLECTION INSTRUMENT:

In qualitative research, qualitative interviews are used as effective and adaptable tools for capturing data. These finds general usage in conveying messages, presenting views, and exploring findings related to a research topic. Need of the study guides the selection of type of interview and further protocol formation for the interview. For this study, researcher designed open ended questions for conducting semi-structured interviews. The stage wise

consideration for to design the protocol under the semi structured interviews was as follows:

Selection of Semi Structured Interviews: There are three types of interviews available for qualitative research:

a) Structured
b) Semi-structured
c) Unstructured

Selection of suitable interview method depends on the research design. Structure interview technique uses a common list of questions, which is presented to each respondent and their responses are collected. Questions for structured interviews remains unaltered for all respondents. Whereas unstructured interview requires very few, if any pre-determined question. These interviews do proceed as a normal talk around the research topic being pursued. Unstructured interview is a kind of formless interview style that is used by researchers to create a friendly and harmonious relationship with the respondents and is helpful while discussing sensitive topics. On the other hand, semi structured interview process utilizes a protocol to guide the researcher during interview. This is generally a guided conversation between the respondent and researcher. Semi-structured interview offers a great deal of flexibility which can be helpful for narrowing down the research area. This technique also saves the time by keeping focus on the protocol and avoiding chances of re-interviewing the participant.

Crafting the Protocol: This stage is most important as well as most time taking of all the stages. There are two major components involved in crafting of interview protocol: (a) how the interviewer introduces himself to the interviewee and (b) what are the questions to be asked. Introduction i.e. the first component is vital to create healthy environment for conversation and to extract trusted information from the interviewee. For this specific research, the researcher has prepared an information sheet comprising of general information of research, options to consent and withdraw and statement of confidentiality. Central component of this stage is second one i.e. preparation of the questions

and follow-up process. Sound knowledge of the subject is most important factor for this stage. Already available literature and past work on the subject are resources worth considering. Researcher has developed the draft of a protocol considering conceptual lens based on relevant studies and literatures. Further, to refine the quality of draft protocol help of subject matter experts (including research supervisors) and qualitative researchers have been taken. Final interview protocol was than translated to local language for better understating the inputs of local people.

Conducting and recording the Interview: We can record interviews using various methods. Out of these, taking notes during interview or afterwards, recording audio or video. Among all these methods, audio recording is the most recommended one. Pre-interview planning needs to be taken to ensure use of proper method depending upon the merits associated with it.

Analyzing the Interviews: Framework analysis is a promising technique to achieve data reduction. In this technique codes are traced out from the quotation and thereafter data is reduced by creating relevant categories and themes. Further, refinement of themes and categories is done to extract the core concept.

Presenting the Findings: Research findings are prepared based on recognition of categories. Recognition of categories and themes directed towards the formation of core concept. Themes discovered by the researcher become the main stages for developing suggestive framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects.

Challenges:

1. **Selection of interview method:**

   Interviews, particularly those standardized in nature, have additionally been criticized for not acknowledging participants' views appropriately, taking into consideration the context in which they were generated (Mishler, 1979; Murphy et al., 1998). To overcome some of these issues researcher adopted

semi-structured approach. Further regarding interview process, rapport building with participants and careful listening and responding were followed. Efforts were made to generate data that is as true a reflection of participants' views and opinions as possible.

2. Selection & Categorisation of respondents:

Respondents are the basic building blocks of entire interview process. Selection of respondents could affect the quality of data gathered. Respondents were shortlisted from various stakeholders involved in the development of hydro projects. All sectors involved in project implementation were taken care of. With respect to the Project Affected Families, the respondents were categorized as fully affected, partially affected and those affected families whose land was not taken. Further, it was also ensured that all the respondents should have substantial experience in their respective field.

3. Presentation of interview process to respondents:

This involves letting respondents know what the interview will be about, use of research and clarifying their role. Researcher faced challenge while introducing the research to a group of respondents namely representatives from Project Affected Families. Special emphasis was given to this group and information sheet, questionnaire etc. were prepared in local language i.e. Hindi. Interviews of this group was also conducted in local language. Help of local officials was taken to boost their confidence.

4. Avoiding Bias:

Participants bias involves respondents answering questions in a way that they think will lead the interviewer to accept and like them. This bias has been reduced making participants anonymous and assuring them of confidentiality.

Interviewer bias is the way the interviewer interprets, records, or analyzes the data. One could easily be overwhelmed by the amount of data collected as the result of interviews. Managing and organizing such high data is a challenge for every researcher. This bias has been avoided using self-reflection and by taking help of a team.

5.5 RELIABILITY AND VALIDITY:

Researchers engaged in applied policy research do employ various qualitative research techniques. Huge amount of data text whether from document transcripts or from interviews is used in qualitative research. In addition to it various object oriented data types such as video/ audio segments and visual images are also used for this. Merriam (1995) stated that "The more times the findings of a study can be replicated, the more stable or reliable the phenomenon is thought to be." We can consider any research as reliable if the results are consistent over time span and are exact portrayal of population. Outcome of any qualitative research depends the codes generated during processing of data. In case of generation of in-vivo codes using open ended data, inter-coder reliability should be ensured. Framework approach of qualitative data analysis has been used for this research. Using this approach codes were identified and based on these codes relevant categories and themes generated. Code book comprising of list of defined data which were in alignment with the respective theme has been compiled by the researcher. Thereafter, in order to ascertain the reliability, each pre-determined segment of text has been judged to observe for presence of a specific code. The degree of coders accepting the codes has been assessed using this process of inter-coder reliability.

For this particular research **"Triangulation"** validity procedure was used. Convergence has been searched among multiple sources of information (both documentary and interview generated) using triangulation procedure to create the relevant categories and theme of the study. Researcher lens has been employed to undertook triangulation as a procedure to assess the validity. The researcher adopted systematic process wherein data has been sorted out by exploring common categories & themes. Validity of this research undertaken using the above approach is confirmed as the entire process depends on various forms of data instead of single evidence.

Positivists often questions the trustworthiness of a qualitative researcher. This may be due to the difference in addressing the concepts of reliability and

validity by researchers in qualitative viz a viz quantitative research. Although, several researchers employ varied notations to keep them away from positivist thinking. Following criteria were proposed by Lincoln & Guba (2000) for undertaking trustworthy research:

i) **Credibility (in preference to internal validity)**
ii) **Transferability (in preference to external validity)**
iii) **Dependability (in preference to reliability)**
iv) **Conformability (in preference to objectivity)**
v) **Authenticity (presentation of beliefs)**

These criteria were applied in the current research as enumerated below:

Credibility: - This is connected to the inner validity. Lincoln and Guba (1986) suggested that to build trustworthiness, researcher needs to confirm the credibility of his work. The credibility searches whether findings are identical with the reality or not. For this specific research, the researcher made following efforts to make sure the credibility:

a) Right operative procedures were selected, and concepts were deeply studied to select the well-established research methods.

b) Prolonged engagements were made with the documents and participating organisations before proceeding to collect the data. This process also facilitated in initial acquaintance with the culture of contributing persons / institutions / organizations.

c) Triangulation: Perspectives and experiences of participating persons were tested alongside others which turned into rich content of aspirations, needs, behaviours and outlooks. Researcher had also employed variety in the series of documents as the source material.

Transferability: Shenton, 2004; suggested about following factors which do affects the transferability:

a) number of participating organizations
b) location of participating organizations
c) data collection method
d) number of sessions for data collection
e) time period for data collection.

To ensure the transferability of the research, the researcher taken into account the responses of various stakeholders i.e. Government, Affected Families, Developers, Financers, Contractors and Regulator.

Participating organizations are either located or has operation in State of Uttarakhand. In India the structure of hydro power sector is same nationwide; therefore, results of the research are transferrable and applicable all over the nation.

Dependability: - Matter of reliability is taken care by dependability. It oversee the research by ascertaining the reproducibility of similar results, using the same research in the same context with similar methods and common participants. For addressing the dependability of current research the researcher has enumerated in detail all the methods and processes used to ensure repetition of the work by any researcher in future. For this correct research design was laid down and thorough coverage of employed methodology was detailed, which enable a reader / scholar to evaluate the followed research practice for its correctness. This has helped in developing the knowhow in the mind of a scholar or reader related to i) research method, design, and execution in practice ii) data collection methods iii) reflective analysis of the research outcome with the assessment of its effectiveness.

Conformability: - To certain the conformability of this specific research, the researcher had discussed data collection instrument i.e. questionnaire with the subject matter experts, research supervisors and industry experts before finalising the same. Further, factors responsible for selection of framework analysis over qualitative methods was detailed thoroughly.

Authenticity: - As per Mertens (2005) authenticity is related to the well-adjusted demonstration of various principles, ideals, and viewpoints. Lincoln and Guba (2000) suggested to use fairness, catalytic authenticity, and ontological authenticity for evaluating the authenticity of a research. Fairness of research has been certain by researcher by evaluating his biases towards the topic.

Conceptual lenses were used to shape the analysis of data and that was also found as the fair representation of contributors' experience. Ontological authenticity was maintained as number of scholars, officials and various stakeholders of hydro power sector shown their eagerness to read the work of researcher and hoped that this research may help in expediting hydropower development in country. The researcher has maintained the catalytic authenticity of present research by publishing two quality research papers prepared based on this work in high impact journals.

Reliability of Present Research:

Project Affected Families (PAFs) have certain aspirations from the project being developed. Himachal Pradesh taken cognizance of these aspirations and notified a policy with benefit sharing provisions to address them. Similarly, aspirations of local population were also studied in Vyasi, Natwar Mori & Bowala Nand Prayag HEPs in Uttarakhand and it was found that the aspirations found were similar to those found in Himachal Pradesh.

This research also found similar aspirations during course of study, which shows the reliability of the research.

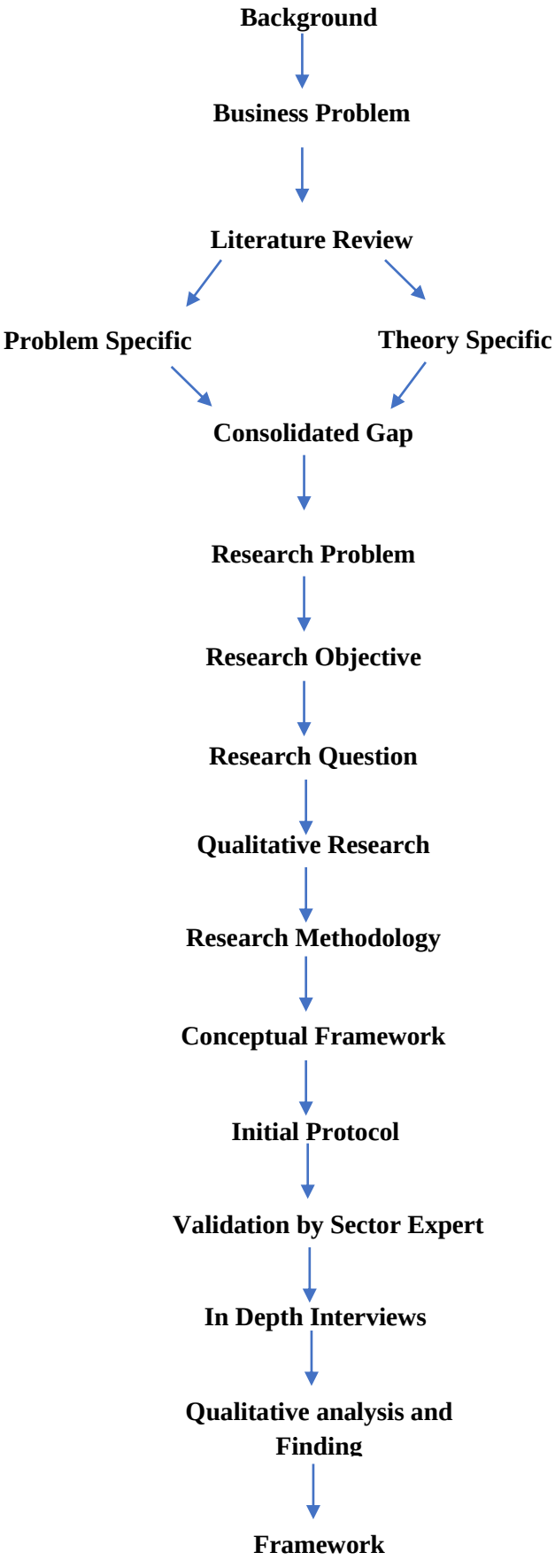
Validity of Present Research:

Benefit Sharing Policy adopted by Himachal Pradesh helped during successful implementation of Rampur HEP. Further, certain benefit sharing provisions proposed also helped in Vyasi, Natwar Mori & Bowala Nand Prayag HEPs. These examples proves the validity of benefit sharing framework being proposed in this research.

5.6 RESEARCH PROCESS AND FLOW CHART:

Firstly, business problem was recognised and based on that structured evaluation of available literature carried out. Based on the problem specific and theory specific literature review a consolidated gap emerged. Research question derived in the process reflected the need to undertake qualitative research design. Further, initial protocol was formed based on the conceptual lenses. Accordingly, draft of the final protocol for the study was then designed and refined with the expert comments. Interviews were undertaken on the final

protocol and transcripts made were processed in Atlas.ti using framework analysis. Coding, categories and identified themes resulted in the formation of a framework for benefit sharing.



5.7 SUMMARY:

1. Qualitative research design was used in this research to develop a framework for benefit sharing with project affected families in Hydro Power Projects.
2. Based on Vygotsky (1934,1986) theory of conceptualization, conceptual lenses and conceptualized framework were prepared.
3. Data collection instruments were described in the chapter. Primary protocol was developed on the basis on conceptual lens which Interview protocol was developed based on Conceptualized framework.
4. Framework Methodology as adapted and expanded by Smith and Firth (2011) was used to process interview transcripts through data management, descriptive accounts, and explanatory accounts.
5. To check the trustworthiness of the research; following criteria were used: dependability, confirmability, transferability, creditability, authenticity whereas triangulation is used to check inter-coder reliability and validity.
6. Research process flow chart for the present research was presented and described.

CHAPTER 6
QUALITATIVE ANALYSIS AND FINDINGS

This chapter outlines the demographic profile of respondents. Since the purpose of research emphasizes on policy matters through qualitative research design, therefore, the sample population is inclusive of the upper echelon of the power industry and senior experts. The data is treated following the methodology taken by Smith and Firth in 2011 for framework analysis. This is a three stage analysis . Data Management (reducing the data)is done at first , thereafter Descriptive Accounts (theme identification and association building) is the second stage whereas at third and final stage is Explanatory Accounts which incorporates mapping and elucidation of reduced data. In this chapter, researcher has explained the above three steps in detail. The researcher has answered the research questions in the interpretation to research findings.

6.1 INTRODUCTION:

After validation interview protocol is used for exhaustive interviews of the respondents in the sample population. Profile of the respondents is presented in the Table 6.1. Responses of interviews have been noted with respondents' permission manually and electronically which is then inputted into the computer using Atlas.ti software. Then with the help of interview transcripts, quotations are prepared and open codes have been generated to make out the saturation level (Appendix 4, Table 4.2 may be referred). Once the transcripts are developed the descriptive and illustrative accounts are prepared (Ritchie and Lewis, 2003; Smith and Firth, 2011).

6.2 PROFILE OF RESPONDENTS:

Since this particular research aims to explore benefit sharing with project affected families for expediting hydropower development, accordingly, interview of the professionals having experience more than 20 years ; and had

exclusively worked in the field of infrastructure project implementation, its and financing. Respondents were shortlisted from various stakeholders involved in the development of hydro projects. All sectors involved in project implementation were taken care of. It was ensured that all the respondents have substantial experience in their respective field. With respect to the Project Affected Families, the respondents were categorized as fully affected, partially affected and those affected families whose land was not taken. The information on the respondents' profile is presented in the following **table 6.1**:

Table 6.1: Profile of Respondents

S. No.	Level of Respondent	Organization Name	Organization Domain	Interview	
				Date	Time
1	Upper / Middle / Upper Middle Management	SJVN Limited	Developer (CPSU)	18.08.2021	01:00 PM
2		HPPCL	Developer (SPSE)	20.08.2021	11:00 AM
3		L&T	Developer (IPP)	21.08.2021	03:00 PM
4		Government	Policy making	24.08.2021	12:00 PM
5		Gammon	Contractor	27.08.2021	11:00 AM
6		PFC	Financial Institution	30.08.2021	03:30 PM
7	Leader	Project Affected Person	Fully affected	07.09.2021	11:00 AM
8		-do-	Partially affected	08.09.2021	11:30 AM
9		-do-	Whose land not taken	08.09.2021	01:00 PM
10	Upper / Middle / Upper Middle Management	UERC	Regulator	18.08.2021	11:30 AM

6.3 DATA ANALYSIS:

Data analysis has been underpinned by choosing Framework Analysis as justified in Chapter 5. Cross-sectional illustrative data analysis which enables various features to be encapsulated under the probe, is best suited to be carried out using Framework analysis. Interrelated stage of framework analysis clearly illustrates the processes which drive into the methodical analysis of data for the

development of descriptive and explanatory accounts (Ritchie and Lewis 2003; Smith and Firth 2011).

6.3.1 DATA MANAGEMENT

Identification of New Codes

Framework Analysis and Benefit Sharing with Project Affected Families in Hydro Power Projects – The research involved industry experts, government officials, local administrators, and representatives of PAF's. The participants were engaged in active conversation to accumulate their experiences for the purpose of data collection. Based on the extent and area of experience partakers were engaged individually once up to 60 minutes. The researcher conducted semi-structured interviews until the saturation in data was reached (Ward et al., 2013). Flexibility for anlayzing the data during interviews was provided by Framework Analysis methodology. In Appendix G "Interview transcripts" Code Book 7.2 is placed wherein data analysis subsequent to every interview is depicted. For each interview, the code book represents inception of new codes by identifying in-vivo codes. Although the same number of in-vivo codes are generated for each interview, new codes getting decreased for every next interview. The code book A4.2 "Interview transcripts" of Appendix 4 is analyzed below in Table 6.2 in order to appreciate the number of new codes come up in each interview:

Table 6.2: Emergence of New Codes – Interview by Interview

Emergence of New Codes										
Q/R	**R1**	**R2**	**R3**	**R4**	**R5**	**R6**	**R7**	**R8**	**R9**	**R10**
1.1	2	5	7	6	1	2	1	2	0	0
1.2	3	6	1	3	2	4	2	1	0	0
1.3	6	5	10	8	8	5	3	1	0	0
1.4	2	8	3	2	1	2	4	2	0	0
1.5	3	0	2	2	1	2	2	0	0	0
2.1	7	11	9	8	2	1	6	3	0	0
2.2	6	19	7	7	4	2	2	0	0	0
2.3	8	14	3	15	5	4	3	0	0	0

2.4	5	5	6	6	5	1	2	1	0	0
3.1	7	15	7	7	4	1	1	2	1	0
3.2	5	1	1	9	2	0	0	0	0	0
3.3	12	7	6	5	6	3	2	1	0	0
3.4	11	8	5	3	5	2	2	1	0	0
3.5	8	7	4	9	6	2	3	0	0	0
4.1	4	3	1	8	5	2	1	1	0	0
4.2	5	7	4	6	4	2	1	0	0	0
4.3	4	10	0	3	5	0	1	0	0	0
5.1	11	1	0	3	0	0	1	0	0	0
5.2	5	5	3	5	4	4	1	0	0	0
5.3	4	15	4	3	0	4	1	1	0	0
6.1.1	1	3	9	4	8	2	5	2	1	0
6.1.2	5	5	4	10	9	4	4	2	0	0
6.1.3	6	3	0	2	0	1	1	0	0	0
6.1.4	6	6	6	13	2	0	0	1	1	0
6.1.5	5	7	5	4	3	3	1	0	0	0
Total	**141**	**176**	**107**	**147**	**92**	**53**	**50**	**21**	**3**	**0**

Table 6.2 depicts that after interviewing the first respondent, 141 codes were generated. These all codes were new in nature. After the second interview, 176 new codes were identified. The researcher observed a clear fall in the emergence of new codes after every next interview as from the 3rd interview, 4th interview, 5th interview, 6th interview, 7th interview, 8th interview and 9th interview – 107, 147, 92, 53, 50, 21 and 3 new codes were generated. After conducting the 10th interview, researcher did not identify any new code which depicts the saturation in data collection. In view of above, the researcher did not conduct any further interview. Since at the tenth interview data appeared to gets saturated accordingly sample size for the interviews becomes 10.

Developing Categories

Through the data management researcher got familiar with the data by repetitive reading of the interview transcripts. Based on the interview transcripts, a collective transcript is formulated to accomplish the steps suggested by framework analysis. Through the Data management (as performed in the Code Book - Appendix 4), 790 in-vivo codes were identified. The codes were generated by deeply going through each line of the transcript. These

generated codes for each interview question were further summarized through the application of ‘preliminary thoughts’. Going forward, these thoughts gave birth to more formal ideas related to the codes and respective quotation. Finally, the quotation, in-vivo codes and preliminary thoughts promoted in the formation of 24 ‘initial categories’

6.3.2 DESCRIPTIVE ACCOUNTS

The coding book has been developed from transcripts of ten interviews, representing an array of experiences. In order to ascertain the rigor, generated codes and initial thoughts for each quotation were referred again to form the potential categories. These potential categories were named as ‘initial categories’. 24 initial categories were created by relooking into the codes and preliminary thoughts, code book 4.3 of Appendix 4 may be referred for the same. As the coding progressed, sets of the initial categories form broader categories. 16 broader categories were generated and named as ‘refined categories’. The broader categories, based on the similarities, brought together to create 8 initial themes. The code book 4.4 of Appendix 4 may be referred to refined categories and initial themes.

Mote abstract concepts as final themes were formed by further summarising and synthesizing the processed data. This summarisation also helped in decreasing script into reasonable brief content. Continued processing of categories and themes was used to summarize and synthesize diverse coded data. Major element in the refining process was in-depth evaluation of the correlation between codes. To get the whole picture get emerged out, data was synthesized continuously. The same could be attained by repeatedly mentioning backwards to the foremost or unprocessed data and examining meaning throughout the transcripts. The code book 4.4 of Appendix 4 depicts the data precis and synthetization. Data was curtailed by amalgamation of 24 initial categories into 16 refined categories and afterwards yielding 8 initial themes. Summarisation attains finality with the creation of abstract concepts i.e. ‘final themes’. 5 final themes were developed following the process of framework

analysis which eventually resulted into the development of core concept 'Benefit Sharing with Project Affected Families in Hydro Power Projects'.

6.3.3 EXPLANATORY ACCOUNTS

In order to confirm that the opinions and experiences of interviews as well as documents were taken care rightly while presenting, the researcher depicted both in the original database and in the analytical stages in Explanatory accounts. Further, Explanatory accounts led into the development of core concept. Five final themes which were materialised in descriptive accounts, eventually prompting creation of core concept 'Benefit Sharing with Project Affected Families in Hydro Power Projects'. The code book 4.4 of Appendix 4 may be referred to see the formulation of the core concept.

Framework analysis has the explanatory accounts which is involved in creating sense of the different concepts, categories and themes appeared out of the qualitative research work. This has been accomplished through looking out for the linkage among core concepts, recognized literature as well as theoretical premise linked to the Benefit Sharing with Project Affected Families in Hydro Power Projects. One can take reference of Relationship Diagrams as exhibited in Code Book 4.5 of Appendix 4. As the associations were designated and concepts were acknowledged, typologies had been appeared to enlighten the functioning of different concepts. Thorough description of such typologies and concepts is explained through findings and discussion later in this chapter.

6.4 INTERPRETATION OF DATA:

The detail of the data reduction during the analysis for the ease of learning and clearness of demonstration are given distinctly in the Appendix 4, named as 'Code Book for Interview - Protocol Leading to the Formation of Framework for Benefit Sharing with Project Affected Families (PAF's) for Expediting Hydropower Development in Uttarakhand'. In the beginning 24 categories have

been recognized based on the detailed transcripts of interview. These initial categories have been refined to form 16 larger categories. Consecutively, these 16 large categories have been carried further to shape 8 initial themes. Finally on further processing 5 themes are the result of framework analysis resulting in the development of core concept 'Benefit Sharing with Project Affected Families (PAF's)'.

The researcher is now presenting the category wise interpretation of the data management following Smith and Firth in 2011 methodology for framework analysis.

INTERPRETATION OF CATEGORY 1: BACKGROUND AND PURPOSE

Power Sector is the backbone of all economic activities and is also the most well acknowledged barometer of development. Development of Hydro power projects do impact social, economic & environmental characteristics of a region. Environmental issues are being resolved by suggesting additional measures for mitigation of impact of projects as well as restoration/ conservation/ enhancement of environment and ecology. Similarly, to address social issues, the old Land Acquisition Act, 1894 has been replaced by Land Acquisition, Rehabilitation and Resettlement Act, 2013. However, there is still a need to comprehensively address concerns and aspirations of all the Project Affected Families (PAF's), whether loosing land or not and to share benefits generated during running of the project with them.

INTERPRETATION OF CATEGORY 2: PRESENT HYDROPOWER SCENARIO

Since independence, significant growth has been witnessed in India Power Sector towards the domain of installed capacity and transmission and distribution (T&D) growth. Power Generating Capacity of India has increased from 1362 MW in year 1947 to about 404 GW as of June 2022. As of now, hydro based capacity is about 11.6% whereas other renewable sources share 29.92% of overall installed capacity in India.

Against the estimated sustainable hydro power potential of about 17,000 MW in Uttarakhand, project of only 4217 MW capacity has been installed and projects of 2151 MW capacity is under construction. Remaining is yet to be tapped. Out of total annual demand of approx. 13,380 MU, 4277 MU are available in the form of generation from UJVN Limited the generating utility of Government of Uttarakhand; royalty share from HEP of CPSU and IPP is 1047 MU; 3705.240 MU is available as the allocated share from CSGS (central pool) & remaining 4350 MU is being purchased annually. Uttarakhand has abundant water resources and therefore Hydropower is the main source of energy generation in the State, but hydropower development faces the major hindrance on account of Social & Environmental issues.

INTERPRETATION OF CATEGORY 3: ASPIRATIONS OF PAF's & IMPACT

Aspirations may be equated to the goals, target, or ambitions for the future. One may relate them to high salary, regular source of income, attaining higher education, status in society, health facilities, safety or any other such area which was deemed significant by an individual. According to Hart (2016) aspirations are future leaning, determined by mindful and insensible motivation and they are suggestive of an individual or groups obligations about a particular path or end point. Aspirations of PAF's may be classified in Environmental, Social, Economic & Religious factors.

Unfulfilled aspirations of the PAF's may result in hindrances in implementations of the project i.e., time overrun which leads to cost overrun thereby making the project financially unviable. Both phases of Project implementation i.e. planning as well as construction experiences the impacts in the form of delay.

INTERPRETATION OF CATEGORY 4: EXISTING POLICIES & INEFFICIENCIES

To address the problems being faced by the Project Affected Families (PAFs) due to construction of various development projects, by acquisition of land

throughout the country the Government has been enacting certain laws from time to time.

However, focus of these measures was on proving benefits to the local population during construction phase of the project such as providing compensation, community development works, other R&R works, providing indirect or self-employment during construction phase, awarding small contracts, hiring building & vehicles etc. To receive such benefits over a longer period, the interest of PAFs lies in extending the construction phase. This is contrary to the expectations of other stakeholders such as the developer, the State Government, and the general public at large.

INTERPRETATION OF CATEGORY 5: BENEFIT SHARING WITH PAF's

Benefit sharing in its spirit linked to sharing of the benefits resulting from the development of any infrastructural project with local population to satisfy the needs of the concerned. Benefit sharing can be achieved through an obligation to channel some of the earnings generated by the operation of a project back to the local communities residing where hydropower projects are developed.

Benefits sharing programs focuses primarily to provide benefits to PAFs during the running / operation phase of the project i.e. throughout the working life of the project. Hence, the interest of PAFs would be there in expediting the completion of the project, to receive greater benefits in the form of annuity and other development related works and there is converging of aims of all the stakeholders such as developer, PAFs, State Government and public at large.

6.5 FINDINGS:

Based on the first three research objectives following findings have been made from the qualitative interviews:

1	Aspirations and concerns	Findings
1.1	Environmental	Environmental degradation
		Change in hydrology

		Loss of biodiversity
		Impact on crops and livestock
		Loss of forest cover
		Water quality and continuity of river
		Pollution – noise, air, water, and land
		Natural calamities: - Earthquake / landslides / floods
		Landscape
1.2	Social and Religious	Involuntary Displacement
		Loss of homes
		Loss of livelihood
		Proper rehabilitation of resettled people
		Disturbance in water supply
		Respect / Sanctity of religious beliefs
		Community development works
		Long term sustained benefits
		Alternative livelihood for PAFs
		Social disturbance due to high influx of migrant workers
1.3	Monetary / Economic	Adequate Compensation in lieu of direct as well as indirect impacts.
		Employment preferably direct
		Free water and electricity
		Land in lieu of land
		Participation in construction works – job or petty contracts
		Hiring of vehicles
		Exorbitant demands
2	**Benefit Sharing Mechanism**	**Findings**
2.1	Awareness	GoI had issued draft LADF guidelines for central sector hydro projects in 2013.
		Himachal Pradesh has implemented
		community welfare measures
		Income generation schemes
		Continuous health services
		Skill upgradation
		Absence of long-term focus
2.2	Government Act (LARR 2013)	Improved previously cumbersome and overlong land acquisition process.
		More transparency and accountability required

		Long term benefit sharing should be emphasized.
		Compensation should be based on true / pragmatic value of assets.
		Indirect impact / losses should be compensated / mitigated to the extent possible.
		Grievance redressal mechanism needs to be strengthened.
2.3.	Review of Existing Mechanisms	Continuous revision of program and improvement as per requirement.
		Inadequacy of programs and ill implementation
		Fair and equitable benefits to the stakeholders should be the priority.
		Somewhat biased towards fully and partially affected people. No or very less benefits for the other residents of the affected area.
		Lapses on part of compensation and employment opportunities.
		Problem solving is not the priority.
		Expeditious implementation of measures should be ensured.
		Well-designed annuity program is the need of hour.
3	**Impact / Consequent Risks of improper redressal**	**Findings**
3.1	Existing methods of redressal	Implementation of environmental and social management plans, R&R plan etc. in letter and spirit.
		Adequate compensation, employment, small works, opportunities for hiring of vehicle / building on rent.
		Women empowerment measures
		Livelihood generation initiatives
		Efficient communication / Regular stakeholder consultation.
		Technical skill development programs
3.2	Average time taken for land acquisition	Varies from size and type/nature of the project.
		Dependent on the support received from the local administration / government

		departments.
		Ranging between 2-4 years
3.3	Impact on livelihood of PAFs	Fully affected families face some difficulties in the starting but tend to have improved conditions with the passage of time.
		Famers and agricultural labourer face difficulty due to loss of agricultural land
		In general hydro power development in totality has positive impact on the livelihood.
		Ultimately housing conditions, literacy rate, average spending on food/non-food items and overall standard of living of PAFs increases.
3.4	Impact on people whose land has not been acquired	Less affected in comparison to fully or partially affected.
		Mostly faces indirect impacts.
		Gets marginally benefited from the developmental process.
3.5	Reaction on improper redressal	Stakeholders exert anger on improper redressal and at times become aggressive.
		Continuous Agitation and disruption of work at site
		Heated arguments with Authority and stoppage of work
		Unjustified demands / methods
		PAFs do not think of early / successful commissioning as they do not perceive any sustainable / long term benefits from project.
3.6	Frequency & magnitude of unrests / hinderances	Depends on the people management practices
		Frequent disruptions by PAFs
		Meagre support of local administration makes things worse.
		Life cycle of project has effect on frequency and magnitude.
3.7	Impact on viability of project	Unnecessary delay creates significant impact on cost of the project
		Huge time and cost overrun. On an average both cost and time get doubled.
		Huge delay and increase in cost due to heavy interest burden may lead to project becoming unviable.

