Gaining public acceptance in the development of small-scale hydropower in East Nepal

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ABSTRACT

Hydropower development could make a positive contribution to the global transition to a renewable energy system. Nepal is one of the Asian countries that has a lot of potential for hydropower development, therefore hydropower could play an important role in solving several issues the country's facing, like the national energy deficiency. Several studies tend to say that social inclusion and participation are easier to deal with in the development of small-scale hydropower projects as compared to large-scale projects. However information from practice that reflect such statements are difficult to find. This thesis analyses how the process of gaining public acceptance of small-scale hydropower projects works out in practice in Eastern Nepal. A justice perspective is used that describes the process of gaining public acceptance through procedural and distributional justice. Two cases were selected and data was collected by means of semi-structured interviews, content analysis, excursions and observations. The results show that in practice the principles of procedural and distributional justice are highly interlinked and differ in the extend that they can influence a stakeholder's acceptance of a project. Different stakeholder groups were derived according to how they were included in the development of the case study projects, which puts the principle of inclusion of stakeholders (procedural justice) more central within the justice framework. Also, different strategies came forward in the cases that can be used by several stakeholders to enhance community acceptance. In line with these results a practical framework was designed that suggests a stakeholder-specific perspective on the process of gaining public acceptance of small-scale hydropower projects, describing new relations between the different justice principles. The practical framework can be used as an example and reference in further research on how justice can work out in practice in the development of small-scale hydropower projects.

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LIST OF ABBREVIATIONS

AEPC	Alternative Energy Promotion Centre
CBS	Central Bureau of Statistics of Nepal
CoCooN	Conflict and Cooperation over Natural Resources in Developing Countries
DDC	District Development Committee
DOED	Department of Electricity Development of Nepal
EIA	Environmental Impact Assessment
HPP	Hydropower project
IEE	Initial Environmental Examination
NEA	Nepalese Electricity Authority
NWCF	Nepalese Water Conservation Foundation
PBUS	Phidim Bidyut Upbhokta Sahakari Sanstha Ltd.
VDC	Village Development Committee
WCD	World Commission on Dams

1. INTRODUCTION

1.1 PROBLEM DESCRIPTION

Past and current use of fossil fuels as source for energy production is leading to an increase of the concentration of greenhouse gases in the atmosphere, which contribute to human-induced climate change (IPCC., 2013). At the same time these fuels are limited in stock, which makes the search for alternative energy sources even more urgent. The development of hydropower has received a boost this decade, especially in Asia (OECD/IEA., 2014) and it could be a good energy alternative, which may help to mitigate climate change and enhance economic development worldwide.

1.1.1 HYDROPOWER IN NEPAL

Nepal is one of the countries in Asia that has a lot of potential for hydropower development. Nationally this potential is estimated to be 83,000 MW (Shrestha, 1966) of which 43,000 is estimated to be feasible (Karmacharya, 2007) (Ghimire, 2008). Hydropower development is perceived as a solution that can address several issues. The main issues are briefly discussed here to stress why hydropower development is of importance for Nepal.

Developing the countries' hydropower potential could help decreasing the deficit between supply and demand. In Nepal there is currently a deficit between energy supply and demand, which causes periods of load-shedding. This deficit is increasing due to an increase in demand, caused by an increase in population connecting to the grid and an increase in electricity use by the population that already has access to electricity. In 2008 the Government of Nepal even stated that the country was in a national energy crisis, since power had to be cut off by 16 hours a day that winter (Sharma and Awal, 2013) (Sovacool et al., 2011).

Hydropower can stimulate the electrification of these areas and through that trigger economic activity and tourism (Pokharel, 2001). At this point large parts of the country do not have access to electricity, especially in the rural, remote areas (Surendra et al., 2011) (Ghimire, 2008). Hydropower could also help with developing the country's economy by exporting power to India (Dhungel and Pun, 2009).

Stimulation of an alternative, renewable energy source like hydropower, can decrease the dependency on biomass and the issues that provokes (Pokharel, 2003). Currently the energy sources of Nepal are mostly based on biomass, especially fuelwood (Sharma and Awal, 2013). This dependency on biomass leads to several local issues, like deforestation, which also have an impact on global issues like climate change.

1.1.2 HYDROPOWER ACCEPTANCE

Despite all the positive feedback on hydropower, there are also multiple controversies around its development. Several studies have looked at the sustainability of hydropower projects, mostly at large-scale projects. This sort of project has a significant impact on the environment due to its large reservoir and power output (Rojanamon et al., 2012); (Paish, 2002). Besides that, several studies indicate that there is a lack of meaningful public participation within the development processes of large-scale hydropower projects (Diduck et al., 2013); (Mirumachi and Torriti, 2012); (Huber and

Joshi, 2015) or situations where local participation is becoming a source of tension (Sharma and Awal, 2013). This was also concluded in a report by the World Commission on Dams (2000), which assessed the performance of large-scale hydropower dams worldwide. They argue that no or little meaningful participation has taken place in the planning and implementation process of the projects (WCD., 2000). It is stressed that gaining public acceptance ''is essential for equitable and sustainable water and energy resources development'', since public participation can ensure the rights and entitlements of the (local) actors that are most affected by hydropower plants (WCD., 2000: 215).

The Government of Nepal uses three different approaches to pursue the development of hydropower (Dhungel and Pun, 2009), which are defined here as *hydropower models* (**see table 1**). The models differ in the purpose of their development, capacity range and impact (environmental, social, etc.). The first model develops small, decentralised hydropower plants for domestic use in order to meet local (energy) demands in remote areas, which can stimulate economic activity and tourism of these areas (Pokharel, 2001). The second model develops medium-sized plants that contribute to meeting the national energy demand and whose surplus energy can be used as an export product. Lastly, the third model develops large-scale plants that can serve multiple purposes like meeting demand for food, energy and flood control (Dhungel and Pun, 2009).

Table 1 Hydropower models and their capacities in MW (based on (Ghimire, 2008) (Egré and Milewski, 2002))

	Small (model 1)			**Medium (model 2)**	**Large (model 3)**
Classification based on capacity	Micro <0.1 MW	Mini 0.1 – 1 MW	Small 1 – 10 MW	 > 10 MW	 > 10 MW

Though quite some information is available about the sustainability and social factors of developing a large-scale hydropower dam (model 3) there is a limited amount of information on this for small-scale hydropower projects. Some studies do indicate that the small-scale model is quite environmentally friendly, especially the run-off-the-river type, due to its limited interference with the natural river system (Lamkowsky, 2014); (Paish, 2002). Also, due to the small plant size, public participation in the design and implementation process is said to be easier than with large-scale hydropower projects. Local stakeholders can participate in these processes and their needs can more easily be incorporated (Pokharel, 2001), which is important for the progress of the projects (Singal, 2009). However, information from practice which reflects such statements is hard to find.

1.2 RESEARCH OBJECTIVE

This research focuses on assessing the process of gaining public acceptance with regard to the implementation of small-scale hydropower projects in the Tamor river basin in Nepal. It aims to assess how the process of gaining public acceptance of small-scale hydropower projects works in practice and how such a process is influenced by public involvement and public participation. It does so by describing how procedural and distributional justice are influenced by public participation and involvement. Also it assesses how the principles of justice are accounted for in the process of gaining public acceptance in the broader context of global and national interests in hydropower development. The research will provide an overview of stakeholders and interactions within the process of project development in the case-study areas in East Nepal. It gains insights in local perceptions, issues, strategies and opinions of different stakeholders.

1.3 RESEARCH QUESTIONS

The following research questions were formulated in accordance with the problem description and research objective:

1. **How are procedural and distributional justice accounted for in the process of gaining public acceptance in small-scale hydropower projects in Nepal?**

2. **What strategies can be used to enhance public acceptance of small-scale hydropower projects in Nepal?**

To be able to answer the research questions a conceptual framework was designed with at its core the concept of gaining public acceptance, based on a paper by Dore and Lebel (2010) who elaborated on a report of the WCD (2000). WCD stated that gaining public acceptance could be achieved through ensuring the principles of procedural justice. Dore and Lebel (2010) expanded this framework by emphasizing the importance of distributional justice for gaining public acceptance, besides procedural justice. Both procedural justice and distributional justice can be influenced by public involvement and public participation, therefore public involvement and public participation indirectly influence the process of gaining public acceptance. Mirumachi and Torreti (2012) describe the influence of public involvement to achieve public acceptance through the principles of justice. Altogether these form the conceptual framework as will be discussed in **Chapter 2**. The framework steered the selection of a suitable research design and subsequent methods. Two cases were analysed, which will be introduced in **Chapter 3**. In the same chapter the way of processing and analysing the data will be described. Subsequently the results of the case studies are discussed in **Chapter 4** and **Chapter 5**, linking the obtained data back to the used theory. Then in **Chapter 6** the meaning of the data with respect to the conceptual framework is discussed altogether with the validity of the performed research. **Chapter 7** draws the final conclusions and implications of this research and formulates some recommendations on further research on how justice can work in practice.

2. CONCEPTUAL FRAMEWORK

The theoretical framework of this thesis includes a justice perspective on how to gain public acceptance of small-scale hydropower projects and is based on a report of the World Commission on Dams (WCD), published in 2000. In the report the WCD stresses the importance of public participation and acceptance of hydropower projects by stating that these are ''*essential for equitable and sustainable water and energy resources development and can ensure the rights and entitlements of the (local) actors that are most affected by hydropower plants*'' (WCD., 2000: 215). According to the WCD acceptance can be achieved through ensuring the principles of **procedural justice**. Procedural justice refers to ''getting the process right'' regarding decision-making and encompasses four key principles. The WCD framework has been expanded by also including **distributional justice** as described in a paper by Dore and Lebel (201), who emphasize the importance of both procedural and distributional justice in order to gain public acceptance (Dore and Lebel, 2010). Distributional justice then refers to ''getting the content right'' and also includes four key principles. Both procedural justice and distributional justice can be influenced by public involvement and public participation, as described by Mirumachi and Torreti (2012). Therefore public involvement and public participation indirectly influence the process of gaining public acceptance and are included in the conceptual framework of this thesis of which a graphic visualisation can be found in **figure 1**.

The process of gaining public acceptance takes place at the local level, where the hydropower project is implemented and developed, but can be placed in the broader context of hydropower development on a global and national scale. The process therefore is inherent to the development of hydropower as part of the global transition towards a renewable energy system and to solving national issues, like the energy shortage in Nepal. In **figure 1** these contexts are represented by the outer square. Colour encoding is used throughout the report with the blue colours referring to procedural justice and its associated principles whilst the green colours are hinting to distributional justice. The rest of this chapter will explain the figure and different concepts that it encompasses in the light of small-scale hydropower development in Nepal.

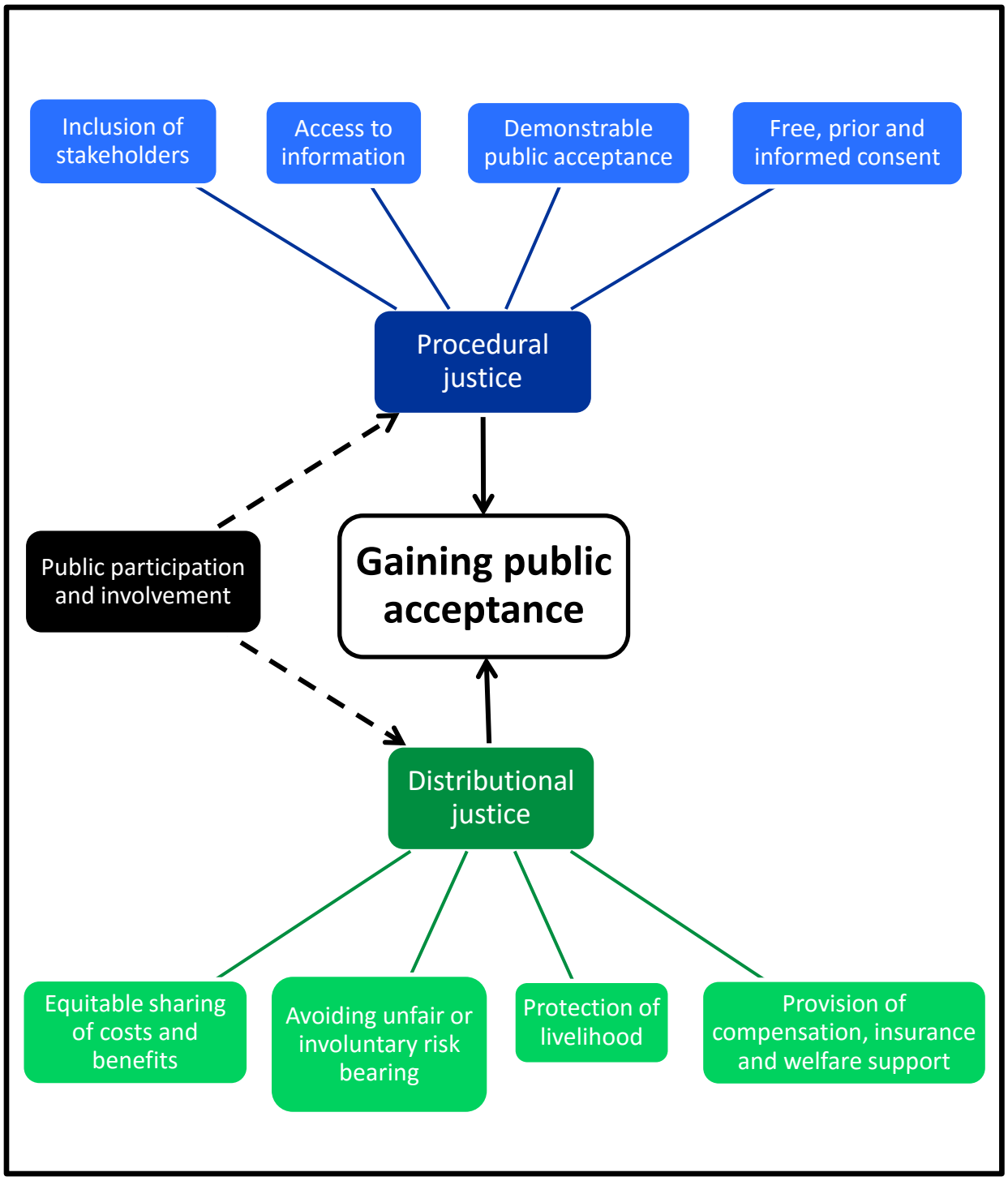

Figure 1 Visualisation of conceptual framework

2.1 PROCEDURAL JUSTICE

The WCD stressed the importance of participation in the decision-making process to gain public acceptance. In different terms: focus on ''getting the process right'' (WCD., 2000) (Mirumachi and Torriti, 2012). When a decision-making process seems fair to people, they are more willing to accept, even when they may have to make some compromises (Dore and Lebel, 2010). Procedural justice encompasses several principles, namely *inclusion of stakeholders*, *access to information*, *demonstrable public acceptance* and *free, prior and informed consent*. When these principles are strengthened during the development of a hydropower project then procedural justice is ensured and subsequently has a positive effect on the acceptance of the project by the local community.

Inclusion of stakeholders

A stakeholder can be defined as ''someone who influences a decision, or can influence it, as well as those affected by it'' (Hemmati as cited in Dore and Lebel, 2010). Such differentiation is reflected by the influence-interest grid by Ackerman & Eden (2011), who state that there are different categories of stakeholders according to their level of interest (e.g. affected citizens; high level of interest) and level of power (e.g. project developer; high amount of decision-making power in the project) (see **figure 2**). The WCD had a firm statement on the level of influence of local stakeholders in their report:

''Those whose rights are most affected, or whose entitlements are most threatened, have the greatest stake in the decisions that are taken. The same applies to risk: those groups facing the greatest risks from the development have the greatest stake in the decisions and, therefore, must have a corresponding place at the negotiating table'' (WCD., 2000: 209)

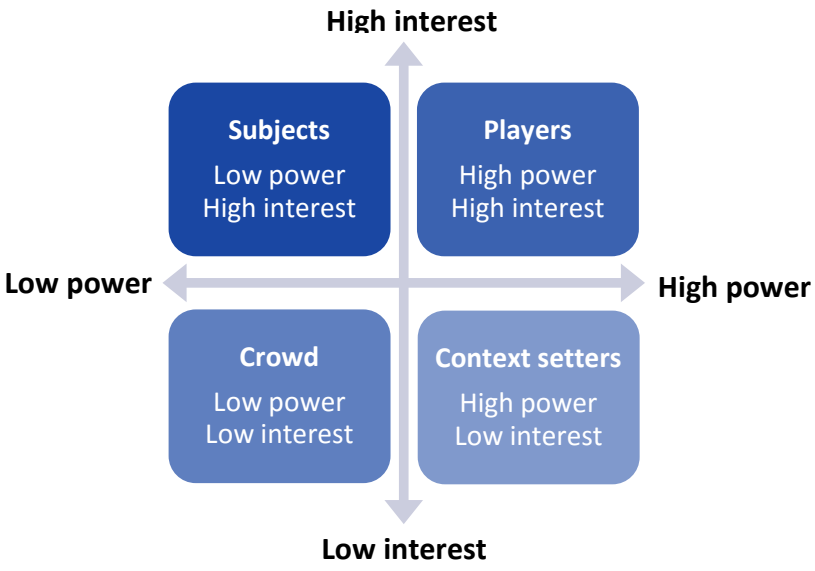

Figure 2 Outline stakeholder power-interest grid (Ackermann and Eden, 2011)

According to the WCD statement people who are affected most by the hydropower project have highest interest, therefore also the greatest stake in the decision-making process and subsequently it is just that they become *Players* according to the power-interest grid. Therefore ideally for the righteous fulfilment of the principle of *inclusion of stakeholders* local people that may be affected negatively by the development of a hydropower project need to have a comparable amount of influence on decision-making as for example a project developer. Local people that are not affected at all or perhaps mainly experience benefits from the project, like access to electricity, then fall under the category *Crowd* or *Subjects*. Possible *Context setters* can be found in the international community or Nepalese government and institutions that are involved in hydropower development at different scales. They may not be particularly interested in a specific project, but are interested in the development of hydropower in general as a solution to multiple issues. International and national policy-making on hydropower development then can have a certain extent of power in decision-making of specific, local projects. Further it is possible that different degradations of *Players*, *Context setters*, *Crowd* and *Subjects* exist, influenced by different interests of different stakeholders as well as by the type of decisions that are made.

Access to information

Access to information, legal and other support regarding the project is very important to enable participation (WCD., 2000). Important is that there is a difference between making information accessible and ensuring that this information becomes shared knowledge and understanding. People from different cultures, speaking different languages, have often been disadvantaged (Dore and Lebel, 2010). Previously social classes in Nepal were determined by the caste-system, which is no longer in place. However, it influenced social order amongst different ethnicities for quite some time, therefore it is not unlikely that in practice different classes are still distinguished from another based on ethnicity, possibly influencing the principles of procedural justice, like access to information, and subsequently public acceptance.

Demonstrable public acceptance

Demonstrable public acceptance of key decisions can be achieved through an open and transparent negotiation process conducted in good faith and with informed participation of all included stakeholders (WCD., 2000). Public acceptance of the decisions reached through this process should guide progress at key stages of the project development. An open and transparent decision-making process can be defined through the following principles (WCD., 2000):

- Democracy, accountability and public confidence
- Safeguarding rights and entitlements of vulnerable groups
- Promoting women's participation and gender equity
- Free, prior, and informed consent
- Willing participation of all parties negotiating in good faith

Free, prior and informed consent

Indigenous people have the right to participate in the decision-making processes and to give or withhold their consent regarding activities that affect their traditional lands, territories and resources (MacKay, 2004). According to the WCD (2000) the principle of free, prior and informed consent empowers indigenous and tribal communities to consent to projects and to negotiate about the conditions under which they can proceed.

MacKay states that ''*consent must be freely given, obtained prior to final authorization and implementation of activities, and be founded upon an understanding of the full range of issues implicated by the activity or decision in question.''* (MacKay, 2004: 50) For the development of hydropower this principle is likely to play an important role in the process of land acquisition, involving local land owners whose land may be needed for the project.

2.2 DISTRIBUTIONAL JUSTICE

Whilst the WCD focussed mostly on procedural justice for safeguarding public acceptance, Dore and Lebel (2010) proposed to extend this with distributional justice or ''getting the content right'', since public acceptance of decisions can be lost without adherence to additional principles related to actual outcomes (Dore and Lebel, 2010). These principles are *equitable sharing of costs and benefits*, *avoiding unfair or involuntary risk-bearing*, *protection of livelihood* and *provision of compensation, insurance and welfare support*. By enhancing these principles during the development of a hydropower project distributional justice can be ensured, which has a positive effect on public acceptance of the respective project.

Equitable sharing of costs and benefits

The first principle states that costs and benefits should be shared fairly amongst stakeholders instead of being captured by a few (Dore and Lebel, 2010). When there is a lack of fairness in these distributions it can complicate the finding of a procedural solution for conflicting interests and values. Even though successful implementation of such sharing mechanisms is difficult, it is not impossible (Dore and Lebel, 2010). Possible costs that a small-scale hydropower project may evoke are for example loss of land and environmental impacts whilst access to electricity and less load shedding are benefits that the project may bring to the area.

Avoiding unfair or involuntary risk-bearing

The WCD makes a clear distinction between voluntary risk-takers and involuntary risk-bearers. Involuntary risk-bearers include people that have to be displaced because of the project. These people are often dependent on the government or project initiator to manage resettlement or compensation (WCD., 2000). Sometimes all land from one land owner may be needed whilst in other situations only a certain part of the land is required for the project. In the second case the land owner could also lease the respective part, therefore not need to be displaced.

Also, risks may be transferred to ecosystems and therefore these impacts may become an important factor in gaining public acceptance (Dore and Lebel, 2010). Examples are an affected river flow or forest degradation because of logging at the project site.

To ensure distributional justice, projects need to make information about these risks available to all stakeholders and strive for avoiding unfair and involuntary risk-bearing with likely negative consequences (Dore and Lebel, 2010).

Protection of livelihood

The construction of a hydropower project can lead to changes in land use, water supply etc. They alter the context of the livelihood of the local inhabitants. These changes brought by a project should not diminish the livelihood security of the local inhabitants (Dore and Lebel, 2010): ''*Livelihood security implies that a population has secure and continuous access to the natural resources, ecosystem and other services required to maintain a living.*'' (Dore and Lebel, 2010: 136)

Those whose livelihood security is diminished as a result of a project should get priority regarding new opportunities that emerge from the project (Dore and Lebel, 2010). The extent to which a local community depends on local natural resources, like wood or water, to maintain a living is likely to have an influence on the extend they may be negatively affected when those resources are affected by the project.

Provision of compensation, insurance and welfare support

When the principles of justice cannot be met then compensation, insurances and welfare support are necessary and just (Dore and Lebel, 2010). For example when a land owner sells his land then he should receive a fair amount of compensation.

2.3 PUBLIC INVOLVEMENT AND PARTICIPATION

By including stakeholders and giving them access to information, public involvement can enable procedural justice (Dore and Lebel, 2010). It can also enable distributional justice by fully assessing economic benefits and adverse social, economic and environmental impacts and safeguarding the undertaking of appropriate compensation and rehabilitation. The WCD recommended to incorporate public participation from the initial stages of planning, since this would lead to a more transparent and inclusive process of project development, in this case of small-scale hydropower projects (WCD., 2000).

There are several definitions and conceptualisations of what participation is and what a participatory process looks like. Central is the idea that ''people outside the bureaucratic structures of the state have a stake or mandate to get involved in governance processes.'' (Dore and Lebel, 2010). Participation can range in degree, reflecting the extent to which decision-making power and responsibility are shared (Arnstein, 1969). The power-interest diagram referred to different levels of participation and involvement as well (**see 2.1 Procedural justice**).

There can be different arguments for using participatory approaches, for example instrumental, normative or political arguments can be invoked. Participatory efforts by political actors often reflect an instrumental rationale, where arguments are made that it leads to efficiency and fewer conflicts. On the other hand civil society mostly argues from a normative standpoint, looking at which groups are affected and how, and demanding greater participation as a citizens-right (Dore and Lebel, 2010). Again, like the statement of the WCD earlier, such demands could increase the decision-making power of local stakeholders that are negatively affected by the project.

As appeared from the power-interest diagram, participatory approaches can be used by different stakeholder groups. For example by a project developer in order to smoothen collaboration with local stakeholders that elsewise may have objections towards the project, because of negative impacts the project could evoke in the area.

The conceptual framework as presented in **figure 2** was used to choose a suitable research design and subsequent methods in order to research how justice works out in practice in the development of small-scale hydropower projects. The next chapter will elaborate on the methodological choices made and how the concepts explained above were used.

3. METHODOLOGY

3.1 RESEARCH DESIGN

The chosen research design for this thesis is a case study, which is: ''a methodologically flexible approach to research design that focuses on a particular case – whether an individual, a collective or a phenomenon of interest. It is known as the 'study of the particular' for its thorough investigation of particular, real-life situations'' (Rosenberg and Yates, 2007: 447). The specific case study approach is an instrumental case study, which is used to study cases to understand related issues or phenomena that are of interest (Rosenberg and Yates, 2007).

For this research two cases have been researched, encompassing four hydropower projects in Eastern Nepal. Both cases were selected by applying the following criteria: geography, hydropower type, hydropower model and project stage. The first case study actually encompasses a cascade of three sub-projects, which have been merged into one case study because of several reasons. Firstly, the sub-projects showed similarities with regard to the criteria mentioned above and, even though the initiating parties (companies, associations or cooperatives) differed per sub-project, it appeared that amongst these parties mostly the same people were involved. Therefore the process of gaining public acceptance for the different projects was likely to show similarities. Secondly, all projects were in operational stage at the time of field work and located in the same river valley, not that far from each other. The area was scarcely populated at the time of research, therefore not much data could be collected on site thus I decided to merge the data of the sub-projects in order to be able to make the overall analysis more representative.

During the field work I had the opportunity to analyse a second case that could complement the results of the first case by gaining insights in the process of gaining public acceptance whilst it was taking place, since when I did my field work the project of the second case was being developed.

3.1.1 GEOGRAPHY

The case studies were located in the Tamor river basin, which is part of the Sapta Koshi river basin in the East of Nepal, which fitted with the objective of the CoCooN project that I collaborated with. One of the Nepalese partners of the project, the Nepalese Water Conservation Foundation (NWCF), already did some research in the municipality of Phidim. To make my research complementary to theirs I selected my cases in this area as well. This section will elaborate on where the area is located exactly and give some general information about it.

For administrative purposes Nepal is divided into development regions – zones – districts and municipalities/village development committees (VDCs). This research focused on small-scale hydropower projects in the Eastern Development Region, which encompasses three zones: Sagarmatha, Koshi and Mechi. The selected cases are located in the Mechi zone, which lays in the outer East of Nepal and holds four districts, including Panchthar, which lays in the hilly area of Nepal. The district is not very densely populated: in 2011 the population density of the district was 100-180 people per square kilometre (CBS Nepal., 2014a). Panchthar encompasses several municipalities as can be seen in the second small map in **figure 3**. The yellow indicates the municipality of Phidim, which is where both cases are located at the Tamor river basin.

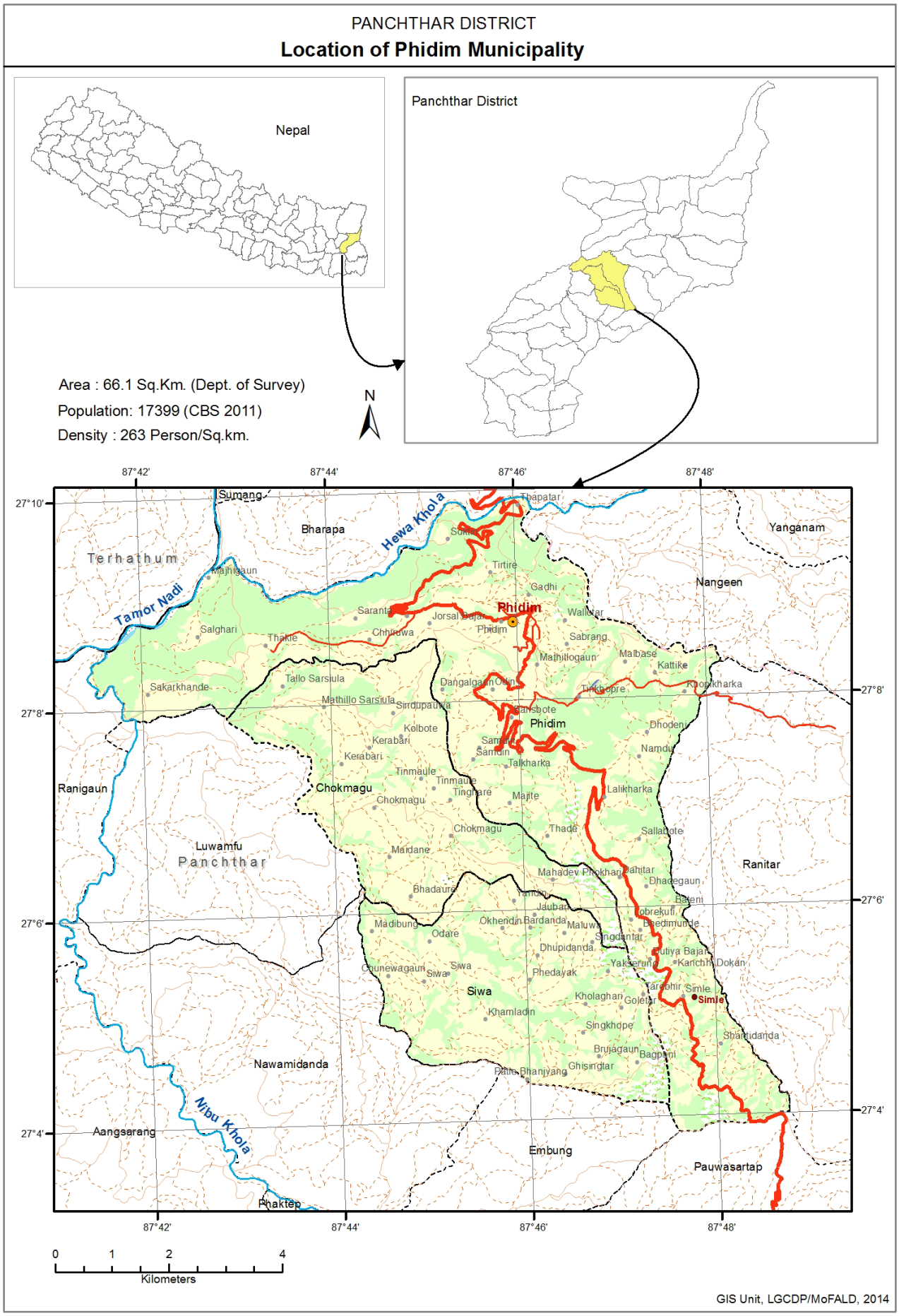

Figure 3 Location of Phidim municipality and Phidim city (LGCDP, 2014)

During the field work I stayed in Phidim city: the municipality headquarters that is indicated by the small orange dot in **figure 3**. The municipality of Phidim lays in the hills with an altitude varying between approximately 600m in the river valleys and 1900m on top of the hills (Google, 2016). Phidim city lays on a small hill with an altitude of approximately 1100 m, embraced by the river valleys of the rivers Hewa Khola and Pheme Khola.

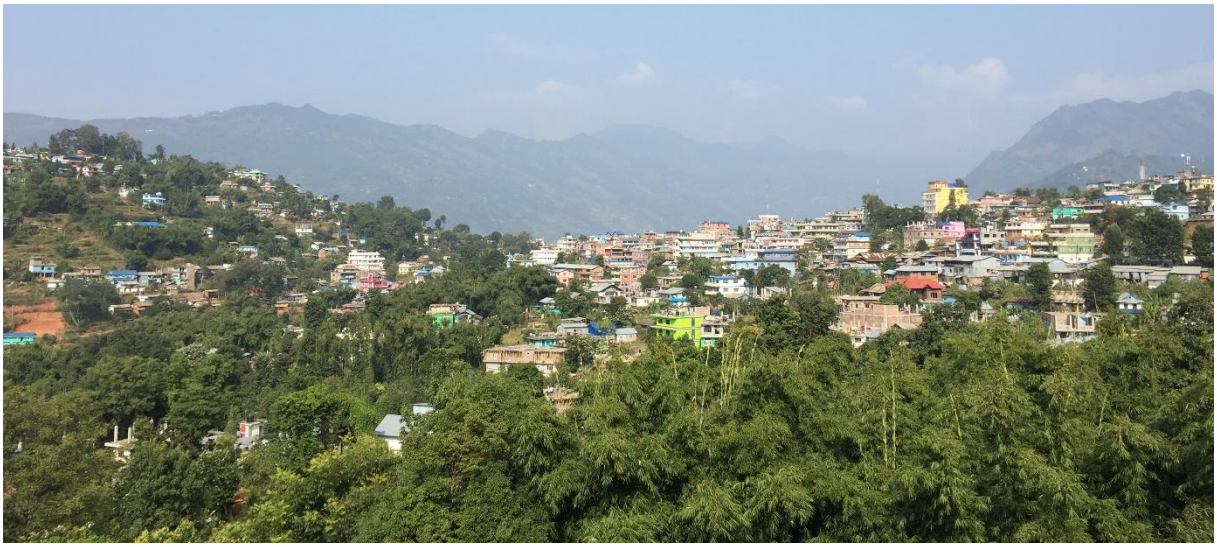

Figure 4 Phidim city (picture made by author during field work in November 2015)

In 2011 >75% of the usually economically active population in Panchthar was engaged in agriculture, forestry or fishery (CBS Nepal., 2014c), therefore these can be considered to be the most prominent economic activities in the district. Especially agriculture plays an important role in the local communities: 80-90% of all district's households in 2011 were involved in agricultural activities (CBS Nepal., 2014d). People living close to or in Phidim city often owned land that they used for the cultivation of crops, especially in the river valleys where the soils are more fertile and the river can be used for irrigation.

Another way to divide Nepal and define the case study area is according to its river systems. The country can be divided into three main river systems: the Kosi, the Gandaki and the Karnali. East Nepal is drained by the Kosi river that contains seven tributaries, therefore is also being known as the Sapta Kosi (CBS Nepal., 2014e). Amongst these seven rivers is the Tamor river, which can be divided in smaller rivers like Hewa Khola and Pheme Khola that partly flow in the municipality of Phidim. Over the years the rivers have been used to develop pico- (<0.1 MW) and mini- (0.1 – 1.0 MW) hydropower plants in the municipality that helped with the electrification of the area (MTR meeting CoCooN project, 14-16 October, 2015).

3.1.2 HYDROPOWER TYPE

To define different types of hydropower the classification by Egré and Milewski (2002) was used (see **table 2**). In order to gain as much insights as possible on the same sort of project ideally the case studies had to be of the same type of hydropower (e.g. both run-off-the-river). The sub-projects of the cascade all used the run-of-the-river scheme as well as the second case, though on a larger scale due to its larger capacity.

Table 2 Different types of hydropower (Egré and Milewski, 2002)

Type of project	Services provided	Main impact sources
Reservoir type	Energy and power	• Changes of habitat and social impacts due to reservoir • Modification of river flows
Run-of-river	Base load with limited flexibility	• Limited flooding • River flows unchanged
Pumped-storage	Power only, net consumer of energy	• Impacts related to upper storage pool
Cross-watershed diversion	Energy only	• Reduction of flow downstream of diversion • Increase of flow in receiving stream
In-stream diversion	Energy and power	• Reduction of flow downstream of diversion
Upgrading	Extends project life, sometimes with increased output	• Few additional impacts
Multipurpose	Hydropower and other water uses	• Impacts mainly due to reservoir • Need to evaluate cumulative impacts of other water uses

3.1.3 HYDROPOWER MODEL

Considering the research objective stating that this research focuses on small-scale hydropower projects the cases preferably had to fall under hydropower model 1, as defined in the problem description. This implies that the projects are probably decentralized and of small-scale. To specify the models further, they have been classified based on different capacities, as could be seen in **table 2**. Model 1 encompasses micro (<0.1 MW), mini (0.1 – 1 MW) and small (1 – 10 MW) scale hydropower projects. Therefore the maximum capacity of the case study projects is 10 MW. The first case consists out of three sub-projects which have a respective capacity of 0.24 MW, 0.15 MW and 0.995 MW. Unfortunately with a capacity of 21.6 MW the second case did not suit the first hydropower model, but fell under the second model (medium scale, >10 MW). The criteria of geography and hydropower type plus the opportunities I had when I was in the field limited the choice for a second case that could fit this criteria, unfortunately.

3.1.4 PROJECT STAGE

In order to assess the whole participatory process of the projects the study preferably had to be ex-post, so the projects had to be finished and operational. This way all stakeholders had time to put things into perspective and evaluate how they had been involved. The sub-projects of the cascade were all operational at time of study. However by doing an ex-post study no data was collected during the actual process itself.

During the field work I had the opportunity to analyse a second case that could complement the results of the first case. I was interested in this, because the development of the cascade took place quite some time ago already. Therefore people may have forgotten how they experienced the development of these projects, for example their concerns during construction may have faded since they have seen how everything works out for them. With the second case I could do an ex-durante study, since when I did my field work the project was being developed.

3.2 CASE STUDY DESCRIPTION

At the time of field work several projects were being developed, also including larger plants of medium-scale (>10 MW). The selected case studies are located at the rivers Pheme Khola and Hewa Khola, both close to Phidim city, and will be described into more detail. An overview of the case studies can be found in the map in **figure 7**.

3.2.1 CASE STUDY 1 – SMALL-SCALE CASCADE PROJECT AT PHEME RIVER

The first case encompasses the three sub-projects **Phidim HPP** (0.24 MW), **Middle Pheme HPP** (0.15 MW) and **Pheme Khola HPP** (0.995 MW), which all fall under the first hydropower model (small-scale) and the category of mini-hydropower (0.1 – 1.0 MW). The projects are located at **Pheme river** and together form a run-of-the-river cascade, sharing an intake and outlet point with several kilometres in between.

The first sub-project of the cascade that was developed was Phidim HPP, commissioned in the year 1981 already and initiated by the Nepalese Electricity Authority (NEA) (Adhikari, 2006). When the field work was being conducted this project was leased by a local cooperative named Phidim Bidyut Upbhokta Sahakari Sanstha Ltd. (PBUS) that is responsible for the operation of the plant (PBUS., 2008). Phidim HPP is located relatively downstream compared to the other sub-projects (see **figure 6**).

Figure 4 Pheme river running through agricultural fields. Pipeline belongs to the hydropower cascade project, transporting water from Pheme Khola HPP to Middle Pheme HPP and Phidim HPP (picture made by author during field work in November 2015)

Pheme Khola HPP was the second project realised at Pheme river, initiated by a private developer named Khoranga Khola Hydropower Co. Ltd. They arranged the Power Purchase Agreement (PPA) of this project in 2001 and in 2007 the plant was ready for commercial operation (NEA, 2015). This sub-project is the largest of the cascade with a capacity of 0.995 MW and is located upstream (see **figure 6**).

In order to complete the cascade project the local cooperative PBUS and the NEA decided to develop a plant in between the two others. In 2007 they arranged its survey license and started constructing the project named Middle Pheme, which is the smallest of the three with a capacity of 0.15 MW (DOED, 2016). Middle Pheme is being sub-leased by B.K. Power Developer Pvt. Ltd, a private company.

Together these three projects form the first case study of this research. For the collection of data I visited the powerhouses of all three projects and conducted interviews with local farmers, employees, developers and institutions both in Phidim city and on site.

Figure 5 Power house of Middle Pheme HPP (picture made by author during field work in November 2015)

3.2.2 CASE STUDY 2 – MEDIUM-SCALE PROJECT AT HEWA RIVER

The second case was included to be able to make a comparison regarding project stage, since the cascade projects were developed quite some time ago. By focussing on a second case that was under construction at time of field work the process of gaining public acceptance could be analysed while it was taking place and issues that came forward in the first case could be explored into more detail.

This case has a capacity of 21.6 MW, which is significant larger as compared to the cascade case. The project falls under the second hydropower model (medium-scale) and is located at Hewa river. The project is named Lower Hewa Khola and was initiated by the private developer Mountain Hydro Nepal (P.) Ltd. They arranged the generation license of this project in 2013 and when I visited the project they were constructing the tunnels and powerhouse. The location marked in **figure 6** resembles the area near one of the project tunnels.

Figure 6 Hewa river close to Lower Hewa HPP (picture made by author during field work in November 2015)

Figure 7 Topographic map with indication of case study areas (adapted by author, original topographic map from (Government of Nepal - Survey Department., 1996))

3.3 RESEARCH METHODS

I collected data with the use of several methods and data sources, which is the strategy of triangulation. This strategy reduces the risk that conclusions only reflect the limitations or biases of a specific method or source, plus it enables the researcher to gain a broader understanding of the researched issues (Maxwell, 2005). Triangulation can strengthen a study. The types of triangulation used for this research are methodological triangulation and data triangulation (Patton, 2002). The following research methods were used: interviews, content analysis and excursions & observations. Different data sources were used, for example interviews with people that represent different stakeholder(groups) and analysis of project-related information as well as academic literature. The different methods and data sources will be discussed in this and next sub-chapter (**3.3 and 3.4**).