Remedies:

As per the final objective related to developing suggestive framework, following are the remedies / suggestions on the above findings:

1	**Aspirations and concerns**	**Remedies**
1.1	Environmental	Most of the aspirations / concerns can be taken care with the implementation of well-designed Environment Management Plan. Further, PAFs have certain fears / myths related to Hydro Power Project, these myths need to be addressed through proper communication.
1.2	Social and Religious	Commercial development works to preserve socio-economic ethos and culture / religious social culture
1.3	Monetary / Economic	Compensation in lieu of assets should be based on true value. Employment opportunities to the extent possible.
2	**Benefit Sharing Mechanism**	**Remedies**
2.1	Awareness	Benefit sharing measures aimed to divide the benefits generated from the hydro power expansion with the affected population. At present only Himachal Pradesh has some benefit sharing measures in place; other states must also take initiative and plan benefit sharing for affected stakeholders. Indian government forwarded "Draft guidelines for management of Local Area Development Fund (LADF) in respect of Central Sector Hydroelectric Projects" in October 2013 to all the state Governments. However, it is recommendatory in nature.
2.2	Government Act (LARR 2013)	We need to shift our focus from compensation / impact mitigation to benefit sharing. This act needs to have provisions for those PAFs whose land is not acquired for the project. PAFs left out so creates problem

		during implementation of project.
2.3.	Review of Existing Mechanisms	A well-intended benefit sharing program should (a) have clear goals; (b) cautiously define the target audience; (c) include benefit sharing procedures; and (d) identify accountable agencies, as well as implementation measures.
3	**Impact / Consequent Risks of improper redressal**	**Remedies**
3.1	Existing methods of redressal	Adequate monitoring mechanisms desires to be in place to confirm proper implementation of existing methods. Officials responsible for implementation needs to be made accountable. Malpractices should be taken care of.
3.2	Average time taken for land acquisition	Support of local administration should be extended for expeditious acquisition. Single window system with pre-fixed time lines.
3.3	Impact on livelihood of PAFs	PAFs should be involved while preparing plans for livelihood sustainability. One direct / in-direct employment for long term should be given to at least one-member of eligible PAFs.
3.4	Impact on people whose land has not been acquired	These PAFs needs to be recognised and accommodated in the benefit sharing program.
3.5	Reaction on improper redressal	Local administration should support developers facing agitation due to unjustified demands / blackmailing of PAFs.
3.6	Frequency & magnitude of unrests / hinderances	Grievance redressal mechanism should be in place and efficiently working to pacify all the grievances at the nascent stage. Due care should be taken to avoid escalation of any petty issue. In case of any mistake at developers' part, correction should be made and matter should be pursued with PAFs.
3.7	Impact on viability of project	Benefit sharing is a capable tactic for execution of hydro power projects

		effortlessly & sustainably and can improve the necessities of compensation and mitigation in agreement with the Project Affected Families (PAFs). Benefit sharing can improve sustainability and can avoid hindrances for smooth implementation of a hydropower project especially through proper involvement of stakeholders at proper time.

6.6 FRAMEWORK FOR BENEFIT SHARING:

Benefit Sharing initiatives are to be designed to deliver a steady flow of revenue for income generation and well-being schemes, creation of supplementary infrastructure and public facilities etc. on long term and continual basis during the useful life of the project.

Aim of benefit sharing is to confirm noticeable extra benefits to local groups so that they take interest in expeditious completion of projects.

Benefit Sharing should be taken as an interference designed for sustainable upliftment of affected communities, which has sustained positive influence on them. As affected communities are geographically / ethnically / socio-economically diverse, so, not all the approaches of benefit sharing are likely to be equally effective. Hence, it is advantageous to have a diverse set of benefit sharing measures / processes.

Based on present research, a framework for Benefit-sharing with Project Affected Families (PAF's) has been developed. All compensatory and mitigation measures provided to PAF's are not covered under it as they are already in the ambit of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 of GoI. Proposed Framework is briefly discussed in **table 6.3:**

Table 6.3: Framework for Benefit Sharing

Benefit Sharing with Project Affected Families thorough out project life	**Income Generation Measures**	1. Annuity Payments 2. Primary Employment 3. Livelihood Development 4. Conducting Vocational & Industrial Trainings & Enhancing Local Employment 5. Encouraging Local Procurement 6. Providing Electricity Subsidies 7. Reservoir Use
	Creation of Additional Infrastructure	1. Hygiene and Healthcare 2. Education 3. Road and Communication 4. Common Facilities 5. Enabling Economic Infrastructure
Participative Implementation Mechanism		1. Independent Account and Management Committee involving Stakeholders 2. Monitoring and Evaluation Mechanism

Income Generation Measures:

1. **Annuity Payments:**

   A guaranteed income stream for the PAF's in the form of annuity payment shall be offered to support them after project completion throughout operating life of the project. Annuity payments shall be arranged from the revenue obtained by selling **1%** additional free power contributed by the developer in accordance with the guidelines. The amount can be distributed as cash transfer to all PAF's each year during the useful running life of the scheme.

2. **Primary Employment:**

   Employment is the best way to provide regular stream of income for the affected families. As far as possible one member of the affected family

may be given permanent job as per requirement of the project subject to fulfilment of qualification and suitability.

3. **Livelihood Development**

   This is primarily directed towards the broader local community including both directly as well indirectly affected groups. Support for the indirectly affected population is also necessary as most of these may not be compensated adequately due to legal constraints or the difficulty of establishing value of damages.

   In rural areas, main aim of livelihoods development would be diversification and improved productivity of farm as well as non-farm businesses. This may include vocational training to farmers, financial assistance, support to self-help groups / cooperatives / farmer producer organization, storage and processing, transport, and market infrastructure etc.

4. **Conducting Vocational & Industrial Trainings & Enhancing Local Employment**

   Rural and semi urban areas often suffer from unemployment, less productivity, higher transportation costs and other such resources. Further, weather uncertainties and migration also create problems. Hence, employment opportunities remain one of the most important requests made by local population.

   Training both vocational (sewing, knitting, hospitality, secretarial practice etc.) and industrial (fitter, turner, electrician, carpentry, masonry, etc.) may be imparted to affected communities depending on their interest and capability. This will help in enhancing local employment opportunities.

5. **Encouraging Local Procurement**

   There is potential to hire regional and local companies for small civil works (buildings, roads, retaining walls etc.), hiring vehicles, security, and maintenance etc. Projects can undertake studies of local market to determine the potential of local suppliers / producers / manufacturers.

Based on the studies Supplier Development Programmes can be implemented to help increasing competitiveness of local suppliers and their ability to provide appropriate quantities and qualities.

Following are the methods used for preferential treatment to local businesses in the procurement process:

- Preference weighting
- Sole-sourcing arrangements
- Price matching
- Splitting large contracts
- Condition to subcontract for outside suppliers

6. **Providing Electricity Subsidies**

   As hydro projects are involved in the generation of electricity, so the benefits related to electricity are the first to be considered. Electricity benefits may be provided to PAF's in the form of some units of free electricity or cash transfer equivalent to these units for a predetermined period.

7. **Reservoir Use**

   Reservoirs of hydro project can be used for various activities such as recreational boating and fishing. Access to the reservoir may be granted with certain conditions by means of licenses or other arrangements. Major conditions may include focus on fisheries management, public safety, priority to locals etc.

Creation of Additional Infrastructure:

1. **Hygiene and Healthcare**

   To provide benign and available water supply, hygienic and safe sanitation amenities, public lavatories, and suitable waste dumping mechanisms.

   Healthcare facilities for affected population may include access to project dispensaries & clinics, mobile health van, women & childcare centres, medical camps, ambulance support, strengthening of public infrastructure etc.

2. **Education**

Support may be extended to the schools in the affected area in various ways such as:

- Construction of additional classrooms
- Renovation of existing school buildings
- Books for libraries
- Scholarships to meritorious students
- Sponsorship for technical education
- Apprenticeship to eligible students
- Grant for purchasing lab instruments, establishment of smart classes, furniture, sports utilities.
- Establishment of playgrounds

Further, schemes may be formulated for supporting higher education also.

3. **Road and Communication**

Construction of roads certainly helps in improvement of the local physical infrastructure and accessibility. These infrastructural facilities are indispensable for economic development and livelihoods improvement.

Developer may also maintain various existing roads (pathways and internal roads) in the affected area. These roads should not include the project access roads which are built for project purpose.

Further, project developer may help in improving the condition of communication facilities in the project area by installing communication towers, sharing non-strategic communication mediums with community.

4. **Common Facilities**

Some basic amenities are required to improve life quality in villages as well as sub-urban areas. Support may be extended for these facilities such as Citizen service centres, Community hall, Barat ghar,

Playgrounds, Cremation grounds, Ghats, Creation of bathing ponds, Change room etc.

5. **Enabling Economic Infrastructure**

   Development of market in the vicinity is not only beneficial for improving commercial activity in the area it does provides convenience to the population living in the project township. Project affected families may be allotted shops in the shopping space / market developed in vicinity of project colony.

   Project proponent can also help by offering their own machineries and facilities for public use. Technical knowledge of project authorities may help in reducing costs by providing innovative solutions.

Participative Implementation Mechanism:

Involvement of potential beneficiaries / stakeholders is vital for increasing transparency, effectiveness in implementation and for reducing delay & the risk of poor outcomes. Developer should ensure to consult beneficiaries regarding prioritising benefiting activities. This consultation should be made part of the governance mechanisms.

1. **Independent Account and Management Committee involving Stakeholders**

   There should be a mechanism in place to ensure transparency in management and accounting of benefit sharing programs. This could be achieved by handing over these critical activities to an independent entity having representation from local administration, government officials, local institutions & representatives of project affected families and maintaining funds in a separate bank account.

2. **Monitoring and Evaluation Mechanism**

   Monitoring and Evaluation (M&E) is an integrated approach to collect and assess the measurable outputs from initiatives, which is used for gauging success of initiatives and analyzing impact on the community. A monitoring procedure should be there in order to ensure transparency

in execution, avoidance of delays or misuse of funds and handling grievances.

Assessment of shared benefits can be taken based on studies over time. This should cover regulatory requirements, need/ aspirations of local community, feasibility of implementation approaches, additional measures for vulnerable groups, sustainability of initiatives and monitoring plan.

Funding arrangement for Benefit Sharing:

- Contribution of 0.5% - 1% of the project cost from CSR Fund of Developer during construction phase for additional infrastructure works.
- Contribution of 1% of revenue received throughout the operation phase (life of the project) to provide annuity benefit to PAFs.
- Upto 1% share from the 12% royalty received by State Government for additional infrastructure works.

6.7 DRAFT OF BENEFIT SHARING SCHEME FOR UTTARAKHAND

Guidelines for Management of "Local Area Development Fund" in respect of Hydro Electric Projects

I BACKGROUND

1. Government of India has notified the National Hydroelectric Policy on 31.03.2008, in which provision has been made to contribute 1% additional free power from the hydroelectric project to the Local Area Development Fund. It has been provided in this policy that the host state government would also contribute towards this corpus an identical 1% share from their share of 12% free power
2. The relevant provision mentioned in Para 10(h) of the National Hydro Electric Policy-2008 is as follows-

"An additional 1% free power would be provided and earmarked for a Local Area Development Fund, aimed at providing a regular stream of revenue for income generation and welfare schemes, creation of additional infrastructure and common facilities etc, on a sustained and continued basis over the life of the project. It is recommended that the host state government would also provide a matching 1% from their share of 12% free power towards this corpus. This fund could be operated by a standing committee headed by an officer of the State Government, not lower than a district magistrate to be designated by the State Government, male and female representatives of the Project Affected People and the project head nominated by the developer. This fund would be available in the form of an annuity over the entire life of the project".

3. Ministry of Power, Government of India on 23.10.2013 has issued draft guidelines for Local Area Development Fund in line with the National Hydroelectric Policy-2008 of the Government of India. According to point 3 of paragraph 1 of the said guidelines, the Local Area Development Fund shall be applicable to the hydroelectric projects of Central Public Sector Undertakings (CPSUs), whose energy allocation orders have been issued after 31.03.2008.

II Guidelines

1. AIMS & OBJECTIVES:

1.1 Development of hydro power projects effect the environment, existing infrastructure, character and network resources, and many others, which needs to be addressed by making appropriate and adequate provisions in the project design and cost. Provision for mitigating these adverse consequences is provided for in schemes like Environment Management Plan (EMP), Catchment Area Treatment Plan (CAT Plan), restoration of loss of environment through Compensatory Afforestation and Net Present Value Payment, Rehabilitation and Resettlement Plans and compensation for damage to crops due to pollution etc

1.2 Apart from this, a special provision has been made in the National Hydro Electric Policy-2008 for the Local Area Development Fund so that the development works to be done in the project area can be completed and shall be directly visible to the local public. It shall be necessary to allocate the Local Area Development Fund for various schemes and activities on the basis of pre-determined criteria. For optimum utilization of funds and proper flow of funds, the local public should participate in the management of the fund.

The Local Area Development Fund policy in the state shall be applicable to all hydro power projects in the state with a capacity of more than 5 MW.

2. DEFINITIONS:

2.1 Family

Family consists of a person, his or her spouse, minor youngsters, minor brothers and minor sisters dependent on him.

Provided that widows, divorcees, and women abandoned by using families shall be taken into consideration as a separate households.

Explanation:— An adult of either gender with or without partner or children or dependents will be taken into consideration as a separate family for the purposes of this Act.

a. PROJECT AFFECTED FAMILY (PAF):

i. a family whose land or other immovable assets has been obtained.

ii. a family which does not own any land but a member or members of such family may be agricultural labourers, tenants including any form of tenancy or holding of usufruct right, share-croppers or artisans or who may be working in the affected area for three years prior to the acquisition of the land, whose primary source of livelihood stand affected by the acquisition of land;

iii. the Scheduled Tribes and other traditional forest dwellers who have lost any of their forest rights recognised under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007) due to acquisition of land;

iv. family whose primary source of livelihood for three years prior to the acquisition of the land is dependent on forests or water bodies and includes gatherers of forest produce, hunters, fisher folk and boatmen and such livelihood is affected due to acquisition of land;

v. a member of the family who has been assigned land by the State Government or the Central Government under any of its schemes and such land is under acquisition;

vi. a family residing on any land in the urban areas for preceding three years or more prior to the acquisition of the land or whose primary source of livelihood for three years prior to the acquisition of the land is affected by the acquisition of such land;

2.3 Fully Project Affected Families

2.3.1 Fully Project Affected Families are those project affected families who have become landless as a result of land acquisition or whose house / building has been acquired for the project and Landless, means those families whose entire agricultural land has been acquired for the project or whose agricultural land has remained 30 percent or less of its original holding as a result of the project acquisition. For this purpose, the entire agricultural land in the project area of individuals and their family members shall be considered. As a result of the acquisition of the building and the land attached to the building, a person shall not be considered as a landless project family. Concerned Deputy Commissioner

shall verify the landless project affected families. For calculation of the remaining land of a family, the land outside their project affected area shall also be taken into account. The verification of landless families shall be done by an officer not below the level of the District Magistrate or the Sub-District Magistrate nominated by him in the district in which the land has been acquired for the project.

2.4 Partially Project Affected Families

2.4.1 In addition to the project affected families, the project affected families shall be considered under the partial project affected families.

2.5 PROJECT AFFECTED AREA (PAA):

2.5.1 Affected area is such area as may be notified by the appropriate Government for the purposes of land acquisition

2.6 **PROJECT AFFECTED ZONE (PAZ):**

Project Affected Zone (PAZ) is the area surrounding such project affected area (PAA) where impact of the project on the lives of people is significant even if no direct project activity is taking place there

PAZ is categorized on the basis of project capacity which is mentioned below:-

2.6.1 **Hydro Projects above 5 MW and up to 25 MW**

Only the adjoining Wards/ Gram Sabha/Panchayat/ Nagar Panchayat to PAA shall be considered to be impacted by the project in the same or adjoining districts.

2.6.2 **Hydro Projects above 25 MW to 100 MW**

All the adjoining Gram Sabha/Panchayats/Nagar Panchyat/Nagarpalika to PAA shall be considered to be impacted by the project in the same or adjoining districts.

2.6.3 **Hydro Projects above 100 MW**

Entire block or all such adjoining Panchayats to PAA shall be considered to be impacted by the project in the same or adjoining Districts

Notes :

1. In case of all projects of more than 5 MW capacity, the PAF shall be determined by the concerned District Magistrate.
2. The announcement regarding the projects up to 100 MW capacity shall be made by the concerned Additional Commissioner. Project Affected Area and Project Affected Zone of more than 100 MW capacity shall be announced by the State Government on the basis of the recommendation of the concerned District Magistrate. In case of projects falling in more than one district, separate Local Area Development Committee shall be constituted in each district and in case of partial area of the project in any district, the concerned Sub-District Magistrate/Tehsildar shall preside over the concerned Local Area Development Committee.
3. No expenditure shall be incurred from LADF till the PAA and PAZ are duly notified.
4. Declaration of Project Affected Area and Project Affected Zone shall be done along with the approval of Rehabilitation and Resettlement Plan,.
5. In case of scattered and isolated PAA, e.g. mining and dumping areas etc, the PAZ shall be only such adjoining Panchayats to PAA as are considered to be impacted by the project.

3.0 **Structure of Local Area Development Fund:**

3.1 For each project Local Area Development Fund shall comprise of three components.

3.1.1 1% of the project cost shall be contributed by the project developer to the Local Area Development Fund (LADF) as per para 6.1.

3.1.2 In addition to the free electricity (royalty-12% or the case may be) given by the project developer to the host state,

revenue received from the sale of 1% of the total energy generated from the project shall be contributed to the Local Area Development Fund.

3.1.3 In the project areas where the budget provision for the schemes and the revenue deposited by the developer is not sufficient, as per the requirement, the State Government may deposit upto 1% share from the 12% free power (royalty) received from the project in LADF through various schemes and budgetary provisions.

3.2 In addition, the revenue received as per Para 3.1.1 (Contribution of 1% of the project cost by the project developer) and Para 3.1.3 (State Government's share, if any) shall be transferred to the Local Area Development Fund and the said revenue shall be allocated as per clause 6.1.2.

3.3 Local Area Development Committee shall give the revenue received in the Local Area Development Fund in the form of cash transfer, to the families of the project affected area as per Para-6.3 of the policy during the operational period of the project every year.

3.4 The tariff of free electricity is fixed every year by the Uttarakhand Electricity Regulatory Commission. The value of 1% additional free power along with 12% free electricity to be received from a project shall be determined as per the tariff fixed by the regulatory commission. Therefore, every year the revenue to be credited to the local area development of the project shall be determined by the Electricity Regulatory Commission on the basis of annual tariff. Contribution to the Local Area Development Fund shall be made annually by the State Government and the project developer. This 1% additional free electricity to be given by the project developer in addition to royalty shall be included in the tariff determination of the project.

3.5 This fund shall be available as an annuity throughout the life of the project.

3.6 According to the notified policy 2015 for small hydro power projects (5 MW to 25 MW capacity) in the state of Uttarakhand, royalty is not payable by the developers to the State for the first 15 years of operation of SHP. After receiving the royalty from the small hydro power project, the contribution upto 1% of the royalty received may be deposited by the State in the local area development fund of the project as per para 6.4 of the policy.

4.0 Applicability of Local Area Development Fund Policy

4.1 The developers of hydroelectric projects whose construction start after the date of notification of the policy shall contribute 1% of the project cost to the Local Area Development Fund (LADF) for the projects.

4.2 Apart from this, the above clause shall also be applicable by signing Supplementary Implementation Agreement (SIA) to the projects allotted to CPSUs & IPPs in which time extension, change in capacity and changes in the detailed project report (DPR) are proposed.

4.3 Clause 3.1.2, 3.1.3 and 6.3 of the policy (1% Additional free power of the total energy generated) shall be applicable after notification date to the projects of CPSUs & IPPs, whose power allocation or Power Purchase Agreement (PPA) were signed after 31.03.2008. This provision intend to be applicable to the projects of UJVN Ltd, which shall achieve commercial operation date (COD) after the date of notification of the policy.

5. Institutional Arrangement for Administration of Local Area Development Fund

5.1 the arrangements for operation of the Local Area Development Fund shall be monitor by a state level committee constituted under the chairmanship of Secretary (Energy), follow the

guidelines and monitor the funds deposited in various stages within the time limit. To clarify and facilitate the unresolved issues and to remove the difficulties the State Level Committee shall be empowered. The State Level Committee shall have the right to remove such obstacles, which hinder the smooth implementation of these guidelines.

5.2 Local Area Development Committee (LADC) shall administer the Local Area Development Fund (LADF). A separate Local Area Development Fund (LADF) shall be set up for each project. District Magistrate shall be controlling the work of all the Local Area Development Committees constituted in all the districts. The composition of the Local Area Development Committees shall be as follows:-

1.	District Magistrate	Concerned Distt.	Chairman
2.	MLA of Project Area	Concerned legislative Assembly	Special Invited Member
3.	Chairman & Vice-Chairman, Zila Parishad (for District level allocation only)	Concerned Parishad	Member
4.	Chief Project Officer	Concerned District	Member Secretary
5.	Nominated by Secretary (Energy)	-	Member
6.	District level officers of PWD, Forest, Rural Development, Health, Horticulture, Irrigation, Minor Irrigation, Jal Sansthan, Jal Nigam etc departments as the case may be	Concerned Area	Members

7.	Chairman & Vice-Chairman, Panchayat Samiti (for District level allocation only)	Panchayat Samiti	-do-
8.	Pradhan(s) of all affected Gram Panchayat(s) in PAA.	Concerned area	-do-
9.	Female representative from the Project Affected Area.	Concerned area	-do-
10.	Representative of scheduled caste/scheduled Tribe	Concerned area	-do-
11	Representative nominated by Project Developers	Concerned Project	-do-

5.3 There shall be a separate Local Area Development Committee for each district if a project lies in more than one district. It shall be necessary to constitute a separate Local Area Development Committee for each hydroelectric project in each district, so that the plan better target setting and performance shall be strengthened.

5.4 Functions and Responsibilities of Local Area Development Committee:- Every Local Area Development Committee shall be responsible for:-

5.4.1 Timely receipt of contribution along with arrears, if any, from the project developer as per the norms prescribed by the State Government.

5.4.2 Overall management, control and administration of the Local Area Development Fund and documentation and maintenance of accounts.

5.4.3 Scrutiny of the proposed schemes to ensure compliance with the guidelines laid down for the operation of the Local Area Development Fund.

5.4.4 In respect of each hydroelectric project, for approval of shelf of plans and finalization of annual action plan and allocation of funds to the executing agencies.

The work to be done under the shelf and annual plan of each project shall be selected only after the recommendation of the Gram Panchayat / Panchayat Samiti or the concerned Zilla Parishad. The committee shall ensure that no non-eligible scheme is sanctioned by them.

5.4.5 Monitoring and supervision of the implementation of the approved schemes under the Local Area Development Fund.

6. Criteria for Fund Allocation:

The allocation of funds received in the Local Area Development Fund shall be done as follows: -

6.1 Prior to commercial operation of the project.

6.1.1 As per para 3.1.1, the pre-construction revenue contribution (1% of 'project cost') shall be paid by the project developer directly to the concerned local area development fund in the following manner.

a) 16% within one month of the commencement of the project construction work.
b) 16% on completion of 20% construction work of the project.
c) Remaining 68% during the construction of the project in 4 equal installments shall be deposited by the project developer on the completion of 40%, 60%, 80% and 100% of the project respectively.

6.1.2 The allocation of the above amount shall be done as per the following norms: -

Sr. No.	Category of Hydroelectric projects	Project Affected Area (PAA)	Project affected Zone (PAZ)		
			Project affected Panchayat	Project affected Block	Project affected District
1.	For capacity 5-25 MW	100 %	-	-	-
2.	For capacity 25-100 MW	60 %	20 %	10 %	10 %
3.	For capacity above 100 MW	50 %	20 %	15 %	15 %

6.1.3 The allocation of funds in the Gram Panchayats of the project affected areas shall be done as per Para 6.1.2 and it shall be determined on the basis of the ratio of the total population of the concerned Gram Panchayat and the total population of the entire project affected area as on January 1 of the project allocation year.

Note: If the families are being displaced as a result of the construction of the scheme and they are being resettled elsewhere, then the resettlement Gram Panchayat shall also be allocated funds in proportion to the number of displaced PAFs out of the total project affected families.

6.1.4 The funds allocated for block or district level projects shall not be spent on Panchayat level development works. In other words, only block or district level schemes, as the case may be, shall be benefitted from this fund. Therefore, the allocation of this fund shall be made in more than one village panchayat or block or road, water supply, education

or health institution for the use of the entire district and not be limited to one village panchayat area.

6.1.5 The work to be done in the project affected areas and project affected zones shall be done only on the basis of the recommendation of the local committees of the said Gram Panchayat, Block and District level, as the case may be.

6.2 '**Project Cost**' means the audited capital cost of the project. In case the project cost is not present, the project cost shall be equal to the DPR cost of the project. Thereafter, on completion of the project construction, the project cost shall be equal to the final audited capital cost.,

6.3 During the operational period of the project.

6.3.1 As per para 3.1.2, Local Area Development Committee (LADC) shall give the revenue contribution from the sale of 1% additional free power by the project developer to all the project affected area families as cash transfer every year for the life of the project in following manner:

a) There shall be four categories of Project Affected Families (i) Fully Project Affected Families(FP), (ii) Partially Project Affected Families(PP), (iii) Non-Project Affected Families below poverty line shall be called BPL Families (BNP), (iv) Families from the non-project affected families above poverty line shall be called APL families (ANP)

b) The Cash transfer to FP, PP, BNP, and ANP shall be made in the ratio of 3Y:2Y:2Y:1Y to all long term residents families that are included in the family Register of Gram Panchayat(s) of PAA on the date of allotment of the project. The value “Y” shall be calculated as follows:

c) Number of FP households X 3Y+PP Number of households X 2Y+BNP Number of households X 2Y +ANP Number of households X 1Y=Z (total amount as per para 6.3.1) For example:- If the FP, PP, BNP, and ANP are the number of households respectively, 10, 30, 55 & 100 or Z Rs. 3,00,000/-, so the value of Y is Rs.1000/-. Therefore, cash transfers to FP, PP, BNP, and ANP households shall be Rs 3000/-, Rs 2000/-, Rs 2000/- and Rs.1000/- respectively.

d) Under this scheme the transfer of cash to be given to the beneficiaries only by electronic transfer of funds from the bank account of Local Area Development Fund to the bank account of the beneficiary.

6.4 As per Para 3.1.3, the amount received by the State-run Government from the share (maximum) shall be used only for the local area development works. The allocation of this amount shall be done as per the norms mentioned in para 6.1.2

6.5 Interest at the rate of 12% per annum shall be applicable after the delay of two months in the revenue contribution by the developer as per para 6.1 and 6.3 of the policy in the Local Area Development Fund

7. Preparation of Shelf of schemes:

7.1 After the approval of the Chairman, LADC, the Member Secretary, Local Area Development Committee shall inform the concerned Gram Sabhas, Blocks and Panchayats regarding the tentative amount available as per Para 6.1.2 of the Policy for each project affected Gram Sabhas, Blocks and Panchayats.

7.2 After the approval of the village panchayats/blocks/districts and local area development committees, as the case may be, a detailed shelf shall be prepared for the annual plan from the total amount of the projects concerned. The said annual plan will be discussed in the annual meeting of the Gram Sabha/Local Area Development Committee and changes can be made if necessary. The approved shelf would be sent to the member secretary of the local area development committee.

7.3 for preparation of shelf of scheme the eligibility of the schemes shall be based on the following criteria:-

(i) The basic facilities for the Panchayat like internal roads of any cement concrete, street lighting, sanitation, rainwater harvesting, community building etc. shall be taken into consideration in the Panchayat level plans only.

(ii) Schemes benefitting more than one Panchayat such as schools, cement, concrete connecting roads, primary health centers etc. shall be taken into consideration in the block level schemes.

(iii) The district level infrastructure facilities such as local transportation/bus stand, hospital/medical, college, training institute, firefighting, ambulance etc. or any other district level plan would be taken into consideration in the district level plans.

7.4 The following schemes/activities shall not be included in the Local Area Development Fund allocation.

(i) Kachha Path/road.

(ii) Purchase of light vehicles to monitor the activities of the Local Area Development Fund.

(iii) Renovation/Repair/Maintenance work of individual premises (if compensation has been received or is being provided outside for any other purpose).

(iv) Schemes of recurring expenditure or allowances or grants to any individual/entity.

a. The work to be done under the LADF shall be proposed in the meeting of the Local Area Development Committee taking cognizance of the eligible and prohibited schemes/activities mentioned in para 7.3 and 7.4 and those works shall be approved by the Committee of State Level.

b. In addition to the plans/activities proposed in the policy, the recommendations for implementation of other development works in view of the development of the local area shall be sent to the State Level Committee for approval by the Local Area Development Committee with justified details.

c. For all the works to be done under the Local Area Development Fund, the prevailing procurement policy/other related rules of the Government of Uttarakhand shall be followed.

8. Implementing Agency:

For the approved schemes, either Gram Panchayat or Government Department or Project developer can be the executive organization, the decision of choice of the executive body for the Panchayat level schemes shall be reserved with the Gram Panchayat. For the schemes beyond panchayat level, the chairman of LADC shall decide the implementing Agency.

9. **Implementation and Monitoring:**

9.1 Based on the progress/actual utilization of the scheme, the funds for the sanctioned schemes would be released by the Local Area Development Committee to the implementing Agency in installments.

9.2 Accounts shall be submitted along with completion certificate and utilization certificate to the local area development committee.

9.3 The local area development committee shall regularly monitor the financial allocation and implementation of the schemes.

9.4 If the implementing body of the scheme is a Government organization, which has its own mandatory system for the inspection of the works being done, then the services of the engineers of any government organization can be taken by the local area development committee.

10. Management of Fund and utilization of interest amount:

10.1 The bank account of the Local Area Development Fund shall be maintained through a joint account in any of the scheduled banks. The deposit shall be effectively managed to ensure safe and better interest income. The operation of the account of the Local Area Development Committee shall be done jointly under the directions of the State Government and the Member Secretary of the LADC.

10.2 Member Secretary of LADC shall be responsible for maintaining the bank account of the Local Area Development Fund, preparing the proposals and minutes of the meetings of the Local Area Development Committee.

10.3 The meeting of Local Area Development Committee shall be held at least once in every quarter at the time and place decided by the Chairman.

10.4 The right of property under the Local Area Development Fund shall belong to the institution for which it is created, or the local body, as the case may be, who shall be responsible for its maintenance and operation

10.5 The interest accrued on the deposits in the Local Area Development Fund shall be part of the LADF. The interest earned shall be used by the Local Area Development Committee for organizing committee meetings, monitoring, office expenses, audit or services of experts, quality assurance, dispute resolution etc. No money shall be spent by the State Government or the project developer for these works.

6.8 SUMMARY

- Mason (2010) stressed upon saturation in qualitative research and termed it as the most important factor while deciding sample size. The present study includes 10 respondents of various fields and levels.

- Researcher has prepared quotations based on transcripts generated through interview process and open codes have been prepared from every single interview to recognize the level of saturation.

- Interconnected stages of framework analysis explicitly guided into the methodical investigation of data for the improvement of descriptive and explanatory accounts.

- In the beginning 24 categories have been recognized based on the detailed transcripts of interview. These initial categories have been refined to form 16 larger categories. Consecutively, these 16 large categories have been carried further to shape 8 initial themes. Finally on further processing 5 themes were emerged as the result of framework analysis.

- The category wise interpretation of the data is presented. Results of the present research are summarized in the form of research question (RQ). The conversation on the summarized conclusions is given as per the Research Objective (RO). The researcher based on this has proposed a framework for the benefit sharing with Project Affected Families for expediting hydropower development in Uttarakhand.

- The researcher has also presented a draft of benefit sharing scheme for the fair allocation of benefits.

CHAPTER 7
CONCLUSION AND RECOMMENDATIONS

Seventh chapter discusses the proposed framework for benefit sharing with Project Affected Families in Hydro Power Projects. The Chapter concludes the recommendations based on the research findings as per the research problem. In addition, Chapter also contains a presentation of the major contributions of the study, along with their implications on Business Problem spelled out in chapter one. These are followed by some recommendations for forthcoming research roadmap. Finally, the current chapter also outlines the limitations of the present study.

7.1 INTRODUCTION:

This study is intended to deliver a holistic understanding of the aspirations of Affected Families and benefit sharing approach for addressing them. The report of the present study in Chapter 1 & 2, presents an overview of the Business Problem with justifications. The Business Problem is rationalized through the literature review on keywords for the present study.

The in-depth interviews up to saturation were conducted. The responses were converted to transcripts and further coded. Further categorization, leading to the identification of themes for the common core concept of developing the framework for the benefit sharing with PAF's, was conducted. The data analysis using the framework approach is carried out. Findings of the data analysis have been presented in correspondence to research question. The findings are discussed to address the aim of research. Summary of data analysis is concluded as per the research problem under the next heading.

7.2 RECOMMENDATIONS:

The researcher suggests following recommendations for state and central Government to expedite hydro power development:

- As per the existing policy framework except in Himachal Pradesh, most of the benefits are available for PAFs during construction period and they get hardly any benefit after commissioning of project. Therefore, PAFs are not motivated to help in timely completion of the project.
- To associate PAFs for helping in timely completion of project, sharing of benefits from annual revenue of a completed and running project throughout its life in terms of annuity distribution with PAFs and taking up community development works / local area development works in the project affected area including panchayat and block level.
- This will help the developer in early commissioning of project. Government will get early access to the 12% royalty income. Contractor will also get relief from excessive burden due to expectations of the PAFs.
- If a project gets commissioned early and the contractor is getting incentive as per contact provisions, then some incentive may also be extended to PAFs provided they have contributed to expedite the works. On the other hand, if a project gets delayed due to hinderances / stoppages by PAFs, then some penalty / deduction from the annuity benefits may be imposed on them.
- Regular open communication with all PAF's by developers & nominated representative of government to assess aspirations / concerns from the projects.
- Employment opportunities (direct / indirect) throughout the life of project to at least one member each of fully affected families subject to suitability and requirement of the project developer.
- One-time grant for business / self-employment to eligible and interested PAFs.
- Training both vocational (sewing, knitting, hospitality, secretarial practice etc.) and industrial (fitter, turner, electrician, carpentry,

masonry, etc.) may be imparted to affected families depending on their interest and capability so as to ensure employability.