3.3.1 INTERVIEWS

From the power-interest diagram (**see 2.1 Procedural justice**) it appeared that stakeholders can be defined according to their power (or influence in decision-making) regarding the hydropower project and their interest in the respective project, which refers to different levels of participation and involvement in the development of a project by different stakeholder groups. In order to get information from several stakeholder (groups) regarding their involvement in the development of the case study projects I conducted interviews with them. In order to obtain data from several sources (data triangulation) I identified three main stakeholder groups that are likely to be involved in the development of small-scale hydropower projects, which are *developers*, *regulators* and *local people*.

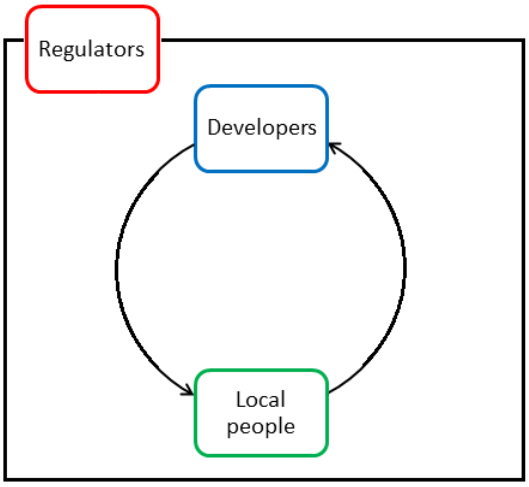

Figure 8 Interactions between main stakeholder-groups regulators, developers and local people

A project developer initiates the project and needs to comply with certain regulations on hydropower development that are set by regulators, like the Government of Nepal or the Department of Electricity Development (DOED). Regulators therefore set the context (or: regulatory framework) in which the interaction between a project developer and the local community takes place when a project is initiated. More specific information on project licensing and the regulations a developer needs to comply with can be found in **Appendix I**. The interaction between developers and local people is central in this research, because these stakeholder-groups are likely to be the key players with highest power and/or interest towards the project, therefore can influence public acceptance of the hydropower project. **Figure 8** visualises the interactions between the three main stakeholder-groups and will be specified for the case studies in accordance with found interactions and stakeholder-groups that were (or were not) involved in the development of the respective hydropower project.

The conducted interviews were semi-structured, which has two key advantages (Cohen and Crabtree, 2006). First of all I could collect all the information I needed to answer my research questions, which could be prepared by structuring the interview questions accordingly.

Secondly, during the interview I could be flexible and ask additional questions or go into other directions that seemed of importance based on the responses of the interviewees.

The interviewees were identified by purposeful sampling, which is a way of deliberately selecting particular (in this case) persons that permit inquiry into and understanding of a phenomenon (Maxwell, 2005, Patton, 2002). By interviewing different stakeholder groups I got a broader understanding of how acceptance of a project can be achieved (data triangulation). First a broad random list of possible stakeholder(groups) was made based on literature reviews of academic articles that I used for writing the thesis proposal. The first step in identifying stakeholders resulted in **figure 8** and the main stakeholder-groups *regulators*, *developers* and *local people*. When I selected the cases the list was specified by evaluating relevant (case-specific) literature and by discussing my research with people from NWCF, one of the Nepalese partners of the CoCooN project. Since the field team of NWCF already went to the case study areas to do research I could make use of their connections in the field to set up interviews. From this starting point the stakeholder identification continued by using the snowballing method to get more respondents of a specific stakeholder group and possibly identifying new stakeholders that could be important for this research. In Phidim city the connections of my translator formed a starting point whereas close to the project sites interviewees were selected randomly when we ran into somebody or came across a house or farm.

I wanted to include as many relevant stakeholders as possible to get a good overview of all parties involved and to be able to say something about how they have experienced the participatory processes and their level of acceptance regarding the projects. The interview questions were based upon the principles of procedural and distributional justice that form the theoretical background of this research and were altered per stakeholder (group). In order to design proper interview questions I used different methods that led to an interview blueprint and an interview guide. First of all, when designing the questions, I conducted a thought-experiment. By doing this insights could be gained on how particular questions work in practice – how will people understand them and respond (Maxwell, 2005). Secondly I did two pilot tests, one with a researcher from the Nepalese Engineering College and one with my translator in Phidim city. Especially the second pilot was important, because it allowed me to discuss with my translator the objective of my research and the kind of data I am looking for with these questions, which increased the accuracy of the translated questions and answers.

Regarding field work I stayed in Nepal for 2 months, of which 4 weeks in Kathmandu and 4 weeks in Phidim city and surroundings. During my stay I conducted over 60 interviews. I did not record the interviews for several reasons. Most importantly was that I got the indication that especially in Phidim people felt a bit uncomfortable being interviewed by me and I did not want to stimulate that by using recording methods. Also with regard to the large number of interviews there was limited time available to transcribe all recordings and summaries were sufficient as well, especially because I had plenty of time to write down responses whilst my translator would ask the next question in Nepali. An overview of the stakeholders I interviewed can be found in the stakeholder database in **Appendix I** and the designed interview blueprint and examples of interview guides are put in **Appendix II and III**.

3.3.2 CONTENT ANALYSIS

In order to say something about whether and how participatory processes took place the data retrieved from interviews was complemented by information obtained from project related documents and other relevant (scientific) literature. In the early stage of field work the NWCF team provided me with lots of information regarding their own research, the study area and the case study projects. Later I also got access to some specific project documents that were handed to me confidentially during or after an interview that contained detailed information about the respective project. When I was allowed to look into a project-related document during an interview I scanned for information related to the principles of procedural and distributional justice. However, I could not anticipate on the type of document I was shown, so information on involvement of local stakeholders was often not there. Still, by asking several interviewees that represented the project developer I could get an idea of how easy or difficult it is to obtain information about a project, where or by whom it is stored and in what language it is provided in, which helped to assess the principle of *access to information* (**procedural justice**).

3.3.3 EXCURSIONS AND OBSERVATIONS

To get an idea of what a small-scale hydropower project looks like and how it works I visited several projects in the area. By visiting these projects I could put the data collected from the interviews in better perspective, which also links to the method of observation. Whilst interviewing can be a valuable method to understand the participant's perspective, observation can enable to conclude things from this perspective that could not be obtained by only using interview data (Maxwell, 2005). Triangulation of observations and interviews can provide a more accurate and complete understanding than either one could alone (Maxwell, 2005). So by visiting the projects I got a better understanding of the case study areas, its inhabitants and the projects.

With help of local connections I was invited to join an excursion to the Upper Hewa project (14.9 MW), which was being constructed at that time at Hewa river. Though this project was not selected as a case study it was the first opportunity to visit a project nearby, which was very useful in terms of understanding how the technique of hydropower works in practice and what such a project looks like.

I also visited the three sub-projects of the cascade case, which I combined with conducting interviews in the area. Because the projects were located in a rather remote area it was difficult to get there and I was not able to go there very often. Therefore I organised a one-day excursion to Pheme Khola HPP (which was the farthest away) for myself and my translator and one two-day excursion to Middle Pheme HPP, Phidim HPP and Pheme Khola HPP where we were partly guided by the senior operator of the first two projects.

For the second case I eventually was also able to organise a one-day excursion for myself and my translator in order to interview some local farmers and see the construction site of one of the tunnels of Lower Hewa HPP.

3.4 DATA ANALYSIS

After data collection the data had to be processed. These two phases within the research took place at the same time, since it is recommended to process and analyse the collected data as soon as possible (Maxwell, 2005). Therefore when I conducted an interview or went on an excursion I transcribed the data and worked out my notes as soon as possible, preferably the same day or day after. The interviews were not transcribed word by word, but summarized.

The initial step of analysing the data was to read back the interview summaries and additional notes made during field work. I preferred to print all interviews and do the analysis on paper rather than make use of some analysis program. For the analysis I used colour coding as can be seen in **table 3**.

Table 3 Overview of colour coding used for data analysis

Procedural justice	Distributional justice	Discourses	Themes	Codes
Inclusion of stakeholders	Equitable sharing of costs/benefits	ENV (environment)	Land acquisition (LQ)	General comments
Access to information	Avoiding unfair/involuntary risk bearing	CC (climate change)	Irrigation (IR)	Case study description (CSD)
Demonstrable public acceptance	Protection of livelihood	ED (economic development)	Expectations, demands and lifestyle (EX)	Check
Free prior informed consent	Provision of compensation, insurance, welfare support	CEN (clean energy)	Safety	
			Local investment (LI)	
			Curiosity and learning	

Blue markings indicate information that fits one (or multiple) principles of procedural justice whilst green markings refer to responses that fit one (or multiple) principles of distributional justice. The interview guide included closed as well as open questions, which were analysed differently. The responses to closed questions of local people were marked by +1, counted and filled in into an Excel database. With help of this database a comparison could be made on the number of locals that for example were and were not invited to a meeting regarding the respective project.

The third column in **table 3** represents several discourses that an interviewee referred to when speaking of hydropower in general. This gave a first notion of one's attitude towards hydropower development in Nepal, e.g. when somebody would state that hydropower affects the river flow then that could be a first indication of somebody being concerned and therefore has a cautious attitude towards a newly initiated project. In the interview texts orange marking was used while the specific codes were written besides the marked text in red writing.

During the analysis several themes came forward that offered a new, additional perspective on the data as compared to procedural and distributional justice , therefore these were marked separately in purple. Finally some additional comments written down where blue referred to general comments, green to information that could be used for the description of the selected cases and red for critical notes or things I needed to check (e.g. find additional literature on).

After all interviews were marked and the responses to the closed questions counted and put in the Excel database I went through the interviews again. This time I noted remarkable responses or responses that came forward often in a separate document to keep track and overview. Also thoughts on interactions and relations between different principles of justice or themes were noted here. This document together with the Excel database formed the basis for writing the Empirical and Discussion chapters.

For the quantitative results some pie charts were made in Excel whilst the qualitative results are presented through schematic figures that represent stakeholders and their interactions that took place during the development of the cases.

The results of this research are presented in the following two chapters. **Chapter 4** goes into the first case study that encompasses a cascade of three sub-projects at Pheme river and **Chapter 5** discusses the results of the second case study Lower Hewa HPP located at Hewa river.

4. CASCADE PROJECT - PHEME RIVER

This chapter analyses the process of gaining public acceptance through the principles of justice as described in the conceptual framework for the small-scale cascade project at Pheme river, containing the sub-projects Phidim HPP (0.24 MW), Middle Pheme HPP (0.15 MW) and Pheme Khola HPP (0.995 MW). The roles of different stakeholders in the development of the cascade project are described together with their influence on decision-making within this process. Because of the stakeholder-oriented perspective on acceptance the principle *inclusion of stakeholders* (**procedural justice**) is put central and complemented by the other principles of justice. Representatives of the main stakeholder groups *developers*, *regulators* and *local people* were interviewed and a fourth main group, namely the *mediators*, could be distinguished based on the mediating role some stakeholders played within the interaction between developers and local people. The regulators set the legal framework and play a controlling and context-setting role. Within the regulatory framework the developers take initiative and involve other stakeholders with whom they (need to) interact. The key interaction considered in this research is the one between the developers and local people with respect to procedural and distributional justice, because these stakeholder-groups are likely to be the key players with highest power and/or interest towards the project, therefore can influence public acceptance of the hydropower project. In some occasions a mediating party was involved to represent needs and concerns of another local stakeholder, like land owners or local people in general.

Figure 9 is a case-specific version of **figure 8** as presented in **Chapter 3** and gives a schematic representation of stakeholder interactions for this case specifically. The main stakeholder groups *local people* and *mediators* could be divided in sub-stakeholder groups that were defined according to factors that appeared to have an influence on the way the stakeholders were involved in the development of the projects. For the main group *local people* the factor of distance led to a distinction between people living close to the project site and people living in Phidim city. These could be specified further into the groups *shareholders*, *land owners* and *affected people* that all had different influence and interest with regard to the cascade sub-projects.

This chapter's structure follows **figure 9** and starts with explaining the regulatory framework that was applicable for the cascade case study. Then the different (sub)-groups and their interactions that took place within the framework will be described into more detail with regard to the principles of procedural and distributional justice.

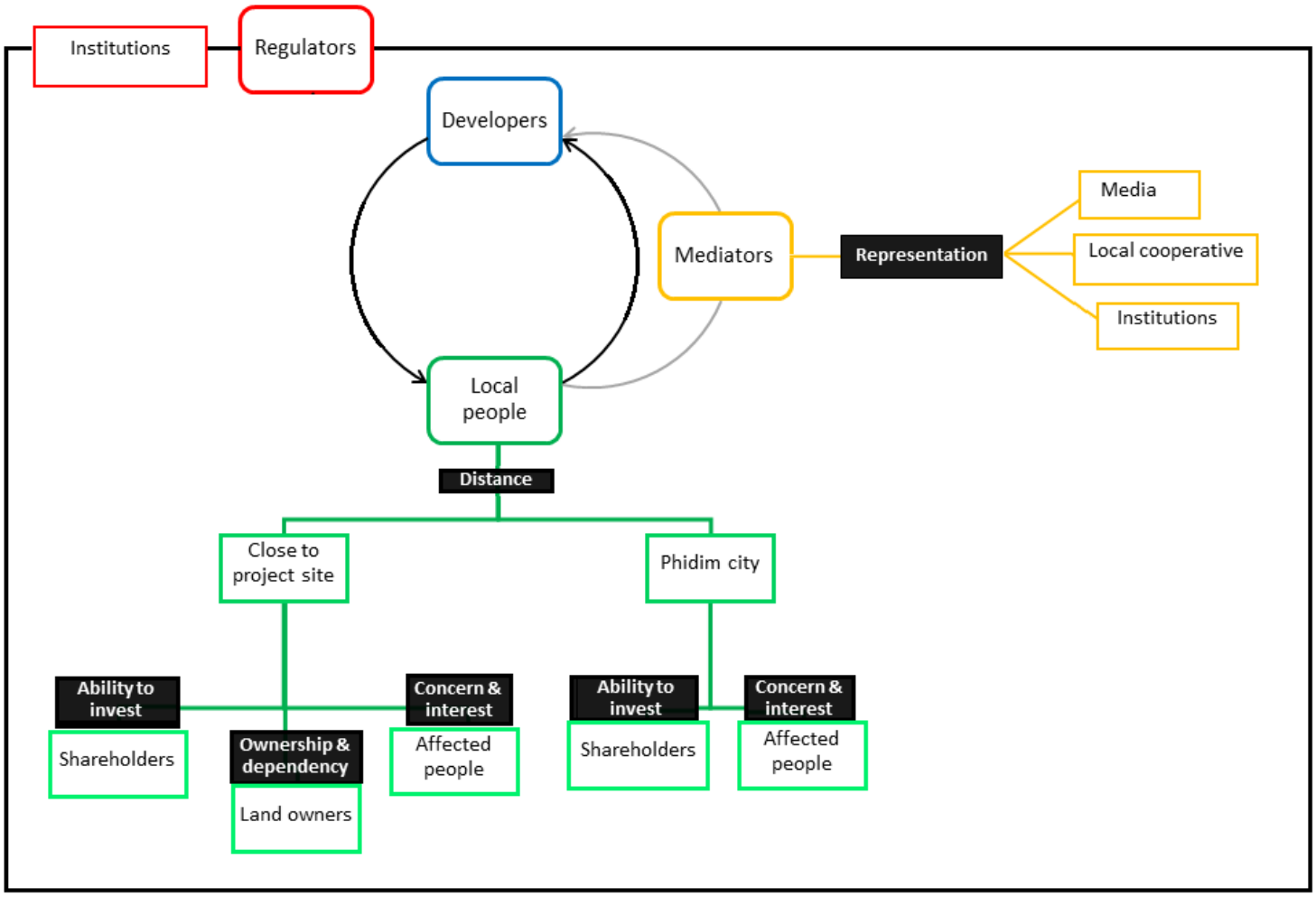

Figure 9 Schematic representation of stakeholder interactions for cascade project at Pheme river

4.1 REGULATORY FRAMEWORK

In Nepal different licensing procedures and regulations exist regarding the assessment of the environmental and social impact of hydropower projects. These differences are linked to the respective capacity of the project of which an overview is presented in **table 4**. The license and associated regulations set a legal framework for the developer regarding, amongst other subjects, public involvement. The broadness and strictness of this framework depends on the capacity of the proposed project, e.g. for the development of a large-scale project more (mandatory) rules exist as compared to the development of a small-scale project. For more detailed information on the licensing procedures in general see **Appendix I**. This sub-chapter only describes the regulatory framework that was applicable for the cascade case and the role of national and local institutions as a regulator and mediator.

Table 4 Overview of legal framework for initiating a hydropower project

	Initial Environmental Examination	Environmental Impact Assessment
<1 MW	No	No
1-50 MW	Yes	No
>50 MW	No	Yes

The cascade projects did not require an Environmental Impact Assessment (EIA) or Initial Environmental Evaluation (IEE), since all sub-projects have a capacity <1 MW. Still some regulations had to be followed by the developers in order to get a license for the respective project. First of all, permission was needed from the Alternative Energy Promotion Centre (AEPC) and District Water Resource Committee. Also the Department of Electricity Development (DOED) had to be informed to ensure that the project did not affect another project in the same area (Interview DOED Environmental Department, December 9 2015; (Ministry of Water Resources., 2001)). Secondly, a recommendation letter from the District Development Committee (previously from Village Development Committee) was needed, which is also mandatory for EIA and IEE (Interview DOED Environmental Department, December 9 2015). Further no strict regulations or manuals exist on public involvement for projects with a capacity <1 MW. Therefore the developers of the sub-projects of the cascade had quite a lot of freedom on how to deal with social inclusion, which emphasizes their influence on the process of gaining public acceptance of the respective project.

ROLE OF INSTITUTIONS

The Department of Electricity Development (DOED) is the central body that monitors the licensing procedure regarding new and existing hydropower projects in Nepal. I interviewed Mrs. Shrestha from the licensing department, who expressed that when local people or developers experiences difficulties during this process they can come to the DOED. The DOED then forms a committee that aims to solve the issues (Interview Mrs. Shrestha, DOED, December 9 2015). According to Mrs. Shrestha these issues are mainly about land acquisition and the determination of a reasonable amount of monetary compensation, which is based on the market or government rates of the land.

The land acquisition takes place during the licensing procedure. Representatives of DOED go to the field and talk with local people about the respective project. After the license is given the DOED is no longer involved, implying that there is no control mechanism in place that monitors compliance of the developer with the mandatory rules on public involvement. Mrs. Shrestha mentioned that this is due to a lack of human resources at the DOED (Interview Mrs. Shrestha, DOED, December 9 2015).

On the local level the District Development Committee (DDC) sometimes plays a mediating role in the development of private hydropower projects. They are mainly involved in community-based projects with a capacity <100 kW, which are coordinated by the DDC's Environment Energy and Climate Change Section. However when issues between private developers and local people are not resolved DDC sometimes becomes involved. According to Mr. Bara, Senior Divisional Engineer within DDC, this especially happens during the land acquisition phase, since sometimes conflict arises over the amount of compensation. When a land owner disagrees with the proposed amount of compensation then he can go to DDC. For the cascade project this did not happen, since most of the required land was not owned by locals (Interview Mr. Bara, DDC, November 4 2015). This could be a possible strategy of a developer to avoid issues over land acquisition.

4.2 STAKEHOLDER INTERACTIONS

The interaction between developers and local people is key in this research. The developers of the hydropower projects are the initiators that take the lead in setting up the project. They can be private, public or initiated by the local community. In case of the cascade project the developers of Middle Pheme HPP and Pheme Khola HPP were private actors (B.K. Hydro Developer and Khoranga Khola Company respectively) while Phidim HPP was initiated by the Nepalese Electricity Authority (NEA). During project initiation as well as construction and operation these developers had several strategies and took different actions that affected different sub-stakeholder groups, which leads to differences in the extend these groups were involved in the developmental process. This section elaborates on how the different sub-stakeholder groups have been included in the project development by describing several factors that distinguished these groups from another. Further it analyses, per stakeholder-group, which justice principles played an important (or unimportant) role for the respective stakeholder, and how they interacted. The section starts by analysing the perspective of the project developers on public acceptance and how they dealt with social inclusion with regard to the applicable regulations. Then it is described how people in the local community first became aware of the project to get a first impression of how they were informed and by which medium after which the involvement of the sub-groups *shareholders*, *land owners* and *affected people* will be discussed.

4.2.1 DEVELOPER'S PERSPECTIVE

All developers involved in the cascade sub-projects expressed that gaining and preserving support from local people is challenging when developing a hydropower project for several reasons. First of all a project leads to disturbances in the community. Therefore the developer and local people need to reach consensus about demands of the community versus to what extend these demands can be fulfilled by the project. Examples of demands by local people are facilities like free electricity and roads.

A second reason why gaining and preserving support from local people is challenging according to the developers is the diversity of the community, mainly in terms of wealth and education. People who do not know about hydropower need to gain some understanding in order to be convinced (Interview Basante Nembang, December 7 2015). The level of education having an influence on acceptance of hydropower projects was also mentioned by a representative of the DDC Environment Energy and Climate Change Section. He stated that this is one of the challenges of developing small-scale hydropower projects, because it is difficult to convince people about the hydropower project when they often do not know that electricity can be produced from water (Interview DDC Energy and Climate Change Section, November 23 2015).

STRATEGIES TO ENHANCE ACCEPTANCE

With respect to the challenges mentioned by the developers of the cascade sub-projects different strategies could be distinguished that were used (knowingly or unknowingly) to enhance acceptance of the project by the local community. An overview of the strategies that came forward for the case study at Pheme river is listed in **table 5** together with the principle(s) of justice that they influenced.

Also, several strategies appeared to involve a mediating party that represented one or multiple stakeholders and participated in negotiations with the project developer. The different strategies and role of the respective *Mediator* will be discussed one by one.

Table 5 Overview of strategies to enhance acceptance of a small-scale hydropower project

Strategy	Principle(s) of justice	Mediator
Early involvement	• Inclusion of stakeholders (procedural justice)	-
Feeling of ownership	• Inclusion of stakeholders (procedural justice) • Equitable sharing of costs and benefits (distributional justice)	Local cooperative
Gaining trust within community	• Demonstrable public acceptance (procedural justice)	-
Avoidance	• Inclusion of stakeholders (procedural justice)	Media
Media involvement	• Inclusion of stakeholders (procedural justice) • Access to information (procedural justice)	-

EARLY INVOLVEMENT

The stage in which the local community becomes involved can influence their acceptance of the project. Therefore a developer's strategy can be to involve and inform the local community in the beginning of the process. In this case study local people expressed that they appreciated to have been informed and included in an early stage of the development. By having public participation from the beginning it allows a developer to collect views and determine benefits and demands of the community. However, developers expressed that the projects could not fulfil all the demands and needs of local people, because each project has (budget) limitations, but still people often expect that their demands are fulfilled (Interview NEA, December 4 2015; MTR CoCooN, October 14-16 2015). This leads to negotiations where the developer needs to be clear on the extend demands will be fulfilled under the concept of Corporate Social Responsibility, which then creates small-scale support of the project (Interview NEA, December 4 2015). Apparently timing plays a role in enhancing the principle of *inclusion of stakeholders* (**procedural justice**): involvement in an initial stage can have a positive effect on people's attitude towards the project, therewith also possibly empowering the trust-relationship with the project developer.

FEELING OF OWNERSHIP

Enhancing acceptance through the principle of *inclusion of stakeholders* (**procedural justice**) can also be done by giving the community a feeling of ownership with regard to the project, which is especially important for projects that are initiated by private developers, since these projects are owned by the respective companies and shareholders that are not always local or only involve few (wealthy) locals. However a private developer can strengthen the feeling of ownership of the community towards the project by for example leasing the project to the local community, which was done for Phidim HPP and Middle Pheme HPP. A local cooperative was set up that represents

local people and is responsible for operating and coordinating the projects when running. Besides the effect of local people positively attaching to the project such a cooperative can also have a positive effect on local employment, which can be seen as a benefit for the local community (principle of *equitable sharing of costs/benefits* (**distributional justice**)).

The NEA (initiator of Phidim HPP) asked people from the local community to form a cooperative, which was named Phidim Bidyut Upbhokta Sahakari Sanstha Ltd. (PBUS). The cooperative arranged the workers, determined how to distribute electricity properly and how to handle power cuts (Interview Mr. Thamsuhang, November 8 2015). Phidim HPP therefore is being leased by PBUS, which agreed to operate the plant. NEA and PBUS formed a Coordinating Committee including two members of both parties which is responsible for things like safety and coordination of the project. The cooperative also agreed with NEA to construct an new hydropower project with a capacity of 150 kW to complete the cascade project: Middle Pheme HPP (PBUS., 2008). This project is sub-leased by B.K. company.

According to Mr. Thamsuhang, chairman and direct member of the cooperative, the developers wanted to help with the electrification of the area, but expressed that they needed local support to establish this. The cooperative consists out of 15 people (all locals) and aims to look after the interests of local people. During meetings with the developer and shareholders the cooperative represents the local people. Members of the cooperative can ask questions, express one's opinion and have access to all project-related information (Interview Mr. Thamsuhang, November 8 2015; Interview LP Phidim, November 16 2015). This indicates that they have the same amount of influence on decision-making and access to project-related information as shareholders (*access to information*, **procedural justice**). Local people are not invited for this meeting, but they are informed afterwards in another meeting. Once a year there is a meeting for local people and cooperatives where people can ask questions and express their opinion. When there are critical comments then the developer explains why certain issues (like power cuts) occur and problems are solved accordingly (Interview LP Phidim, November 8 2015; Interview LP Phidim, November 16 2015).

The issue of ownership works differently for projects initiated by the local community, since then the community takes the lead and invests, which gives them ownership of the project for unlimited time (Interview DDC Environment Energy and Climate Section, November 23 2015). Because the benefits of the project stay within the community this enhances the acceptance of the project, however with ownership comes responsibility. Therefore everybody in the community needs to attend meetings regarding the project, which is being checked by the Village Committee. When somebody does not fulfil these responsibilities then he will not receive the project benefits (e.g. not given electricity) (Interview DDC Environment Energy and Climate Section, November 23 2015). This penalty system ensures community participation by creating a feedback loop between the principle of *inclusion of stakeholders* (**procedural justice**) and *equitable sharing of costs/benefits* (**distributional justice**).

GAINING TRUST WITHIN COMMUNITY

Another way to gain support is to have a project initiated by local people, which can be done by having local people setting up a private company themselves, which was done by the developers of Middle Pheme HPP and Pheme Khola HPP. One of the board members of these companies lives in Phidim city and set up the companies B.K. Power Developer Pvt. Ltd. and Khoranga Khola Hydropower Co. Ltd. with the objective to develop resources in rural areas that were not connected

to the national grid, since there was a necessity of electricity (Interview Basante Nembang, December 7 2015). Because he lives in the area himself he stated that it was easier to gain support from the other local people, implying that trust appears to have an influence on the process of gaining acceptance of a hydropower project.

One can define trust as ''the willingness to be vulnerable under conditions of risk and interdependence'' (Huijts et al., 2007: 2780). Instead of acting upon full knowledge about the technology of hydropower one can choose to act upon trust, meaning that one has to rely on others, in this case the project developer. Trust therefore can be seen as particularly relevant in situations where the local community is relatively poorly educated, which was the situation for the cases studied in this research. Huijts et al. (2007) point out that a lack of trust can negatively influence people's willingness to cooperate with the developer, which hampers the acceptance of the project by the local community. On the other hand trust allows people to develop a positive attitude towards the project without having to understand all the details about the technology (Huijts et al., 2007).

Trust is an important element of perceived process fairness, especially when the project developer is a community outsider, because then trust in one's aims, attitude and competence can more easily become an issue (Wüstenhagen et al., 2007). In such cases the transparency of the process for local involvement and flexibility and open mind from the developer are crucial (Wüstenhagen et al., 2007), which refers to the principle of *demonstrable public acceptance* (**procedural justice**). A developer with local connections therefore has a possible advantage with regard to enhancing this principle to compass acceptance compared to a developer from outside the community. In the cascade case the developer had local connections and recognized that this indeed smoothened the development and collaboration with the local community.

AVOIDANCE

The strategy of avoidance came forward in the cascade case, specifically in Phidim HPP which was initiated by NEA. Several developers expressed that one of the main challenges with hydropower development is the process of land acquisition. By selecting a site for the project that is sparsely populated or that contains land which is mainly owned by the Nepalese government a developer seems to aim to avoid the possibility of encountering complex social issues that may rise when land has to be acquired which is owned by local people. The case study area of the cascade project was rural and sparsely populated, therefore the social complexity relatively low. During the period of field work the cascade sub-projects were producing electricity for quite some time already and from interviews it became clear that at the time of development of these sub-projects even lesser people were living there. The strategy of avoidance therefore influences the principle of *inclusion of stakeholders* (**procedural justice**) by considering the characteristics of the project area in the selection of a project site.

The attractiveness of rural areas that are sparsely populated was also recognized by Mr. Timalsina (junior), who works for Mountain Hydro on Lower Hewa HPP. He mentioned that the possibility of encountering social issues is included by the company as a factor to determine the project site (Interview Mr. Timalsina (junior), December 10 2015).

MEDIA INVOLVEMENT

According to the regulatory framework a developer needs to inform the local community about the project through several media. In the cascade case the developer emphasized the role of the media by sending a letter to the head of the journalists to invite all journalists for a meeting. At that meeting they were told about when the project would start, how many people were involved, how much money was invested, etc. The journalists wrote a report on this which is accessible for local people (Interview journalist, November 2015). For Middle Pheme HPP and Pheme Khola HPP local people were informed about the sub-projects via the local newspaper, where for example the amount of electricity to be produced was announced. The developer did not organise a meeting for the local people, which was also not mandatory by law for these projects (**see 5.1 Regulatory framework and Appendix I**). However, land owners whose land was needed for the project were involved more personally (Interview Basante Nembang, December 7 2015), which has to do with the fact that the developer and respective land owner have to come to an agreement about selling/leasing the land and the sort and amount of compensation provided.

By writing a report about the project the journalists played a role in informing local people about the project, which is reflected in the principle of *access to information* (**procedural justice**). Further the media also played a mediating role, for example in cases when local people were concerned about the drying up of the river because of the project then they were invited for a meeting. At this meeting locals and developers could share their problems with the journalists. The journalists came to the meeting to solve problems and cooperate with both parties (Interview journalist, November 2015).

The strategy of media involvement shows similarities with the strategy of gaining trust by involving a local mediator, since it is likely that the journalists are local people as well or at least known by the local community for a longer period of time.

4.2.2 LOCAL PEOPLE PERSPECTIVE

In order to gain more insights in the relationship between the developer and local people data was collected on how the local community first became aware of the projects. Local awareness can give an indication of the effort of the developers to inform local people (and whether that worked effectively). The results can be seen in **figure 10**.

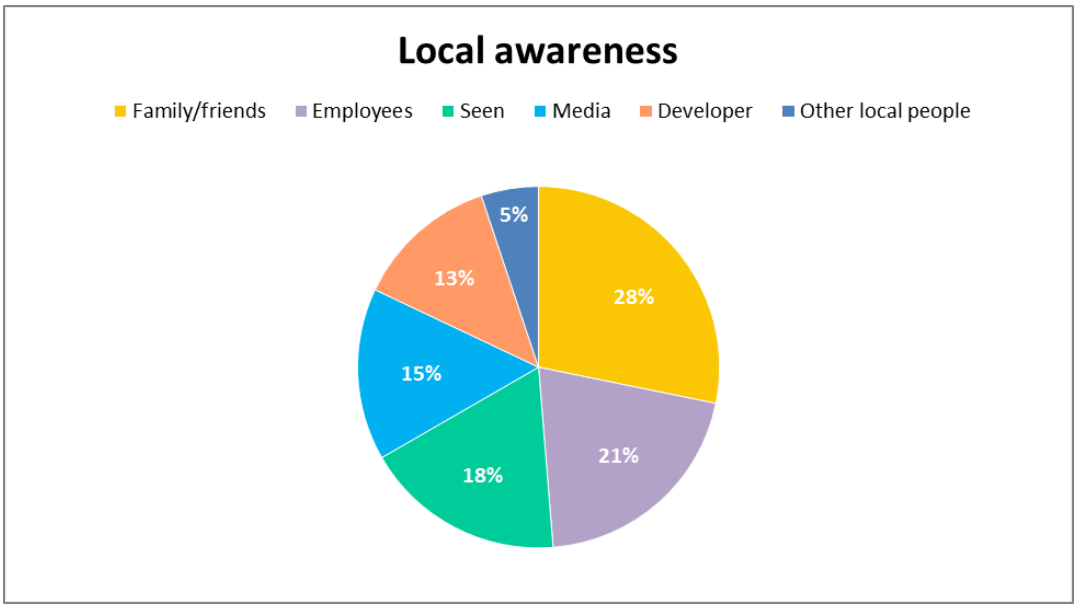

Figure 10 Different sources of how local people became aware of the cascade sub-projects. N=39.

People mentioned different sources from which they became aware of the hydropower project's existence. From **figure 10** it can be seen that most people heard about the sub-project(s) through *family or friends* (28%). Also a lot of people *saw* the project being constructed (18%) and talked to people that worked for the project or knew local *employees* (21%). The sources *media* and *developer* represent respectively 15% and 13%. These can (partially) be linked to initiatives from the developer to inform local people like spreading pamphlets, publishing notice in local media sources and approaching some people personally. However most local people heard about the project via other sources within the community.

INVOLVEMENT OF LOCAL SUB-STAKEHOLDER GROUPS

The broad stakeholder group local people can be divided into sub-stakeholder groups when considering the ways they were involved (by the developer) in the hydropower projects. For this case study different factors appeared to have an influence on this, which are (1) distance, (2) concern and interest, (3) ownership and dependency and (4) wealth. By these factors different sub-stakeholder groups could be distinguished, namely (1) the rural and the city citizens, (2) the affected people, (3) the land owners and (4) the shareholders. In this section the different influential factors and sub-stakeholder groups will be analysed with respect to how they were included in the project development process and which justice principles appeared to play a role in the acceptance of a sub-stakeholder group towards the respective hydropower project.

THE RURAL AND THE CITY CITIZENS

The first influential factor is distance towards the hydropower project. For this research the stakeholder group of local people could be divided into categories that reflect how close they were living to the respective project: close to the site or in Phidim city. People that lived close to the site were often more involved by the developer compared to the people that lived in Phidim. In **figure 11** it can be seen that overall most people have been in touch with one of the developers (60%). However from this group most people lived close to one of the project sites compared to a significant lesser amount of people that lived in Phidim.

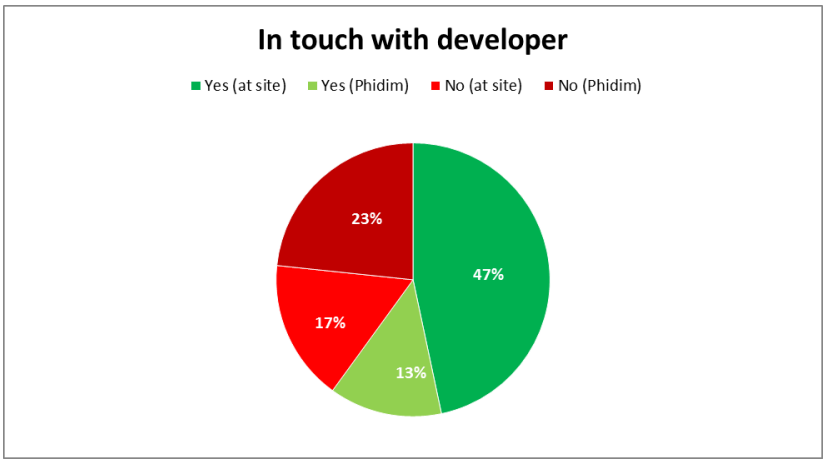

Figure 11 Overview on whether local people were in touch with the project developer, distinguishing between local people living close to the project site and local people living in the city. N(total)=30, N(at site)=19, N(Phidim)=11.

Another way that makes this division in involvement visible is to look at the amount of people that was invited to a meeting regarding one of the sub-projects as can be seen in **figure 12**. In total 63% of the respondents was invited to a meeting. Most people that were invited were people living close to the project site (78%) compared to 22% of invited people living in Phidim.

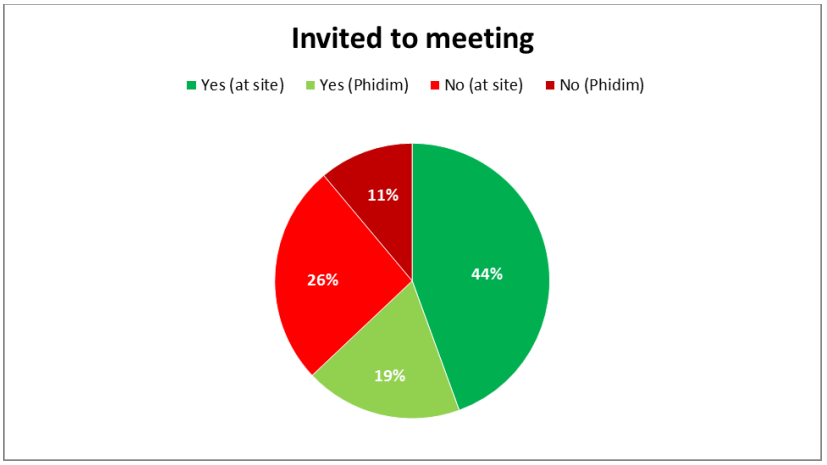

Figure 12 Overview on whether local people were invited to a meeting, distinguishing between local people living close to the project site and local people living in the city. N(total)=27, N(at site)=19, N(Phidim)=8.

The principle of *access to information* (**procedural justice**) gives another perspective on the level of inclusion of local stakeholders. A small majority of the locals (61%, N=23) expressed that they did not have access to project-related information (e.g. specific reports). However most people did feel well informed about the project (61%, N=23) and only few expressed that they would have wanted access to the information or be better informed in order to learn how hydropower works. However there were more locals who stated that they did not want to have access to information about the project mainly because they were simply not interested or because they felt like it was not necessary for them to be fully informed.

For this case it appears that a lack of *access to information* may not have had a negative effect on the acceptance of the project by locals. Most locals were satisfied with the amount of information they received, however few would have liked to learn more about hydropower. With regard to accessibility of information myself I experienced that it was quite easy to have a look at specific project-related documents, like a DPR (Detailed Project Report). For example Mr. Poudel, senior project operator of Middle Pheme HPP and Phidim HPP, provided me with a document which contained very specific information about the lease agreement between NEA (Nepalese Electricity Authority) and the local cooperative *Phidim Bidyut Upbhokta Sahakari Sanstha Ltd.* (PBUS., 2008). The documents I was allowed to see were all in English, which seems logical since they knew I do not understand the Nepali language. However during an interview with Mr. Limbu of the DDC department of Energy Environment and Climate Change it appeared that the Detailed Project Reports (DPRs) of the projects DDC is involved in (<100 kW) are all in English because some terms (like *turbine*) are difficult to translate into Nepali. Also he expressed that English is the international language so all the educated people are able to read it (Interview DDC department Energy Environment and Climate Change, November 23 2015).

The link between education, language and information accessibility also became apparent through an interview with an engineer of Pheme Khola HPP, who stated that local people did not have access to information about the project, because they do not understand the technical aspects (Interview engineer November 17, 2015). Another influential aspect on accessibility to information is wealth, referring to the shareholders. Several locals expressed that only ''important'', ''rich'' and ''high level'' people have full access to project related information, so apparently specific information is only accessible to shareholders and maybe people from more upper classes.

THE AFFECTED PEOPLE

The factor of concern/interest shapes the sub-stakeholder group of the affected people, who can live either close to the project (farmers) or in Phidim city. The factors of concern and interest imply that the affected people are interested in the implications the project (possibly) has for them personally. For example the effect of the project on their irrigation or whether or not they can benefit from the project. When they expect the project to affect them in a negative way they may be concerned and less willing to accept the project, which refers to the principles of *equitable sharing of costs and benefits* (**distributional justice**) and *demonstrable public acceptance* (**procedural justice**).

Both in the rural areas as in the city all local people I spoke with expressed that they were happy with the cascade project (N=33). They mentioned several benefits they received from the project as the main reason for this, e.g. *rural electrification*, *development (both national and local)* and *improved lifestyles*. With regard to electrification most people, both in the rural areas as in Phidim city, currently have access to electricity (97%, N=31), which can be assigned as a benefit of the development of the cascade project, since most of the people did not have access before the hydropower projects were there. 77% of the people got electricity due to the cascade project (N=30), which has a positive effect on the standard of living of people (Interview engineer November 17 2015). Lifestyles were improved because of the electrification, for example because with electricity people could light their houses at night, but also because of the improvement of other facilities like roads. The construction of roads that were needed for transportation of materials and machinery for the projects increased the mobility of the local people too, since the roads are publicly accessible and contributed to enhancing the poor infrastructure in the area.

The increase in mobility subsequently has a positive effect on development, since it makes it easier for farmers in the rural areas to sell their goods in the city.

Besides benefits of the project there are also concerns, risks and costs. For local people these can become an issue when the project (possibly) affects their livelihood in a negative way and is being reflected in the principle of *protection of livelihood* (**procedural justice**). This research focused on two possible factors of concern: affected irrigation and land acquisition.