- Awarding small civil works (buildings, roads, retaining walls etc.) to local contractors thereby increasing their capabilities to get contracts in future on their acquired experience.
- Hiring buildings, vehicles, security, and maintenance works etc. from the PAFs and making them financially capable to look for future avenues.
- Some benefits should be provided to the population other than PAFs residing in the project affected area but within the same block / district.
- Higher benefits to the BPL families among PAFs in comparison to other PAFs.
- Strategic CSR spending for developmental works in the project affected area.

7.3 CONCLUSION:

This research is intended to develop the framework / mechanism for benefit sharing with Project Affected Families in Hydro Power Projects.

It is found that benefit will accrue to the developer on completion of the project. Thereafter, revenue generation will start. This is to be shared with various stakeholders throughout the life of the project. This benefit sharing plan should converge the goals of developer and all types of PAF's towards early completion of the project.

The study concludes that a well-designed and duly communicated benefit sharing plan may ensure expeditious development of hydro power projects.

7.4 IMPLICATIONS OF THE STUDY:

7.4.1 POLICY IMPLICATIONS

This thesis provides certain policy suggestions for improving stakeholder participation at project implementation / operation level. Policy makers can very well use the results of this thesis as the guideline for re-designing and

assessing the existing / in process benefits sharing schemes. They may formulate and implement Local Area Development Fund Policy as per the suggested framework.

This study suggests that for uplifting the pace of hydro power project implementation, the concerns of PAF's need to be addressed properly. This research presents a draft of benefit sharing scheme in Chapter 6 which may be considered by the policymakers and state governments for the fair distribution of long-term benefits among PAFs. Benefit sharing program will provide benefits to PAFs during the running / operation phase of the scheme i.e. throughout the useful working life. Thereby aligning the goals of all the stakeholders such as developer, PAFs, State Government and public at large.

7.4.2 ECONOMIC IMPLICATIONS

Energy builds the blocks to develop an economy. A causal relationship exists between the growth of hydro power sector and economic growth of a State with limited revenue generating options. Although, Central Government is coming up with various measures to cop up with the challenges faced by hydro sector, however, certain social issues need to be resolved. Benefit sharing in terms of revenue sharing with PAF's in implementation as well as operation phase of scheme (annuity benefits) will help in boosting the local economy.

On the basis of empirical research, present findings advocates that introduction of well planned and executed benefit sharing program, shall address the existing local issues in the Hydro Power Sector. The framework suggested in Chapter 6 shall facilitate the smooth implementation of Hydro Power Projects. PAF's will get 1% of project cost for community works during construction phase. Further, they will also get long term benefits during operation of project – revenue from 1% generation as annuity benefits and revenue from 1% generation for community development works. Following the execution of benefit sharing measures, the Hydropower Sector in Uttarakhand is expected to grow with enough pace. It is also expected to bring positive impact on the progress of economy of hilly state of Uttarakhand.

7.4.3 ACADEMIC IMPLICATIONS

Stakeholder theory presents business as a set of value-creating activities among related groups having sincere interest in the performance of activities and result achieved by the firm and by those on whom the firm relies on to achieve its objectives. In this study, researcher has found that for a business, it is in its own long-term interest to share the value created among various stakeholders. Researcher is also able to fill the gap in theory regarding fair value allocation (benefit sharing) measures with various stakeholders specifically regarding Hydro Power Projects. Further, present study also opens the door for future research on benefit sharing with various stakeholders in other States across different industrial setups.

7.4.4 MANGERIAL IMPLICATIONS

This study raises and improves the understanding of Management of Hydro Power Sector pertaining to project management practices. This study enriches and fills the gap in the literature of benefit sharing with PAF's in Hydro Power Projects. Moreover, this research provides a framework for the benefit sharing with PAF's in Hydro Power Projects. It is very important that the management of Developer companies and local administration / State Government play the leadership role for effectively managing the benefit sharing process through the suggested framework with the help of representatives of affected community.

Successful benefit sharing requires a monitoring mechanism in place to ensure transparency in implementation, avoidance of delays or misuse of funds and handling grievances.

7.5 RECOMMENDATIONS FOR FUTURE RESEARCH:

- There is further scope for similar studies with regard too other States.
- There is scope to study global practices and if such global practices can be implemented in Indian scenario.

7.6 LIMITATIONS OF THE STUDY:

- The current study has its focus only on Hydro Power Projects located in Uttarakhand State.
- There are possibilities that the impact of proposed benefit sharing framework/ mechanism might change under different environment and geographies.
- There was limitation in disclosing respondent name and project name.

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TABLE OF APPENDICES

Appendix-1: Analysis of delay of the under construction HEPs (< 25 MW)

S. No.	Reasons	HEPs (< 25 MW)	State	Capacity (MW)
1.	Court Cases/ NGT/ NCLT	Polavaram	Andhra Pradesh	960
		Subansiri Lower	Arunachal Pradesh	2000
		Thottiyar	Kerala	40
		Teesta VI	Sikkim	500
		Rangit-IV	Sikkim	120
		Lata Tapovan	Uttarakhand	171
		Phata Byung	Uttarakhand	76
2.	Termination of Contract/ Other Contractual Issues/ Delay in award of works	Polavaram	Andhra Pradesh	960
		Parbati-II	Himachal Pradesh	800
		Uhl-III	Himachal Pradesh	100
		Pakal Dul	UT & J&k	1000
		Kiru	UT of J&K	624
		Pallivasal	Kerala	60
		Teesta-VI	Sikkim	500
		Kundah PSP	Tamil Nadu	500
		Tapovan Vishnugad	Uttarakhand	520
3.	Delay in land acquisition (transfer of forest land/	Subansiri Lower	Arunachal Pradesh	2000
		Uh-III	Himachal Pradesh	100
		Shongtong Karcham	Himachal Pradesh	450
		Parnai	UT of J&K	37.5

	Private Land/ etc.)	Pallivasal	Kerala	60
		Thottiyar	Kerala	40
		Teesta-VI	Sikkim	500
		Vishnugarh Pipalkoti	Uttarakhand	444
		Rammam-III	West Bangal	120
4.	Local Law & Order Problem/ R&R Issues	Subansiri Lower	Arunachal Pradesh	2000
		Shongtong Karcham	Himachal Pradesh	450
		Ratle	UT & J&k	850
		Thottiyar	Kerala	40
		Tehri PSS	Uttarakhand	1000
		Vishnugarh Pipalkoti	Uttarakhand	444
		Rammam-III	West Bengal	120
5.	Geological Uncertainties	Subansiri Lower	Arunachal Pradesh	2000
		Parbati-II	Himachal Pradesh	800
		Uhl-III	Himachal Pradesh	100
		Pallivasal	Kerala	60
		Teesta-VI	Sikkim	500
		Tapovan Vishnugarh	Uttarakhand	520
		Tehri PSS	Uttarakhand	1000
6.		Parbati-II	Himachal Pradesh	800
		Tangnu Romai	Himachal Pradesh	44
		Tidong-I	Himachal Pradesh	100
		Lower Kalnai	UT & J&K	48

	Financial Issues/ Cash-Flow Issues/ Funds Constraints/ Payment Disputes	Thottiyar	Kerala	80
		Maheshwar	Madhya Pradesh	400
		Teesta-VI	Sikkim	500
		Bhasmey	Sikkim	51
		Rangit-IV	Sikkim	120
		Rangit-II	Sikkim	66
		Tapovan Vishnugarh	Uttarakhand	520
		Tehri PSS	Uttarakhand	1000
		Vishnugarh Pipalkoti	Uttarakhand	444
		Phata Byung	Uttarakhand	76
		Rammam-III	West Bengal	120
7.	Delay in NOCs (NOC by Project Affected Panchayats/ Environment Clearance/ Forest Clearance/ etc.)	Parbati-II	Himachal Pradesh	800
		Tidong-I	Himachal Pradesh	100
		Panan	Sikkim	300
		Naitwar Mori	Uttarakhand	60
		Vishnugarh Pipalkoti	Uttarakhand	444
8.	Penstock Leakage	Uhl-III	Himachal Pradesh	100
9.	Expenditure already reached almost original administrative approved cost level	Koyna Left Bank	Maharashtra	80
10.	Inter-State Dispute on Water Sharing	Shahpurkandi	Punjab	260

Appendix-2: COMPARISION OF POWER SCENARIO OF UTTARAKHAND & HIMACHAL PRADESH

SN	Category	UTTARAKHAND	HIMACHAL PRADESH
		Capacity (MW)	Capacity (MW)
A	**Installed Capacity**		
1	State	1312*	924.99**
2	Central PSUs	1800	7457.73
3	IPPs	981	2399.16
	Sub Total	**4092**	**10781.88**
B	**Under Construction Projects**		
		2275	**2742.39**
C	**DPR Approved/ DPR Stage, clearances obtained/ under progress Projects**		
		7539* **	**9202.35**
D	**Projects Under Survey & Investigation Stage**		
		2707.4	
E	**To be allotted/Stranded**		
		7799^	**1023.34**
	Grand Total	**24412.4**	**23749.96**** **

*** After including 131.57 MW Share of HP from operational projects of Yamuna Valley & 16 MW of UREDA.**

**** This includes 131.57 MW Share of HP from operational projects of Yamuna Valley in Uttarakhand, 27.6 MW from Ranjeet Sagar Dam**

***** This includes 5040 MW of Pancheshwar MPP and 660 MW from Kishau Project**

****** This includes 6 Projects of 755 MW capacity which have been forgone and 4 projects of 50.50 MW capacity which are cancelled/disputed.**

^ This includes 3959 MW of projects whose construction has been stooped due to various orders.

At the time of formation of Uttarakhand in the year 2000

S. No	State	Installed Capacity(MW)
1	Uttarakhand	1116
2.	Himachal Pradesh	3600*

*As per the information available from website.

Appendix 3: Validation of Interview Protocol

A3.1: Initial Protocol

Q.No.	Questions	Respondent
1	**Introductory**	
1.1	What is your opinion about Hydro Power Projects?	
1.2	Have you ever been a stakeholder / Involved in the development process of Hydro Power Projects? If yes, kindly share your mode of involvement.	
1.3	What is your opinion about the benefits of hydro power?	
1.4	What in your opinion are the disadvantages of Hydro power projects?	
1.5	What is your opinion about GoI renewable target?	
2	**Aspirations from project being developed / proposed / operational**	
2.1	What are various aspirations related to Environment?	
2.2	What are various aspirations related to social and religious issues?	
2.3	What are various aspirations related to Monetary / Economic benefits?	
2.4	What is the impact of hydropower project development on people whose land has not been acquired?	
3	**Experiences of project development**	
3.1	What are the various methods employed for treatment of aspirations of stakeholders?	
3.2	What do you think about the average time taken for land acquisition?	
3.3	What are the adverse effects of project foreseen by various stakeholders?	
3.4	What are the impacts of Hydro power development on the livelihood of Project Affected Families?	
4	**General response on improper redressal of aspirations and risks associated**	
4.1	How do stakeholders react on improper redressal?	
4.2	What do you think regarding frequency and magnitude of unrests/hinderances?	
4.3	Whether viability of project gets affected from these instances?	
5	**Benefit sharing mechanism in hydro projects**	
5.1	Are you aware of any benefit sharing mechanism existing in any project in India or abroad?	
5.2	What is your opinion on provisions of LARR 2013 of GoI?	
5.3	How do you perceive the R&R policy 2016 of GoI?	
5.4	What is your opinion about the existing benefit sharing mechanisms?	
6	**Suggestions for improvement**	
6.1	Based on your experience, suggest three most important measures to	

	address the problems associated with the development of Hydro Electric Projects in Uttarakhand.	
	1.	
	2.	
	3.	

A3.2: Responses of Validators Against Initial Protocol

Q.No.	Questions	Respondent 1	Respondent 2
1	**Introductory**		
1.1	What is your opinion about Hydro Power Projects?	In line	In line
1.2	Have you ever been a stakeholder / Involved in the development process of Hydro Power Projects? If yes, kindly share your mode of involvement.	In line	In line
1.3	What is your opinion about the benefits of hydro power?	In line	In line
1.4	What in your opinion are the disadvantages of Hydro power projects?	In line	In line
1.5	What is your opinion about GoI renewable target?	Provide information in advance to the interviewee.	Share the required information with interviewee.
2	**Aspirations from project being developed / proposed / operational**	Change the title by adding concerns for more holistic coverage.	
2.1	What are various aspirations related to Environment?	Word aspirations may be replaced with "aspirations / concerns"	In line
2.2	What are various aspirations related to social and religious issues?		In line
2.3	What are various aspirations related to Monetary / Economic benefits?		In line
2.4	What is the impact of hydropower project development on people whose land has not been acquired?	In line	In line
3	**Experiences of project development**		
3.1	What are the various methods employed for treatment of aspirations of stakeholders?	In line	In line
3.2	What do you think about the average time taken for land acquisition?	In line	In line
3.3	What are the adverse effects of	In line	In line

	project foreseen by various stakeholders?		
3.4	What are the impacts of Hydro power development on the livelihood of Project Affected Families?	In line	In line
4	**General response on improper redressal of aspirations and risks associated**		
4.1	How do stakeholders react on improper redressal?	In line	In line
4.2	What do you think regarding frequency and magnitude of unrests/hinderances?	In line	In line
4.3	Whether viability of project gets affected from these instances?	In line	In line
5	**Benefit sharing mechanism in hydro projects**		
5.1	Are you aware of any benefit sharing mechanism existing in any project in India or abroad?	In line	Inline
5.2	What is your opinion on provisions of LARR 2013 of GoI?	Somewhat vague	In line
5.3	How do you perceive the R&R policy 2016 of GoI?		In line
5.4	What is your opinion about the existing benefit sharing mechanisms?	In line	In line
6	**Suggestions for improvement**		
6.1	Based on your experience, suggest three most important measures to address the problems associated with the development of Hydro Electric Projects in Uttarakhand.	In line	In line
	1.		
	2.		
	3.		

A3.3: Validated Protocol

Q.No.	Questions
1	**Introductory**
1.1	What is your opinion about Hydro Power Projects?
1.2	Have you ever been a stakeholder / Involved in the development process of Hydro Power Projects? If yes, kindly share your mode of involvement.
1.3	What is your opinion about the benefits of hydro power?
1.4	What in your opinion are the disadvantages of Hydro power projects?
1.5	What is your opinion about GoI renewable target?
2	**Aspirations and concerns from project being developed / proposed / operational**
2.1	What are various aspirations / concerns related to Environment?
2.2	What are various aspirations / concerns related to social and religious issues?
2.3	What are various aspirations / concerns related to Monetary / Economic benefits?
2.4	What is the impact of hydropower project development on people whose land has not been acquired?
3	**Experiences of project development**
3.1	What are the various methods employed for treatment of aspirations of stakeholders?
3.2	What do you think about the average time taken for land acquisition?
3.3	What are the adverse effects of project foreseen by various stakeholders?
3.4	What are the impacts of Hydro power development on the livelihood of Project Affected Families?
3.5	What are the local employment opportunities and other economic benefits brought about by the projects?
4	**General response on improper redressal of aspirations and risks associated**
4.1	How do stakeholders react on improper redressal?
4.2	What do you think regarding frequency and magnitude of unrests/hinderances?
4.3	Whether viability of project gets affected from these instances?
5	**Benefit sharing mechanism in hydro projects**
5.1	Are you aware of any benefit sharing mechanism existing in any project in India or abroad?
5.2	What is your opinion on provisions of LARR 2013 of GoI?

5.3	What is your opinion about the existing benefit sharing mechanisms?
6	**Suggestions for improvement**
6.1	Based on your experience, share your opinion / suggestions on following benefit sharing measures to address the problems associated with the development of Hydro Electric Projects in Uttarakhand:
	1. Benefits to PAF's throughout the life of the project
	2. Benefits to other than PAF's residing in Project Affected Area
	3. Distinction in benefits between BPL and other categories
	4. Contribution to local area development works throughout the life of project and the coverage area up to Project Affected Area or Panchayat or Block or District level.
	5. Any other measure

APPENDIX 4

CODE BOOK FOR INTERVIEW PROTOCOL LEADING TO THE FORMATION OF FRAEMWORK FOR BENEFIT SHARING WITH PROJECT AFFECTED FAMILIES (PAF'S) FOR EXPEDITING HYDROPOWER DEVELOPMENT IN UTTARAKHAND

A4.1 INTRODUCTION

This Appendix represents the final protocol and analysis of its' transcripts. The appendix contains four code books which have their roots in chapter 6 of this thesis. The first code book 4.2 represents the 'Coding of interview transcripts'. The second code book 4.3 represents the 'Data Management'. The third code book 4.4 represents the 'Descriptive and Explanatory Accounts' whereas the fourth code book 4.5 represents the 'Relationship Diagram'. These code books were used as a tool to develop the framework for Benefit Sharing with Project Affected Families in Hydro Power Projects.

A4.2 CODE BOOK: INTERVIEW TRANSCRIPTS

1. Introductory

1.1. What is your opinion about Hydro Power Projects?

Respondent 1: I have a very positive view towards hydro power projects. Hydro should be conceived as the energy source of future.

Codes: hydro power projects, energy source of future. Code Quantity: 2 New Codes: 2

Respondent 2: Hydropower Projects are non-polluting sources of energy. It is a renewable source of Energy. Hydro power projects also add provide irrigational, drinking water supply facilities and flood control benefits.

Codes: hydro power projects, non-polluting sources of energy, renewable source, irrigational, drinking water, flood control Code Quantity: 6 New Codes: 5

Respondent 3: Hydropower Projects are renewable source of energy. It generates clean form of energy. Development of Hydro power projects contributes to the upliftment of social, economic & environmental characteristics of a region. Apart from Tourism, Hydro Power development is the major revenue source in Uttarakhand.

Codes: hydro power projects, renewable source, clean energy, social, economic, environmental, characteristics, tourism, major revenue source. Code Quantity: 9 New Codes: 7

Respondent 4: Hydro power projects since they are based on renewable source of energy, i.e. water, they are sustainable source of power generation. Besides, hydro power projects are also of multi-purpose in nature namely for Irrigation of agriculture land, supply of drinking water, development & preservation of flora and fauna, thereby, helping in

balancing the eco-system, development of bird sanctuary, tourism & water sports in and around the reservoir area.

Codes: Hydropower Projects, renewable source, sustainable source, Irrigation, drinking water, development & preservation, flora and fauna, balancing the eco-system, tourism, water sports, reservoir area. Code Quantity: 11 New Codes: 6

Respondent 5: It is the most widely used form of renewable energy.

Codes: renewable energy Code Quantity: 1 New Codes: 1

Respondent 6: Hydropower Projects are clean source of Energy. Provide Grid Balancing and stability. In a longer run they are far better than Solar Power. To much in the interest of nation.

Codes: Hydropower Projects, clean energy, Grid Balancing and stability, interest of nation. Code Quantity: 4 New Codes: 2

Respondent 7: Hydro power is a reliable.

Codes: hydro power projects, reliable Code Quantity: 2 New Codes: 1

Respondent 8: Hydro power projects are essential for supply of electricity in the country and State. These do not have any environmental pollution.

Codes: Hydropower Projects, supply of electricity, environmental pollution. Code Quantity: 3 New Codes: 2

Respondent 9: Uttarakhand has abundance of water sources, therefore, there are enormous opportunities of hydro power projects. This do not have any kind of environmental pollution.

Codes: hydro power projects, environmental pollution. Code Quantity: 2 New Codes: 0

Respondent 10: Hydro power projects should exist these are in the interest of nation.

Codes: hydro power projects, interest of nation. Code Quantity: 2 New Codes:

1.2. Have you ever been a stakeholder / Involved in the development process of Hydro Power Projects? If yes, kindly share your mode of involvement.

Respondent 1: Yes. Being an employee of a company involved in the construction and operation of hydro power projects. I was posted at site office during construction of first hydro project of our company.

Codes: employee, construction and operation, hydro power projects. Code Quantity: 3 New Codes: 3

Respondent 2: Yes. To plan, promote and organize the development of all aspects of hydroelectric power on behalf of Himachal Pradesh State Government (GoHP) and Himachal Pradesh State Electricity Board (HPSEB) in Himachal Pradesh.

Codes: plan, promote, organize, development, GoHP, HPSEB. Code Quantity: 6 New Codes: 6

Respondent 3: Yes. As an Independent Power Producer.

Codes: Independent Power Producer. Code Quantity: 1 New Codes: 1

Respondent 4: Yes, I have been involved in the development process of various small and large hydro power projects from the regulatory perspective including tariff determination, laying down performance norms & parameters. Besides I have been involved in development including Design, Engineering Procurement and Construction (EPC) of various large thermal projects namely coal based, gas based, circulating fluidized bed boilers, cogeneration etc. The projects I have been involved are located in Jagdishpur, Rosa, Renukoot in Uttar Pradesh, Bina in M.P., Bharuch, Gujarat and HPGC, Haryana.

Codes: development, hydro power projects, regulatory perspective, tariff determination, performance norms. Code Quantity: 5 New Codes: 3

Respondent 5: Yes. Our organisation is engaged as a contractor in Vyasi Hydro Electric Project.

Codes: contractor, Vyasi Hydro Electric Project. Code Quantity: 2 New Codes: 2

In Project implementation. In 2001 I was working with NHPC after that I joined NTPC wherein I was Posted at Tapovan Vishnugad HEP (520 MW), Uttarakhand from 2010 to 2013 later on I switched to Power Finance Corporation.

Codes: Project implementation, NHPC, Tapovan Vishnugad HEP, Power Finance Corporation. Code Quantity: 4 New Codes: 4

Respondent 7: Yes. I am a stakeholder and have undertaken resettlement & rehabilitation works of number of hydro power projects.

Codes: resettlement & rehabilitation, stakeholder, hydro power projects
Code Quantity: 3 New Codes: 2

Respondent 8: Yes, our agricultural land has been taken for Vyasi Hydro Electric Project. We are cooperating to complete the project.

Codes: agricultural land, Hydro Electric Project.
Code Quantity: 2 New Codes: 1

Respondent 9: Yes. Our agricultural land has been acquired for the construction of Lakhwar-Vyasi HEP and we are actually associated with the construction of project

Codes: agricultural land, Hydro Electric Project.
Code Quantity: 2 New Codes: 0

Respondent 10: Yes, I am a stakeholder. My agricultural land has been acquired.

Codes: Stakeholder, agricultural land.
Code Quantity: 2 New Codes: 0

1.3. What is your opinion about the benefits of hydro power?

Respondent 1: Hydro power project in my view has enormous benefits such as: clean power, green power, zero value in future, no problem in decommissioning unlike solar projects.

Codes: Hydro power project, clean power, green power, zero value in future, no problem decommissioning, solar projects.

Code Quantity: 6 New Codes: 6

Respondent 2: Hydro Power is inexhaustible in Nature. Hydro power avoids the use of fossil fuels and reduces CO2 emissions. It is the cheapest energy sources and pollution free.

Codes: Hydro Power, inexhaustible in Nature, fossil fuels, CO2 emissions, cheapest energy source, pollution free.

Code Quantity: 5 New Codes: 5

Respondent 3: Hydro power is eco-friendly. Hydro power offers recreational opportunities. Hydro Power plants have the ability of quick start & shutdown and can take care of instantaneous load variations. Water security, River rejuvenation and flood control: In storage projects surplus water can be stored in monsoon months & released during remaining months. Utilization of water for irrigation from dams has greatly enhanced agricultural production. Hydro power projects facilitate Socio-economic development of the area, which helps in checking migration. Projects near border are thus help in National Security also.

Codes: Hydro power, eco-friendly, recreational opportunities, quick start & shutdown, instantaneous load variations, Water security, River rejuvenation, flood control, irrigation, Socio-economic development, National Security.

Code Quantity: 11 New Codes: 10

Respondent 4: Hydro power, since based on renewable source of energy, i.e. water, they are sustainable source of power generation. Besides, hydro

power projects are also of multi-purpose in nature namely for Irrigation of agriculture land, supply of drinking water, development & preservation of flora and fauna, thereby, helping in balancing the eco-system, development of bird sanctuary, tourism & water sports in and around the reservoir area.

Codes: Hydro power, renewable source, sustainable source, Irrigation, drinking water, development & preservation, flora and fauna, balancing the eco-system, tourism, water sports, reservoir area. Code Quantity: 11 New Codes: 8

Respondent 5: Hydro power is a clean, and cheap source of power. It provides energy security. It helps in ensuring grid stability.

These projects also help in socio-economic development of the area. Hydro project provides recreational benefits.

Codes: Hydro power, renewable source, sustainable source, Irrigation, drinking water, development & preservation, flora and fauna, balancing the eco-system, tourism, water sports, reservoir area. Code Quantity: 11 New Codes: 8

Respondent 6: Hydro power has several benefits such as: - Clean energy. Eco friendly. no CO2 emission. Good source of peaking power. Hydro power projects have longer life. Large scope of tourism development on storage-based schemes. Multipurpose hydro power projects create irrigation, drinking water supply and flood control facilities, provides employment. Canal based solar projects can be established.

Codes: Hydro power, Clean energy, CO2 emission, peaking power, longer life, tourism, storage-based schemes, irrigation, drinking water, flood control, solar projects, Canal based, employment.

Code Quantity: 13 New Codes: 5

Respondent 7: Hydropower is helping to increase the pace of clean energy transition, to provide vital power, storage, flexibility and climate moderation services. Hydro power projects are designed to have longer life and so can contribute to the generation of electricity for many years / decades.

Codes: Hydro power, Clean energy, storage, flexibility, climate mitigation services, longer life. Code Quantity: 6 New Codes: 3

Respondent 8: Hydro power supply pollution free electricity, infrastructural development of area and development and employment in the region.

Codes: Hydro power, pollution free, infrastructural development, employment. Code Quantity: 4 New Codes: 1

Respondent 9: Construction of HEPs results in the infrastructural development area which directly effects local and people residing in vicinity and increase employment opportunities.

Codes: infrastructural development, employment. Code Quantity: 2 New Codes: 0

Respondent 10: Hydro projects provide electricity and Drinking water and water for irrigation.

Codes: electricity, Drinking water, irrigation, employment

Code Quantity: 4 New Codes: 0

1.4. What in your opinion are the disadvantages of Hydro power projects?

Respondent 1: There are no disadvantages of hydro power.

Codes: no disadvantages, hydro power Code Quantity: 2 New Codes: 2

Respondent 2: It impacts aquatic species. Impacts Environment during construction phase.

Dam based projects disturbs river flow. Although several guidelines exist to maintain the free flow of water. It involves huge capital cost. Hydro project has longer gestation period.

Codes: impacts, aquatic species, Environment, construction phase, disturbs river flow, Dam based projects, huge capital cost, longer gestation period. Code Quantity: 8 New Codes: 8

Respondent 3: Impact on Environment and aquatic species. Displacement of locals in case of large dam-based projects. Investment of Huge capital cost. Higher tariff.

Codes: impacts, aquatic species, Environment, construction phase, Dam based projects, huge capital cost, Displacement of locals, Higher tariff. Code Quantity: 8 New Codes: 3

Respondent 4: The biggest disadvantage of hydro project projects is the resettlement and rehabilitation (R&R) of people coming in the submergence area on account of construction of large storage Dams/Barrage.

Codes: hydro project projects, resettlement and rehabilitation.

Code Quantity: 2 New Codes: 2

Respondent 5: Hydro project may have a few undesirable impacts on the environment. Reservoirs created due to hydro projects do release methane gas. These projects have high capital cost.

Codes: impacts, Hydro project, Environment, release methane gas, high capital cost.

Code Quantity: 5 New Codes: 1

Respondent 6: Longer gestation period. Geological surprises. Cost and time over run. Higher tariff.

Codes: Longer gestation period. Geological surprises, Cost and time over run, Higher tariff.

Code Quantity: 4 New Codes: 2

Respondent 7: Hydro projects have high implementation costs, therefore must be built to a very high standard. Have high capital costs and higher tariff rate. Flooding of large areas causes impact to natural environment. Substantial involuntary displacement takes place. Building of large dam based projects can cause serious geological damage, weakens mountains and water quality degraded.

Codes Hydro projects, high capital costs, higher tariff, impact, environment, involuntary displacement, dam-based projects, geological damage, weakens mountains, water quality degraded.

Code Quantity: 10 New Codes: 4

Respondent 8: Impacts hower and cowshed in the nearby area due to blasts for construction of project.

Codes: construction of project, ecology, Impacts. Code Quantity: 3 New Codes: 2

Respondent 9: Impacts Environment and flora and fauna due to construction of projects. Daily life also got affected (by landslides during monsoon) due to weakening of mountains.

Codes: construction of project, Impacts, Environment, flora and fauna, weakens mountains. Code Quantity: 3 New Codes: 0

Respondent 10: Water quality gets degraded. Environment gets adversely impacted.

Codes: Impacts, environment, water quality degraded. Code Quantity: 3 New Codes: 0

1.5. What is your opinion about GoI renewable target?

Respondent 1: GoI will achieve the said target of 175 GW renewable. Our company has completed approximately 1000 MW of solar project in last few years. On major project of 880 MW is under commissioning.

Codes: GoI, Renewable target, 175 GW, solar project. Code Quantity: 3 New Codes: 3

Respondent 2: Target to achieve 175 GW from renewable energy looks tough. At present 101 GW is already installed and work on 50 GW is under progress.

Codes: Renewable target, 175 GW renewable. Code Quantity: 2 New Codes: 0

Respondent 3: Shall be achieved if preference given to hydro projects which are held up.

Codes: preference, hydro projects. Code Quantity: 2 New Codes: 2

Respondent 4: The GoI renewable target of 175 GW by March, 2022 is quite optimistic target and also achievable since out of this overall target, 100 GW has been allocated to solar power development which in a country like India having large barren/dessert areas and having good solar intensity throughout the year is very much achievable.

Codes: GoI, renewable target, 175 GW, solar power, achievable Code Quantity: 5 New Codes: 2

Respondent 5: Renewable target of GoI is somewhat over ambitious. GoI is facing challenges in further implementation.

Codes: GoI, renewable target, over ambitious. Code Quantity: 3 New Codes: 1

Respondent 6: As per the current pace it looks achievable by 2022.

Codes: achievable, 2022 Code Quantity: 2 New Codes: 2

Respondent 7: GoI is giving emphasis on alternative sources of energy other than hydro power projects to make country self-sufficient in the field of energy and to extract maximum benefits out of it.

Codes: GoI, alternative sources of energy, hydro power projects, self-sufficient. Code Quantity: 4 New Codes: 2

Respondent 8: GoI should complete renewable energy targets within time frame.

Codes: renewable target. Code Quantity: 1 New Codes: 0

Respondent 9: From various reports it has been observed that India is on track to achieve its renewable energy target.

Codes: renewable target. Code Quantity: 1 New Codes: 0

Respondent 10: Not aware

Codes: NA Code Quantity: 0 New Codes: 0

2. **Aspirations and concerns from project being developed / proposed / operational**

2.1. What are various aspirations / concerns related to Environment?

Respondent 1: There are apprehensions related to landslides, cracks in houses and ill effects to the environment. At times we receive complaints related to impact of construction activities on crops and cattle.

Codes: apprehensions, landslides, cracks in houses, effects, environment, construction activities, crops and cattle Code Quantity: 7 New Codes: 7

Respondent 2: Increase in sedimentation through DAM based Projects. Change in Hydrological regime. Biodiversity loss. Can Change River water quality. Continuity of river gets disturbed. Blasting and drilling for tunnel disturbs the geology. Muck disposal in the vicinity.

Codes: sedimentation, DAM based Projects, Change, Hydrological regime, Biodiversity loss, water quality, Blasting and drilling, tunnel, disturbs the geology, Muck disposal, Continuity of river Code Quantity: 11 New Codes: 11

Respondent 3: Environmental degradation. landslide zone, Continuity of river gets disturbed. Availability of water in downstream of dam-based projects, During construction period of the project, air, water, pollution shall impact crops, as well as human health, in lieu, compensation should be provided.

Codes: Environmental degradation, landslide, Continuity of river, Availability of water in downstream, dam-based projects, impact, air, water, pollution, crops, human health, compensation.

Code Quantity: 12 New Codes: 9

Respondent 4: The aspirations / concerns related to environment from hydro power projects being developed/proposed/operational is the action which is required to mitigate all types of adverse impact to eco-system in the area. This can very well be taken care of by planting trees of atleast equal number of trees which had to be fell while development of the project. Also any waste/effluent or oil from coolers and other equipment which might seep into the river or canal should be prevented or well treated so as to reduce contamination of such water bodies/ system.

Codes: aspirations, hydro power projects, mitigate, impact, eco-system, planting trees, waste, equipment, well treated, contamination, water bodies.

Code Quantity: 11 New Codes: 8

Respondent 5: Participation in major decision impacting their lives, Muck disposal / waste at designated places. Availability of water in the downstream after construction of project. Proper compensation to all the damages occurring during construction of projects. Affects availability of fodder for animals.

Codes: impacts, lives, Availability of water in downstream, construction of project, compensation, construction of projects, Muck disposal, availability of fodder.

Code Quantity: 8 New Codes: 2

Respondent 6: Initial environmental degradation. Tree cutting.

Codes: environmental degradation, Tree cutting.

Code Quantity: 2 New Codes: 1

Respondent 7: Environmental effects of hydropower are related to interventions in nature due to obstructing of water, altered water flow and the construction of projects. Change in the path and flow river due to the construction of dams for hydropower, have major impacts on the local population. Land acquisition results in displacement, which further leads to loss of homes, agricultural land, CPRs and livelihoods. On the other hand, deforestation causes loss of forest cover, biodiversity loss, access to CPRs and landslides.