When a hydropower project is developed this has an influence on the amount of water flowing in the river, which can indirectly have an effect on the irrigation systems of local farmers. The area of the cascade project is not densely populated, but the few farmers I spoke with (N=10) all stated that their irrigation system was not negatively affected by the project and that there is enough water available to water their crops. Some also mentioned that agreements were made on water availability for hydropower and irrigation. A certain percentage of the river water needs to remain in the river at all times for environmental and social purposes (guaranteed minimum flow). One of the engineers who was involved in the development of Pheme Khola HPP told me that the developer organised a meeting for people who were concerned, for example about their irrigation. The developer needed to find a way to manage the water for different purposes (hydropower, irrigation, drinking water) (Interview engineer November 17, 2015). In case of Middle Pheme HPP and Phidim HPP the developer built a canal through which excessive water flows back into the river. Farmers can use water from this canal for their irrigation too. Land acquisition as another possible factor of concern will be discussed separately for the specific sub-group of land owners.

In **figure 9** there are two groups of affected people: one living close to the project site and one living in the city. These groups differ in how they experienced the cost/benefit ratio of the cascade project. People living close to the project site were more exposed to possible risks (or: costs) of the hydropower project, therefore may also have been more concerned. The group affected people living in the city mainly benefited from the project by gaining access to electricity and other facilities, which could also explain why people living close to the project were more involved (e.g. invited to meetings, see **figure 11 and 12**) compared to people living in Phidim city.

For both groups of affected people in this case study the benefits outweighed the (possible) costs, which could be the reason that everybody I spoke with expressed that they are happy with the project. It therefore seems that acceptance is strongly influenced by the principle of *equitable sharing of costs and benefits* (**distributional justice**) whilst the principle of *inclusion of stakeholders* (**procedural justice**) appears to play a more important role in gaining acceptance when a stakeholder faces (possible) personal costs, for example loss of land, and therefore needs to negotiate/discuss these issues and subsequent solutions with the respective project developer.

THE LAND OWNERS

In order to realise a project the developer needs a certain amount of land to build the different constructions, like the powerhouse. The land is often owned by the government or by local people. With respect to the issue of land acquisition several principles are addressed: *avoiding unfair and involuntary risk bearing* (**distributional justice**), *provision of compensation, insurance and welfare support* (**distributional justice**) and *free, prior and informed consent* (**procedural justice**).

These are reflected in several steps in the land acquisition process, like the bargaining between land owner and developer, whether or not a land owner felt pressurized to sell, whether agreement is reached and what sort of compensation is provided in exchange of the land.

In case of the private sub-projects the developer approached the land owner personally, because they had to come to an agreement whether or not the land would be given, leased or sold for the project (Interview Basante Nembang, December 7 2015). During the licensing procedure the exact location of the project is determined and it is sorted out which land belongs to which land owner. The developer then reaches out to these land owners to convince them to sell their land. I spoke with a land owner who sold land for Pheme Khola HPP, who stated that the developer (Khoranga Khola) came to him and invited him to a meeting orally. The developer explained why they needed his land and they came to an agreement, so he sold his land (Interview local people (close to project site), November 18 2015). This agreement is legal and often the land is sold, so a monetary compensation is received. To come to a reasonable price the developer checks the market rate of the respective land in a local office, which is used as reference to come up with a reasonable offer. For Phidim HPP, initiated by NEA, the land was owned by the government, so no interaction was needed with local land owners (Interview local people (close to project site), November 19 2015).

In the area of the cascade there were not many land owners living who were asked to sell their land to the project. The few I spoke with expressed that they sold their land, because they felt like it was their moral obligation or duty to sell the land for developmental work that benefited their community (Interview local people (close to project site), November 18 2015; Interview local people (close to project site), November 20 2015). Almost all received a monetary compensation for their land. The fact that the respective land owner has to agree with the amount of compensation the developer proposes, increases the land owner's influence on the project compared to other sub-stakeholder groups, though this influence is limited to the required land rather than the project as a whole. A developer highly depends on the agreement made with the land owner, since without an agreement the project needs to be redesigned, which can lead to extra costs.

After the land owner and developer come to an agreement the ownership papers are officially transferred to the developer, indicating that the influence a land owner has is temporal. Only one of the land owners I spoke however kept being influential by investing the compensation money he received in Pheme Khola HPP, through which he became a shareholder (Interview Shyam Adhikali, November 25 2015). Most land owners however prefer money for compensation.

THE SHAREHOLDERS

Finally there is the sub-stakeholder group of shareholders, distinguished through the factor of wealth, which says something about somebody's ability to invest in the project. Whilst the project was being set up and constructed the private developers organised frequent meetings for shareholders and staff members. During these meetings several things were discussed, like further development, maintenance, sales and specific (technical, economical) issues (Interview Birindra Nembang, November 7 2015; Interview Shyam Adhikali, November 25 2015). This implies that shareholders have full access to information regarding the project (*access to information*, **procedural justice**). The amount of shares determines the extent a shareholder has influence on decision-making, since decisions are made when the majority of shares (51%) agrees (Interview Shyam Adhikali, November 25 2015).

I interviewed Mr. Adhikali, who has a 5% share in Pheme Khola HPP and became shareholder in the initial stage of the project, together with 16 others. He told me that the shares were divided according to the amount of money invested. When an economical issue occurs then one of the shareholders invests more money and one's share (and thus influence on decision-making) increases accordingly (Interview Shyam Adhikali, November 25 2015). Since the shareholders invest in the project they also make profit by selling the electricity to the NEA (Nepal Electricity Authority).

Regarding the principle of *equitable sharing of costs and benefits* (**distributional justice**) the shareholders thus have a specific (extra) benefit which the other sub-stakeholder groups do not have which is based on a difference in investing capacity. This was also pointed out during the MTR meeting of the CoCooN project where the issue of local investment was discussed. Conclusion was that local people do not lack the willingness to invest, but they lack the capacity to invest. People want to have a share and benefit from the project as well, but they do not have the money to invest (MTR meeting, October 14-16 2015). This issue is recognized by another private developer who stressed the importance of local people having a feeling of ownership and connectedness towards the project to enhance acceptance (Interview Dr. Shrestha, December 10 2015).

In the beginning the shareholders would meet frequently, however currently they meet once a year about the further development of the cascade project. Since the demand for electricity is growing, the projects need to be revised. Therefore during these meetings there is an opportunity for local shareholders to (re-)invest in order to increase the capacity of the projects. Again these are the persons that have influence on the decisions that are made (Interview LP Phidim, November 5).

4.3 CONCLUSION

From the cascade case it appeared that the involved stakeholders all had a very positive attitude towards the project, which was reflected in the principle of *demonstrable public acceptance* (**procedural justice**). The level of *inclusion of stakeholders* (**procedural justice**) seemed high, though at the time the project was initiated not many people were living in the respective area. The developer may have chosen the area on purpose in order to have the project accepted more easily, which came forward in the strategy of avoidance. Developing in an area with low population density can to a certain extent decrease the (social) complexity, because the developer has to include less stakeholders.

The positivity could also be a result from the fact that the cascade project is running several years already. People may not recall the issues that appeared during the developmental process, because they see how it has worked out eventually. The issues or concerns they may have had during the process are put into perspective of the final result, which they expressed is very beneficial. Because of these reasons I decided to look at a second case in the next chapter which was under construction at the time of field work in order to see what the stage of development means for acceptance of the project.

5. LOWER HEWA HPP – HEWA RIVER

This case has been analysed in addition to the cascade project in order to gain more understanding of the influence of project stage and capacity on the process of gaining public acceptance. The project is named Lower Hewa HPP (21.6 MW) and is located at Hewa river, close to Phidim city. This chapter is structured similarly to previous chapter by describing the roles of different stakeholders in the development of the project together with their influence on decision-making within this process. Again the principle *inclusion of stakeholders* (procedural justice) is put central and complemented by the other principles of both procedural and distributional justice.

This case has been analysed more in-depth and more thematic with a focus on land acquisition and irrigation concerns. Land acquisition is a necessity in order to obtain the required land to develop a project and developers of the first case study indicated that this is a complex, challenging process. It also came forward as an important issue in the report of the WCD (2000), therefore was chosen as a one of the themes that were analysed in the second case study Lower Hewa HPP. In the previous case it appeared that the (possible) costs of a hydropower project are mainly experienced by stakeholders that live close to the project. Because agriculture is an important activity in both case study areas and people often rely on the river for irrigation of their crops the second theme is about water allocation between hydropower and irrigation. The principles of justice are considered from these thematic perspectives and the interaction between the project developer and the sub-stakeholder groups *land owners* and *affected people* is key, because these two sub-groups are very likely to be (potentially negatively) affected by the project. When people are affected negatively they may be less acceptive of the project, therefore this case study took a thematic approach and looked for narratives of local land owners and farmers to analyse how these issues affect acceptance and how to deal with that.

Figure 13 shows a schematic representation of the stakeholder interactions of this case. The same four main stakeholder groups (*regulators*, *developers*, *local people* and *mediators*) apply as in the cascade project and sub-stakeholder groups again have been defined according to factors that appeared to have an influence on the way the stakeholders were involved. For this case the factor of distance was not considered, since the focus was on the involvement of sub-stakeholder groups that lived close to the project (land owners and affected people). Following the structure of the cascade case first the regulatory framework is briefly explained, after which the different (sub)-groups and their interactions that took place within this framework will be described into more detail.

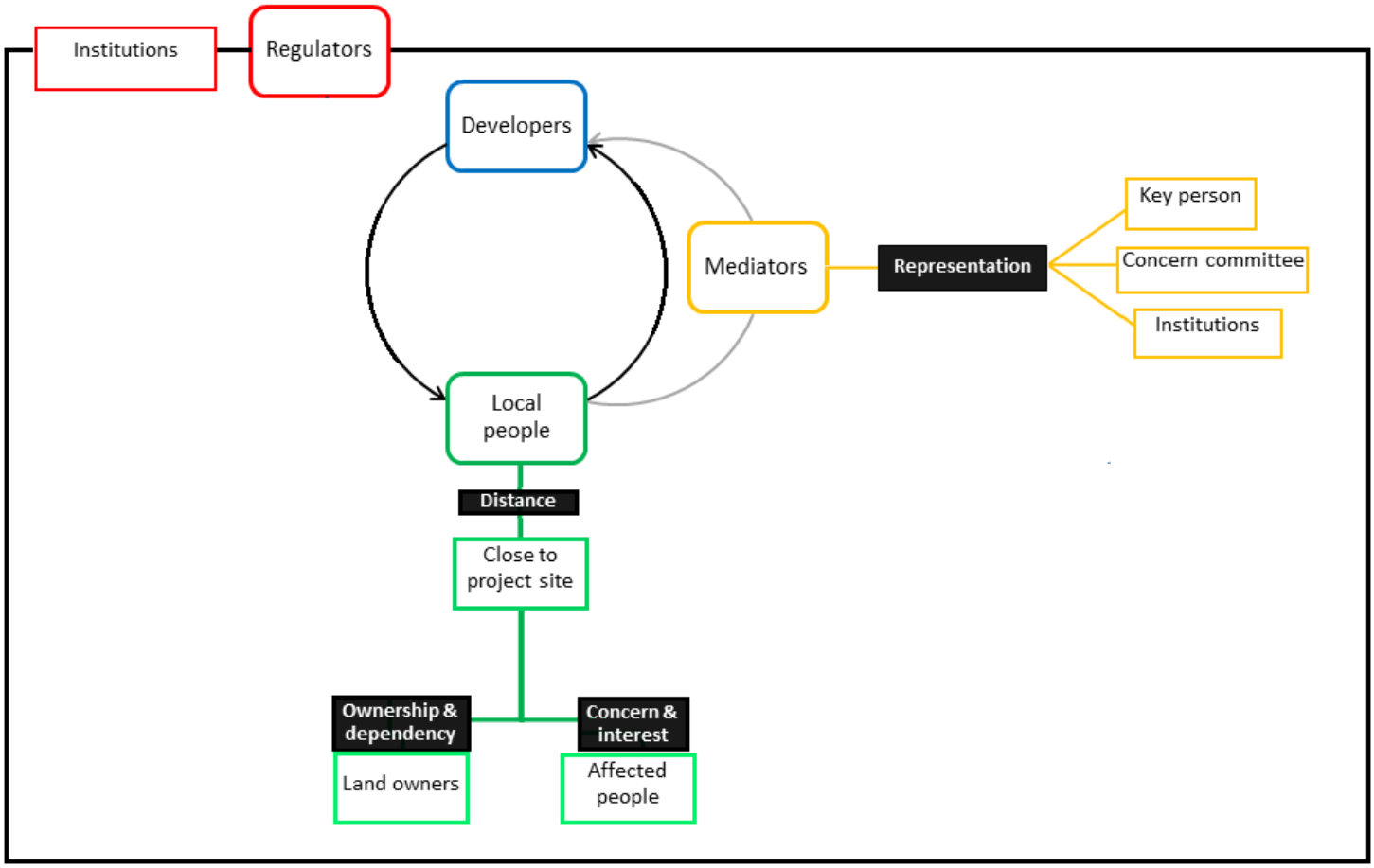

Figure 53 Schematic representation of stakeholder interactions for Lower Hewa HPP

5.1 REGULATORY FRAMEWORK

For Lower Hewa HPP the regulatory framework regarding the assessment of environmental and social impact of the project looks different compared to the cascade project at Pheme river, which has to do with the difference in capacities. More information about the relation between project capacity and regulations on licensing can be found in **Appendix I**. This sub-chapter only describes the regulatory framework that was applicable for Lower Hewa HPP. The role of national and local institutions as a mediating party did not differ from the first case study, therefore can be read in **Chapter 4.1**.

With a capacity of 21.6 MW the developer had to perform an Initial Environmental Examination (IEE) and in order to acquire a license. At the website of DOED different forms and manuals for IEE can be found, which also include regulations and guidelines on social inclusion. Examples are manuals for addressing gender issues and conducting public hearings (DOED, Unknown).

For the developer of Lower Hewa HPP the most important requirement regarding social inclusion was to publish a public notice in the area and in a national level daily newspaper about the proposed project. In here several stakeholders (municipality, DDC, concerned individuals, etc.) were requested to provide feedback on the possible impact of the project on the local environment within a specific time frame. The developer needed to collect the comments and recommendations by different stakeholders and incorporate the raised issues in the IEE proposal report (DOED, 2005).

When the project proposal was approved then another public notice had to be issued in a national level daily newspaper regarding the IEE proposal (DOED., 2001). Furthermore a recommendation letter from the DDC was needed (Interview DOED Environmental Department, December 9 2015).

5.2 STAKEHOLDER INTERACTIONS

For this case the interaction between the developer and local people taken as a key focus central like it was in the previous case. The developer of Lower Hewa HPP is Mountain Hydro Power (P) Company Ltd., a private developer. The stakeholder-group local people has been divided into the sub-stakeholder groups land owners and affected people in accordance to the themes of land acquisition and irrigation concerns/issues. These themes will be discussed with regard to the principles of justice. Finally the role of specific mediators for this case is described.

5.2.1 DEVELOPER'S PERSPECTIVE

Similar as for the cascade project the initiative to include (local) stakeholders in Lower Hewa HPP comes from the developer. Local people were informed via local radio and newspapers and during meetings, which were announced in local media (Interview Mr. Timalsina (junior), December 3 2015). During these meetings the developer provided information about the project and local people could express their opinion and demands. For Lower Hewa HPP three public hearings were held and all attendants had to sign to indicate their presence. This attendance list has been included in the IEE report (Interview Mr. Timalsina (junior), December 10 2015). According to Mr. Timalsina (junior), who works for Mountain Hydro on management and social issues, permission from the local community is needed in order to continue with the project. If local people have any obligations they can notify the DOED on this (within 14 days after the meeting) and then the project is paused. For Lower Hewa HPP there were no complaints so the project could proceed (Interview Mr. Timalsina (junior), December 3 2015). This is all part of the regulatory framework described earlier. Though the meetings were not mandatory by regulations, they appear to have been used as a mean to collect comments and recommendations, which had to be incorporated in the IEE report.

Mr. Timalsina (junior) stated that he thinks the main challenge in developing hydropower in Nepal is the social aspect. Especially during the land acquisition process issues arise regarding compensation, which take time to solve (Interview Mr. Timalsina (junior), December 3 2015). This also came forward in interviews with other developers who are involved in hydropower projects of similar capacities. Mr. Dhungana, managing director of Panchthar Company who is currently developing Upper Hewa HPP (15.6 MW) in the same river as Lower Hewa HPP, affirmed these findings and stated that the concern committee (Sarokarsamiti) sometimes can interfere and mediate between the developer and local people in order to solve issues (Interview Mr. Dhungana, December 8 2015). Dr. Shrestha, board member of Sanima Hydropower and former president of IPPAN (Independent Power Producers' Association), also mentioned land acquisition as one of the main problems, which he experienced especially during the development of Sunkosi HPP (2.5 MW), which was the first project Sanima Hydropower developed. According to him private developers were new in the market at that time and did not know how to talk to the local people, which made the collaboration with the local community difficult (Interview Dr. Shrestha, December 10 2015). Because of this experience Dr. Shrestha stated that when a developer spends more time with the local people in order to include them in the project then this makes the whole process easier.

STRATEGIES TO ENHANCE ACCEPTANCE

For Lower Hewa HPP different strategies came forward that were used to enhance acceptance of the project by the local community. An overview of these together with the principle(s) of justice that they influenced can be found in **table 6**. Again different mediating parties played a role in some of the strategies, which differed from the strategies found in the first case study. The different strategies and role of the respective *Mediator* will be discussed one by one.

Table 6 Overview of strategies to enhance acceptance of a small-scale hydropower project

Strategy	Principle(s) of justice	Mediator
Community representation	• Inclusion of stakeholders (procedural justice) • Access to information (procedural justice)	Concern committee (Sarokarsamiti)
Gaining trust within community	• Demonstrable public acceptance (procedural justice)	Key person

COMMUNITY REPRESENTATION

Enhancing the influence of the local community on the project can stimulate the acceptance of the project, because people then can express their demands, ideas and concerns and discuss together with the developer how to address these. In Lower Hewa HPP the community formed a Sarokarsamiti (concern committee) to fulfil this role and the developer regularly met with the committee board to discuss the impacts of the project on the community. The outcomes of these discussions are communicated to the rest of the community, implying that the committee enhances acceptance through the principle of *access to information* (**procedural justice**).

The concern committee of Lower Hewa HPP consists out of approximately 500 members with a main board of 9 members. The committee is concerned about the effects of the project on the environment and community, for example during the blasting of the tunnels and during the process of land acquisition, and demands certain things from the developer for the welfare of the community (Interview Mr. Limbu, November 25 2015; Interview Mr. Tumba, November 23 2015). The committee picks up the demands and opinions of the local people that attend the organised meetings and discuss these with the developer. Therefore the committee is regularly in touch with the developer, Mountain Hydro, with which they have met 10-15 times so far. Often such a meeting is between the committee board and the developer, but meetings have also been organised with the whole committee, developer and local people (3-4 times). These meetings are announced on different radio stations several days before the meeting takes place in order to gather people to talk about certain issues (Interview Mr. Limbu, November 25 2015). Amongst the issues that appear on the agenda of the committee are land acquisition and irrigation.

After the conducted meetings a legal agreement was set up where the demands which the developer will fulfil are described topic-wise (14 topics in total), including irrigation and compensation for losses. The developer has several years to fulfil the demands, which is being monitored by the committee. The committee formed several sub-committees that focus on specific topics as listed in the agreement (Interview Mr. Limbu, November 25 2015). An example of a negotiation process where the committee played a role is the irrigation agreement between Sarokarsamiti and the

developer Mountain Hydro Company. Local farmers expressed their concerns about possible negative effects of the project on their irrigation and the committee discussed this with the developer. After doing some measurements they came to an agreement that stated that a certain percentage of water had to remain available for irrigation (Interview Mr. Limbu, November 25 2015). The committee communicated this to the rest of the community, however some farmers were still very concerned or did not know that an agreement was reached. This could either imply that the announcement was not communicated properly and did not reach everybody or that these farmers are not convinced by the agreement, therefore remain concerned.

GAINING TRUST WITHIN COMMUNITY

The involvement of a local person can be seen as a strategy to enhance trust between the developer and community, which makes it easier to collaborate. The importance of trust was mentioned by another private developer, Sanima Hydro, who is involved in both small-scale and medium-scale projects like Sunkoshi Small Hydropower (2.5 MW) and Mai Hydropower (22 MW). Mr. Shrestha from Sanima Hydro stated that it is import to spend time with the local people and include them so they feel connected to the project. People need to have a feeling that it is their project: some feeling of ownership. Therefore I will always advise to harmonise with local people, because this makes the developmental process easier (Interview Mr. Shrestha, December 10 2015).