Disposal of debris: Muck disposal. loss of local environment.

Codes: Environmental consequences, damming of water, Change in the river flow, construction of projects, impacts, Land acquisition, agricultural land, livelihoods, Deforestation, biodiversity loss, landslides, Muck Disposal.

Code Quantity: 12 New Codes: 6

Respondent 8: Projects decreases natural greenery in the vicinity. Dust deposited on the plants/trees creates problem in availability of fodder for the animals.

Codes: decreases, natural greenery, availability of fodder.

Code Quantity: 3 New Codes: 3

Respondent 9: Under development projects will result in loss of local environment and wild animals and reduces natural landscape. Affected families will face problem of displacement.

Codes: environment, displacement.

Code Quantity: 2 New Codes: 0

Respondent 10: Environment loss.

Codes: environment Code Quantity: 1 New Codes: 0

2.2. What are various aspirations / concerns related to social and religious issues?

Respondent 1: Impact on cultural aspects due to invasion of outsiders. Locals do have apprehension regarding respect of their religious beliefs. Accordingly, our company had constructed a grand temple of local deity (Jambu Devta) in the vicinity of project site. This helps save the religious belief of people. Also created the infrastructure like schools for education.

Codes: Impact, cultural aspects, apprehension, religious beliefs, education, religious belief Code Quantity: 6 New Codes: 6

Respondent 2: Benefits of the LADF to be given to the resident of area. Alternate source of water supply (drinking and irrigation), if original sources are impacted. Normal life of the locals should remain unaffected from construction. Financial assistance to be provided during local events, fair etc. Beautification and construction of Temples, Bathing Ghats and cremation grounds. Development of areas with dispensary and Hospitals. During cultural and religious occasions, for bathing and other purposes sufficient water should be released from the project downstream into the river. Educational Infrastructure for professional courses such as ITI &

Polytechnic College should be created in the area. Development of playground & sports facilities.

Codes: Benefits, LADF, resident of area, Alternate source, water supply, drinking and irrigation, Financial assistance, construction, Temples, Bathing Ghats, cremation grounds, Dispensary, Hospitals, Educational Infrastructure, ITI, Polytechnic, playground, sports facilities, development Code Quantity: 19 New Codes: 19

Respondent 3: Alternate source of water supply (drinking and irrigation), if original sources are impacted. Rehabilitation of village should be at a proper place. Medical facility of the project should be extended to the people of area likely to be affected due to implementation of the project. Construction of access roads, bridges and development of drainage system. Educational infrastructure and community centres should be developed. Tourist places should be built for attraction.

Codes: Alternate source, water supply, drinking and irrigation, medical facility, access roads, bridges, drainage system, educational infrastructure, tourist places, community centres, Rehabilitation of village. Code Quantity: 11 New Codes: 7

Respondent 4: The aspirations and concerns related to social and religious beliefs are namely:- People who are resettled should be properly rehabilitated to locations and also their conditions should not be adverse to what they have been enjoying in their original habitats. At times, submergence area can have hindrances in the form of temples etc of religious importance and therefore such structures are needed to be properly and sacrosanctly shifted to higher region through proper deliberation/dialogue with the local and religious groups and arrive at an amicable settlement.

Codes: aspirations, social, religious beliefs, properly rehabilitated, religious importance, shifted, proper deliberation, amicable settlement.

Code Quantity: 8 New Codes: 7

Respondent 5: Arrangement of public conveyance. Uninterrupted road transport. Contribution in social and religious events. Development of infrastructural facilities. Construction / maintenance of places of religious importance. Sanctity of religious beliefs should be maintained.

Codes: public conveyance, road transport, Contribution, social and religious events, infrastructural facilities, religious beliefs.

Code Quantity: 6 New Codes: 4

Respondent 6: Of course, there are religious beliefs and sentiments attached. Specially for river Ganga in Uttarakhand. It is believed that the purity at the origin is impacted by development of hydro power projects. Also Migrant workers increasing and doing construction damage.

Codes: development, religious beliefs, sentiments, hydro power projects, Migrant workers, construction damage.

Code Quantity: 4 New Codes: 2

Respondent 7: Low value of land in hilly regions resulting less compensation, Uncultivable nature of compensatory land, disputed affected family's recognition process, Lack of transparent benefit sharing process, Heavy influx of migrant workers, Cutting off of access roads. Construction damage.

Codes: less compensation, no transparent benefit sharing process, access roads, migrant workers, construction damage

Code Quantity: 5 New Codes: 2

Respondent 8: Construction of religious temple in the affected area, development of tourist places and construction of community centre for cultural or social works should be undertaken.

Codes: Construction, temple, tourist places, community centre, social works. Code Quantity: 5 New Codes: 0

Respondent 9: Education and health facilities of local population should be taken care based on the social conditions. It is also to ensured that locals do not suffer and religious beliefs should not be harmed.

Codes: Education, health facilities, religious beliefs, social conditions. Code Quantity: 4 New Codes: 0

Respondent 10: Social and religious beliefs get vanished due to rehabilitation of village.

Codes: Social, religious beliefs, social conditions, rehabilitation of village. Code Quantity: 4 New Codes: 0

2.3. What are various aspirations / concerns related to Monetary / Economic benefits?

Respondent 1: Direct Employment preferable. Adequate and timely compensation. Land in lieu of land acquired. Provision of free electricity for affected families. Share in execution of project works as per the ability of locals.

Codes: Direct Employment, Adequate and timely, compensation, Land in lieu of land, free electricity, affected families, Share in execution of project, ability of locals.

Code Quantity: 8 New Codes: 8

Respondent 2: Funds in LADF should be utilized in effectively. Better compensation package. Policy for LADF should be made more in favour of locals. Direct Employment Opportunity for PAFs. Villagers should get free electricity connection and free electricity up to some units, as the electricity is generated locally and evacuated outside. Annuity should be such that PAFs accept it without any difficulty. Awarding contract of office canteen and shops in transit to locals. Engagement of local people as construction workers. Financial assistance in construction of house to PAFs. Providing small work contracts to PAF's. Hiring of vehicles for the project activities local people should be given preference.

Codes: Funds, LADF, PAF, compensation package, locals, Direct Employment, Opportunity, free electricity, Annuity, contracts, office canteen, shops in transit, construction workers, financial assistance, vehicles, preference.

Code Quantity: 16 New Codes: 14

Respondent 3: Lack of attempts to compensate for loss. Employment Opportunity for PAFs. Engagement of local people as construction workers. Land in lieu of Land. Villagers should get free electricity connection and free electricity up to some units, as the electricity is generated locally and evacuated outside. Providing small work contracts to PAF's. In hiring of vehicles for the project activities local people should be given preference. Damage to common property resources should be taken care of.

Codes: Employment, Opportunity, construction workers, Land in lieu of Land, free electricity, contracts, vehicles, local, preference, Lack of attempts, compensate, common property resources

Code Quantity: 12 New Codes: 3

Respondent 4: The various aspirations and concerns related to monetary and economic benefits is the multi-purpose nature of the hydro projects which not only produce electricity which is a basic infrastructure need for economic development of any country, provides water for irrigation during lean season for agriculture purpose. These hydro projects also act like an industry giving adequate source of employment to the local population in the vicinity of the project. These projects also have economic benefits through development of tourism in and around the reservoir area including development of water sports and leisure tourism.

Codes: aspirations, concerns, monetary, economic, benefits, economic development, infrastructure, water, irrigation, agriculture, hydro projects, employment, local, development, tourism, reservoir area, water sports.

Code Quantity: 17 New Codes: 15

Respondent 5: Employment opportunities to PAFs. Mostly all PAFs aspire to get government / permanent jobs. Casual / temporary employment. Affected persons also demands land in lieu of land. Adequate and timely Compensation against various losses / damages. Petty contracts. Hiring of vehicles. Health and educational facilities to be provided. Place of rehabilitation should have good environment, clean air and rural landscape.

Codes: Employment, opportunities, PAF, employment, land in lieu of land, Adequate and timely, Compensation, contracts, vehicles, Health and educational facilities, rehabilitation, good environment, clean air, rural

landscape. Code Quantity: 13 New Codes: 5

Respondent 6: Development of affected area. Employment opportunities, land and house should be provided.

Codes: Development, affected area, Employment, opportunities, Local Development, land and house, provided. Code Quantity: 7 New Codes: 4

Respondent 7: Lack of measures to compensate for damage of common property resources (CPRs). Compensation in terms of cash payment do not reflect the 'true' replacement cost of the asset. Employment opportunities for displaced communities. Access to natural resources, health and education facilities. Adequate and timely rehabilitation packages

Codes: Lack of attempts, compensate, common property resources, Cash based, compensation, Employment, opportunities, natural resources, Access, health and education facilities, Adequate and timely, rehabilitation. Code Quantity: 12 New Codes: 3

Respondent 8: Rehabilitation of affected families should be proper; adequate and timely compensation, land and house, employment and business/shop should be provided.

Codes: Rehabilitation, families, adequate and timely, compensation, employment, land and house, business/shop. Code Quantity: 7 New Codes: 0

Respondent 9: Development of affected area and subsequently employment related opportunities also flourish.

Codes: employment, opportunities, Development, affected area. Code Quantity: 4 New Codes: 0

Respondent 10: Place of rehabilitation should have good environment, clean air and rural landscape. Adequate and timely compensation, land, house, employment and business/shop should be provided.

Codes: rehabilitation, Adequate and timely, compensation, land, house, employment, business/shop, provided. Code Quantity: 8 New Codes: 0

2.4. What is the impact of hydropower project development on people whose land has not been acquired?

Respondent 1: These people do create major hindrances. However, they do have positive impact of project. They unnecessary create nuisance value.

Codes: people, major hindrances, impact, project, nuisance value. Code Quantity: 5 New Codes: 5

Respondent 2: People whose land has not been acquired are considered to be less affected but they also have to face various disturbances attributable to the development process.

Codes: people, considered, less affected, face, disturbances, development process. Code Quantity: 6 New Codes: 5

Respondent 3: Those people may be considered less affected due to project development.

However, they also have to face various disturbances attributable to the development process such as noise pollution, road obstruction, blasting sound, ecological / social changes etc. They should also be benefited from the projects by engaging them in project development activities depending on their capabilities.

Codes: people, considered, less affected, face, disturbances, development process, noise pollution, road obstruction, ecological, social changes, project development activities, capabilities. Code Quantity: 12 New Codes: 6

Respondent 4: At times it has been seen that people, whose land has not been acquired while development of hydro power project, complaint of flooding in their habitats/villages primarily during monsoon season and therefore this problem can be resolved through construction of proper drainage and robust wall protection/civil engineering system.

Codes: people, considered, less affected, face, disturbances, development process, noise pollution, road obstruction, ecological, social changes, project development activities, capabilities. Code Quantity: 12 New Codes: 6

Respondent 5: These people do suffer significant impact. new employment opportunities should be provided, development of area, roads, schools, colleges, medical facilities, community centres etc should be done and these people will also be benefited by this.

Codes: people, suffer, impact, development of area, roads, schools,

colleges, medical facilities, community centres, benefited

Code Quantity: 10 New Codes: 5

Respondent 6: Such people face inconveniences due to construction like blocking of roads, less availability of water and can gain job opportunities in the project site.

Codes: people, inconveniences, construction, job opportunities, blocking, roads, less availability of water, project site.

Code Quantity: 7 New Codes: 1

Respondent 7: These people do have less impact than other affected families. They may

face pollution, problem in collection of fodder, road jams and other inconveniences.

Codes: people, less impact, pollution, problem in collection of fodder, road jams, inconveniences.

Code Quantity: 6 New Codes: 2

Respondent 8: Means for new employment opportunities should be provided. Infrastructural development of area roads, electrification, community centre, medical facilities & school colleges get increased.

Codes: employment, opportunities, Infrastructural development, roads, community centre, medical facilities, Schools, colleges.

Code Quantity: 9 New Codes: 1

Respondent 9: Those people whose land has not been acquired are not directly impacted also get indirectly benefitted. They can contribute in the development of project and get employment opportunities.

Codes: people, land, employment, opportunities, project, development. Code Quantity: 6 New Codes: 0

Respondent 10: Those whose land has not been acquired may not have any special impact. But have benefits from area development and employment opportunities.

Codes: people, land, impact, benefits, area development, employment, opportunities. Code Quantity: 7 New Codes: 0

3. Experiences of project development

3.1. What are the various methods employed for treatment of aspirations of stakeholders?

Respondent 1: Following schemes are being run for the project affected families: Technical skill development of local youth, ladies/woman empowerment, scholarships to talented youth, solar lights distribution, toilet construction.

Codes: schemes, technical skill development, woman empowerment, scholarships, talented youth, solar lights distribution, toilet construction. Code Quantity: 7 New Codes: 7

Respondent 2: Proper information about project in public hearing specially its benefits to locals. Implementation of Environment Management Plan measures. Implementation of R&R plan and Mutual agreement between developer and PAFs. Adequate compensation, employment, small works, opportunities for hiring of vehicle / building on rent.

Codes: information, public hearing, benefits, locals, Implementation, Environment Management Plan, R&R plan, Mutual agreement, developer, PAF, Adequate compensation, employment, opportunities, vehicle, building on rent. Code Quantity: 15 New Codes: 15

Respondent 3: Grants for developers in R & R**,** Proper implementation of Environment Management Plan measures. Proper implementation of R&R plan and Mutual agreement between developer and PAFs. Adequate compensation, employment, small works, opportunities for hiring of vehicle / building on rent. Public hearing should be conducted to mitigate the local issues.

Codes: Grants, developers, R &R, Implementation, Environment Management Plan, Mutual agreement, developer, PAF, Adequate compensation, employment, opportunities, vehicle, building on rent, public hearing, mitigate, issues. Code Quantity: 13 New Codes: 7

Respondent 4: For the developers, there should be grant by the Governments for cost towards R&R, road network and area development work which will reduce overall cost of the project and make its tariff competitive and saleable. For stakeholders like Government, they should get royalty share in the overall power generation which they can use for their revenue augmentation purpose. PAF's and other than PAF's residing in

project affected area should be given preferences in employment in various multi-purpose activities carried out by these hydro power projects and discussed above.

Codes: developers, grant, Governments, R&R, road network, area development, tariff competitive, stakeholders, revenue, augmentation, PAF, affected area, preferences, employment, multi-purpose activities, hydro power projects. Code Quantity: 16 New Codes: 7

Respondent 5: Transparency in Implementing R&R Policy and LADF Policy. Detailed study to asses Impact on Environment and society. Proper Implementation of Environment Management Plan. Employment in Project to locals.

Codes: Transparency, R&R, Policy, LADF, Impact, Environment, society, Implementation, Environment Management Plan, Employment, Project, locals. Code Quantity: 12 New Codes: 4

Respondent 6: Conducting public hearing to mitigate the concerns of local. Constant dialogue between project Authorities and local to resolve various issues.

Codes: Conducting public hearing, mitigate, concerns of local, project Authorities, locals, issues. Code Quantity: 6 New Codes: 1

Respondent 7: Environmental Management plan made at the initial planning stage should be implemented in letter and spirit. Transparent and

expeditious implementation of Rehabilitation and resettlement plan as per the notified Policy/guidelines. Arrangement of employment. Award of small works. Opportunities for hiring of vehicle / building on rent. Regular stakeholder consultation.

Codes: Environmental Management plan, Transparent, implementation, R & R, Policy/guidelines, employment, Award, Opportunities, vehicle, building on rent, stakeholder consultation. Code Quantity: 12 New Codes: 1

Respondent 8: Regular meetings are being organised for the fulfilment of aspirations of stakeholders and state/central policies/guidelines are adhered.

Codes: Regular meetings, fulfilment of aspirations, stakeholders, Policy/guidelines, state/central government. Code Quantity: 4 New Codes: 2

Respondent 9: For achieving this, available central and state government policies/guidelines are implemented as per the local area.

Codes: achieving, Policy/guidelines, state/central government. Code Quantity: 3 New Codes: 1

Respondent 10: Policy/guidelines should be followed properly.

Codes: Policy/guidelines, properly. Code Quantity: 2 New Codes: 0

3.2. What do you think about the average time taken for land acquisition?

Respondent 1: 3-4 years. Depends on the support received from the local administration / government departments.

Codes: 3-4 years, Depends, support, local administration, government departments. Code Quantity: 5 New Codes: 5

Respondent 2: 2-3 years

Codes: 2-3 years. Code Quantity: 1 New Codes: 1

Respondent 3: 2-4 years

Codes: 2-4 years. Code Quantity: 1 New Codes: 1

Respondent 4: The average time required for land acquisition varies from size and type/nature of the project. Run of the river small to medium size plant projects, require less land so acquisition can be done within a span of three months. However, for large storage/Dam type projects, land acquisition can be very challenging task and if not professionally pursued with due understanding of the various administrative, Government and legal clearances, it might result in delay of the project on account of land acquisition issue. Therefore, land acquisition in such projects is highly

unpredictable. However, a benchmark time for land acquisition even for large hydro projects should not be more than 1 year.

Codes: average time, size and type/nature, project, small to medium size, three months, large storage/Dam type projects, challenging task, highly unpredictable, 1 year. Code Quantity: 9 New Codes: 9

Respondent 5: Land acquisition in a typical hydro project may take 2- 3 years

Codes: Land acquisition, hydro project, 2-3 years. Code Quantity: 1 New Codes: 2

Respondent 6: 3-4 years

Codes: 3 - 4 years. Code Quantity: 1 New Codes: 0

Respondent 7: 2-4 years.

Codes: 2-4 years. Code Quantity: 1 New Codes: 0

Respondent 8: Land acquisition can be done in 3-4 years.

Codes: Land acquisition, 3-4 years. Code Quantity: 2 New Codes: 0

Respondent 9: Land acquisition process should be completed between 2-3 years.

Codes: Land acquisition, 2-3 years. Code Quantity: 2 New Codes: 0

Respondent 10:3-4 years.

Codes: 3-4 years. Code Quantity: 2 New Codes: 0

3.3. What are the adverse effects of project foreseen by various stakeholders?

Respondent 1: Stakeholder thinks that hydro projects can disturb land use, house property, and natural surroundings in the dam area. Reservoirs created by hydro projects may cover people's homes, vital natural areas, agricultural land, and archeological sites. They do perceive that hydroelectricity may cause changes in reservoir and river stream water quality. Operation of a hydroelectric power plant can alter the temperature of water and the flow of river. These changes can harm natural flora and fauna available in the river and on land which leads to loss of agricultural livelihood.

Codes: Stakeholder, hydro projects, land use, homes, natural habitats, Reservoirs, agricultural land, archaeological sites, stream water quality, river flow, flora and fauna, loss of agricultural livelihood. Code Quantity: 12 New Codes: 12

Respondent 2: Displacement of PAFs. Hydrological imbalance. Social disturbances Frequent landslides. Deforestation due to Hydro Projects. Muck generation.

Codes: Displacement, PAF, Hydrological imbalance, social disturbances, landslides, Deforestation, Hydro Projects, Muck generation. Code Quantity: 8 New Codes: 7

Respondent 3: Displacement of PAFs. Social disturbances Hydro Projects induces landslides and earthquakes. Deforestation also takes place. Resettlement and rehabilitation are also an issue and carried out properly and Dams/barrages acquire a large area which affects the adjoining village to a great extent. Natural water sources also get affected.

Codes: Displacement, PAF, social disturbances, landslides, earthquakes, Deforestation, Hydro Projects, Resettlement and rehabilitation, issue, Dams/barrages, adjoining villages, natural water sources. Code Quantity: 11 New Codes: 6

Respondent 4: The adverse effects of hydro projects foreseen are namely resettlement and rehabilitation issues of the local population of the submergence area, impact on the ecology of the area including its flora and fauna, flooding of the adjoining villages due to seepages from the protection walls or poor design of the Dams/Barrages.

Codes: Hydro Projects, resettlement and rehabilitation, issues, local population, impact, ecology, flora and fauna, flooding, adjoining villages, poor design, Dams/Barrages. Code Quantity: 11 New Codes: 5

Respondent 5: Muck dumping in the vicinity, cutting trees, Drilling and blasting in the Hills. Drinking and Irrigational facilities of the local gets

disturbed. Resettlement & Rehabilitation affects the sentiments of PAFs. River flow gets disturbed.

Codes: Muck dumping, cutting trees, Drilling and blasting, Drinking, Irrigational, facilities, local, Resettlement & Rehabilitation, sentiments, PAF, River flow, disturbed. Code Quantity: 12 New Codes: 6

Respondent 6: Resettlement & rehabilitation of PAFs. Lack of accountability. Landslides, Social disturbance happening because of migration of workers, deforestation, landslides and very ineffective grievance redressal.

Codes: Resettlement & Rehabilitation, PAF, Lack of accountability, landslides, social disturbance, migration of workers, deforestation, ineffective grievance redressal. Code Quantity: 8 New Codes: 3

Respondent 7: Social disturbance arising due to heavy migration of workers. Drying of natural water sources. Deforestation due to cutting of trees. Arbitrary decisions by developers. Environmental degradation. Frequent earth quakes and landslides. Loss of agricultural livelihood. Lack of accountability. Ineffective grievance redressal

Codes: Social disturbance, migrant workers, Drying, natural water sources, Deforestation, cutting of trees, Environmental degradation, earth quakes, landslides, Loss of agricultural livelihood, accountability, Ineffective grievance redressal. Code Quantity: 12 New Codes: 2

Respondent 8: PAFs may have to migrate from ancestral village and agricultural land. Place for resettlement & rehabilitation should have good environment.

Codes: PAF, migrate, village, agricultural land, resettlement & rehabilitation, good environment. Code Quantity: 6 New Codes: 1

Respondent 9: Resettlement and rehabilitation is a big problem and could have a major adverse impact.

Codes: Resettlement and rehabilitation, problem Code Quantity: 2 New Codes: 0

Respondent 10: PAFs forced to migrate which impacts their agricultural livelihood.

Codes: PAF, migrate, impacts, agricultural livelihood. Code Quantity: 4 New Codes: 0

3.4. What are the impacts of Hydro power development on the livelihood of Project Affected Families?

Respondent 1: Hydropower has a positive impact on the livelihood of PAFs. We have observed significant increase in the standard of living of PAFs living in the vicinity of our project due to increase in average annual income. Housing conditions of the affected people have substantially improved. Literacy rate increased. Average spending on food items increased.

Codes: Hydropower, positive impact, livelihood, PAF, increase, standard of living, average annual income, Housing conditions, improved, Literacy rate, spending on food.

Code Quantity: 11 New Codes: 11

Respondent 2: Loss of livelihood for fully affected PAF's because of vacating their habitat and find difficulty in getting occupation. So, government should empathize and adequately compensate the PAFs.

Codes: Loss of livelihood, PAF, vacating, habitat, difficulty, occupation, government, empathize, adequately compensate.

Code Quantity: 9 New Codes: 8

Respondent 3: Most of the PAFs are dependent on agricultural income and hydro projects lead to acquisition of their agricultural land**.** Loss of livelihood for fully affected PAF's and those rendered marginal and also of Shopkeepers, Agricultural labourers.

Codes: agricultural income**,** hydro projects, acquisition, agricultural land, Loss of livelihood, PAF, Shopkeepers, Agricultural labourers.

Code Quantity: 9 New Codes: 5

Respondent 4: With the development of the large hydro projects, it mostly impacts the livelihood of PAFs because at the first instance, they have to vacate their original habitat and dislocate themselves to newer places where such families initially find it difficult to accommodate to the new locations and at times, they find difficulty in pursuing different type of occupation for their living and well-being. So the project developer in coordination with

the Government should empathise with such people and adequately compensate and support them till they stand on their own feet with some confidence and zeal as they were earlier enjoying in their original habitat.

Codes: hydro projects, livelihood, PAF, dislocate, newer places, difficulty, occupation, Government, project developer, empathise, adequately compensate. Code Quantity: 11 New Codes: 3

Respondent 5: Fully affected PAFs lose their livelihood. PAFs bonding with their native villages gets shattered.

Codes: Fully affected, PAF, lose, livelihood, bonding, native villages, shattered. Code Quantity: 7 New Codes: 5

Respondent 6: Loss of livelihood for fully affected PAF's and those rendered marginal and also of local businesses, Shopkeepers, dairy, Agricultural labourers etc.

Codes: Loss of livelihood, fully affected, PAF, Shopkeepers, Agricultural labourers. Code Quantity: 5 New Codes: 2

Respondent 7: PAFs dependent on agricultural income faces loss of livelihood due to acquisition of agricultural land. Agricultural labourers also face loss of livelihood. Local shopkeepers suffer due to loss. Decline in aquatic resources. Reduced forest produce availability, soil erosion, loss of intangible benefits.

Codes: agricultural income, acquisition, agricultural land, Loss of

livelihood, fully affected, PAF, Shopkeepers, Agricultural labourers, Decline in aquatic resources. Code Quantity: 9 New Codes: 2

Respondent 8: PAFs dependent on their agriculture land face problems. Difficulties arises for local business-like dairy, animal husbandry etc.

Codes: agricultural land, PAF, local business, dairy, animal husbandry. Code Quantity: 5 New Codes: 1

Respondent 9: Land acquired for the project is mainly agricultural land. Loss of which creates problem in arranging livelihood for the local people.

Codes: Land acquired, agricultural land, PAF, livelihood, local people. Code Quantity: 5 New Codes: 0

Respondent 10: PAFs who get employment from government from hydro project have substantial increase in the livelihood.

Codes: PAF, employment, government, hydro project, increase, livelihood. Code Quantity: 6 New Codes: 0

3.5. What are the local employment opportunities and other economic benefits brought about by the projects?

Respondent 1: Local population do get benefited from the economic activities going on nearby their living place. Employable population from the affected area do get direct as well indirect employment. Locals also get other benefits such as small contracts for work, hiring of vehicles etc.

Codes: Local population, benefited, economic activities, direct, indirect, employment, small contracts, hiring of vehicles.

Code Quantity: 8 New Codes: 8

Respondent 2: Development of local market. Shopkeepers have good business. Improved infrastructure facilities.

Codes: Development, local market, Shopkeepers, good business, Improved infrastructure facilities.

Code Quantity: 7 New Codes: 7

Respondent 3: Increase in the turnover of local shopkeepers. Improved infrastructure facilities will attract further opportunities. Improved Economic status.

Codes: Increase, turnover, shopkeepers, Improved infrastructure facilities, Opportunities, Improved Economic status.

Code Quantity: 6 New Codes: 4

Respondent 4: These hydro projects being of multi-purpose nature namely generation of power, fulfilling the irrigation needs, leisure tourism, water sports with so many economic outcomes from a single project translate into giving employment in each and every aforesaid activity to the local population and thereby enhancing their per capita income which leads to improved economic status beneficial to the State and to the country.

Codes: hydro projects, multi-purpose nature, generation of power, irrigation needs, leisure tourism, water sports, economic outcomes, local population, employment, per capita income, improved economic status, state, country.

Code Quantity: 12 New Codes: 9

Respondent 5: Employment opportunities in the Project. Award of work and petty contracts under main contractor. Local market grows. Income from rent as well as canteen. Improved infrastructure facilities

Codes: Employment, opportunities, Award of work, petty contracts, Local market, income, rent, canteen, Improved economic status. Code Quantity: 9 New Codes: 6

Respondent 6: Hiring of casual labourers**.** Improved economic status.

Codes: Hiring, casual labourers, Improved economic status. Code Quantity: 3 New Codes: 2

Respondent 7: Fully affected families getting permanent employment. Direct as well as indirect employment for affected area people. Increase in turnover for local shopkeepers. Improvements in tourism and hospitality facilities

Codes: Fully affected families, permanent, employment, direct, indirect, Increase Turnover, shopkeepers, tourism, hospitality facilities. Code Quantity: 10 New Codes: 3

Respondent 8: Award of petty contracts, hiring of vehicle by project authorities, hiring of casual labour and increase in sales of local shopkeepers etc.

Codes: Award, petty contracts, hiring of vehicles, casual labour, increase, turnover, shopkeepers. Code Quantity: 7 New Codes: 0

Respondent 9: Locals get employment as casual labourer; some of them also get permanent employment.

Codes: Locals, employment, casual labourers, permanent. Code Quantity: 4 New Codes: 0

Respondent 10: Work contracts, hiring of vehicles, casual labourers etc.

Codes: Work contracts, hiring, vehicles, casual labourers. Code Quantity: 4 New Codes: 0

4. General response on improper redressal of aspirations and risks associated.

4.1. How do stakeholders react on improper redressal?

Respondent 1: Although we do not face any such issue in our project, however we often hear reports of delay in the construction due to improper grievance redressal. Agitation by locals at times results in stoppage of work.

Codes: delay, construction of project, improper grievance redressal, agitations by locals, stoppage of work. Code Quantity: 4 New Codes: 4

Respondent 2: Agitation by locals and disruption of work at site. Raising demands again and again. Heated arguments with Authority.

Codes: agitation by locals, disruption of work, Heated arguments,

Authority. Code Quantity: 4 New Codes: 3

Respondent 3: Agitation by locals, Disruption of works because of the improper grievance redressal. Therefore, there should be a proper grievance redressal mechanism.

Codes: agitation by locals, disruption of work, improper grievance redressal, grievance redressal mechanism Code Quantity: 4 New Codes: 1

Respondent 4: Stakeholders primarily PAFs at times become aggressive and take too violent and subversive political activities against the project developers which results in delay in completion of the project. This situation primarily arises when there is lack of mutual trust and agreement between the project developer and the project affected people on the issue of compensation. Therefore, a proper redressal mechanism should be commissioned in the country/State to resolve such issues expeditiously because it has been seen that State Governments and/or district administration due to their numerous engagements lack time and proper skill/expertise required in such matters and generally fail in resolving such issues of compensation in a timely manner which is detrimental to the construction programme/schedule of the project.

Codes: Stakeholders, PAFs, aggressive, subversive political activities, project developers, delay, construction of the project, lack, mutual trust, agreement, compensation, proper redressal mechanism, commissioned. Code Quantity: 13 New Codes: 8

Respondent 5: Frequent strike at construction site. Sometimes threatens workers and staff of contractor at site.

Codes: Frequent strike, construction site, threatens workers, staff, constructor. Code Quantity: 5 New Codes: 5

Respondent 6: Stake holders have unjustified demands/benefits. They use wrong ways to achieve it. Create agitation and disruption of works

Codes: Stakeholders**,** unjustified demands/benefits, agitation, disruption of work. Code Quantity: 4 New Codes: 2

Respondent 7: Improper grievance redressal generally enrages affected stakeholders.

Enraged stakeholders may lead to disruption project works directly or indirectly.

Codes: Improper grievance redressal, Stakeholders, disruption, project works. Code Quantity: 4 New Codes: 1

Respondent 8: Stakeholders create hindrances in the project work. They do not cooperate in project work.

Codes: Stakeholders, hindrances, project works. Code Quantity: 3 New Codes: 1

Respondent 9: Stakeholders raise some of their unjustified demands/benefits and uses wrong methods to fulfil/achieve the same, which causes hindrance in the construction work and implementation get delayed and department incurs economical losses.

Codes: Stakeholders, unjustified demands/benefits, hindrances, project works. Code Quantity: 4 New Codes: 0

Respondent 10: Stakeholders exert anger on improper grievance redressal.

Codes: Stakeholders, improper grievance redressal. Code Quantity: 2 New Codes: 0

4.2. What do you think regarding frequency and magnitude of unrests/hinderances?

Respondent 1: It depends on the demography of the region, people management practices and policies followed by the developer and stakeholders. We have not faced much unrests / hindrances in our projects.

Codes: demography of the region, policies, people management practices, developer, stakeholders. Code Quantity: 5 New Codes: 5

Respondent 2: Frequent disruptions of work by locals delay projects execution. Support of local administration is very marginal to control agitation.

Codes: Frequent, Disruptions of work, locals, delay projects, Support, local administration, agitation.

Code Quantity: 7 New Codes: 7

Respondent 3: Very frequent disruptions of work by locals and NGOs which leads to 2-5 years delay in projects. PAFs raise their demands again and again. Support of local administration is very marginal to control agitation.

Codes: Frequent, Disruptions of work, locals, NGOs, 2-5 years, delay, projects, PAFs, demands, Support, local administration, agitation.

Code Quantity: 12 New Codes: 4

Respondent 4: The frequency and magnitude of such unrests and hinderances can be highly disruptive towards development of the project. The aspirations of the PAFs are also fanned by political leaders of the area largely on account of their own vested interest. Therefore, it becomes more of a political issue than an administrative matter.

Codes: frequency, magnitude, hinderances, development, project, PAFs, political issue.

Code Quantity: 7 New Codes: 6

Respondent 5: Both frequency and Magnitude of unrest depends on how Authority /contractor have responded to their previous demands. Also, how effectively local administration handles the situation and the government policies properly implemented.

Codes: frequency, magnitude, Authority /contractor, demands, local

administration, government, policies, properly implemented. Code Quantity: 8 New Codes: 4

Respondent 6: During starting of project frequency and magnitude of unrests/hinderances is on monthly, sometimes twice in a month. Later on, the agitation goes streamline.

Codes: frequency, magnitude, hinderances, agitation, streamline. Code Quantity: 5 New Codes: 2

Respondent 7: It depends on the demography of region, policies of developers, degree of participation of stakeholders, role of local administration etc. We can minimise the chances of unrests / hindrances if government policies are properly implemented.

Codes: demography of region, policies, degree of participation, stakeholders, local administration, hindrances, government, properly implemented. Code Quantity: 8 New Codes: 1

Respondent 8: Policies being properly implemented, demands of PAFs taken care of and degree of participation of local administration helps in minimising hindrances.

Codes: Policies, demands, PAFs, degree of participation, hindrances. Code Quantity: 5 New Codes: 0

Respondent 9: If PAFs demands are done timely as per the policies of Government then hindrances can be prevented.

Codes: Policies, demands, PAFs, hindrances. Code Quantity: 4 New Codes: 0

Respondent 10: Degree of participation of government and local administration can help reduce hindrances.

Codes: Degree of participation, government, local administration, hindrances. Code Quantity: 4 New Codes: 0

4.3. Whether viability of project gets affected from these instances?

Respondent 1: Yes. Unnecessary delay creates significant impact on project cost and at times projects do become unviable.

Codes: Unnecessary delay, impact, cost of the project, unviable. Code Quantity: 4 New Codes: 4

Respondent 2: Yes. Frequent agitation by locals results into cost escalation, sometime Authority has to do some design modification which results time & cost overrun. IDC gets increased which results into higher project tariff.

Codes: Frequent agitation, locals, cost escalation, Authority, design modification, time IDC, over run, increase, higher project tariff. Code Quantity: 10 New Codes: 10

Respondent 3: Yes. Frequent agitation by locals results into cost escalation, Interest during construction (IDC) and increase in project cost, which results into higher project tariff.

Codes: Frequent agitation, locals, cost escalation, Authority, design modification, time over run, project cost, IDC, increase, higher project tariff. Code Quantity: 9 New Codes: 0

Respondent 4: Yes. These instances do make it more and more difficult for project developers to complete the project within stipulated time and budget. Some projects may become unviable due to rapid increase in project cost.

Codes: difficult, project developers, time, budget, projects, unviable, increase, project cost. Coe Quantity: 9 New Codes: 3

Respondent 5: Definitely, such instances lead to loss of huge Man Days. Project cost rises due to time and cost overrun. Contractor has to pay salary for the period in which no work was done. Sometime such unrest delays the supply of materials at site.

Codes: loss, huge man days, time, cost, over run, contractor, salary, delay, supply of materials. Code Quantity: 9 New Codes: 5

Respondent 6: Yes, Interest during construction (IDC) increases which results in increased project cost.

Codes: IDC, increase, project cost.

Code Quantity: 3 New Codes: 0

Respondent 7: It is very likely that such hindrances on account of unrest by local village people result in delay of the project and each day of delay results in increase in project cost of the project by way of IDC. Such delayed projects with passage of time start becoming unviable and result in higher project tariff. Such projects find it difficult to get buyers of their generation resulting in these projects becoming Non-Performing Assets (NPAs).

Codes: local, delay, project cost, IDC, unviable, higher project tariff, Non-Performing Assets.

Code Quantity: 7 New Codes: 1

Respondent 8: These events lead to time and cost over run of project.

Codes: time, cost, overrun.

Code Quantity: 3 New Codes: 0

Respondent 9: Yes. Project time and cost increases because of such events.

Codes: time, cost, Project, increase.

Code Quantity: 4 New Codes: 0

Respondent 10: Yes, to a great extent.

Codes: NA

Code Quantity: 0 New Codes: 0

5. Benefit sharing mechanism in hydro projects

5.1. Are you aware of any benefit sharing mechanism existing in any project in India or abroad?

Respondent 1: Yes. We have implemented benefit sharing mechanism in our various projects. These includes: identifying PAFs, support for income generation schemes, focused community welfare measures, land in lieu of land, continuous health services, Skill upgrading measures, annuity etc.

Codes: Benefit sharing mechanism, implemented, projects, support, income generation schemes, community welfare measures, continuous health services, Skill upgrading measures, annuity, PAFs, land in lieu of land. Code Quantity: 11 New Codes: 11

Respondent 2: In Himachal Pradesh

Codes: Himachal Pradesh. Code Quantity: 1 New Codes: 1

Respondent 3: In Himachal Pradesh

Codes: Himachal Pradesh. Code Quantity: 1 New Codes: 0

Respondent 4: There is an upcoming Kishau multi-purpose hydro power project wherein there is going to be a sharing of electricity generation between the two countries India and Nepal. Also this project will have a water sharing agreement between six northern States namely Delhi, Haryana, Rajasthan, Punjab, Uttar Pradesh and Uttarakhand. Besides, there are number of projects in Bhutan and bordering Bhutan which have generation and water sharing mechanism between India and Bhutan both in terms of sharing of electricity generation and water sharing.

Codes: hydro power project, sharing of electricity generation, water sharing. Code Quantity: 3 New Codes: 3

Respondent 5: Yes. In Himachal Pradesh.

Codes: Himachal Pradesh. Code Quantity: 1 New Codes: 0

Respondent 6: In Himachal Pradesh

Codes: Himachal Pradesh. Code Quantity: 1 New Codes: 0

Respondent 7: Yes. Government of Himachal Pradesh has implemented some local area development fund programme, wherein provision of annuity is there. This program does recognise all kinds of PAFs in the project affected area and all get benefits of annuity on predefined basis.

Codes: Himachal Pradesh, local area development fund programme, annuity, PAFs.

Code Quantity: 4 New Codes: 1

Respondent 8: No.

Codes: NA. Code Quantity: 0 New Codes: 0

Respondent 9: Not aware.

Codes: NA. Code Quantity: 0 New Codes: 0

Respondent 10: Affected villagers in the THDC project got land in lieu of land. Same should be followed everywhere.

Codes: land in lieu of land. Code Quantity: 1 New Codes: 0

5.2. What is your opinion on provisions of LARR 2013 of GoI?

Respondent 1: This LADF policy has improved previously cumbersome and overlong land acquisition process. There are certain modifications related to benefit sharing needs to be implemented in the form of amendment or separate policy.

Codes: LADF, policy, land acquisition process, modifications, amendment.

Code Quantity: 5 New Codes: 5

Respondent 2: More transparency in land acquisition process. Separate R&R package to be framed on project specific basis. Compensation package and clause of land in lieu of land should be framed in easily understandable manner.

Codes: transparency, land acquisition process, R&R package, project specific, compensation package, land in lieu of land. Code Quantity: 6 New Codes: 5

Respondent 3: There should be transparency in land acquisition process. Opinions of community-based organization must be incorporated. R & R should be smooth, easy and economic benefits to be provided.

Codes: transparency, land acquisition process, Opinions, community-based organisations, economic benefits. Code Quantity: 5 New Codes: 3

Respondent 4: LADF is a very big step by the government in land acquisition and includes infrastructural growth and industrialisation in a informed way**.**

Codes: LADF, Step, government, land acquisition, infrastructural growth, industrialisation. Code Quantity: 6 New Codes: 5

Respondent 5: Transparency and increase in Land in lieu of land clause and its applicability should be same for all. Views of PAFs should be included in Policy.

Codes: Transparency, increase, land in lieu of land, PAFs, Views, policy. Code Quantity: 6 New Codes: 4

Respondent 6: This act is a major step by the government to acquire land required for rapid infrastructure growth and industrialisation. Emphasis is given to make acquisition process more humane, participative and informed.

Codes: infrastructure growth, industrialisation, acquisition process, humane, participative, informed. Code Quantity: 6 New Codes: 4

Respondent 7: Should be in favour of PAFs. R & R should be easy and quick.

Codes: favour, PAFs, easy, quick, R & R. Code Quantity: 2 New Codes: 1

Respondent 8: Increase in amount of land compensation in lieu of land.

Codes: Increase, land in lieu of land. Code Quantity: 2 New Codes: 0

Respondent 9: R & R process should be easy and quick and more and correct economic benefit should be provided.

Codes: R & R, easy, quick, economic benefits. Code Quantity: 4 New Codes: 0

Respondent 10: Not aware.

Codes: NA. Code Quantity: 0 New Codes: 0

5.3. What is your opinion about the existing benefit sharing mechanisms?

Respondent 1: We have efficient benefit sharing mechanism for our projects, which is regularly being revised for betterment.

Codes: benefit sharing mechanism, projects, revised, betterment. Code Quantity: 4 New Codes: 4

Respondent 2: Existing mechanisms are inadequate and that to not well implemented. There are lapses on part of compensation and employment opportunities. More focus should be given in providing fair and equitable Benefits to the local communities. Benefit sharing Mechanism should be practical and adaptable management tool. Also the rights of local stakeholders are not identified properly. Benefits are more for fully and partially affected families, whereas, other residents of affected area do not get substantial benefits.

Codes: Existing mechanisms, inadequate, not well implemented, lapses, compensation, employment opportunities, equitable Benefits, local communities, Benefit sharing Mechanism, practical, adaptable, stakeholders, Benefits, fully, partially, affected families, other residents.

Code Quantity: 16 New Codes: 15

Respondent 3: Existing mechanisms are inadequate and that to not well implemented. There are lapses on part of compensation and employment opportunities. Further, existing policies have not looked to find solutions for the local issues. It should be more in favour for PAFs.

Codes: Existing mechanisms, inadequate, not well implemented, lapses, compensation, employment opportunities, existing policies, solutions, local issues, PAFs

Code Quantity: 10 New Codes: 4

Respondent 4: More focus should be given towards fair and equitable benefits of local communities. All the necessities of locals should be identified properly and compensation and employment opportunities should be provided. Fully affected can be considered as co-owners.

Codes: fair, equitable, benefits, local communities, necessities, identified, compensation, employment, opportunities, fully affected, co-owners.

Code Quantity: 10 New Codes: 3

Respondent 5: Benefit sharing Mechanism should redefine the provisions of employment Opportunities and compensation package.

Codes: Benefit sharing Mechanism, employment, Opportunities,

compensation package.

Code Quantity: 4 New Codes: 0

Respondent 6: Long term annuity. In favour of PAFs. Locals should be given permanent/government employment according to age and eligibility for posts.

Codes: Long term annuity, PAFs, Locals, permanent, government, employment, age, eligibility for posts.

Code Quantity: 8 New Codes: 4

Respondent 7: Some flaws are there on part of amount of compensation and employment opportunities. Benefit sharing in the form of annuity to affected families of all types should be made mandatory. Affected families need to be taken as co-owner and should be compensated accordingly.

Codes: Long term annuity, PAFs.

Code Quantity: 2 New Codes: 1

Respondent 8: Benefits should be made available at fast pace.

Codes: Benefits, fast pace.

Code Quantity: 2 New Codes: 1

Respondent 9: Benefit sharing methods needs to be at fast pace to avoid any discontent in locals.

Codes: Benefit sharing, fast pace, locals.

Code Quantity: 3 New Codes: 0

Respondent 10: Employment opportunity should be given equally, whether fully affected or partially. Those affected families which have small children, they should be provided permanent /Government employment on attaining the age as per the eligibility for posts.

Codes: Employment opportunity, fully, partially, affected, permanent, government employment, age, eligibility for posts. Code Quantity: 9 New Codes: 0

6. Suggestions for improvement.

6.1. Based on your experience, share your opinion / suggestions on following benefit sharing measures to address the problems associated with the development of Hydro Electric Projects in Uttarakhand:

6.1.1. Benefits to PAF's throughout the life of the project.

Respondent 1: Yes.

Codes: Yes. Code Quantity: 1 New Codes: 1

Respondent 2: Completion of Project as per given timelines.

Codes: Completion, project, timelines. Code Quantity: 3 New Codes: 3

Respondent 3: Local area development like roads, community halls, educational facilities, parks, schools, ITI colleges, medical facilities and other benefits will greatly help if completion of project as per timelines.

Codes: Local area development, roads, community halls, educational facilities, parks, schools, ITI colleges, medical facilities, benefits, Completion, project, timelines. Code Quantity: 12 New Codes: 9

Respondent 4: Benefits to PAF's in the form of annuity and local area development works throughout the life of the project will definitely help in uninterrupted commissioning of projects.

Codes: Benefits, PAFs, annuity, local area development, uninterrupted, commissioning of projects. Code Quantity: 6 New Codes: 4

Respondent 5: Provide local people employment either on contractual or on regular basis in the company or under main contractor. Provide them free medical facilities or on minimal charges. Build basic infrastructure like roads, community hall, parks. Provide them educational benefits by opening schools, ITI and Professional courses.

Codes: local, employment, contractual, regular, medical facilities, minimal charges, infrastructure, roads, community hall, parks, educational benefits, schools, ITI, Professional courses Code Quantity: 14 New Codes: 8

Respondent 6: Yes, longer term benefits is better approach. It creates feeling of security.

Codes: Longer term, benefits, security.

Code Quantity: 3 New Codes: 2

Respondent 7: Benefits to PAFs can be like giving them fixed quota of free electricity, land for construction of houses and some initial seed capital to start some business/occupation for PAF's. Family bread earner/adults can also be given some preference in employment in the project.

Codes: Benefits, PAFs, free electricity, land, construction of houses, initial seed capital, business/occupation, employment, project.

Code Quantity: 9 New Codes: 5

Respondent 8: Apart from proper compensation, PAFs should be provided with employment for additional income, business opportunities and free electricity.

Codes: compensation, PAFs, employment, additional income, business opportunities, free electricity.

Code Quantity: 6 New Codes: 2

Respondent 9: During the life of PAFs should get employment opportunities along with medical and educational facilities and cultural perspective should also be promoted.

Codes: PAFs, employment, medical, educational, facilities, cultural perspectives.

Code Quantity: 6 New Codes: 1

Respondent 10: Providing employment.

Codes: employment. Code Quantity: 1 New Codes: 0

6.1.2. Benefits to other than PAF's residing in Project Affected Area.

Respondent 1: Some benefits may also be extended to people other than PAF's residing in the Project Affected Area.

Codes: benefits, extended, people, other than PAF's, Project Affected Area. Code Quantity: 5 New Codes: 5

Respondent 2: Benefits should cover wider domain starting from project affected area. It will develop confidence in other people also to support development of Hydro projects.

Codes: benefits, wider domain, Project Affected Area, develop confidence, support, development, Hydro power projects. Code Quantity: 7 New Codes: 5

Respondent 3: Benefits should cover wider domain starting from affected area, and should extend, block wise. First project area, then village, near by villages, district level etc.

Codes: benefits, wider domain, Project Affected Area, block wise, village, surrounding villages, district.

Code Quantity: 8 New Codes: 4

Respondent 4: People other than PAF's residing in project affected areas should also be given some preference in jobs/employment in the projects and if their crop or cattle get adversely affected due to flooding by project reservoir/seepages etc., they should be duly compensated through mutual agreement.

Codes: other than PAF's, project affected areas, employment, projects, crop or cattle, affected, flooding, reservoir/seepages, compensated, mutual agreement.

Code Quantity: 10 New Codes: 10

Respondent 5: They also get Monetary benefits, inclusion in infrastructural development such as good roads, community centre, post office, marriage hall, school, college, medical benefits.

Codes: Monetary benefits, infrastructural development, roads, community centre, post office, marriage hall, school, college, medical benefits.

Code Quantity: 9 New Codes: 9

Respondent 6: Yes, it creates acceptance of project at local level. Will provide benefit from free electricity, tourism development etc.

Codes: acceptance, project, local level, free electricity, tourism, development.

Code Quantity: 6 New Codes: 4

Respondent 7: Development of project does affect population residing in the project affected area either directly or indirectly. Hence, we should extend benefits to all the stakeholders to the extent possible.

Codes: Development, Project, project affected area, directly, indirectly, benefits, stakeholders. Code Quantity: 7 New Codes: 4

Respondent 8: There should be inclusion in Employment opportunities, educational, health, medical benefits, infrastructural development.

Codes: infrastructural development, Employment, opportunities, educational, health, medical benefits. Code Quantity: 6 New Codes: 2

Respondent 9: Emphasis should be given towards employment opportunities, educational and health medical benefits for other persons.

Codes: infrastructural development, Employment, opportunities, educational, health, medical benefits. Code Quantity: 6 New Codes: 0

Respondent 10: Will get benefit from bus, electricity and tourism development.

Codes: benefit, free electricity, tourism, development. Code Quantity: 4 New Codes: 0

6.1.3. Distinction in benefits between BPL and other categories.

Respondent 1: Definitely BPL families should get more benefits in comparison to other categories. Additional benefits like free electricity, help in business/employment, scholarship for study etc.

Codes: BPL families, more benefits, other categories, free electricity, business/employment, scholarship for study. Code Quantity: 6 New Codes: 6

Respondent 2: There should not be any difference in Benefits given to PAFs. It should be strictly on the basis of R&R package.

Codes: Benefits, PAFs, basis, R & R package. Code Quantity: 4 New Codes: 3

Respondent 3: There should not be any difference in Benefits given to PAFs. It should be strictly on the basis of R&R package.

Codes: Benefits, PAFs, basis, R & R package. Code Quantity: 4 New Codes: 0

Respondent 4: I don't propose any distinction in benefits between BPL and other categories among the PAF's or other than PAF's residing in project affected area.

Codes: Benefits, BPL, PAFs, other than PAF's, no distinction. Code Quantity: 4 New Codes: 2

Respondent 5: There should be no distinction.

Codes: no distinction. Code Quantity: 1 New Codes: 0

Respondent 6: Yes, but the benefits should be more intangible.

Codes: benefits, intangible. Code Quantity: 2 New Codes: 1

Respondent 7: BPL should be considered for more benefits in comparison to non-BPL in the same category of affected families.

Codes: BPL, benefits, intangible. Code Quantity: 2 New Codes: 1

Respondent 8: Additional benefits such as more units of free electricity scholarship for study, help in employment/business should be extended to the person below poverty line.

Codes: BPL, benefits, free electricity, scholarship for study, employment/business. Code Quantity: 5 New Codes: 0

Respondent 9: Yes, they should be provided more benefits.

Codes: more benefits. Code Quantity: 1 New Codes: 0

Respondent 10: There should be a distinction and BPL should be provided more benefits.

Codes: distinction, BPL, more benefits. Code Quantity: 3 New Codes: 0

6.1.4. Contribution to local area development works throughout the life of project and the coverage area up to Project Affected Area or Panchayat or Block or District level.

Respondent 1: Contribution to local area development works may extend throughout the life. However, it should be limited to Panchayat or Block level only.

Codes: Contribution, local area development works, throughout the life, limited, Panchayat, Block level Code Quantity: 6 New Codes: 6

Respondent 2: Throughout the life – more in initial years. PAFs and Panchayat should be given preference and Block / District level should also get marginal benefits.

Codes: Throughout the life, more in initial years, PAFs, Panchayat, preference, Block / District, marginal benefits. Code Quantity: 6 New Codes: 6

Respondent 3: Throughout the life – more in initial years. PAF's and Panchayat should be given preference and Block / District level should also get marginal benefits including augmenting of per capita income of people in the project area or Panchayat or Block or District level.

Codes: Throughout the life, more in initial years, PAFs, Panchayat, preference, Block / District, marginal benefits, augmenting, per capita income of people, project area, Panchayat, Block, District level.

Code Quantity: 12 New Codes: 6

Respondent 4: I propose that projects should seriously and diligently pursue corporate social responsibility (CSR) towards villages and its people residing in the vicinity of the project. These projects should develop economic activities voluntarily through skill development programmes, vocational training, distribution of Laptops, mobiles phones, providing network connectivity to the people residing in such areas. These CSR activity fund should be duly and separately allocated in the Books of Account of the project.

Codes: corporate social responsibility, villages, people residing in the vicinity, economic activities, skill development programmes, vocational training, distribution of Laptops, mobiles phones, providing network connectivity, fund, separately allocated, Books of Account.

Code Quantity: 13 New Codes: 13

Respondent 5: Development work should be throughout the life, with more emphasis during initial years. Development should focus more in the project affected area

Codes: Development work, throughout the life, more in initial years, focus, project affected area.

Code Quantity: 5 New Codes: 2

Respondent 6: Yes, development works should focus wider domain like upto block level but primary focus should always be the most project affected area.

Codes: Development work, wider domain, block level, focus, project affected area.

Code Quantity: 5 New Codes: 0

Respondent 7: Benefits accrued from the project should be shared with all the stakeholders throughout the life. However, we may consider comparatively more contribution in initial years i.e. during construction of the project. Project affected area and Panchayat should be in priority. Remaining amount may be utilised for Block level. In case of any left-out amount, district may be considered.

Codes: Benefits, project, stakeholders, throughout the life, more in initial years, Project affected area, Panchayat, Block level, district.

Code Quantity: 9 New Codes: 0

Respondent 8: Infrastructural facilities should be developed with the help of local residents.

Codes: Infrastructural facilities, social residents.

Code Quantity: 2 New Codes: 1

Respondent 9: For this measure for education, health and promotion of culture and employment opportunities needs to be undertaken.

Codes: education, health, promotion of culture, employment, opportunities. Code Quantity: 5 New Codes: 1

Respondent 10: Local area development works in the project affected area should be implemented up to Panchayat or Block level.

Codes: Local area development works, project affected area, Panchayat, Block level. Code Quantity: 4 New Codes: 0

6.1.5. Any other measure.

Respondent 1: Project developers should ensure an emotional connect with the PAFs. Instead of avoiding them, focus should be on inclusion. Respect should be given to the beliefs of local population.

Codes: Project developers, emotional connect, PAFs, beliefs, local population. Code Quantity: 5 New Codes: 5

Respondent 2: Improving the Benefit sharing mechanism and LADF Policy will assist in development of Hydro projects also agitation will be minimised.

Codes: Improving, Benefit sharing mechanism, LADF Policy, development, Hydro projects, agitation, minimised.

Code Quantity: 7 New Codes: 7

Respondent 3: Local agitation must be addressed properly with effective involvement of local administration to avoid any further hindrances.

Codes: Local, agitation, effective involvement, local administration, hindrances. Code Quantity: 5 New Codes: 5

Respondent 4: Local beliefs should be considered strongly. Grievance redressal mechanism should be efficient with local administration included.

Codes: Local beliefs, Grievance redressal mechanism, efficient, local administration Code Quantity: 4 New Codes: 4

Respondent 5: There should be something for employment opportunities and providing better education and medical facilities.

Codes: employment opportunities. Education, medical facilities. Code Quantity: 3 New Codes: 3

Respondent 6: Anticipate the disruption at an early stage which help to tackle the same.

Codes: Anticipate, disruption, early stage.

Code Quantity: 3 New Codes: 3

Respondent 7: Grievance redressal mechanism at the project developer level should be efficient and should keep local administration in loop in case of any major sign of unrest.

Codes: Grievance redressal mechanism, project developer level, efficient, local administration. Code Quantity: 4 New Codes: 1

Respondent 8: No

Codes: NA. Code Quantity: 0 New Codes: 0

Respondent 9: Efforts should be undertaken for generating employment opportunities and special efforts can be made for education and medical facilities.

Codes: employment opportunities, education and medical facilities. Code Quantity: 3 New Codes: 0

Respondent 10: No.

Codes: NA. Code Quantity: 0 New Codes: 0

A4.3 DATA MANAGEMENT, FRAMEWORK ANALYSIS

Sr. no	Transcript	Invivo Codes	Preliminary Thought	Initial Category
1.1	Hydro power projects should be conceived as the energy source of future. non-polluting renewable sources of energy. provide irrigational, drinking water supply facilities and flood control benefits. social, economic & environmental characteristics of a region. Uttarakhand has abundance of water sources therefore tourism, Hydro Power development is the major revenue resource in Uttarakhand. Provide Grid Balancing and stability. interest of nation	Hydro power projects, energy source of future. non-polluting, renewable sources of energy, irrigational, drinking water supply facilities, flood control benefits. social, economic, environmental, characteristics, region, abundance, water sources, tourism, Hydro Power, development, major revenue resource, Uttarakhand. Provide, Grid Balancing, stability, interest of nation	Thoughts about Hydro Power Projects	Hydro projects opinion
1.2	plan, promote and organize the development of all aspects of hydro power projects on behalf of Himachal Pradesh State Government (GoHP) and Himachal Pradesh State Electricity Board (HPSEB) in Himachal Pradesh. rehabilitation works of number of hydro and other infrastructural project. down performance norms & parameters.Development including Design, Engineering Procurement and Construction (EPC) of	plan, promote, organize, development, aspects, hydro power projects on behalf of Himachal Pradesh, State Government (GoHP), Himachal Pradesh State Electricity Board (HPSEB), resettlement & rehabilitation works, hydro, other infrastructural project, performance norms, parameters, Development, Design, Engineering Procurement and	opinion regarding Development of Hydro Power Projects	Development of Hydro projects

	various large thermal projects namely coal based, gas based, circulating fluidized bed bo ilers, cogeneration etc	Construction (EPC).		
1.3	Clean power, Green power, eco-friendly, Zero value in future, offers recreational opportunities, has ability of quick start, shutdown and absorbing instantaneous load discrepancies, Good source of peaking power, grid stability, Water security, River rejuvenation and flood control, water for irrigation from dams, facilitate Socio-economic development of the area, National Security, helping to accelerate the clean energy transition, providing essential power, storage, flexibility and climate mitigation services, are designed to last many decades &, No problem in decommissioning unlike solar power, Canal based solar projects can be established	Clean power, Green power, eco-friendly, Zero value in future, recreational opportunities, capable, quick start, shutdown, instantaneous load variations, Good source, peaking power, grid stability, Water security, River rejuvenation, flood control, water, irrigation, dams, Socio-economic development, project affected area, National Security, accelerate, clean energy transition, essential power, storage, flexibility, climate mitigation services, designed, last many decades, No problem, decommissioning, solar projects, Canal based, established	Advantages of Hydro Power Projects	Advantages of Hydro Power Projects
1.4	impacts aquatic species, Flooding of large areas, Impacts Environment during construction phase, cowshed in the nearby area got damaged due to blasts for construction of	impacts, aquatic species, Flooding, large areas, Environment, construction phase, cowshed, nearby area, damaged, blasts, construction of project,	Disadvantages of Hydro Projects	Disadvantages of Hydro Projects

	project, involuntary displacement takes place, disturbs the flow of river apart from guidelines to maintain flow of river, Water quality gets deteriorated, serious geological damage, involves Huge capital cost, longer gestation period, Displacement of locals in case of large dam-based projects, Due to higher costs of construction tariff rate is also high & Reservoirs created due to hydro projects do release methane gas, Cost and time over run. Daily life also got affected (by landslides during monsoon) due to weakening of mountains, resettlement and rehabilitation	involuntary displacement, disturbs, flow of river, guidelines, maintain, flow of river, Water quality, deteriorated, serious geological damage, Huge capital cost, longer gestation period, Displacement of locals, large dam-based projects, higher costs of construction, tariff rate high, Reservoirs, hydro projects do release, methane gas, Cost, time over run. Daily life, affected, landslides, weakening of mountains, resettlement and rehabilitation		
1.5	GoI will achieve the said target of 175 GW renewable. 175 GW from renewable energy looks tough, 101 GW is already installed and work on 50 GW is under progress. Can be achieved if preference given to delayed hydro projects. 100 GW has been allocated to solar power development which in a country like India having large barren/dessert areas and having good solar	GoI, achieve, target, 175 GW, renewable, 101 GW, installed, 50 GW, under progress, if preference, delayed hydro projects, 100 GW, allocated, solar power, development.	Opinion about GOI Target	GOI target opinion

	intensity throughout the year			
2.1	apprehensions related to landslides, cracks in houses and ill effects to the environment, complaints related to impact of construction activities on crops and cattle, creates problem in availability of fodder for the animals, Increase in sedimentation through DAM based Projects, Change in Hydrological regime, Biodiversity loss, Change river water quality, Continuity of river gets disturbed, impacts the locals massively, Blasting and drilling for tunnel disturbs the geology, construction of roads and power lines, loss of vegetation, pollution–noise, air, water, land. Slope destabilisation due to loss of tree cover Muck disposal in the vicinity, Secondary effects (earthquake risks, floods, land use change) Projects decreases natural greenery in the vicinity. This can very well be taken care of by planting trees of atleast equal number of trees which had to be fell while development of the	apprehensions, landslides, cracks in houses, ill effects, environment, complaints, impact, construction activities, crops and cattle, problem, availability of fodder, Increase, sedimentation, DAM based Projects, Change, Hydrological regime, Biodiversity loss, river water quality, Continuity of river, disturbed, locals, Blasting and drilling, tunnel, disturbs geology, construction of roads, power lines, loss of vegetation, pollution–noise, air, water, land. Slope destabilisation, loss of tree cover, Muck disposal, Secondary effects, earthquake risks, floods, land use change, hydro Projects, decreases, natural greenery, planting trees equal number of trees, development, project, waste/effluent or oil from coolers, other equipment, river or canal, prevented, reduce contamination.	Various concerns related to environment	Environmental Issues

	project. Also any waste/effluent or oil from coolers and other equipment which might seep into the river or canal should be prevented or well treated so as to reduce contamination of such water bodies/ system.			
2.2	Impact on cultural aspects due to invasion of outsiders, Social and religious faiths get vanished due to rehabilitation of village, Disputed affected families recognition process, Contribution in social and religious events, infrastructural facilities, Sanctity of religious beliefs should be maintained, Low value of land in hilly regions resulting less compensation, Non-existent, delayed, inadequate or badly-defined eligibility criteria, Lack of transparent benefit sharing process, Normal life of the locals should remain unaffected from construction. Alternate source of water supply (drinking and irrigation), Beautification and development of Temples, Bathing Ghats and cremation grounds, Dispensary and Hospitals should be created in the	Impact, cultural aspects, invasion of outsiders, Social, religious faiths, vanished, rehabilitation of village, affected families, recognition process, Contribution, social and religious events, infrastructural facilities, Sanctity, religious beliefs, maintained, Low value of land, hilly regions, less compensation, Non-existent, delayed, inadequate, badly-defined eligibility criteria, Lack, transparent benefit sharing process, locals, remain unaffected, construction. Alternate source of water supply,drinking, irrigation, Beautification, development of Temples, Bathing Ghats, cremation grounds, Dispensary, Hospitals, cultural, religious occasions, bathing, other purposes, sufficient	Concerns related to Social and Religious issues	Social & Religious issues

	area, During cultural and religious occasions, for bathing and other purposes sufficient water should be released from the project downstream into the river, Development of playground & sports facilities, Construction of access roads, bridges and development of drainage system, Infrastructure for professional courses such as ITI & Polytechnic College should be created in the area	water, project, downstream, river, Development, playground, sports facilities, Construction, access roads, bridges, drainage system, Infrastructure, professional courses, ITI, Polytechnic College.		
2.3	Employment preferably direct, Better compensation package, Adequate and timely compensation, Land in lieu of land acquired, Provision of free electricity for affected families, Share in execution of project works as per the ability of locals, Policy for LADF should be made more in favour of locals, Annuity should be such that PAFs accept it without any difficulty, Awarding contract of office canteen and shops in transit to Locals, local people as construction workers, Financial assistance in construction of house to PAFs, Hiring of vehicles for the project activities local people	Employment, preferably direct, Better compensation package, Adequate and timely compensation, Land in lieu of land acquired, Provision, free electricity, PAFs, Share, execution, project works, the ability, locals, Policy, LADF, favour, locals, Annuity, accept, contract, office canteen, shops in transit to Locals, construction workers, Financial assistance, construction, house, Hiring of vehicles, Access, natural resources, health, education facilities.	Concerns related to monetory/economic benefit	Economic/Monetory Issues

	should be given preference, Access to natural resources, health and education facilities			
2.4	These people do create major hindrances, to face various disturbances attributable to the development process, noise pollution, road obstruction, blasting sound, ecological / social changes, engaging them in project development activities depending on their capabilities, face pollution, problem in collection of fodder, road jams and other inconveniences	people, create, hindrances, disturbances, attributable, development process, noise pollution, road obstruction, blasting sound, ecological, social changes, engaging, project development activities, capabilities, face pollution, problem in collection of fodder, road jams, other inconveniences	Impact on People whose land is not acquired	Impact on People whose land is not acquired
3.1	Regular stakeholder consultation, Conducting public hearing to mitigate the concerns of local, Technical skill development of local youth, Ladies woman empowerment, Scholarships to talented youth, Solar lights distribution, Toilet construction, be grant by the Governments for cost towards R&R, R&R plan and Mutual agreement between developer and PAFs, Adequate compensation, employment, small works, opportunities for hiring of	Regular stakeholder consultation, Conducting public hearing, mitigate, concerns, locals, Technical skill development, youth, Ladies woman empowerment, Scholarship, talented youth, Solar lights distribution, Toilet construction, grant by the Governments, cost, R&R plan, Mutual agreement, developer, PAFs, Adequate compensation, employment, small works, opportunities,	Methods for stakeholder aspirations	Stake holder aspirations Fullfilment