In the cascade case the people that set up the private companies came from the area, which made it easier to gain support for the project from the other local people. When a developer does not have such a local connection this strategy can be mimicked by closely involving somebody from the local community, as was done with Lower Hewa HPP. In the process of acquiring the needed land Mountain Hydro collaborated with a local person who was appointed as an ''officer''. The developer showed him which land was needed for the project after which the *officer* checked the records in order to find the land owner (Interview Mr. Timalsina (junior), December 3 2015). He also took part in the negotiation processes between the developer and respective land owners about the amount of compensation. Mr. Timalsina from Mountain Hydro expressed that for this process they need someone who knows the area (Interview Mr. Timalsina, December 3 2015).

Apparently trust can play an important role in gaining acceptance of a project and a developer with local connections has an advantage with regard to enhancing acceptance through the principle of *demonstrable public acceptance* (**procedural justice**). A developer from outside the community can closely involve a key person from within the community to increase trust and collaboration between the developer and local community.

5.2.2 LOCAL PEOPLE PERSPECTIVE

The broad stakeholder group local people can be divided into sub-stakeholder groups when considering the ways they are involved in the project (by the developer). For Lower Hewa HPP several factors appeared to have an influence on this, which are similar to the cascade case though in this case they have been analysed in a different project stage.

THE LAND OWNERS

From a developer's perspective land acquisition seems to be a main challenge, because of the dependency of the developer on the respective land owners. Because of these factors of ownership and dependency, implying a specific interaction between the land owners and developer compared to other local people, the *land owners* are the first sub-stakeholder group distinguished from the broader stakeholder group of local people. In contrast to the cascade project for Lower Hewa HPP the process of land acquisition is currently taking place, which gives a clearer perspective on how the involved stakeholders interact and collaborate. Several principles are addressed in this process: equitable sharing of costs/benefits (**distributional justice**), *avoiding unfair/involuntary risk bearing* (**distributional justice**), *provision of compensation, insurance and welfare support* (**distributional justice**) and *free, prior, informed consent* (**procedural justice**).

In order to acquire the land needed for the project Mountain Hydro approached a local person in order to find out which land belonged to which land owner. When this was sorted the bargaining processes on compensation started, which basically always implies a monetary compensation. According to Mr. Timalsina (junior) the offer Mountain Hydro makes for the land is based on the market value of that day plus some extra money in order to make the offer more appealing and to increase the land's value. By increasing the land's value it is less likely that the land owner later wants the land back, because he has to pay more money for the same land (Interview Mr. Timalsina (junior), December 3 2015). When there is an agreement on the price the ownership of the land is changed and verified at a government office in the presence of a close family member of the respective land owner (Interview Mr. Timalsina (junior), December 3 2015). When issues occur, for example during the bargaining on the amount of compensation, the land owner can call in the help of the concern committee Sarokarsamiti. This committee then tries to mediate between the developer and land owner and therefore regularly is in touch with Mountain Hydro (**see 6.2.2 Mediators**). According to Mr. Tumba, president of the Lower Hewa Sarokarsamiti, the land owners who sold their land did not argue, because the project is seen as developmental work which advantages the community. Also the amount of compensation they received he believes was enough, elsewise they would not have sold their land (Interview Mr. Tumba, November 23 2015).

One of the people whose land was needed for Lower Hewa HPP is Mr. Limbu, who is a farmer living very close to Hewa river. The developer needed 6 ropani (= 0.3 hectares) of his land for the project and at that time his father agreed to give the land for free, while Mr. Limbu himself was abroad. The land was needed to construct a road, which is completed now and publically accessible. However Mr. Limbu expressed that the road has been built at the wrong location, which has cost him 6 ropani of land that he used for cultivation. His father agreed to build the road more uphill so the cultivated land would not be affected and according to Mr. Limbu the developer agreed on this (Interview Mr. Limbu, November 24 2015). Because Mr. Limbu cannot use the land for cultivating crops anymore he states he is in loss and therefore demands compensation from the developer according to the market rate of the land. So far he did not receive any compensation and he expressed feeling rather helpless, despite the support of the Sarokarsamiti. According to him there are more land owners whose land was taken for the project without providing the land owner any compensation (Interview Mr. Limbu, November 24 2015). These issues link to the principle of *avoiding unfair/involuntary risk bearing* (**distributional justice**) and *provision of compensation, insurance and welfare support* (**distributional justice**).

According to a representative from the Sarokarsamiti the developer does not give compensation to Mr. Limbu, because the constructed road was demanded by the local community and is publically accessible. The local community, including Mr. Limbu's father, agreed to give land for free in such cases and signed an agreement on this (Interview Mr. Limbu, November 25 2015). According to a representative of the Sarokarsamiti there was a technical mistake in the road location, which indeed was agreed to be more uphill compared to where it is now. However Mr. Timalsina (junior) states that there was no change in road location and that the location was determined by the local people. This brings up questions about fairness and dependency within the interaction between the developer and land owners. The committee is currently talking both with the developer and farmer about how to solve this issue (Interview Mr. Limbu, November 25 2015). This example clearly reflects the mediating role of Sarokarsamiti.

When land was needed specifically for the project, like for the powerhouse, then compensation is provided (Interview Mr. Tamang, November 24 2015). Hence the principle of *provision of compensation, insurance and welfare support* (**distributional justice**) can be linked to the principle of *equitable sharing of costs/benefits* (**distributional justice**), since whether or not somebody receives compensation for a personal cost (e.g. loss of land) depends on whether there is an agreed non-monetary public benefit in exchange (e.g. public road). If there is not then the benefit becomes personal as well and somebody receives compensation for the respective personal cost. Another farmer and board member of Sarokarsamiti gave 1.5 ropani (= 763 m^2) of his land for a public road as well. He expressed that he agreed to give the land for free, because it was beneficial for him that the road would be constructed there: now he can transport his crops and sell them elsewhere. Within the community they tried to construct the road themselves with own finances, but they got an opportunity from the hydropower project (Interview Mr. Limbu, November 25 2015).

In the bargaining process about compensation the dependency of the developer on the land owner is reflected, since a land owner will not give his consent on selling the land for an insufficient amount of compensation (Interview Mr. Tumba, November 23 2015; Interview Mr. Timalsina (senior), November 8 2015). So apparently the principle of *free, prior, informed consent* (**procedural justice**) (partly) depends on the principle *equitable sharing of costs/benefits* (**distributional justice**) or the principle of *provision of compensation, insurance and welfare support* (**distributional justice**). Whether a land owner agrees to give his land depends on the benefit received in exchange of the land, which can either be something that benefits more people in the community or something that benefits him personal as pointed out earlier.

Besides the case of Mr. Limbu I did not come across other land owners who did not agree to sell or had a conflict on land acquisition, however the scenario of what happens when a land owner refuses to sell can be briefly sketched from information obtained from several developers. According to Mr. Timalsina (junior) the developer can go to the Nepalese government to ask for the needed land in a final attempt to acquire the land when the developer and land owner do not reach an agreement. In such a case the land owner has no choice but to sell the land (Interview Mr. Timalsina (junior), December 10 2015). Mr. Timalsina (junior) emphasized that this rarely ever happens, because is causes severe delay for the project (7-8 months) and the land owner gains grudge against the developer. In terms of fairness he compared the stakes of an individual land owner with those of the Nepalese population that currently suffers from the energy deficit in Nepal. Even though it may not be fair for the land owner, it is considered to be someone's duty to give land for the betterment of a

community or nation (Interview Mr. Timalsina (junior), December 10 2015). This was linked to several times by interviewees in the cascade case as well.

THE AFFECTED PEOPLE

The second sub-stakeholder group within the stakeholder group local people is distinguished by the factor of concern and interest and refers to the *affected people*. Similar as for the cascade case this group is interested in and/or concerned about personal implications that the project has. When local people expect the project to affect them negatively this may decrease their acceptance of the project. This refers to the principles of *equitable sharing of costs and benefits* (**distributional justice**), *protection of livelihood* (**distributional justice**) and *demonstrable public acceptance* (**procedural justice**). For the case of Lower Hewa HPP the focus is on the concern of affected irrigation.

From interviews with local farmers it became clear that they highly depend on the river Hewa for their irrigation systems. Since most farmers cultivate three times per year (rice, potato, rice) a lot of water is needed for proper irrigation. Mr. Tamang, a local farmer, expressed that local people are currently debating with the developer about the amount of water that should be left in the river for irrigation. The developer proposed a certain percentage, but according to Mr. Tamang and Mr. Limbu (both local farmers) this will not be enough so there is no agreement yet and they stated that they might go to court if their demand regarding irrigation is not fulfilled (Interview Mr. Tamang, November 24 2015).

Two other farmers, Mr. Bahnadri and Mr. Wajli, shared the concerns about the effect of the project on local irrigation by stating that they are happy with the development in the area if their irrigation will not be affected (Interview Mr. Bahnadri and Mr. Wajlim November 24 2015). This links the principle of *demonstrable public acceptance* (**procedural justice**) with the principle of *protection of livelihood* (**distributional justice**). People appear to be more eager to accept the project when they are convinced that they are not affected negatively. Again a tendency can be found here between developmental work which could benefit the community (and country) and individual costs and benefits, referring to *equitable sharing of costs and benefits* (**distributional justice**). Mr. Tamang made a statement on this, saying that developmental work needs to be done, however it has to be fair for local people (Interview Mr. Tamang, November 24 2015).

When speaking with Mr. Timalsina (junior) from Mountain Hydro about this issue he stated that the amount of water that needs to be available for local irrigation has been measured. During the measurements they were accompanied by representatives of Sarokarsamiti and an official, legal agreement has been made about the availability of water for irrigation, which has been communicated to the local community by Sarokarsamiti (Interview Mr. Timalsina (junior), December 3 2015; Interview Mr. Limbu, November 25 2015). However, despite the agreement, some farmers were still very concerned, which could imply that the announcement was not communicated properly and did not reach everybody, which links to the principle of *access to information* (**procedural justice**). Another reason that not everybody was content with the agreement can be that not all farmers were convinced by the agreed percentage, therefore remain concerned, like Mr. Tamang. Such high level of concern could come forward from the extend the farmers depend on farming to maintain a living. When farming holds most of a person's total income then that increases the possible negative impact that the hydropower project could have on somebody's living. Hence, somebody can become very protective and concerned when an (external) factor, such as a

hydropower project, may negatively influence his livelihood, which again stresses the influence of the principle of *protection of livelihood* (**distributional justice**) on acceptance.

5.3 CONCLUSION

Lower Hewa HPP demonstrated that the process of gaining public acceptance takes place simultaneously to the development of a hydropower project, which indicates a link between project stage and acceptance. Land acquisition and water allocation because of the project can potentially affect local land owners and farmers negatively in terms of loss of land and affected irrigation. In the case study area people often used land for farming purposes and were very dependent on the river for irrigation. This dependency stresses the importance of people's standard of living on the principle of *protection of livelihood* (**procedural justice**) and through that their acceptance towards a hydropower project. Because Lower Hewa HPP was still under construction there was uncertainty in whether and to what extend negative effects (or: costs) would actually occur, resulting in a high level of concern that hampered the acceptance of the project. The principle of *equitable sharing of costs and benefits* (**distributional justice**) therefore plays an important role in reaching acceptance.

Despite issues that came forward with land acquisition and water allocation the level of acceptance seemed high or is likely to become high when people are assured (and shown) that the project will not affect them negatively.

6. DISCUSSION

This thesis focused on assessing the process of gaining public acceptance with regard to the implementation of small-scale hydropower projects in the Tamor river basin in Nepal by describing how procedural and distributional justice are influenced by public participation and involvement. The following research questions were considered:

1. **How are procedural and distributional justice accounted for in the process of gaining public acceptance in small-scale hydropower projects in Nepal?**

2. **What strategies can be used to enhance public acceptance of small-scale hydropower projects in Nepal?**

In this chapter the focus lays on the first research question whereas the strategies have already thoroughly been discussed in the **Chapter 4** and **Chapter 5**. The strategies will come back in in **Chapter 7** regarding implications and recommendations.

The case studies showed several relations and interlinkages between the different principles of justice, which form the base for a reconsidered conceptual framework. This ''practical'' framework takes a stakeholder-oriented perspective on the principles of justice that influence acceptance and shows how justice theory can work out in practice. Further the internal validity of the thesis is discussed by reflecting on the chosen methodology and theory.

6.1 HOW JUSTICE CAN WORK OUT IN PRACTICE

The conceptual framework of this thesis includes a theoretical perspective on the process of gaining public acceptance of a small-scale hydropower project in Nepal. This is based on a report of the World Commission on Dams in 2000 (WCD., 2000). According to this framework, gaining public acceptance can be achieved through assessing principles of both procedural and distributional justice. However, when I started my thesis most research on hydropower development, including the WCD report, focused on large-scale projects and no subsequent research had been done on how such a framework works in practice with regard to the development of small-scale hydropower projects. This thesis therefore aims to help overcome the information gap by analysing how justice can work out in practice with regard to small-scale hydropower development.

It suggests relationships between the principles of justice and puts the theoretical framework in a new, stakeholder-specific perspective, since from the cases it became apparent that different local stakeholders were involved in different ways. Therefore for the practical framework I argue that the principle of *inclusion of stakeholders* (**procedural justice**) needs to be emphasized, since it can influence all other principles. For example the principle of *provision of compensation, insurance and welfare support* (**distributional justice**) is not equally important to all stakeholder groups, mainly to land owners whose land is required for the project. The practical framework can be seen as an extension of the theoretical framework as described in **Chapter 2** and has been visualised in **figure 14**. The rest of this section will discuss the figure extensively.

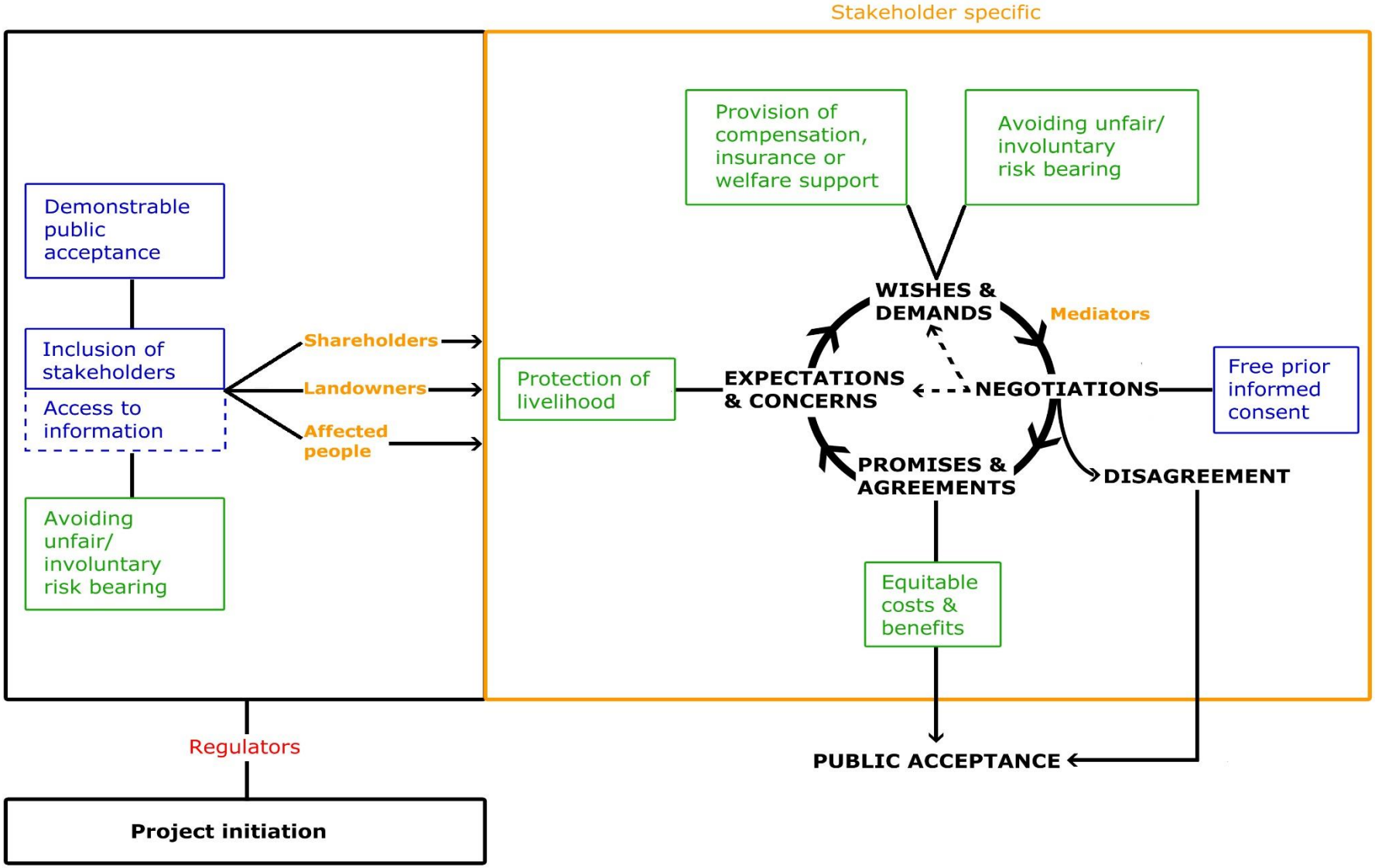

Figure 14 Practical framework giving an overview of how justice can work out in practice in the development of small-scale hydropower projects

PROJECT INITIATION – INCLUDING STAKEHOLDERS

In both cases the project developer initiated the project in the respective area and introduced it to the community in accordance with the Nepalese regulations on social inclusion. This first moment of interaction between the developer and local community leads to the inclusion (or maybe exclusion) of local stakeholders into the process, which can be influenced by the principle of *demonstrable public acceptance* (**procedural justice**) for example by enhancing gender equity and safeguarding the rights of vulnerable groups. The principle of *avoiding unfair and involuntary risk bearing* (**distributional justice**) can also play a role in the stage of project initiation, since a developer is ought to inform all stakeholders about the possible risks the project could evoke, like affecting the river flow or the need for displacing people. A developer can make use of local media to inform people about these risks or organise an (informative) public hearing about the project, which partly depends on the regulations that apply to the respective project with regard to its capacity. Because in the case studies the type or extend project-related information was available differed per stakeholder group, accessibility to information can give an indication of the level of involvement of a stakeholder. Also, it appeared that the principle *access to information* (**procedural justice**) on itself did not have a significant influence on a stakeholder's acceptance of the project as compared to for example the principle of *equitable costs and benefits* (**distributional justice**). For these reasons in **figure 14** the principle of *access to information* has been placed under the principle of *inclusion of stakeholders* (**procedural justice**).

The extent towards which a stakeholder-group was included and had influence on the project differed in both case studies. The main stakeholder group of local people could subsequently be divided into sub-stakeholder groups according to factors like *distance* (rural and city citizens), *ability to invest* (shareholders)*, ownership & dependency* (land owners) and *concern* (affected people). Because these stakeholder groups all have different expectations, concerns and interests towards the project I argue that public acceptance is achieved by gaining stakeholder-specific acceptance of each individual stakeholder. Therefore in **figure 14** the interactive cycle works differently for each stakeholder, implying that the extent or manner that each principle in the cycle influences the process of gaining individual acceptance can differ per stakeholder as well. However the case studies pointed out that reaching personal acceptance was mainly influenced by the principle of *equitable costs and benefits* (**distributional justice**), which therefore is emphasized in **figure 14** as being an intermediate goal can result from the interaction between the developer and respective stakeholder, leading to stakeholder-specific acceptance of the project and hence positively influencing public acceptance. The cycle in **figure 14** refers to the principle of *inclusion of stakeholders* (**procedural justice**), which describes the process of enhancing stakeholder-specific acceptance, including other principles that play a role within the interactive cycle.

The interaction between the respective developer and stakeholder(group) is likely to take place during the preparation phase of the project mostly, since without certain decisions or agreements being made the project cannot (or only partly) be constructed. However this highly depends on what needs to be decided upon, which parties need to decide and how this influences the project development. For example in the second case study of Lower Hewa HPP the construction of the tunnels had already started whilst I spoke with a farmer that was still negotiating with the developer on getting compensation for the part of his land that was used to construct a public road.

PROJECT DEVELOPMENT – STAKEHOLDER INTERACTIONS

In **figure 14** the different stakeholder-groups (shareholders, landowners and affected people) all have different expectations and concerns regarding the project that are influenced by the extend they have been informed about the project (and its possible risks) and their current level of living, which is represented by the principle of *protection of livelihood* (**distributional justice**). In case of Lower Hewa HPP for example the dependency of local farmers on agriculture to maintain a living led to strong concerns regarding the possible effect of the project on their irrigation. This translated in their demand that the developer had to leave enough water in the river. Other examples are the expectation of getting electricity from the project or the demand of being provided with a fair amount of compensation in exchange for land that is needed for the project.

Expectations and concerns of how the project could affect a stakeholder are thus translated into wishes and demands that, according to the stakeholder, balance expected personal costs and benefits. These costs and benefits can be personal (e.g. for a land owner), imply a stakeholder-group (e.g. local farmers) or imply the local community as a whole. With regard to the latter one can think of wishes/demands like the construction of a public road or local employment. The principles of *provision of compensation, insurance or welfare support* (**distributional justice**) and *avoiding unfair and involuntary risk bearing* (**distributional justice**) can influence one's wishes and demands, especially with regard to the issue of land acquisition and possible displacement of people. A land owner may not want to give up a certain piece of land, for example because he uses the land for agricultural purposes, or only be willing to sell the land for a certain amount of money as compensation.

The next step in the process of gaining acceptance are the negotiations between the main groups *developers* and *local people*, sometimes extended with the involvement of a mediating party like a concern committee or the media. During these interactions the stakeholder (or representative mediator) expresses its wishes and demands to the developer (and vice-versa) after which a discussion starts on how to satisfy both parties. This process can be time-consuming depending on whether the interests of the involved parties differ as well as the flexibility of each party in the bargaining process. This is illustrated by the feedback loops in **figure 14** that indicate how negotiations can lead to new or reconsidered expectations and concerns or other wishes and demands that are input for a new negotiation round.

When the developer and local stakeholder eventually concur then this leads to promises and agreements that are made with consent of both parties, enhancing the importance of the principle of *free prior informed consent* (**procedural justice**) in the decision-making processes. This can be illustrated by considering the process of land acquisition: a land owner is not likely to agree to a certain monetary compensation if he feels like it is not enough. A developer has a large interest in reaching agreement with the land owner, since otherwise he has to adjust the project design, which costs money and likely causes delay for the project. However, a critical note must be made here that with regard to land acquisition a developer can force a land owner to sell his land by asking the Nepalese government to interfere. From interviews with developers it was stated that this mechanism is not used often, because it creates distrust and grudge between the developer and local community, therefore can negatively influence the acceptance of the project. Still the existence

of such a mechanism influences the power balance between the respective influence of a developer and land owner.

The promises and agreements made can either lead to other expectations and concerns, starting a new cycle-interaction, or enhance the principle of *equitable costs and benefits* (**distributional justice**) that represents stakeholder-specific acceptance of the project and therefore positively contributes to gaining public acceptance. In the interactive cycle the principle of *equitable sharing of costs & benefits* is present in several forms that evolve into another. Expectations and concerns represent how a stakeholder perceives the possible personal impacts of the project, which can be either positive (benefits) or negative (costs), and are highly based upon the obtained information. The expectations and concerns are then transformed into wishes and demands that balance the possible personal costs and balances in accordance with what the stakeholder perceives as fair. For example a land owner gets to know that part of his land is required for a project, so he expects the developer to be willing to buy that land from him. Then, before the bargaining begins, it is likely that he determines for himself how he values the land, if he is willing to sell and if so, for what kind and amount of compensation in return. The personal wishes and demands (or balanced costs and benefits) then form a starting point for the negotiation process and eventually can lead to an agreement or disagreement between the land owner and developer regarding the land acquisition, which influences public acceptance either positively or negatively.

The relatively large influence of the principle of *equitable costs and benefits* can be explained by the current standard of living and population density of the case study areas at the time of project initiation. Most people expressed that they got access to electricity because of the small-scale hydropower projects, which was a relatively large benefit in the community. For those who already had access to electricity the project meant stabilization of this accessibility (less load shedding). In addition to that, most people were living in Phidim city whilst the project areas, which are affected most, were very scarcely populated. Therefore the project brought benefits for most people and only few people experienced (possible) costs in forms of land acquisition and irrigation issues, which came forward very strongly in the cascade case study where lots of people expressed their happiness with the project and referred to benefits like electrification, less load shedding and increase in (public) facilities such as roads.

6.2 VALIDITY OF RESEARCH

This section discusses the validity of the thesis with regard to its research design and research methodology. Choices made both in the set-up and execution of the research can influence its results. Therefore it is important to reflect on how these choices may have had influence and what that does imply for the interpretation of the results. The points of discussion broadly follow the different phases of research and can be clustered in the subjects of *case study selection*, *interviewing*, *theoretical framework* and my *position as a researcher*.

6.2.1 CASE STUDY SELECTION

The results of this research are based upon two cases, of which one encompasses three sub-projects. Selecting only two cases gave me the possibility to go more in depth in the time frame that was available and still be able to make some comparisons between the two cases. However as a consequence for the limited amount of cases the results cannot be generalised for small-scale hydropower projects in Nepal and only give insights in how the process of gaining public acceptance could work for small-scale hydropower projects.

Whilst the cascade's sub-projects that formed the first case fulfilled the selection criterion of falling under hydropower model 1 (<10 MW) the second case Lower Hewa HPP fell under the second hydropower model (>10 MW), since it has a capacity of 21.6 MW. I had several reasons for selecting this case anyway, mostly because I was interested in comparing cases that were in a different project stage and Lower Hewa HPP still fitted the other criteria of geography and hydropower type. However one could question the comparability with the cascade case, since Lower Hewa HPP is a project of significant larger scale. Therefore it is likely that the development of Lower Hewa HPP leads to higher environmental and social impacts within the local community, which may raise more concern and resistance towards the project as compared to the first case. Still, since Lower Hewa HPP was in the construction phase during field work it brought forward new interesting aspects that I did not find in the cascade case. Especially the data collected on land acquisition and irrigation concerns can be valid for projects that fall under the first hydropower model as well, since land needs to be acquired for smaller projects as well and irrigation may be affected, though perhaps in a lesser extend as compared to a project with a larger capacity.

The cascade case encompasses three projects that are in full operation for several years already, so I performed an ex-post analysis. The first of the three sub-project being developed was Phidim HPP, which was initiated in 1981 already. The other two projects are younger: Pheme Khola HPP was ready for commercial use in 2007 and Middle Pheme HPP few years later. Looking back, performing an ex-post analysis on the process of gaining public acceptance for projects that are rather old may have given a biased result, since people may not have (fully) recalled how they were included or felt about the project at the time of development. Also all uncertainties they may have had in the past were probably no longer valid, since over the years they have seen how the project worked out eventually. Some people I interviewed did not even live in the area at the time that these projects were being developed and only (or mainly) see the positive effects the project had for the community in the form of benefits (e.g. public facilities). Altogether this may explain the reason why local stakeholders appeared to be so positive about the cascade case and this formed a strong incentive to analyse a second case that was under development at the time of field work. Still the cascade results remain valuable and relevant, especially with regard to the influence of mediating parties on the interaction between local people and project developers, like the media and local cooperatives.

6.2.2 INTERVIEWING

Most people in Phidim and surroundings did not or barely speak English, so I had to consult a translator to help me with conducting interviews. The fact that my translator lived there was very helpful with connecting to other locals, however I fully relied on her English translation skills as well as on her judgement regarding interpretation, intonation, body language etc. In order to make sure that my translator understood the scope of my research as well as the interview guide and what kind of information I was looking for by asking a specific question we extensively discussed this beforehand and adapted the questions accordingly. Such preparation limited the translation bias for the interview guide, however the translation of interviewee's responses as well as improvised questions could not be prepared as such, therefore may include some translation bias.

Most data was obtained from conducting semi-structured interviews with different stakeholders. In order to get in touch with these stakeholders I depended a lot on the networks of others and this may have had an influence on the selection of interviewees. My starting point in Kathmandu for example included discussions with people who considered themselves to be hydropower promotors. By using the snowballing method this may have (unknowingly) steered me towards selecting interviewees who have a positive attitude towards hydropower and less to interviewees who are more critical of hydropower development, especially in the matter of social issues. Also in Phidim I used the connections of my translator and her family as a starting point. Though officially there is no longer a caste system in Nepal, my translator told me that in practice different castes can still be differentiated from each other (for example by one's last name). Since her family is from the upper class that could have influenced the random sampling of interviewees in Phidim city by selecting more interviewees from the upper class. Closer to the cascade projects this is not likely to have had any influence on the sampling, since interviewees were selected randomly by the criterion of location. Also, not many people were living in the river valley so whilst walking between the powerhouses of the cascade sub-projects we basically approached each household that we encountered. However when I evaluated the names of all interviewees with my translator to determine their (former) caste it did come forward that almost all were from upper classes, with the exception of a few. In order to verify whether this was representative or not I consulted the Central Bureau of Statistics (CBS) of Nepal to check the overall population characteristics regarding ethnicity/caste in the area. An overview of the five predominant ethnicities/castes in Panchthar district in 2011 and the percentage of local interviewees of the respective ethnicity can be found in **table 7**. According to my translator the five predominant ethnicities could all be considered to be upper class and 78% of my interviewees had one of these ethnicities. The other 22% of interviewees resembled the ethnicities Shrestha (8%), Magar (4%), Gurung (4%), Kami (2%), Damai (2%) and Sarki (2%) of which the latter three are considered to be lower class. From the comparison with the data of CBS Nepal my samples seem to be quite representative and the influence of encountering with leading upper class networks on interviewee selection appears to be nihil. However it is still possible that the combination of a Western researcher with a upper class translator may have send a certain signal towards the interviewee, which may have caused that one did not speak freely or only told me what one thought I wanted to hear. I would like to discuss this point further in next section *Position of the researcher*.

Table 7 Overview of population in Panchthar district in 2011 according to ethnicity/caste (CBS Nepal., 2014b)

	Ethnicity/caste					
	Limbu	Rai	Brahman	Chhetree	Tamang	Other
	80,339	26,424	20,594	18,927	13,647	-
Percentage of interviewees	32%	6%	17%	21%	2%	22%
	15/47	3/47	8/47	10/47	1/47	10/47

6.2.3 POSITION OF THE RESEARCHER

During the field work I stayed for approximately 4 weeks in Kathmandu and 4 weeks in Phidim and surroundings. Whilst in Kathmandu people often spoke English and there were a lot of Western, light-skinned travellers, especially in the touristic areas, this was completely the opposite in Phidim. The amount of people that spoke English there was very low and I was the only Western, tall, light-skinned female there. That may have caused some sort of distrust and misjudgement, for example people could have thought I was involved in the hydropower sector and therefore did not speak freely or truly when I interviewed them. Considering that my translator was from within the community may have decreased one's distrust, but did not change the fact that I was an outsider there. However I did not experience this in a negative way, rather in a positive way because people were very curious about me and seemed friendly and interested. My translator confirmed this and expressed that she did not notice any negativity like distrust of the interviewees towards me.

My relatively wealthy status in Phidim also had positive influences on my research, since I was introduced to more influential people of the community that were often involved in the development of private hydropower projects (e.g. as shareholder, engineer or committee member). These people were very helpful with arranging more interviews in Phidim and Kathmandu or organising field trips to the river valleys, which allowed me to collect data in a rather rural area that cannot be reached very easily. All with all I can say that my position as a researcher worked both in my disadvantage as well as in my favour.

6.2.4 THEORETICAL FRAMEWORK

The theoretical framework used for this research encompasses several principles of justice, which were used for the design and structure of the interview guide and later were key in the analysis of the process of gaining public acceptance in the two case studies. These principles represent rather complex subjects which had to be simplified in order to design clear interview questions that were understandable for the interviewees, however without losing their connection to theory. Though this translation was being made as thoroughly as possible it formed a difficult task to let the interview questions be as representative of the principles as possible. This was easier for principles like *inclusion of stakeholders* (procedural justice) and *provision of compensation, insurance and welfare support* (distributional justice) as compared to the principle of *demonstrable public acceptance*, which includes multiple other complex issues like democracy, gender equity and free, prior and informed consent that could be subject of an entire research themselves. Therefore, also with respect to limitations in time and resources, choices had to be made during the design of the interview guide with as a result that for some principles more data could (more easily) be collected compared to other principles. It is possible that as a result a wrong perspective was given on which principles can have more (or less) influence on the process of gaining public acceptance.

Important issues that could possibly have played an important role in encouraging procedural and distributional justice and subsequently public acceptance were not or only partly covered in this research. In the case studies for example the principles of *inclusion of stakeholders* (**procedural justice**) and *equitable sharing of costs & benefits* (**distributional justice**) appeared to have a very large influence, but if some of the other principles would have been examined more thoroughly that may have resulted in a different outcome.

Another reason why some subjects were analysed more thoroughly refers back to the points made on my position as a researcher as well as the social system in Nepal. Especially for the stakeholder group local people I aimed to interview about as many men as women to be able to say something about gender equity. However many of my attempts to approach women for an interview failed, because they immediately called their husbands or brothers or they stated that they did not know anything about hydropower. Together with my translator I tried to convince them and make them feel comfortable (e.g. stating that the interview was not a test, but I wanted to know her opinion), but most of the time it was no use. I had expected that because both myself and my translator are females it would have been easier to talk to local women, but unfortunately in practice it worked out differently. When speaking with developers and representatives of institutions involved in hydropower development in Kathmandu I was not able to select the interviewees according to gender, however I only spoke with one female there which implies that the hydropower sector is rather male-dominated in Nepal.

6.3 CONCLUSION

The process of gaining public acceptance of small-scale hydropower projects differs per stakeholder-group, therefore the extent the principles of procedural and distributional justice have an influence on one's acceptance are highly stakeholder-specific as well. This chapter suggested a practical framework that captures such a perspective on justice and forms an extension of the conceptual framework as discussed in **Chapter 2**. In the practical framework the principle of *inclusion of stakeholders* (**procedural justice**) was emphasized to stress that it can influence all other principles, including the principle of *equitable sharing of costs and benefits* (**distributional justice**) differs per stakeholder-group and forms the base of one's acceptance. The relatively large influence of the principle of *equitable costs and benefits* can be explained by the current standard of living and population density of the case study areas at the time of project initiation.

7. CONCLUSION

The thesis was initiated to analyse how gaining public acceptance of small-scale hydropower projects works in practice in Nepal. A justice perspective is used that describes the process of gaining public acceptance through procedural and distributional justice, of which the former refers to 'getting the process right' whilst the latter refers to 'getting the content right'. The general literature on how justice can work out in practice often states that social inclusion is easier with the development of small-scale hydropower projects as compared to large-scale projects, however lacks practical examples that confirm such statements. Therefore this thesis analysed two case studies in the East of Nepal to gain more insights in how public acceptance is ensured in the development of small-scale projects from a social justice perspective. It provides an overview of involved stakeholders and their interactions within the process of project development for the two cases, gaining insights in local perceptions, issues, opinions and strategies of different stakeholders with regard to different justice principles (procedural or distributional).

7.1 MAIN FINDINGS

This thesis shows that gaining public acceptance of small-scale hydropower projects is an interactive process that involves multiple stakeholders. Several stakeholder groups could be distinguished based on how they were involved in the developmental process of the respective project, resulting in four main stakeholder groups: *regulators*, *developers*, *local people* and *mediators.* The developer acts as the project initiator and needs to comply with certain regulations on social inclusion in order to qualify for a license. In Nepal the strictness of such regulations depend on the project capacity, which results in three types of regulatory framework that differ in strictness. The three sub-projects of the cascade project all have a capacity of <1 MW, therefore there were almost no mandatory rules that the respective developers had to comply with in order to get a license. For the second case study Lower Hewa HPP the regulatory framework provided more mandatory rules on social inclusion, because the capacity of the project is larger (21.6 MW). The influence of a project's capacity on the type of regulations a developer needs to comply with plus a lack of control of these rules by national institutions after the license is provided make that project developers of small-scale hydropower projects have a lot of freedom on how to deal with social inclusion. Such freedom enhances their influence as project initiators on the process of gaining public acceptance of the respective project.

Developers expressed that gaining and preserving support from local people is challenging when developing a hydropower project, because it leads to disturbances in a community that is often diverse in terms of wealth and education. In both case studies developers and local people used different strategies to enhance acceptance of the project and smoothen the collaboration between the involved stakeholders. In total six strategies could be distinguished, namely *early involvement*, *feeling of ownership*, *gaining trust within community*, *avoidance*, *media involvement* and *community representation*. Most of these strategies included a mediating party, for example, in order to enhance the feeling of ownership of the community towards a project a local cooperative was set up for the cascade case and for the case of Lower Hewa HPP the local community was represented by a concern committee in negotiation processes with the respective developer. These strategies form an example on how different stakeholders can enhance acceptance and could be used to smoothen collaboration and negotiation processes between different stakeholder groups.

The main stakeholder-group of *local people* could be divided further into sub-stakeholder groups by considering factors like distance towards the project, ability to invest in the project, ownership & dependency and interest & concern, resulting in the following sub-groups: *rural and city citizens*, *shareholders*, *land owners* and *affected people*. The differentiation in sub-groups suggests a stakeholder-specific perspective on justice and acceptance, therefore emphasizes the principle of *inclusion of stakeholders* (**procedural justice**). Further, in the case studies it appeared that the principle of *equitable sharing of costs and* benefits (**distributional justice**) had a higher influence on acceptance by a stakeholder-group as compared to the other justice principles. The relatively large influence of this principle can be explained by the population density and standard of living of the case study areas at the time of project initiation. Most people lived in Phidim city whilst the project areas, which were affected most, were very scarcely populated. The project turned out beneficial for most people and only few people experienced (possible) costs in forms of land acquisition and irrigation issues. Therefore the attitude of the local community towards the cascade project was highly positive, because the project brought several benefits like access to electricity, less load shedding and the improvement of local infrastructure.

The positive result of the first case study can (partly) be explained by its project stage, since at time of research the projects had been operational for several years already. Therefore people may not remember that at the time of project initiation there were concerns and conflicts (or: possible costs). In order to research the influence of project stage on the process of gaining public acceptance a second case study was conducted. The second case study Lower Hewa HPP indeed showed a different balance regarding costs and benefits that people associated with the project. Costs that came forward mainly referred to issues regarding land acquisition and affected irrigation, which relate to the sub-stakeholder groups *land owners* and *affected people*. There was a high level of concern regarding how the project would affect the irrigation system of local farmers, which resulted from a high dependency on agriculture to maintain a living. Concern was nurtured by dependency and uncertainty about how and to what extent the project would (negatively) affect local farmers, which could not even be eased by an agreement that was made between the concern committee and respective developer. The principle of *protection of livelihood* (**distributional justice**) therefore had a large influence on public acceptance, because the expected (or: feared) costs would outweigh the possible benefits that the project would evoke.

7.2 IMPLICATIONS OF RESEARCH

The case studies showed relations and interlinkages between the different principles of justice that formed the base for a reconsidered framework regarding how justice can work out in the development of small-scale hydropower projects. It puts the theoretical framework, based on the report of the World Commission on Dams (2000), in a new, stakeholder-specific perspective that emphasizes the principles of *inclusion of stakeholders* (**procedural justice**) and *equitable sharing of costs and benefits* (**distributional justice**). The practical framework forms an example of how the principles of procedural and distributional justice can influence each other in the process of gaining public acceptance of a small-scale hydropower project and how this differs per stakeholder-group. Also it helps to overcome the information gap between theory and practice regarding justice in hydropower development that can help improve the development of hydropower in Nepal as a solution to address issues like the national energy deficiency.

This thesis stresses the importance of local participation and involvement as a mean to balance costs and benefits of a hydropower project amongst stakeholder groups and scales in order to raise acceptance of the project. Hydropower development can potentially help Nepal to solve several issues, like the national energy shortage, and simultaneously contribute to the global transition towards a renewable energy system. The implementation of a project however always takes place on a local scale and the case studies showed that stakeholder-groups living nearby are affected most. The balance between cost and benefits therefore is not only stakeholder-specific, but also scale-specific when international and national parties benefit whilst the local community need to deal with the costs. By involving local stakeholders into the development of a project costs and benefits can be balanced amongst stakeholder-groups and scales to enhance justice and acceptance. Mediating parties and strategies can play a role in achieving this and can provide guidance by e.g. creating trust and exchanging information. The results of this thesis could also be applicable to the development of large-scale projects to make the process of gaining public acceptance easier and through that stimulate the development of hydropower in Nepal (and beyond).

7.3 RECOMMENDATIONS

For this thesis a broad justice perspective that included procedural and distributional justice was used. However not all principles could be assessed equally thoroughly, therefore subsequent research on the influence of different principles of justice on gaining public acceptance is recommended. The effect of standard of living on the principle of *protection of livelihood* (**distributional justice**) needs to be examined further and compared with other cases in Nepal and other countries. By obtaining more information high levels of concern towards the project can more easily be explained and dealt with by a project developer, which enhances acceptance.