	vehicle / building on rent, Environmental Management plan made, Arrangement of employment, Award of small works	hiring of vehicle, building on rent, Environmental Management plan, employment, Award of small works		
3.2	hydro projects can affect land use, homes, and natural habitats in the dam area. Reservoirs may cover people's homes, important natural areas, agricultural land, and archaeological sites. They do perceive that hydroelectricity can cause changes in reservoir and stream water quality. land acquisition varies from size and type/nature of the project. Run of the river small to medium size plant projects, require less land so acquisition can be done within a span of three months subject to proper understanding of the various administrative, Government and legal clearances by the developer of such projects. However, for large storage/Dam type projects, land acquisition can be very challenging task and if not professionally pursued with due understanding of the various administrative, Government and legal clearances, it might result in delay of the project on	hydro projects, affect, land use, homes, natural habitats, dam area. Reservoirs, cover, people's homes, natural areas, agricultural land, archaeological sites, perceive, hydroelectricity, changes, reservoir, stream water quality. land acquisition, size, type/nature, project. Run of the river, small to medium size plant projects, less land, acquisition, three months, administrative, Government, legal clearances, developer, large storage/Dam type projects, land acquisition, challenging task. 2-4 years, highly unpredictable.	Average time for land Acquisation	Land Acquisation time

	account of land acquisition issue. 2-4 years. Therefore, land acquisition in such projects is highly unpredictable. However, a benchmark time for land acquisition even for large hydro projects should not be more than a year			
3.3	affect land use, homes, and natural habitats in the dam area. Reservoirs may cover people's homes, important natural areas, agricultural land, and archaeological sites. cause changes in reservoir and stream water quality, may alter the water temperature and the river's flow, may harm native plants and animals in the river and on land. Displacement of PAFs, Hydrological imbalance, Social disturbances, Frequent land slides due to deforestation, Muck generation, Frequent earth quakes and landslides, Loss of agricultural livelihood	affect land use, homes, natural habitats, dam area, Reservoirs, cover people's homes, natural areas, agricultural land, archaeological sites, changes in reservoir, stream water quality, may alter the water temperature, the river's flow, harm native plants, animals, river, land. Displacement, PAFs, Hydrological imbalance, Social disturbances, Frequent land slides, deforestation, Muck generation, Frequent earth quakes, Loss of agricultural livelihood	Adverse effects foreseen by stakeholders	Effects on stakeholders
3.4	positive impact on the livelihood of PAFs, Families who get the government / permanent jobs from hydroelectric project have substantial increase in the livelihood significant increase in the	positive impact, livelihood of PAFs, government, permanent employment, hydroelectric project, livelihood, increase, standard of living, PAFs, increase, average	Impact on Livelihood	Impact on Livelihood

	standard of living of PAFs due to increase in average annual income, Housing conditions of the affected people have substantially improved, Literacy rate increased, Loss of livelihood, Shopkeepers, Agricultural labourers, Reduction in farm production, Decline in aquatic resources, Reduced forest produce availability, soil erosion, loss of intangible benefits. bonding with their native places gets shatter, Difficulties arises for local business like dairy farming, animal husbandry	annual income, Housing conditions, improved, Literacy rate increased, Loss of livelihood, Shopkeepers, Agricultural labourers, Reduction, farm production, Decline in aquatic resources, Reduced forest produce availability, soil erosion, loss of intangible benefits, Difficulty, local business, dairy farming, animal husbandry.		
3.5	Local population do get benefited from the economic activities going on nearby their living place, well indirect employment opportunities, as small contracts for work, hiring of vehicles, Development of local market, Improved infrastructure facilities, Increase in the turnover of local shop owners, Fully affected families getting permanent employment,	Local population, benefited, economic activities, living place, indirect employment, opportunities, contracts for work, hiring of vehicles, Development, local market, Improved infrastructure facilities, Increase, turnover, local shop owners, Fully affected families, permanent employment.	Local Employement Opportunities & other economic benefit	Local Employement Opportunities & other economic benefit
4.1	reports of delay in the construction due to improper redressal, Agitations by locals at	reports, delay, construction, improper redressal, Agitations, locals, stoppage of	Improper Redressel	Improper Redressel

	times results in stoppage of work. Raising unjustified demands, Heated arguments with Authority. State Governments and/or district administration due to their numerous engagements lack time and proper skill/expertise required in such matters fail in resolving such issues of compensation in a timely manner which is detrimental to the construction programme/schedule of the project. a proper redressal mechanism should be commissioned in the country/State	work, Raising unjustified demands, Heated arguments, Authority. State Governments, district administration, engagements, lack time, proper skill/expertise required, compensation, timely manner, detrimental, construction programme/schedule project, a proper redressal mechanism, commissioned.		
4.2	depends on the people management practices followed by the developer demography of region, policies of developers, degree of participation of stakeholders, role of local administration. locals delay projects execution. Support of local administration is very marginal to control agitation	depends people management practices, developer, demography of region, policies, developers, degree of participation, stakeholders, role, local administration, locals, delay, projects execution. Support, local administration, marginal, control agitation	Frequency & Magnitude of hindrances	Frequency & Magnitude of hindrances
4.3	impact on cost of the project and at times projects do become unviable, loss of huge Man Days, unrest delays the supply of materials at site, Authority has to do	impact, project cost, unviable, loss, huge Man Days, unrest delays, supply of materials, Authority, modification in design, time over run, IDC,	Viability of project	Project Viability

	some modification in design which results time over run, IDC gets increased which results into higher project tariff	iincreased, higher project tariff		
5.1	support for income generation schemes, focused community welfare measures, continuous health services, Skill upgrading measures, provision of annuity, land in lieu of land,	support, income generation schemes, focused community welfare measures, continuous health services, Skill upgrading measures, provision of annuity, land in lieu of land.	Existing Benefit sharing mechanism in India	Benefit sharing Mechanism
5.2	certain modifications related to benefit sharing needs to be implemented in the form of amendment or separate policy, More transparency in land acquisition process. Separate R&R package to be framed on project specific basis, Compensation package and clause of land in lieu of land should be framed in easily understandable manner, Opinions of community-based organization must be in corporated a major step by the government to acquire land required for rapid infrastructure growth and industrialisation, Views of PAFs should be included in Policy, Amount of land compensation in lieu of	modifications, benefit sharing, implemented, amendment, separate policy, transparency, land acquisition process. Separate, R&R package, project specific basis, Compensation package, clause, land in lieu of land, easily understandable manner, Opinions, community-based organization, corporated, government, acquire land, rapid infrastructure growth, industrialisation, Views of PAFs, Policy, land compensation, land in lieu of land, increased	LARR 2013 opinion	LARR 2013

	land should be increased			
5.3	**e**fficient, regularly being revised for betterment, not well implemented, lapses on part of compensation and employment opportunities, providing fair and equitable Benefits to the local communities, rights of local stakeholders are not identified properly, residents of affected area do not get substantial benefits, existing policies have not looked to find solutions for the local issues, Affected families need to be taken as co-owner and should be compensated accordingly. Employment opportunity should be given equally, whether fully affected or partially	**e**fficient, regularly, revised, betterment, implemented, lapses, compensation, employment opportunities, providing fair, equitable Benefits, the local communities, rights, local stakeholders, not identified properly, residents, affected area, no, substantial benefits, existing policies, no solutions for the local issues, Affected families, co-owner, compensated, Employment, opportunity, equally, fully affected, partially.	Benefit sharing in practice	Benefit sharing in practice
6.1	Will greatly help in timely completion of project, uninterrupted commissioning of projects, local people jobs either on contractual or on regular basis in the company or under main contractor, Medical facilities free of cost or on minimal charges, basic infrastructure like roads, community hall, parks, Educational benefits by opening schools, ITI and	timely completion, project, uninterrupted commissioning of projects, local people, employment, contractual, regular basis, Medical facilities, free of cost, minimal charges, infrastructure, roads, community hall, parks, Educational benefits by opening schools, ITI, Professional courses. business opportunities,	Benefits to PAF Through out life	PAF Benefits

	Professional courses. business opportunities and free electricity.	free electricity.		
6.2	effect population residing in the project area either directly or indirectly, will develop confidence in other people also to support development of Hydro projects, Will get benefit from bus, electricity and tourism development, good roads, community centre, post office, marriage hall, school, college, employment opportunities, educational and health medical benefits for other persons, duly compensated through mutual agreement for loss of cattle and crop due to floods.	population, project area, directly, indirectly, develop confidence, people, support development, Hydro projects, benefit bus, electricity, tourism development, good roads, community centre, post office, marriage hall, school, college, employment opportunities, educational, health medical benefits, compensated, mutual agreement, loss, cattle, crop, floods.	Benefits to other than PAFs	Benefits to other than PAFs
6.3	**:** BPL families should get more benefits in comparison to other categories, benefits should be more intangible, Additional benefits such as more units of free electricity scholarship for study, help in employment/business,	BPL families, more benefits, other categories, benefits, intangible, Additional benefits, free electricity, scholarship for study, help in employment/business.	Distinction in benefits for BPL	BPL Benefits
6.4	Contribution to local area development works may extend throughout the life, more in initial years, limited to Panchayat or Block level only, projects should develop economic	Contribution, local area development works, throughout the life, more, initial years, limited, Panchayat, Block level, projects, develop economic	Contribution to Local area development works	Local Area developm ent

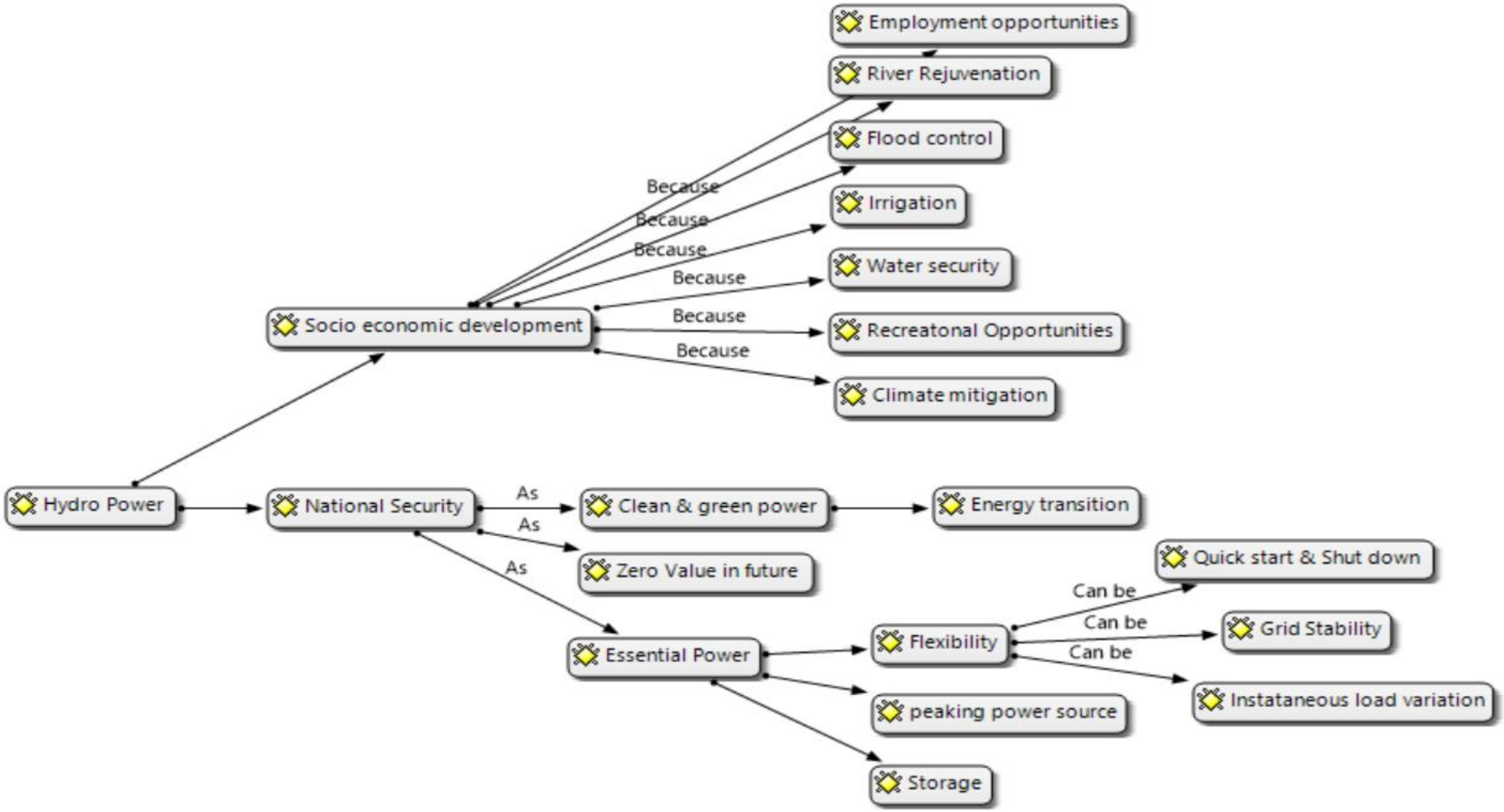
	activities voluntarily through skilled development programmes, vocational training, distribution of Laptops, mobiles phones, providing network connectivity to the people residing in such areas, CSR activity fund should be duly and separately allocated in the Books of Account of the project.	activities, skilled development programmes, vocational training, distribution of Laptops, mobiles phones, providing network connectivity, CSR activity fund, separately allocated, Books of Account, hydro project.		

A4.4 DESCRIPTIVE AND EXPLANATORY ACCOUNTS

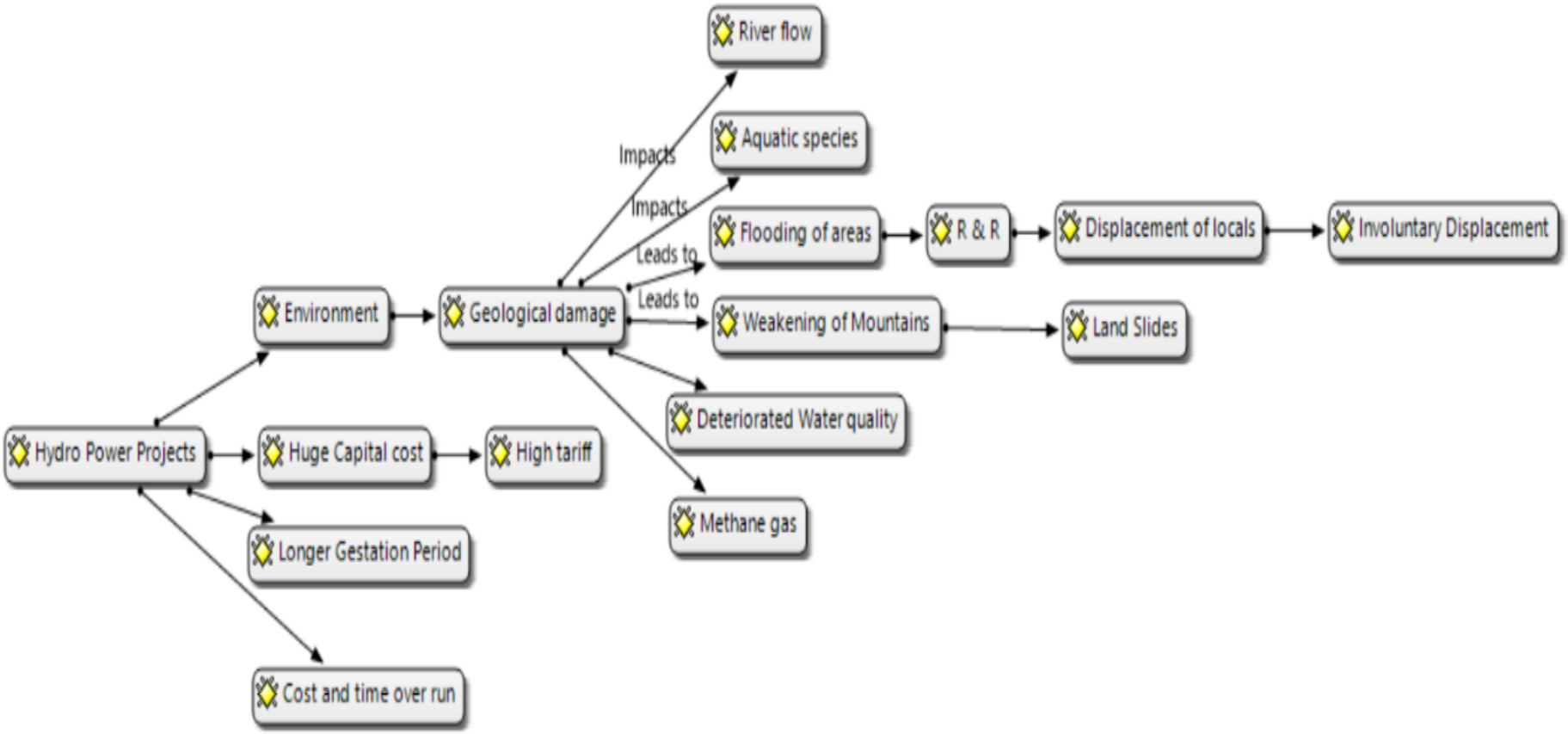
Initial Category	Final category	Initial Themes	Final Themes
Hydro projects opinion	Development of Hydro projects	Development of Hydro projects	Advantages & Disadvantages of Hydro power Projects
Development of Hydro projects			
Advantages of Hydro Power Projects	Advantages and Disadvantages of Hydro projects	Advantages and Disadvantages of Hydro projects	
Disadvantages of Hydro Projects			
GOI target opinion	GOI target opinion		
Environmental Issues	Environment Issues	Environmental/Social/economic Issues	Social & Environmental Impacts due to hydro power project
Social & Religious issues	Social & Religious issues		
Economic/Monetory Issues	Economic/Monetory Issues		
Impact on People whose land is not acquired	Impact on People whose land is not acquired	Impact on People whose land is not acquired	
Stake holder aspirations Fullfilment	Stake holder aspirations Fullfilment	Stake Holder aspiration fulfilment	Impact of PAF on Hydro power Projects
Land Acquisation time	Land Acquisation time		
Effects on stakeholders	Impact on livelihood of stakeholders		
Impact on Livelihood			
Local Employment Opportunities & other economic benefit	Local Employment Opportunities & other economic benefit		
Long term benefit or benefits throughout project life.			
Inadequate Redressal	Experiences of Project development	Experiences of Project development	Inadequate redressal of aspirations and Risk Associated
Frequency & Magnitude of hindrances			
Project Viability			
Benefit sharing Mechanism	Benefit Sharing Mechanism	LARR 2013 & Benefit Sharing Mechanism	Benefit sharing Mechanism for Hydro power Projects
Benefit sharing in practice			
LARR 2013	LARR 2013		
PAF Benefits	Benefits to PAF/Non PAFs and BPL	Suggestions for existing benefit sharing	
Benefits to other than PAFs			
BPL Benefits			
Local Area development	Local Area development		

A4.5 RELATIONSHIP DIAGRAMS

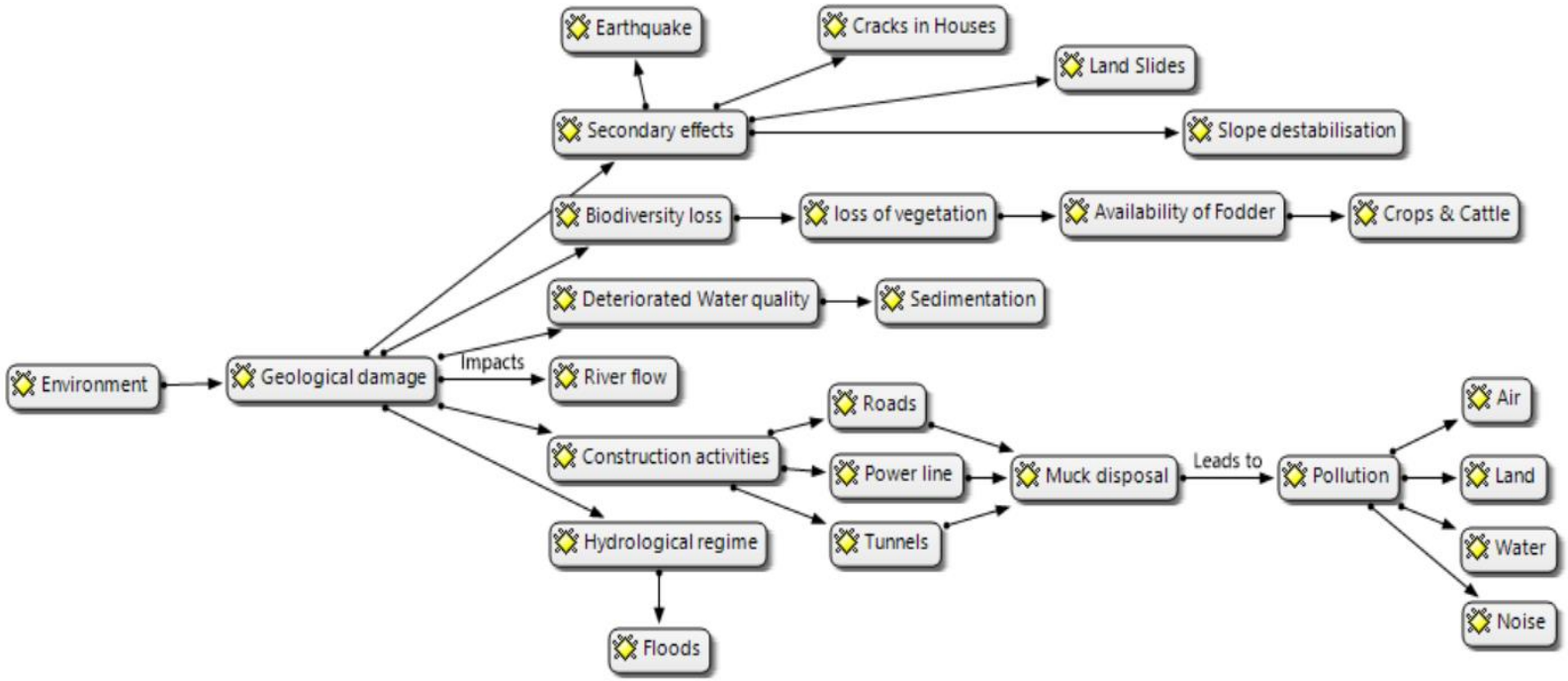
1. **Benefits of Hydro Projects**:



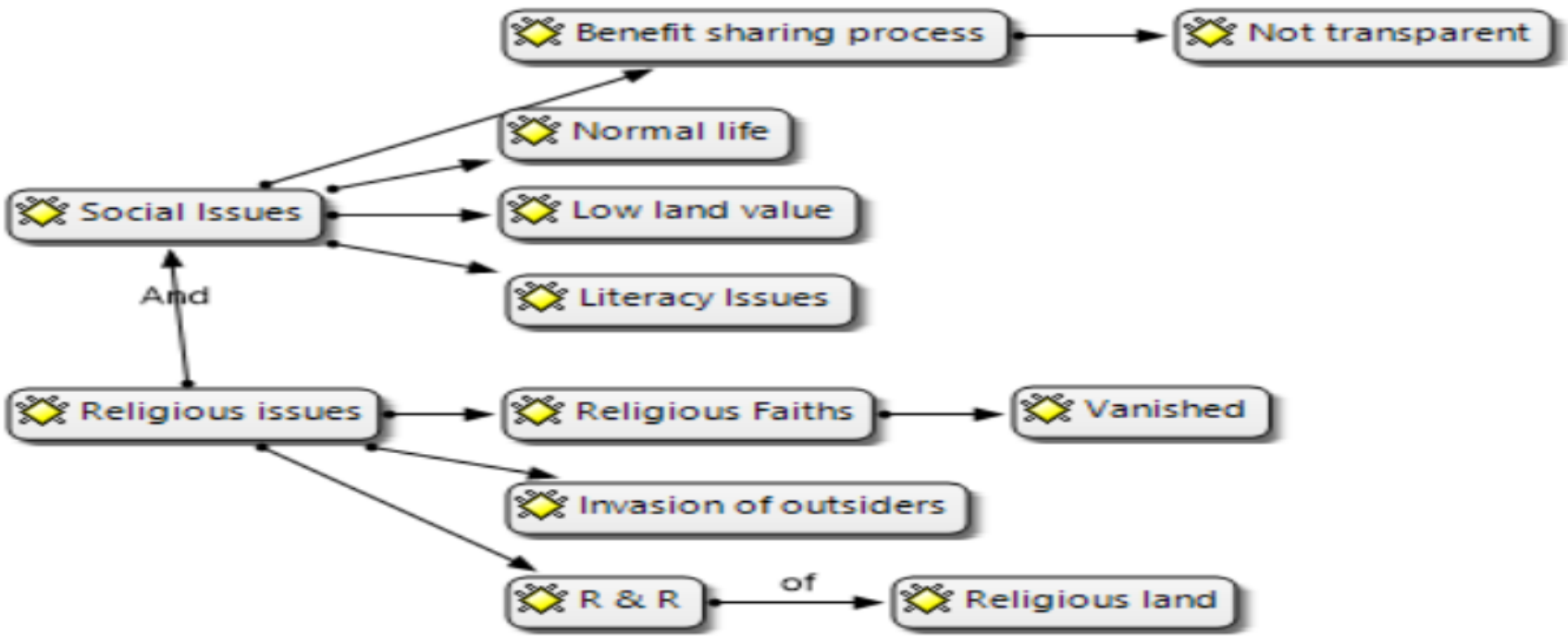
2. **Disadvantages of Hydro projects**



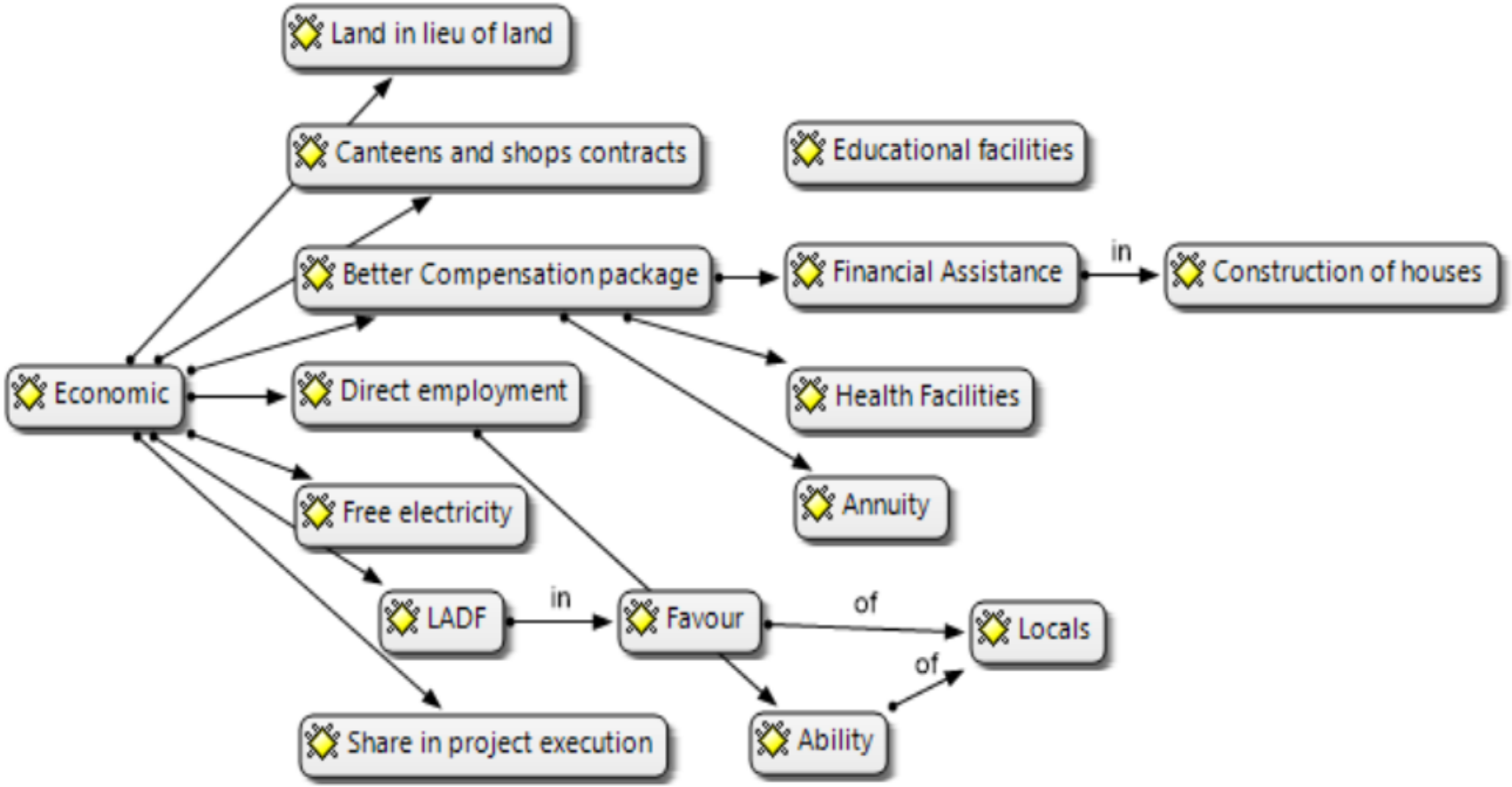
3. **Aspirations/Concerns Related to environment**



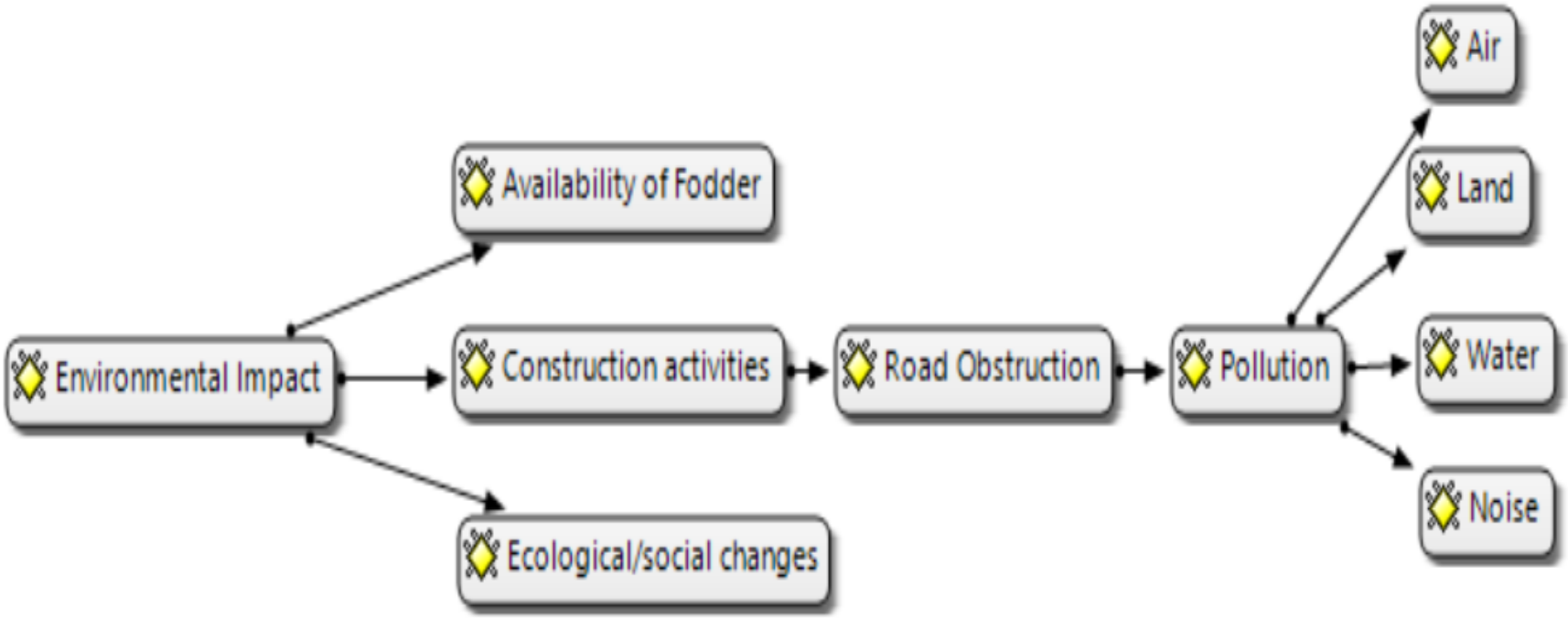
4. **Social and religious issues**



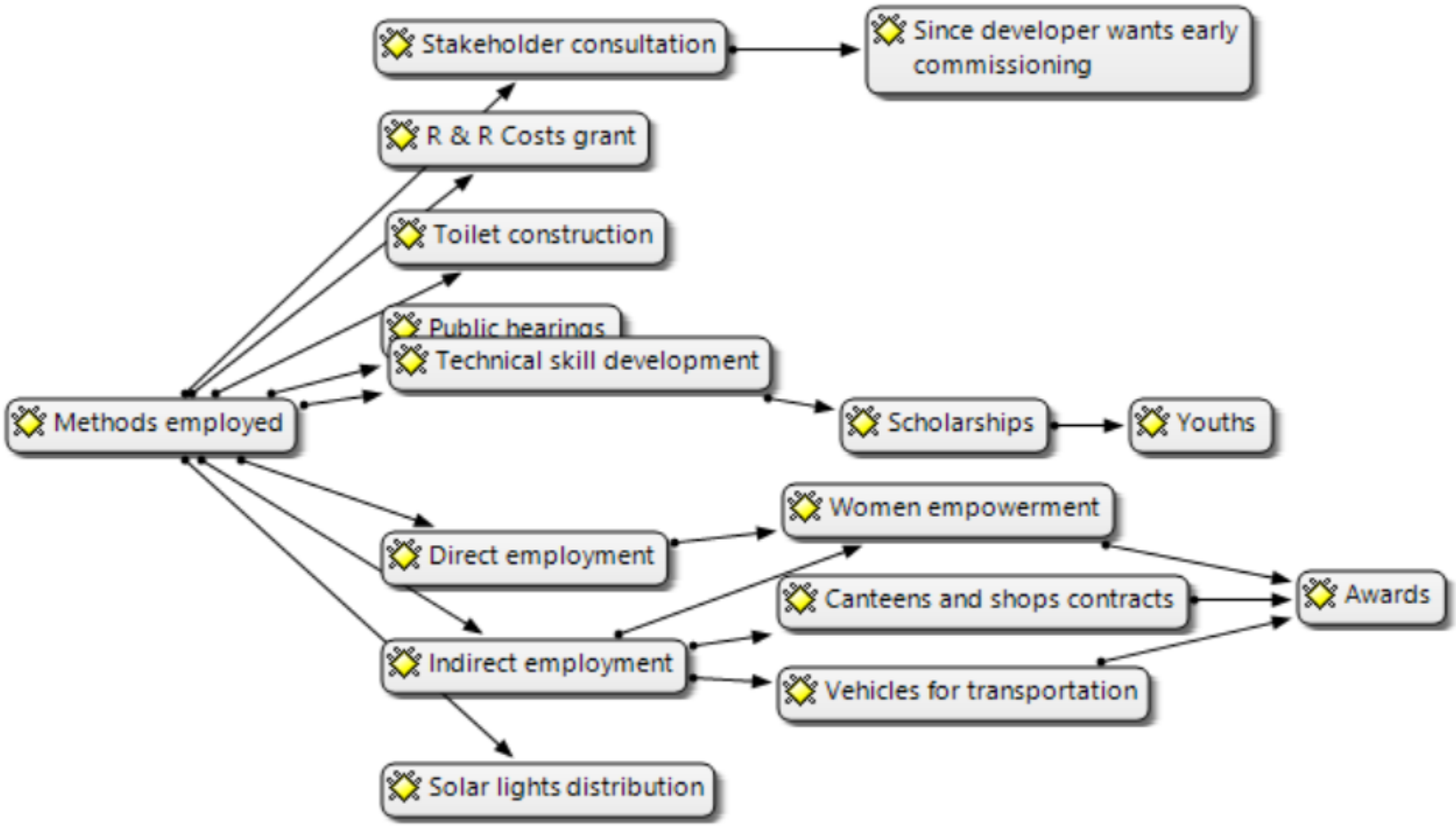
5. **Concerns related to Monetary / Economic benefits**



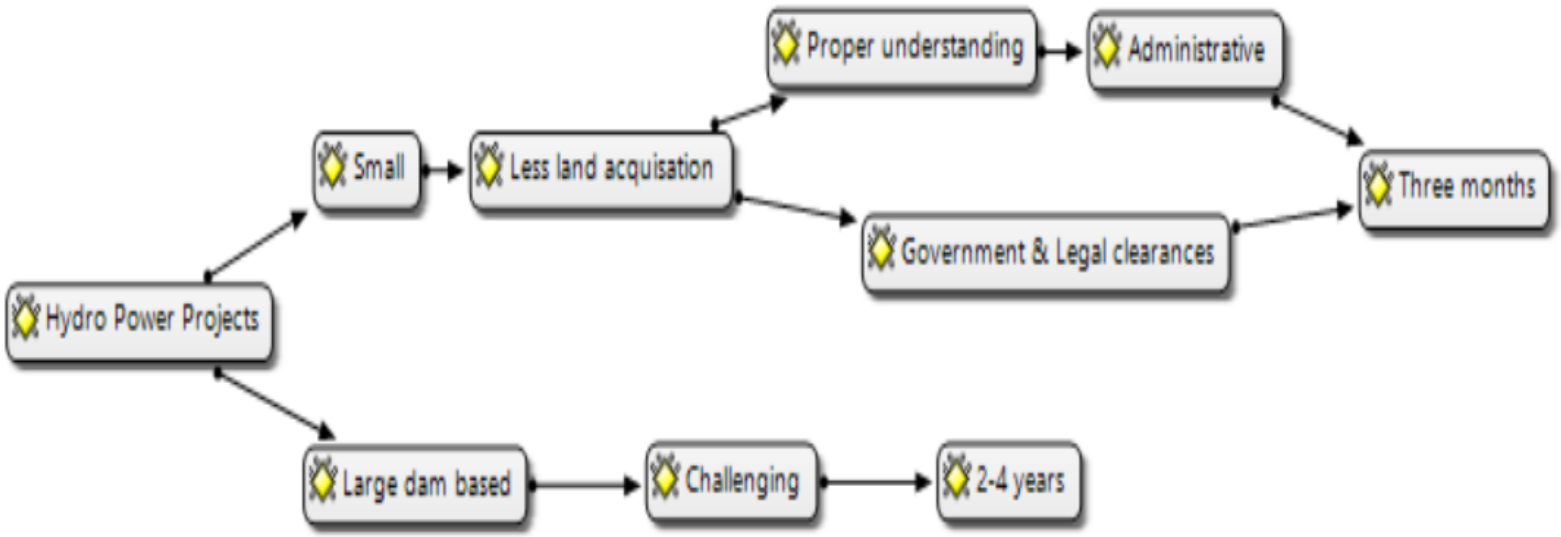
6. **Impact on people whose land is not acquired**:



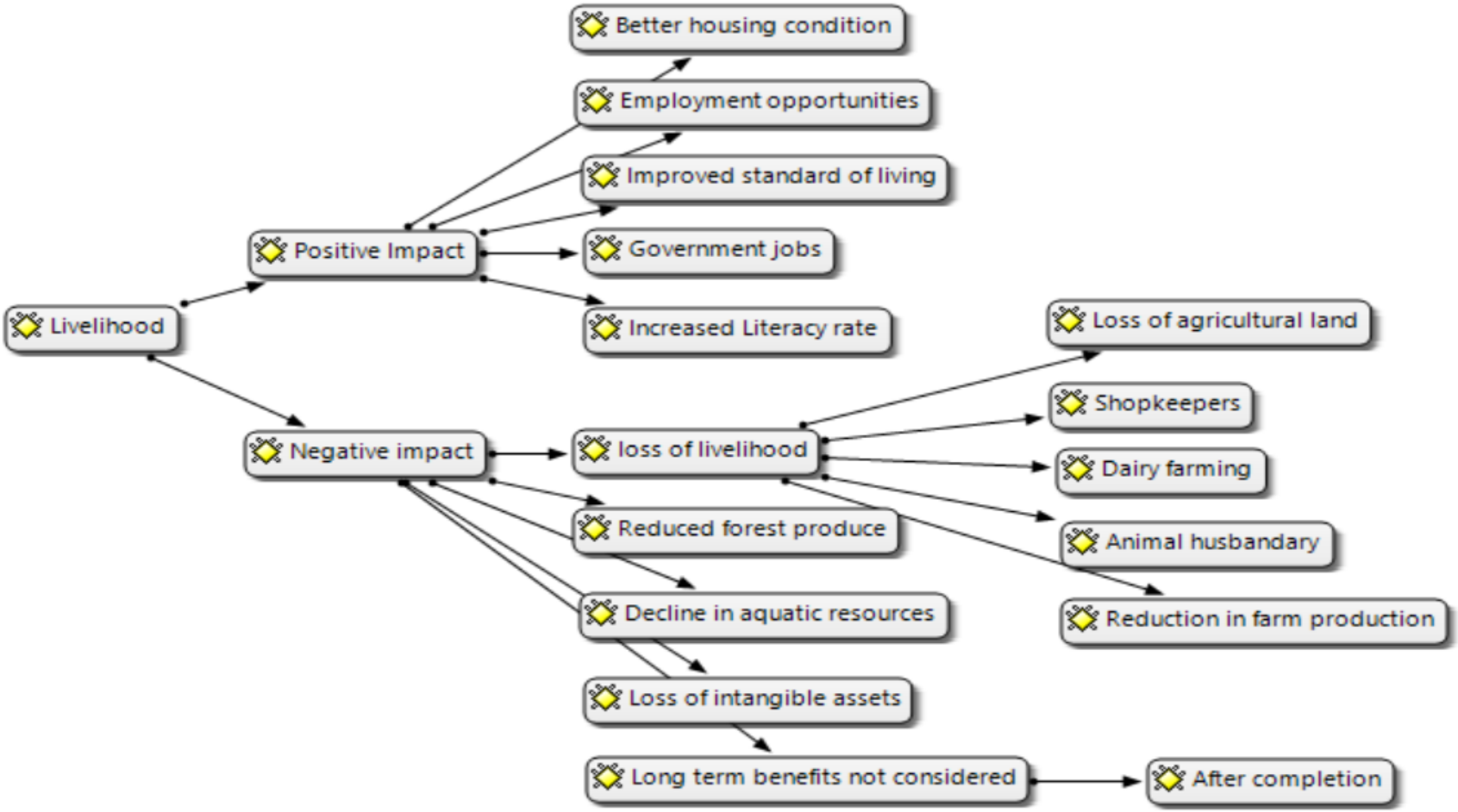
7. **Methods employed for treatment of aspirations of stakeholders**



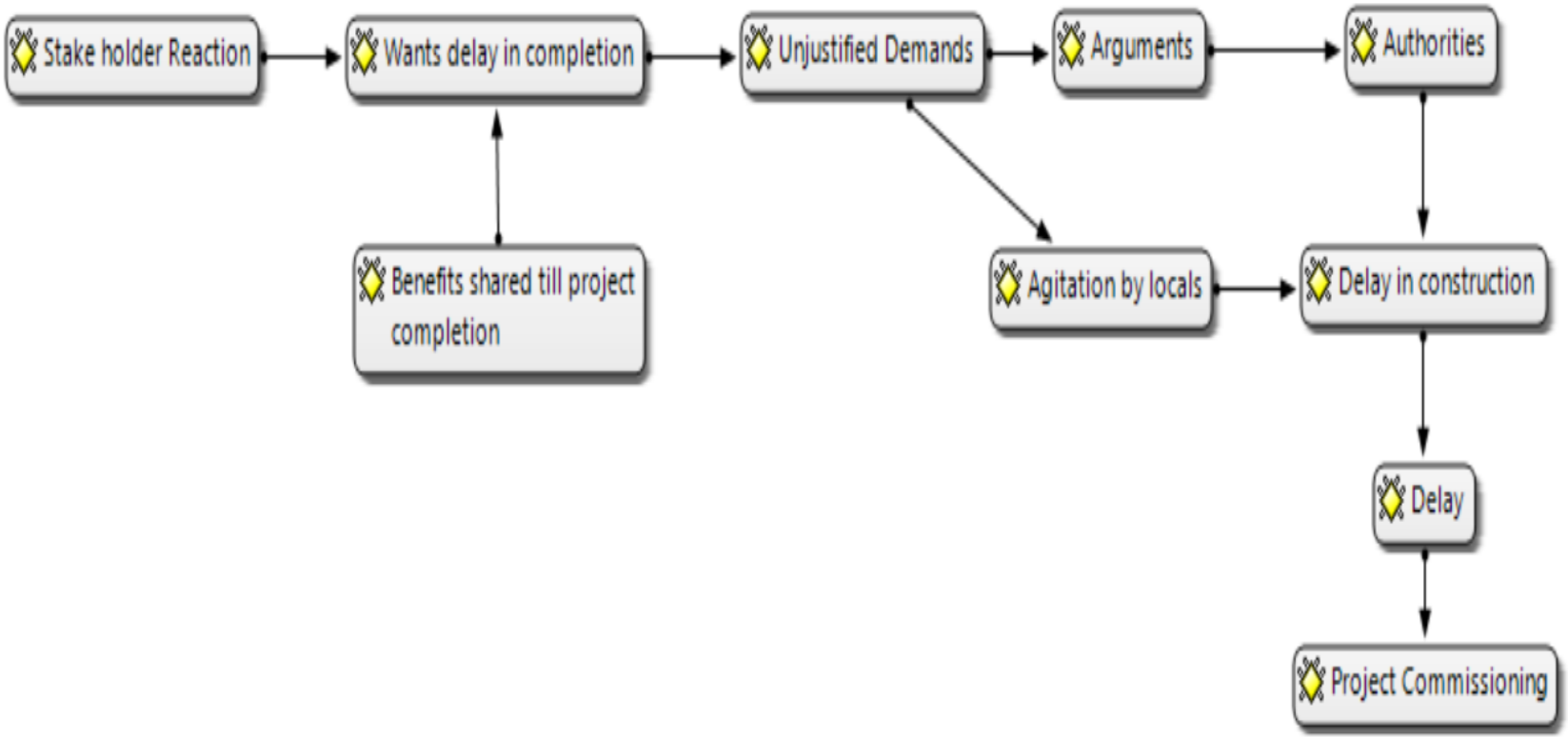
8. **Average time taken for land acquisition**



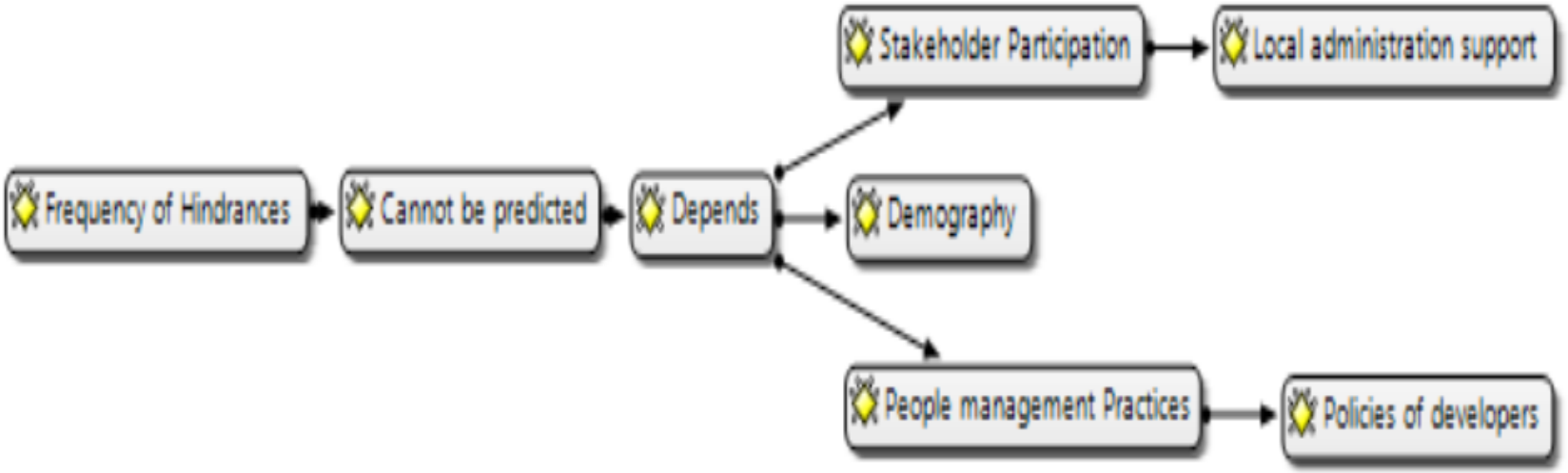
9.**Impact on Livelihood**



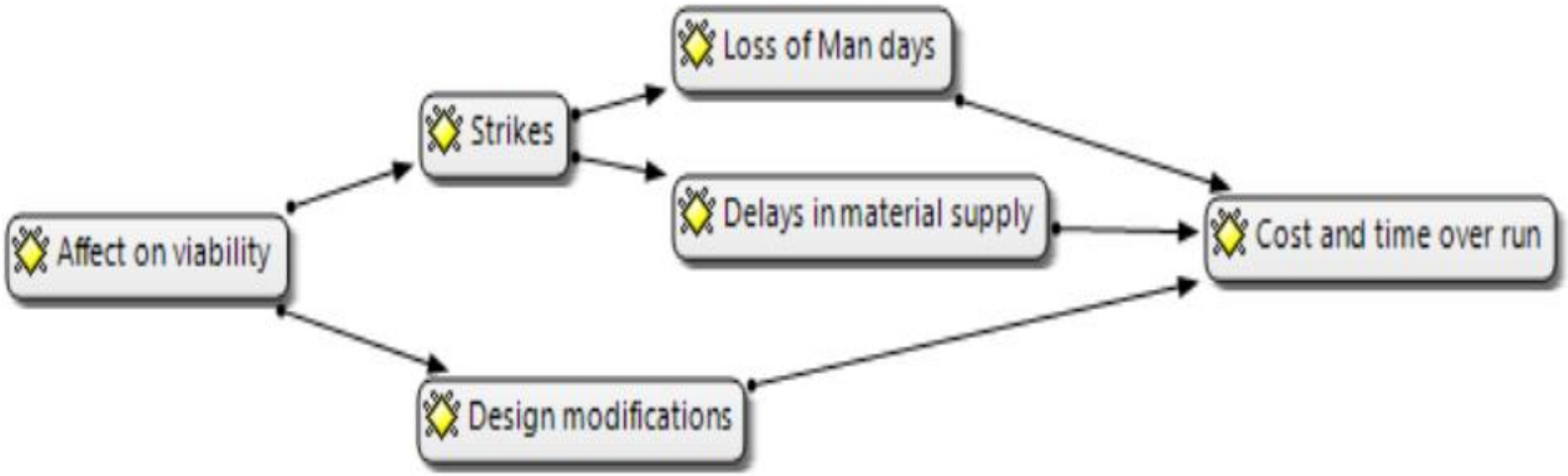
10. **Stake holder reactions on Improper Redressal**



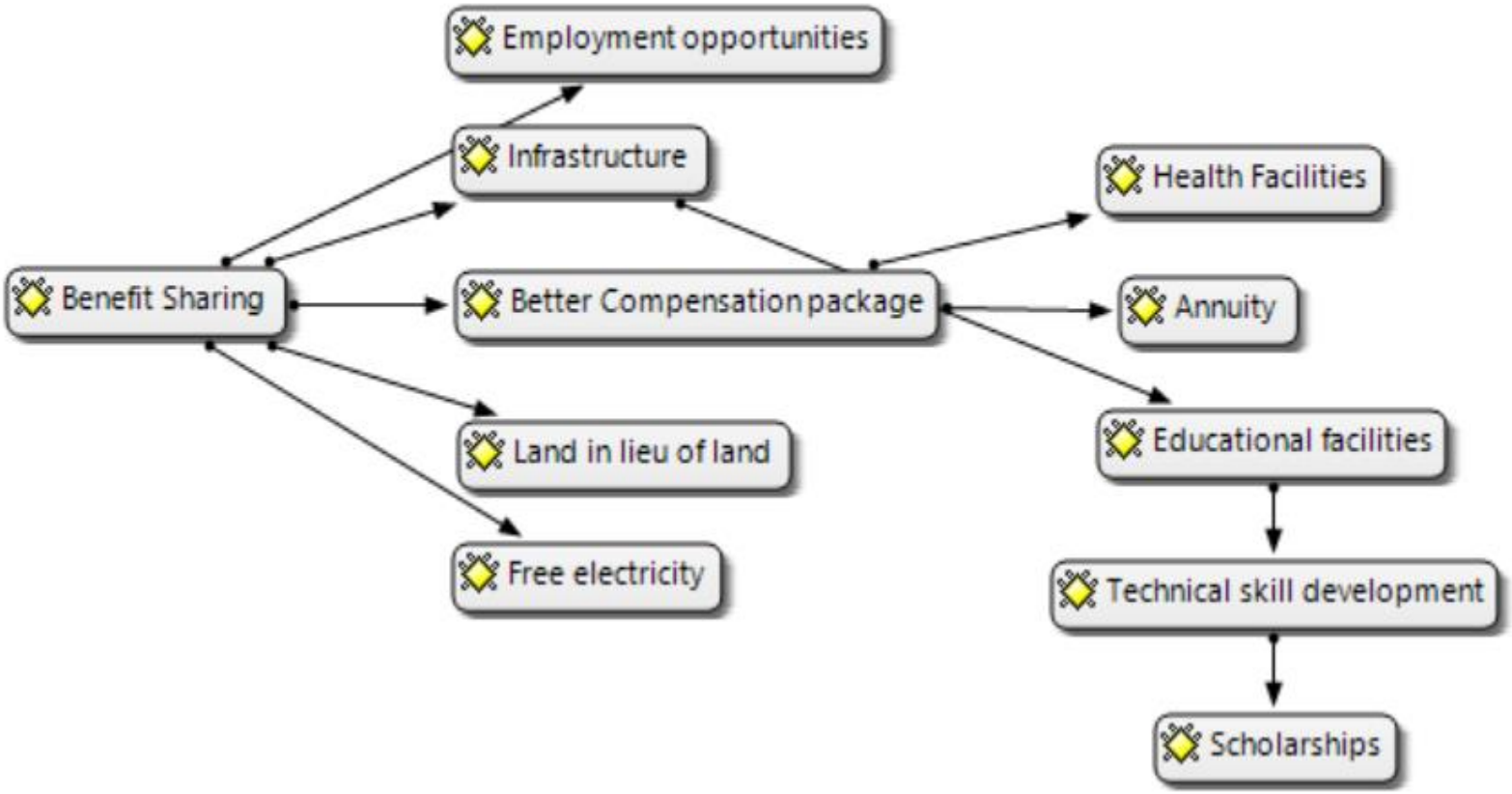
11. **Frequency and magnitude of unrests/hinderances**



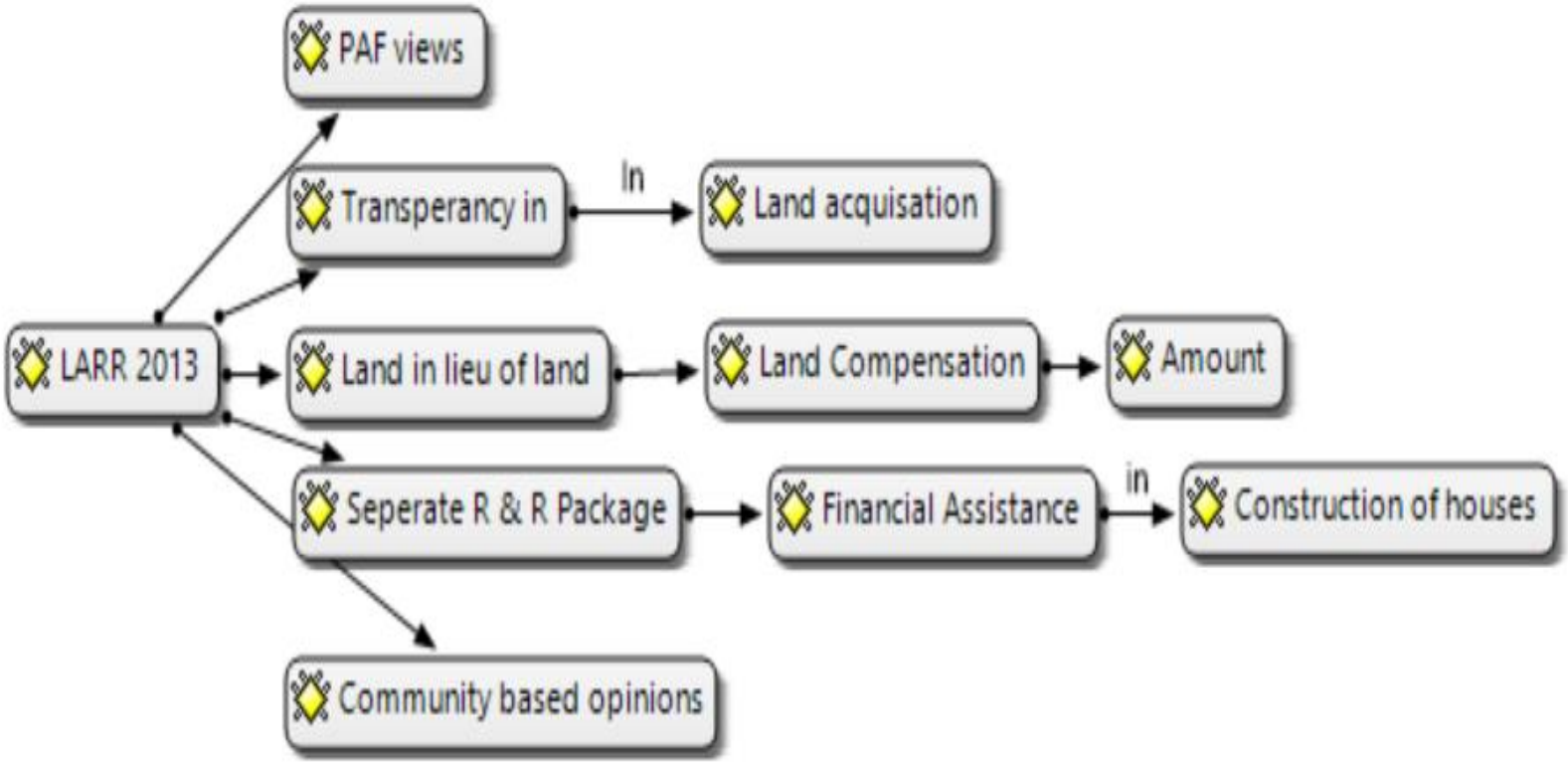
12. **Viability of project gets affected from these instances**



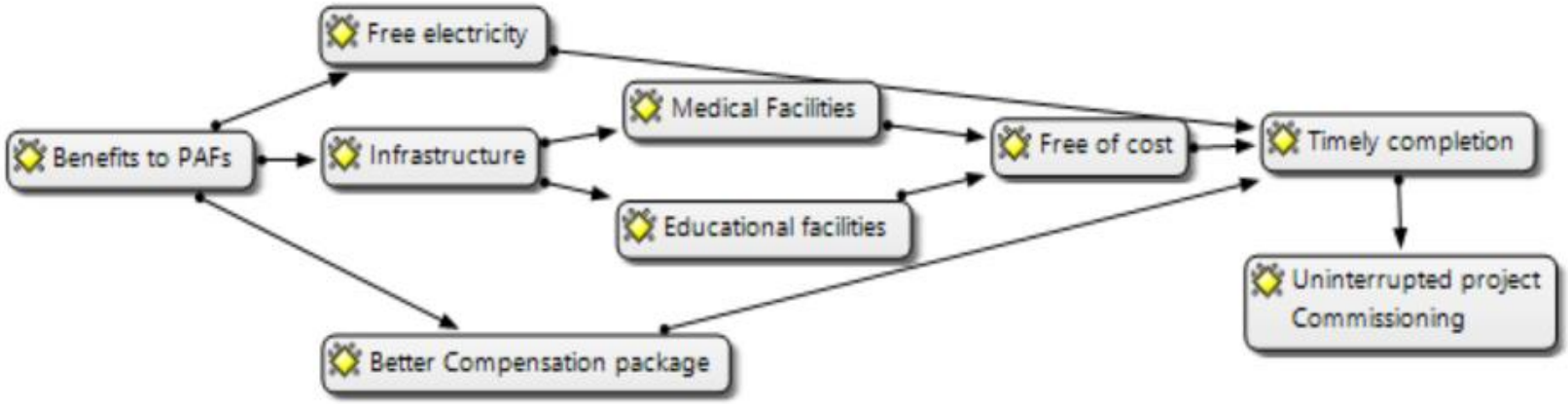
13. **Benefit sharing mechanism existing**



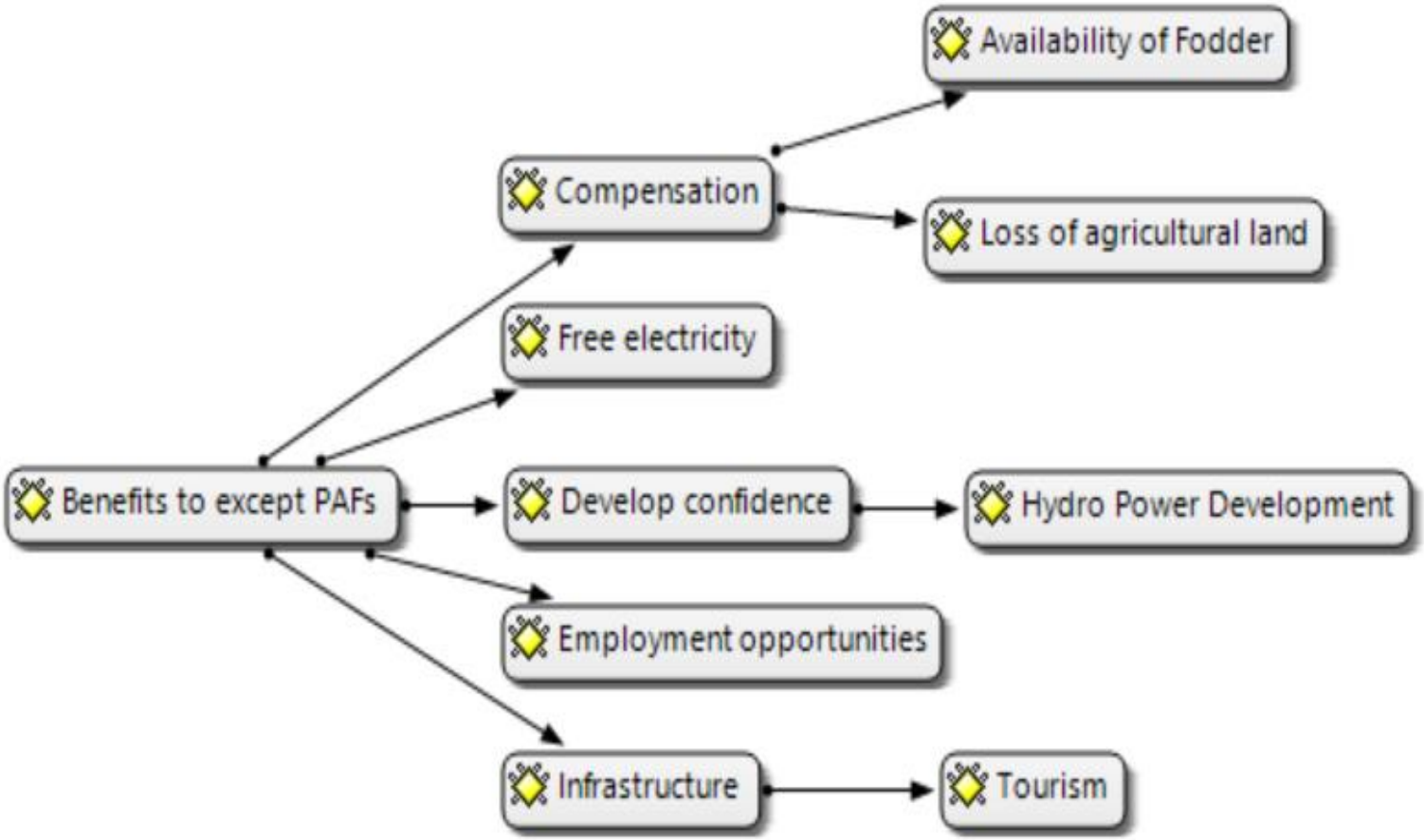
14. **LARR 2013**


PAF views
Transperancy in
In
Land acquisation
LARR 2013
Land in lieu of land
Land Compensation
Amount
Seperate R & R Package
Financial Assistance
in
Construction of houses
Community based opinions

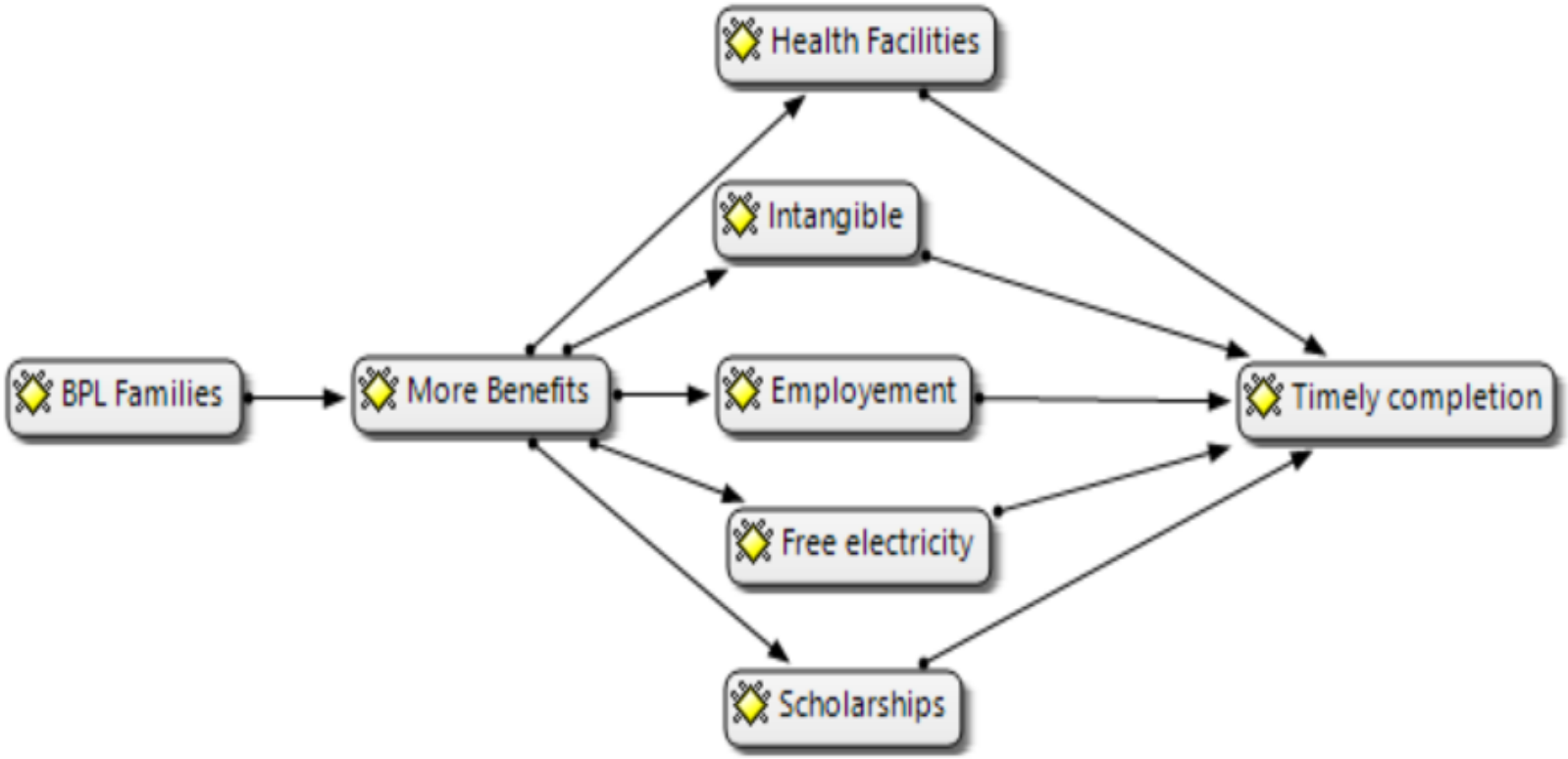
15. **Benefits to PAF's throughout the life of the project**



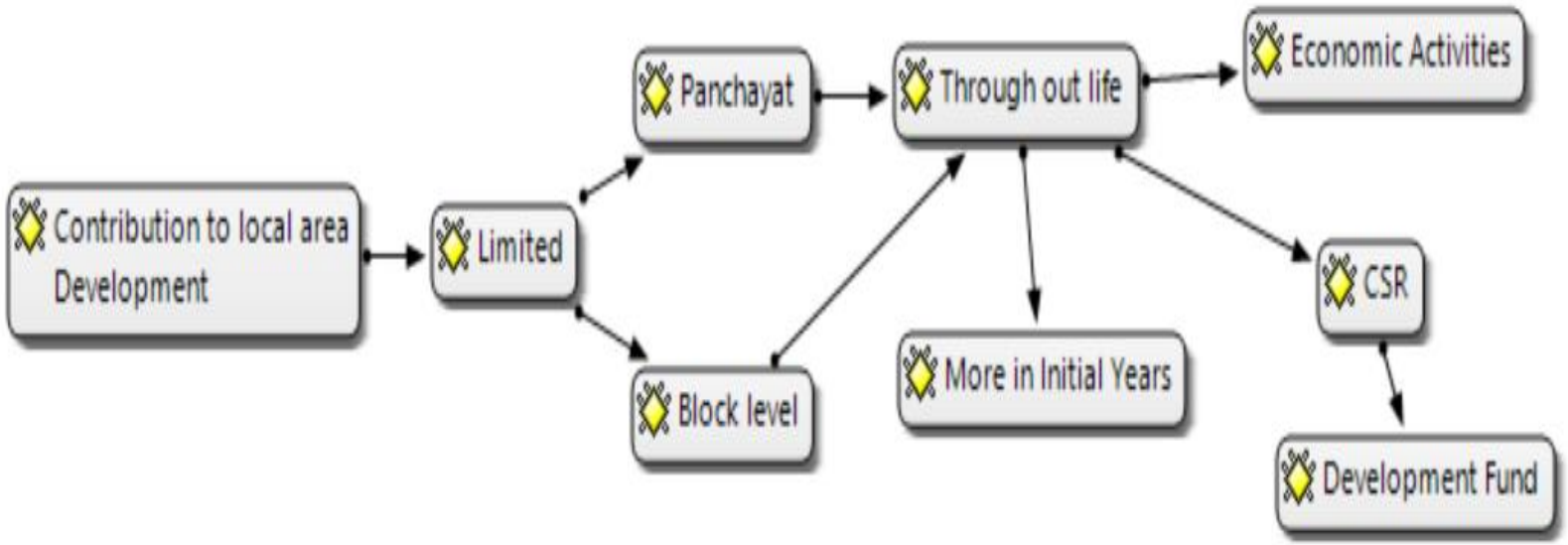
16. **Benefits to other than PAF's**



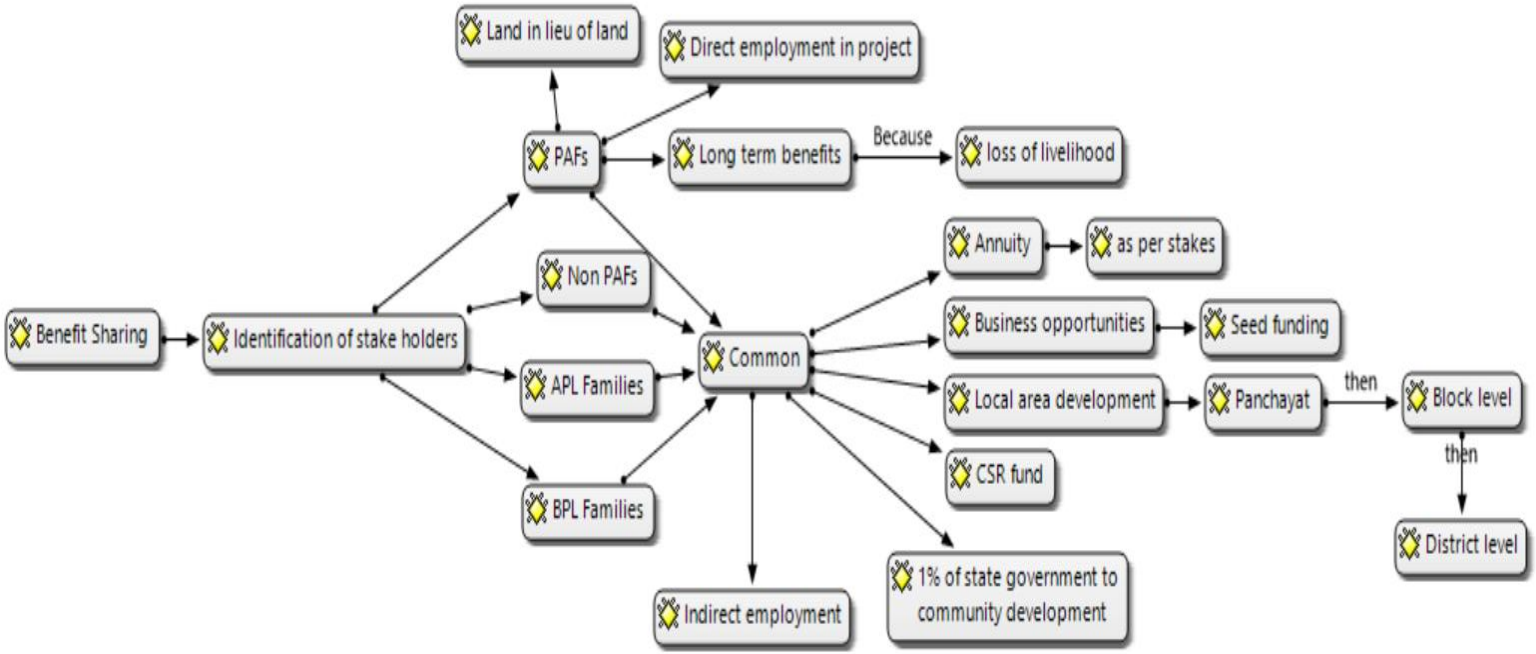
17. **Distinction in benefits between BPL and other categories**



18. **Local area development works**

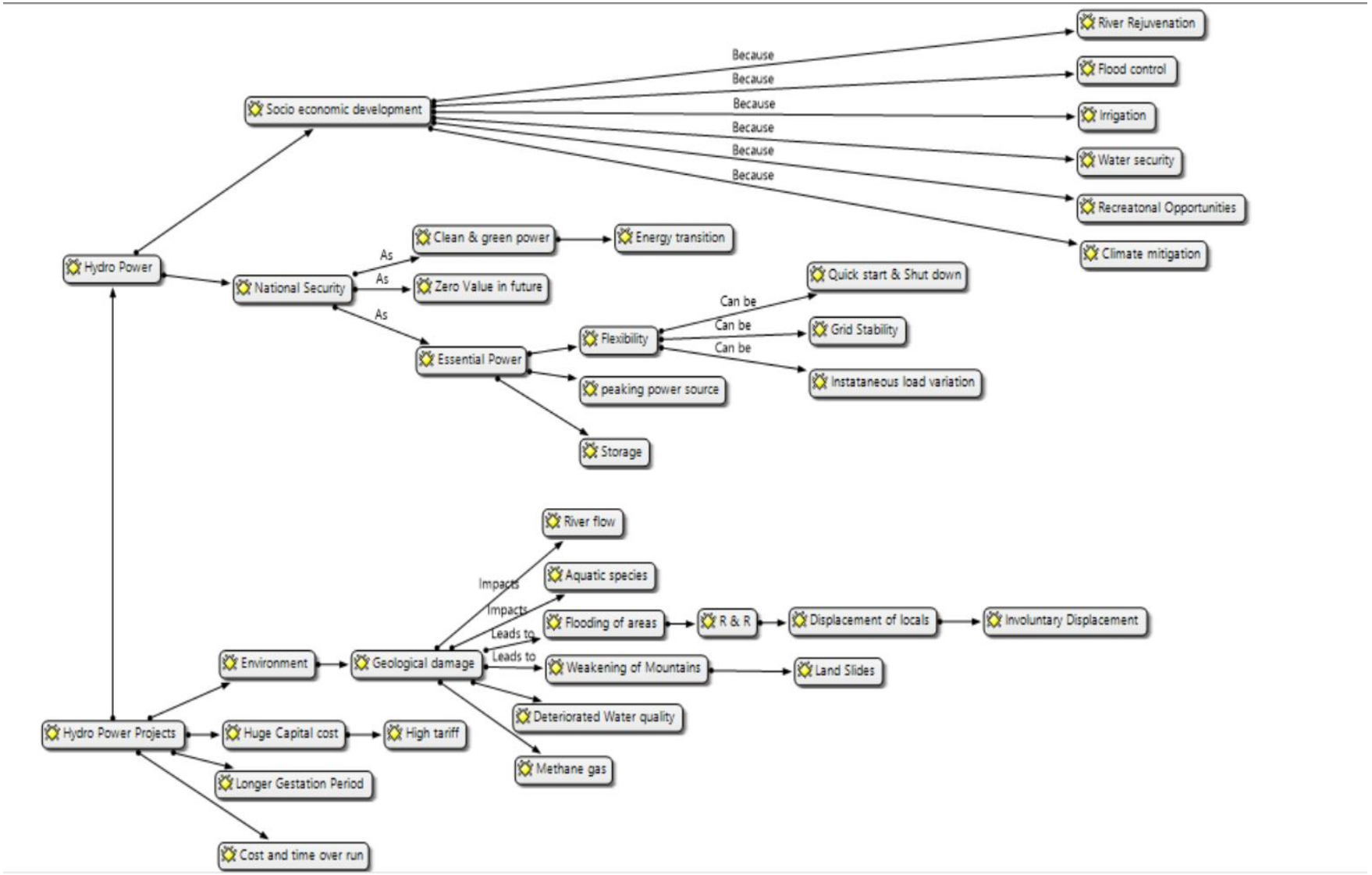


19. **Proposed Benefit sharing**

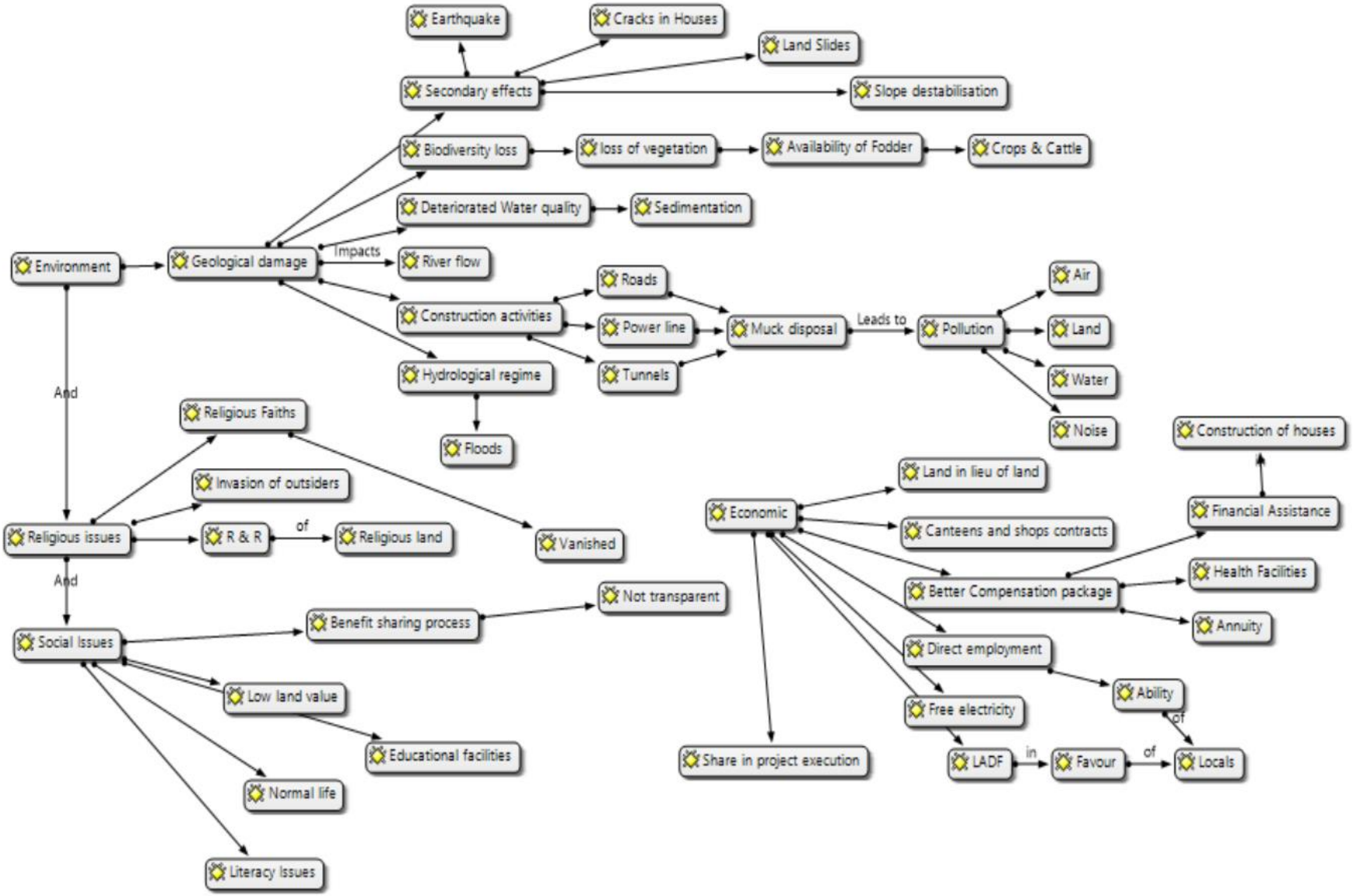


Annexure 5: Selective coding

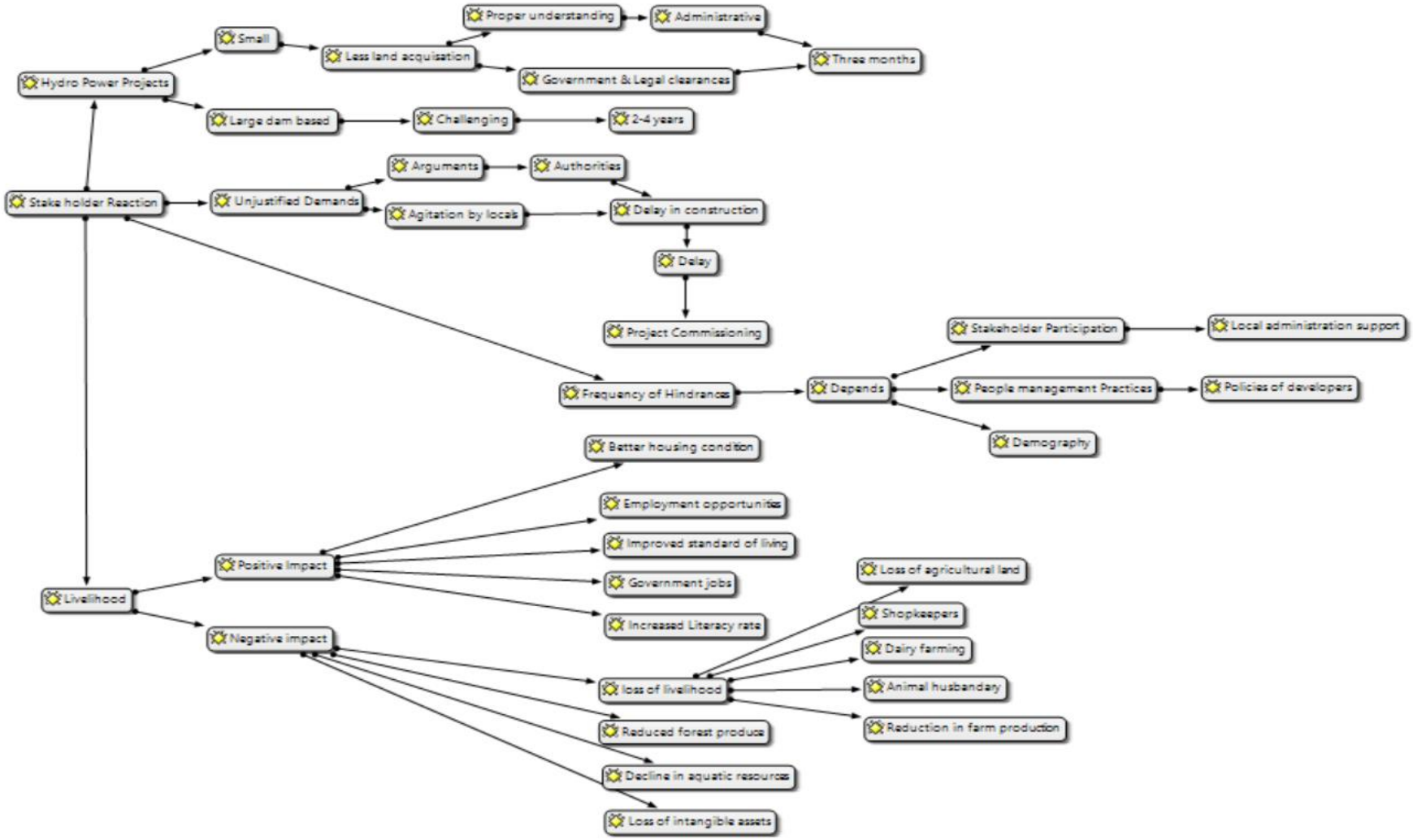
Theme 1: Advantages & Disadvantages of Hydro power Projects



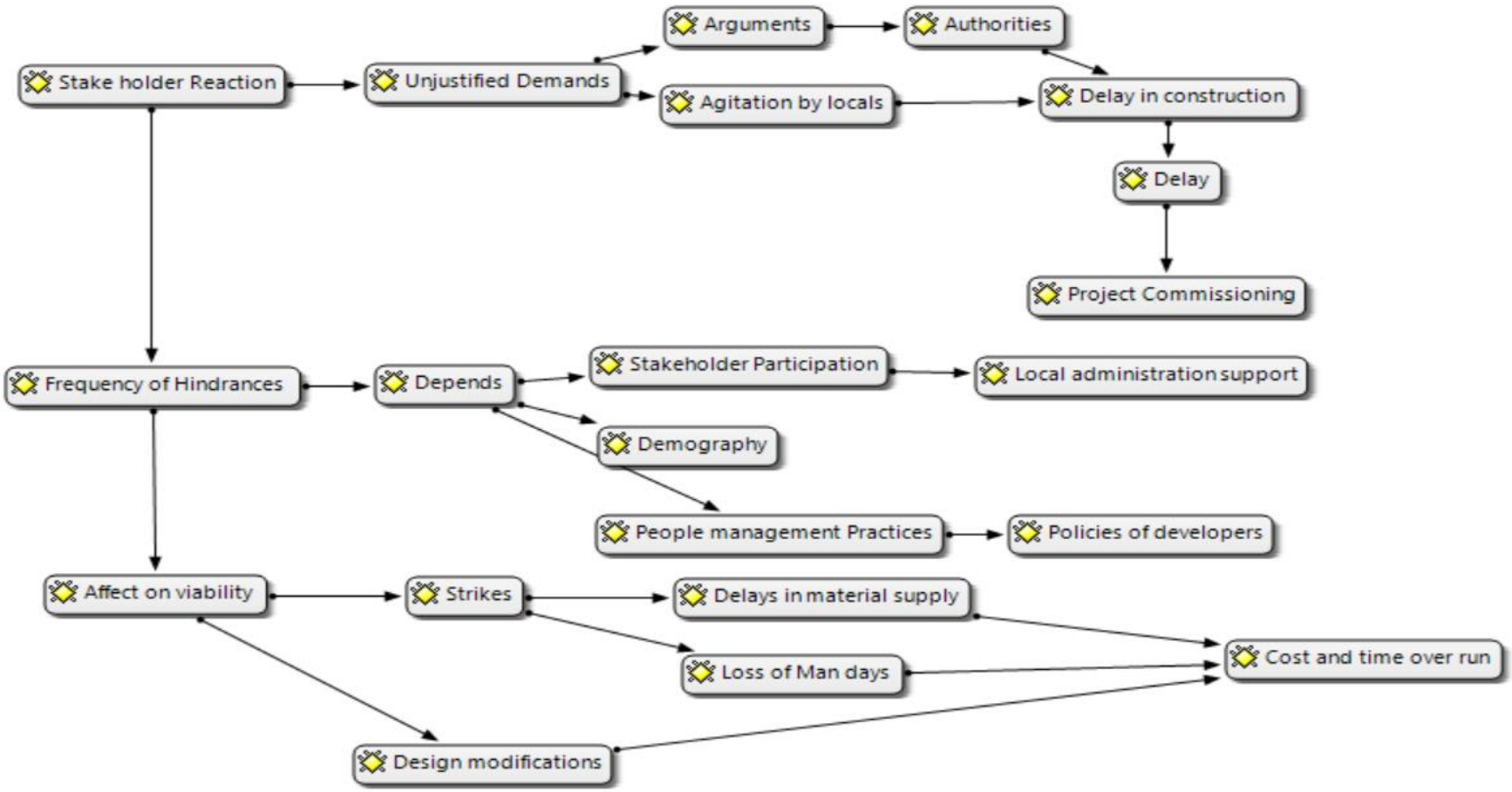
Theme 2: People & Environmental Impact due to hydro power project



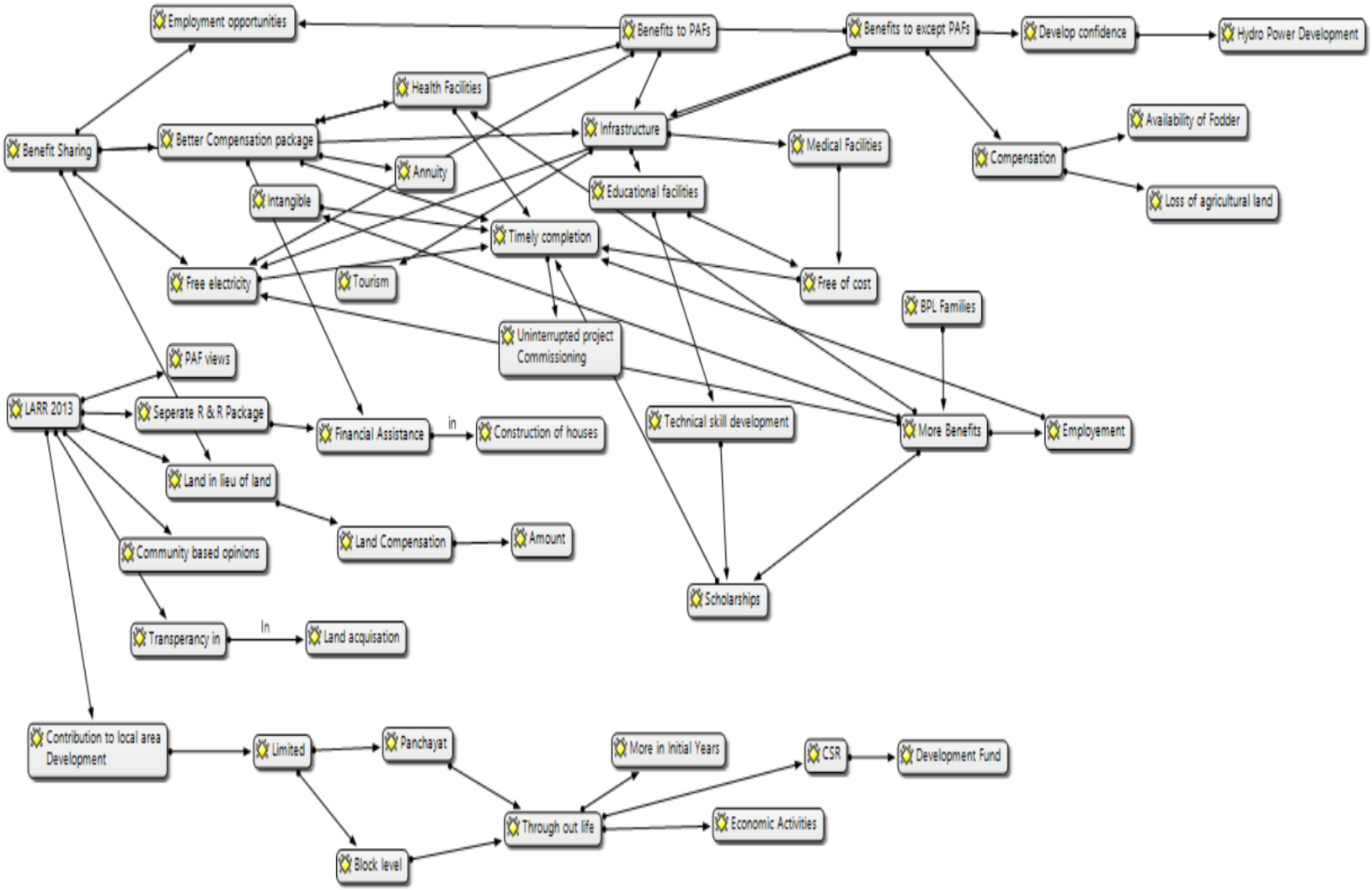
Theme 3: Impact of PAF on Hydro power Projects



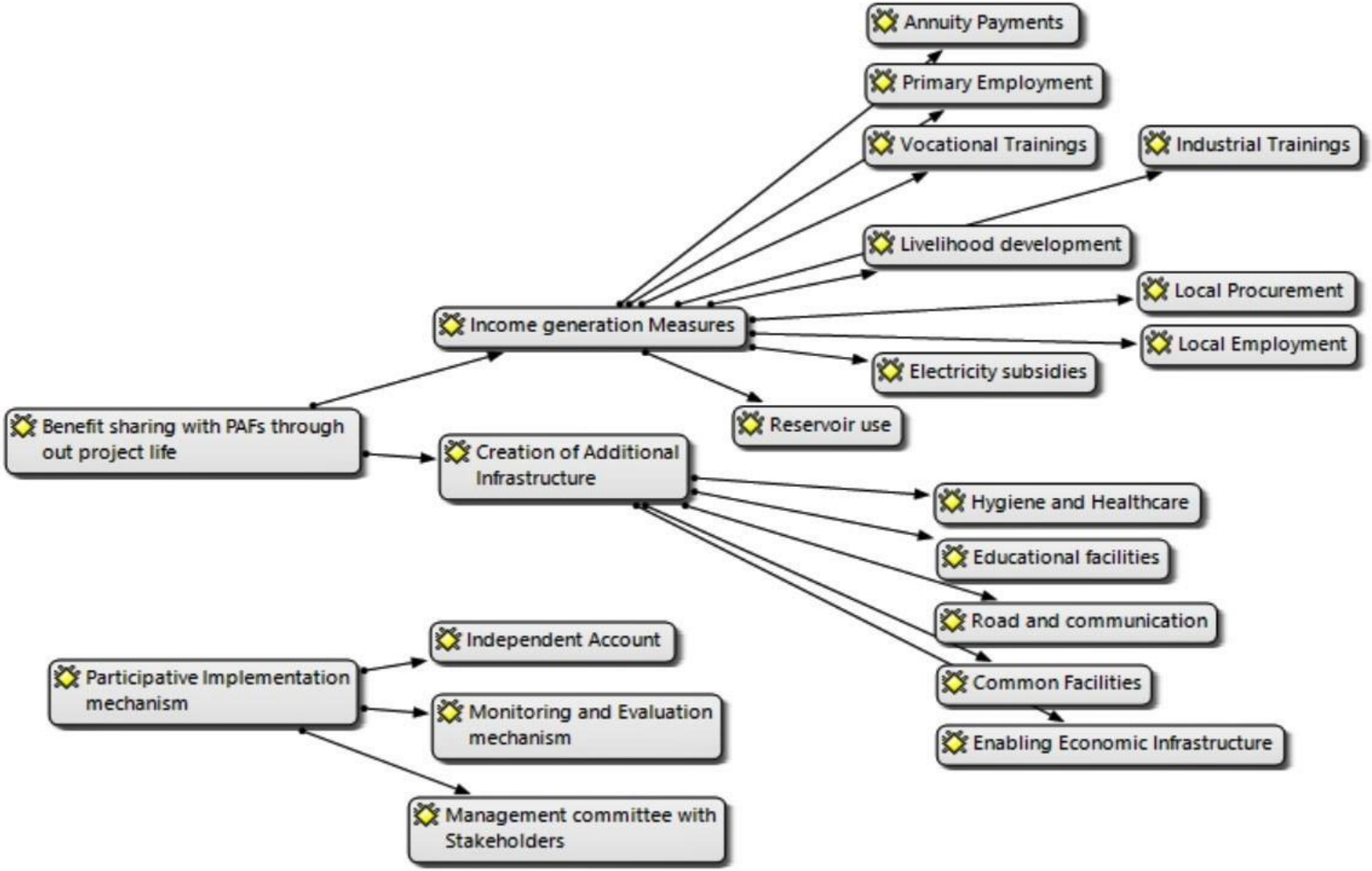
Theme 4: Improper aspirations and Risk Associated



Theme 5: Benefit sharing Mechanism for Hydro power Projects



Annexure 6:- Selective Coding: Framework



BRIEF PROFILE OF AUTHOR

Mr. Sandeep Singhal is working as Managing Director in UJVN Limited (a Government of Uttarakhand Enterprise) and also holding the position of Director, Energy Cell with Energy Department, Government of Uttarakhand. Academically he has done MBA from IGNOU and Bachelor of Engineering (Civil Engineering) from R. D. University, Jabalpur (M.P.).

He possesses more than 35 years experience in power sector, of which 34 years is in the implementation of hydropower schemes right from ideation to commissioning in India & Bhutan while serving for approximately 23 years in NHPC & 11 years in UJVN Ltd.

As MD, UJVNL, he is presently handling a portfolio of Hydro Power Projects of 4712 MW capacity and solar projects of nearly 150 MWp capacity. As Director (Energy Cell), Government of Uttarakhand, he is responsible for formulation of various policies for Project Allotment, Local Area Development Fund, conducting Carrying capacity & Cumulative Environmental Impact Assessment Studies of various river basins.

He has presented and published papers in his interest areas of research. The list of publications is as follows:

Title	Category	Domain	Platform	Status
Silt Handling at Rangit H.E. Project	Conference Paper	Engineering	Conference on 'Optimum use of Run-of-river hydropower schemes' at Trondheim, Norway - 1999	Published
Construction planning of powerhouse – fastest powerhouse construction in sub-continent – Kurichu, Bhutan	Conference Paper	Engineering	Indian Concrete Institution, India - 2001	Published
Construction of a 14 Km long large diameter tunnel For the Teesta V hydro project, Sikkim, without a time & cost overrun	Conference Paper	Engineering	HYDRO 2007 Conference by ICOLD	Published
Geological Challenges in the Construction of Underground Structures of Vyasi Hydroelectric Project	Journal	Engineering	Indian Society of Engineering & Geology (ISEG) Journal. - 2014	Published
Complementarity of solar Power Projects with Hydro Power Projects for Energy security and Grid security	Conference Paper	Engineering	World Hydropower Congress" organised by IHA in Adis Ababa, Ethiopia - 2017	Published
Review of Existing Policies / Mechanisms / Practices of Benefit Sharing with Project Affected Families while Developing Hydropower Projects Worldwide.	Journal	Power Management	Water and Energy International - 2021	Published
Challenges in Meeting Aspirations of Project Affected Families while Developing Hydro Power Projects	Journal	Power Management	Water and Energy International - 2021	Published

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