The way acceptance was gained in the two case studies and the interactions and relations between different principles of justice that laid behind it may also work for large-scale hydropower projects. Therefore research on verifying the practical framework that was suggested is recommended. The framework should be compared to different scales of hydropower in Nepal to gain even more insights in how acceptance can be achieved and how this may or may not be scale-dependent. Considering the effect of project stage on the process of acceptance it is recommended to perform ex-durante studies to study acceptance whilst it is being shaped. If possible a Nepalese research institute could do the field work to avoid the possibility of letting the position of an (outsider) researcher hamper the research.

Hydropower development can potentially help Nepal to solve multiple issues and even contribute to solving international problems, like climate change. Local participation and involvement can help to ensure justice and acceptance by balancing stakeholder-specific costs and benefits. More control and guidance from regulating parties potentially can lift the perception of how hydropower needs to be developed and protect the stakeholders that are mostly affected. Rules and regulations on social inclusion are already there, however differ per hydropower model and no proper monitoring system exists. If hydropower resembles Nepal's energy future then more control can help to ensure it is developed justly.

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9. APPENDICES

APPENDIX I - LICENSING PROCEDURES FOR HYDROPOWER DEVELOPMENT

This section focuses on describing the different rules and procedures that come about with the initiation of a hydropower project regarding social inclusion of local stakeholders. The regulations that are in place need to be followed by a developer and form a framework that the developer needs to comply with in order to obtain a license. The strictness of such a framework as well as the role of developers and national institutions are described in order to have some insights in how a project is being set up, what rules and regulations can imply for social inclusion and how developers and national institutions play a role in this.

LICENSING

In the licensing procedure different regulations exist on assessing the environmental and social impact of hydropower projects, which are based on their capacities. For projects >50 MW a license is required and the developer has to perform an Environmental Impact Assessment (EIA). One reason why in Nepal an EIA is required is ''*to assess the effects of development pressures on the national resource base as well as on the sociocultural aspect*'' (NPC/IUCN., 1994: 10). The website of the Department of Electricity Development (DOED) provides several elaborate manuals on how to execute an EIA, for example on public involvement, how to conduct a public hearing and how to address gender issues (DOED, Unknown). Some mandatory minimum rules for public involvement are specified, which have to be followed by developers. For an EIA it is for example obligatory to conduct a public hearing. During this public hearing representatives of DOED and the respective Ministries are present and the feedback that is given by the participants of the hearing is checked in the final EIA report. If the developer does not comply with the rules then the EIA cannot be approved by the ministries of Environment and Energy and the license is not provided (Interview DOED Environmental Department, December 9 2015; Interview DOED Licensing Department, December 9 2015).

Projects with a capacity between 1-50 MW need to get licensed as well and the developer has to do an Initial Environmental Evaluation (IEE). An IEE can be seen as a mini-EIA, which is less elaborate and less strict, therefore easier to conduct (Interview DOED Environmental Department, December 9 2015). However there are some mandatory rules for IEE regarding public involvement as well. This mainly implies that the developer needs to publish a public notice in the area and in a national level daily newspaper, requesting several stakeholders (municipality, DDC, concerned individuals, etc.) to provide feedback with regard to the possible impact of the hydropower project on the local environment within a certain amount of days. With this rule the developer is obliged to inform the public of the proposed project development and it gives local stakeholders the opportunity to express their opinions. While for EIA it is mandatory to do a public hearing after the public notice, this is not the case for IEE (DOED., 2001) (Interview DOED Environmental Department, December 9 2015). The IEE is approved by the ministry of Energy (Interview DOED Environmental Department, December 9 2015).

For projects with a capacity <1 MW no license, EIA or IEE is required except if the project is located in a conservation area, then an EIA must be performed (same in case of IEE) (Interview DOED

Environmental Department, December 9 2015). The regulations on EIA and IEE are strict and need to be fulfilled in order to receive a license, while for projects with a capacity <1 MW no binding rules apply, only guidelines set up by the DOED. According to a representative of the Environmental Department of DOED an EIA or IEE is not mandatory for projects <1 MW, because the environmental impact is little with these small-scale, run-off-the-river projects and the process of doing an EIA or IEE is rather costly and time consuming. Another factor that plays a role is the lack of human resources at DOED, limiting their ability to go into the field and check the compliance with mandatory rules after the license is given (Interview DOED Licensing Department, December 9 2015).

Table 8 gives an overview of how the capacity of a project influences the need for an IEE or EIA. In the case studies examples will be given on how the regulatory framework as described above works and what it can imply for social inclusion and public acceptance.

Table 8 Overview of regulations with respect to project capacity

	Initial Environmental Examination	Environmental Impact Assessment
<1 MW	No	No
1-50 MW	Yes	No
>50 MW	No	Yes

APPENDIX II – STAKEHOLDER DATABASE

NO.	Name	Gender	Ethnic group	Role/function	Institution/organisation/company	First interview	Second interview
					Project developers/promoters/IPPs		
1	Basante Nembang	M	Limbu	Board of Director	B.K./Khoranga/Panchthar (Middle Pheme/Pheme Khola/Upper Hewa)	7-dec	
2	Birindra Nembang	M	Limbu	Developer (works for B.K.)	B.K. Power Developer (Middle Pheme)	7-nov	
3	Ganesh Subba	M	Limbu	Engineer (hired by Khoranga)	Khoranga Khola Hydropower Development Company (Pheme Khola)	17-nov	
4	Sitaram Timalsina	M	Brahamin	Chairman of company	Mountain Hydro Power (P) Company Ltd (Lower Hewa)	16-nov	
5	Mahesh Mahato	M	Brahamin?	Engineer (hired by Mountain Hydro)	Mountain Hydro Power (P) Company Ltd (Lower Hewa) / Cosmic Electrical	21-nov	
6	Satish Timalsina	M	Brahamin	Social department/management	Mountain Hydro Power (P) Company Ltd (Lower Hewa)	21-nov	3-dec
7	Amar Lawati	M	Limbu	Senior supervisor	Panchthar Hydro Company (Upper Hewa)	23-nov	
8	Pushpa Jyoti Dhungana	M	?	Managing director	Panchthar Hydro Company (Upper Hewa)	8-dec	
9	Subarna D. Shrestha (Bhajju)	M	?	Chief executive officer, director, immediate past president, member	Sanima May Hydropower Limited (Pheme Khola), Sanima Bank, IPPAN, ETFC	10-dec	
10	Pawan Kumar Acharya	M	?	Chief Project Financing Officer	Sanima Bank Limited	10-dec	
					National institutions		
11	Raju Gyawali	M	?	Assisstant manager Environmental and Social Studies Department	National Electricity Association (national)	4-dec	
12	Mon Devi Shreshta	F	?	Licensing Department	Department Of Electricity Development	9-dec	

13	Hemant Raj Ghimire	M	?	Environmental Department	Department Of Electricity Development	9-dec	
14	Subash Thapaliya	M	?	Hydropower engineer	Department Of Electricity Development	9-dec	
15	Khemraj Regmi	M	?	Hydropower engineer	Department Of Electricity Development	9-dec	
16	Badri Kuinkel	M	?	Hydropower engineer	Department Of Electricity Development	9-dec	
					Local institutions		
17	Bhanubhakta Bara	M	Brahamin	Senior Divisional Engineer	District Development Committee (Panchthar district)	4-nov	
18	Indra Limbu	M	Limbu	Administration	District Development Committee Environment Energy and Climate Change Section	23-nov	
					Local people		
19	Hari Poudel	M	Brahamin	Senior operator of hydro projects	Citizen of Phidim?	31-okt	5-nov
20	Subba Limbu	M	Limbu	Principal/teacher of a school	Citizen of Phidim	3-nov	
21	Kushal Magar	M	Magar	Grade 10 student	Citizen of Phidim	5-nov	
22	Kilvin Shristha	M	Shristha	Grade 9 student	Citizen of Phidim	5-nov	
23	Phulmeye Saru Mezar	F	Magar	Works at small store/canteen	Citizen of Phidim	5-nov	
24	Rohit Rai	M	Rai	Clothing store owner	Citizen of Phidim	5-nov	
25	Lata Gurung	F	Gurung	Health care student	Citizen of Phidim	5-nov	
26	Sushila Subba	F	Limbu	Works at small store	Citizen of Phidim	5-nov	
27	Chandra Prashad	M	Chittri	Owner of furniture store	Citizen of Phidim	7-nov	

	Dangi						
28	Yamuna Dhakal	M	Brahamin	Teacher	Citizen of Phidim	7-nov	
29	Kalpana Purkuti	F	Sarki	Help in other's stores	Citizen of Phidim	7-nov	
30	Pawl Thamsuhanj	M	Limbu	Works at Sargam hotel	Citizen of Phidim	7-nov	
31	Hatnarayan Shrestha	M	Shristha	Retired governmental official	Citizen of Phidim	7-nov	
32	Ram Prakash Somthin	M	Gurung	Journalist	Citizen of Phidim	7-nov	
33	Mahindra Bikiem Thamsuhang	M	Limbu	Manager of Sargam hotel	Citizen of Phidim	8-nov	
34	Deepak Nepal	M	Brahamin	Businessman (trading)	Citizen of Phidim	16-nov	
35	Ishwari Prasad Timalsina	M	Brahamin	Businessman (trading)	Citizen of Phidim	16-nov	
36	Kumar Naupana	M	Brahamin	Owner of hotel/shop	Citizen near Pheme Khola project	18-nov	
37	Man Kumar Thapa	M	Chittri	Operator Pheme Khola project	Citizen near Pheme Khola project	18-nov	
38	Pura Budhathoki	M	Chittri	Operator Pheme Khola project	Citizen near Pheme Khola project	18-nov	
39	Krishna Das	M	India	Mechanic Phidim HPP project	Citizen near Phidim HPP project	19-nov	
40	Sukbahadur Damai	M	Damai	Operator Phidim HPP project	Citizen near Phidim HPP project	19-nov	
41	Balkrishna Thapa	M	Chittri	Operator Phidim HPP project	Citizen near Phidim HPP project	19-nov	
42	Indra Maya	F	Limbu	Farmer and housewife	Citizen near Middle Pheme project	19-nov	

43	Saroj Limbu	M	Limbu	Plan operator Middle Pheme project	Citizen near Middle Pheme project	19-nov	
44	Bishnu Maya Phuyil	F	Chittri	Housewife	Citizen near Middle Pheme project (power house)	19-nov	
45	Chiran Jivi Phuyil	M	Chittri	Plan operator Middle Pheme project	Citizen near Middle Pheme project (power house)	19-nov	
46	Bhivindra Nembang	M	Limbu	Foreman Pheme Khola project	Citizen near Pheme Khola project (more uphill)	19-nov	
47	Amrit Ria	M	Rai	Plan operator Pheme Khola project	Citizen near Pheme Khola project (more uphill)	19-nov	
48	Daya Ram Gautam	M	Chittri	Farmer	Citizen near Pheme Khola project	19-nov	
49	Prabina Tiamalsina	F	Brahamin	Housewife	Citizen near Pheme Khola project (more uphill)	20-nov	
50	Yubraj Siwakoti	M	Brahamin	Operator (roads/hydro)	Citizen near Pheme Khola project	20-nov	
51	Nirmana Shrestha	F	Shristha	Shop owner and farmer	Citizen near Pheme Khola project	20-nov	
52	Prim Prasaad Shrestha	M	Shristha	Farmer	Citizen near Pheme Khola project	20-nov	
53	Birindra Rasali	M	Kami	Owner of jewelry shop	Former citizen close to Pheme Khola project (since 4 years in Phidim)	20-nov	
54	Umish Rai	M	Rai	Farmer	Citizen near Pheme Khola project (more uphill)	20-nov	
55	Dil Kumar Limbu	M	Limbu	Farmer	Citizen near Mountain Hydro project (at riverbank)	24-nov	
56	Laxmi Tamang	M	Tamang	Farmer	Citizen near Mountain Hydro project (at riverbank)	24-nov	
57	Laxmi Wajli	M	Chittri	Farmer	Citizen near Mountain Hydro project (more uphill)	24-nov	
58	Him Bahadur Bahnadri	M	Chittri	Farmer	Citizen near Mountain Hydro project (more uphill)	24-nov	

59	Shyam Adhikari	M	Chittri	Farmer and shareholder	Citizen near Pheme Khola project	25-nov	
					Concern committees		
60	Prim Prasaad Sagea Tomba	M	Limbu	President of committee	Sarokarsamiti (Lower Hewa)	23-nov	
61	Dipin Limbu	M	Limbu	Board member of committee	Sarokarsamiti (Lower Hewa)	25-nov	
					Others		
62	Ratan Bhandari	M	?	Activist regarding hydropower	?	9-dec	
63	Bimal Pokharel	M	?	Director-Programs	Development Management Institute	7-dec	

APPENDIX III – INTERVIEW BLUEPRINT

OBJECTIVE

''AFFECTED'' STAKEHOLDERS AS INTERVIEWEES

- To find out the attitude of the interviewees towards hydropower development
    - To identify key words that interviewees associate with hydropower development
- To describe the level of acceptance of the selected projects by the interviewees through the principles of justice
    - To look for signs of the principles of justice mentioned by the interviewees
- To determine the level of public participation of the interviewees in the development of the selected projects
- To find out how the development of the selected projects was promoted to the interviewees
- To understand what has driven the development of the selected projects

''INITIATING'' STAKEHOLDERS AS INTERVIEWEES

- To find out the attitude of the interviewees towards hydropower development
    - To identify key words that interviewees associate with hydropower development
- To find out how the interviewees ensured public acceptance of the selected projects through the principles of justice
    - To look for signs of the principles of justice mentioned by the interviewees
- To determine the level of public participation strived for by the interviewees in the development of the selected projects
    - To find out how and to what extend local stakeholders were included
- To find out how the development of the selected projects was promoted by the interviewees
- To understand what has driven the development of the selected projects

TOPICS

LOCAL STAKEHOLDERS AS INTERVIEWEES

Objective: To find out the attitude of the interviewees towards hydropower development (identify key words associated with hydropower)

- **Topic:** Positive associations with hydropower development
    - (rural) Electrification
    - Meeting national/local demands (solving load shedding problem)
    - Economic development
    - Climate change mitigation
    - Clean energy
- **Topic:** Negative associations with hydropower development
    - Loss of land/property/home
    - Negative influence on fish stocks
    - Loss of biodiversity
    - Negative influence on tourism (e.g. rafting)
    - Bad influence on river (discharge, cultural value of river, etc.)

Objective: To describe the level of acceptance of the selected projects by the interviewees through the principles of justice (look for principles of justice)

- **Topic:** Signs of procedural justice
    - Inclusion in decision-making processes
    - Access to information
    - Demonstrable public acceptance
    - Free, prior, informed consent
- **Topic:** Signs of distributional justice
    - Equitable sharing of costs/benefits
    - Avoiding unfair or involuntary risk-bearing
    - Protection of livelihood security
    - Provision of compensation, insurance and welfare support

Objective: To determine the level of public participation of the interviewees in the development of the selected projects

- **Topic:** Moment of involvement of interviewee
    - Pre-planning phase
    - Planning phase
    - Construction phase
    - Management phase
- **Topic:** Way of involvement of interviewee
    - Informed (Pani Satsang?)
    - Consulted
    - Partnership

Objective: To find out how the development of the selected projects was promoted to the interviewees

- **Topic:** Way the interviewee got to know about the project
    - Via project developer/initiator
    - Via other villagers
    - Via local/national media (radio, television, newspapers)
    - Via social media (Facebook, websites)
    - Via local organization
    - Via protest action
- **Topic:** Description of project when first heard of it
    - Positive first association (electrification for villagers, creation of jobs, etc.)
    - Negative first association (loss of land of other villagers, fear of losing important species, etc.)

Objective: To understand what has driven the development of the selected projects

- **Topic:** Interviewee's idea of reasons for development of the projects in the area
    - Rural electrification much needed
    - Area has lot of potential for hydro
    - National interest (national economic development)
    - Solving load shedding problem

PROJECT INITIATOR/PROMOTOR AS INTERVIEWEES

Objective: To find out the attitude of the interviewees towards hydropower development (identify key words associated with hydropower)

- **Topic:** Positive associations with hydropower development
    - (rural) Electrification
    - Meeting national/local demands (solving load shedding problem)
    - Economic development
    - Climate change mitigation

    - Clean energy
- **Topic:** Negative associations with hydropower development
    - Loss of land/property/home
    - Negative influence on fish stocks
    - Loss of biodiversity
    - Negative influence on tourism (e.g. rafting)
    - Bad influence on river (discharge, cultural value of river, etc.)

Objective: To find out how the interviewees ensured public acceptance of the selected projects (look for principles of justice)

- **Topic:** Signs of procedural justice
    - Inclusion in decision-making processes
    - Access to information
    - Demonstrable public acceptance
    - Free, prior, informed consent
- **Topic:** Signs of distributional justice
    - Equitable sharing of costs/benefits
    - Avoiding unfair or involuntary risk-bearing
    - Protection of livelihood security
    - Provision of compensation, insurance and welfare support

Objective: To determine the level of public participation strived for by the interviewees in the development of the selected projects (how and to what extend were local stakeholders included)

- **Topic:** Reason for involvement of local stakeholders by interviewee
    - To avoid conflict
    - Fairness/legitimacy
    - Regulations (national law?)
- **Topic:** Selection of local stakeholders included by interviewee
    - Villagers
    - Farmers
    - VDC's/municipality
    - Local organizations
- **Topic:** Moment of involvement arranged by interviewee
    - Pre-planning phase
    - Planning phase
    - Construction phase
    - Management phase
- **Topic:** Way of involvement arranged by interviewee
    - Informing (Pani Satsang?)
    - Consulting
    - Partnership

Objective: To find out how the development of the selected projects was promoted by the interviewees

- **Topic:** Defining the stakeholders the interviewee wanted to reach via promotion
    - Villagers
    - Farmers
    - Local/national media
    - Local organizations (including protest organizations)
- **Topic:** Means used to promote projects
    - Local/national media (radio, television, newspapers)
    - Social media (Facebook, websites)

- Organization of public hearings
- Mouth-to-mouth

- **Topic:** Key words used to describe/promote projects
  - Electrification for villagers
  - Creation of jobs
  - Solving load shedding problem
  - Clean energy
  - Climate change mitigation
- **Topic:** Mentioning of (possible) negative impacts of projects
  - Yes/no: loss of land, impact on biodiversity, impact on river discharge, etc.

Objective: To understand what has driven the development of the selected projects

- **Topic:** Interviewee's idea of reasons for development of the projects in the area
  - Rural electrification much needed
  - Area has lot of potential for hydro
  - National interest (national economic development)
  - Solving load shedding problem
  - Energy as export product
  - Climate change mitigation
  - Clean energy

INTERVIEWEES (STAKEHOLDERS)

"affected" stakeholders	"initiating" stakeholders
Village Development Committees	Alternative Energy Promotion Centre (local unit in District Development Office in Phidim)
Local people of affected VDCs	Alternative Energy Promotion Centre (national)
District Development Committee	Khoranga Khola Hydropower Development Company
Municipality (Phidim?)	B.K. Power Developer
Concern committees (like Sarokarsamiti for BKP hydro project)	National Electricity Association (local unit)
Other local organisations	National Electricity Association (national)
Remote Area Development Committee (from Nepalese government)	United Nations (Development Program on Rural Energy)

SAMPLE SIZE

"affected stakeholders"	nr. of interviews
VDCs	Depends on amount of VDCs (1 each; 3?)
Local people of VDCs	As much as possible (start with 20)
DDC	1
Municipality	1
Concern committees	Depends on amount committees (at least 1)
Other local organisations	Depends on amount of relevant organisations (2?)
TOTAL	**28**
"initiating stakeholders"	**nr. of interviews**
AEPC (local)	1
AEPC (national)	1
Khoranga Khola Hydropower Development Company	1
B.K. Power Developer	1
NEA (local)	1 (if there is a local unit in Phidim)

Other hydropower developers	Depends on amount of relevant developers (2?)
NEA (national)	1
TOTAL	**8**

MAIN PRACTICAL CONSTRAINTS

- **Accessibility of interviewees**

With some interviewees it may be difficult to plan an interview. Especially with large organizations like UN and NEA, but also with local politicians who often have a busy agenda. Therefore these stakeholders need to be contacted in an early stage in order to increase the chance that an appointment can be made in the time that I am in Nepal.

- **Language problems**

When interviewing local stakeholders that do not speak English a translator is needed. My translator is a psychology student from Nepalese Engineering College who is also conducting research in the area regarding more social aspects of hydropower development. His topic is to determine suicidal intentions of local people due to hydropower development.

I rely a lot on my translator, since he needs to tell me not only how the interviewee responds to my questions, but he must also try to indicate whether the interviewee is being genuine (e.g. by reading body language, intonation, etc.). It is an advantage that he is a psychology student, who says he has skills in that, however I need to put a careful note in my discussion chapter regarding interpretation of the interviews.

- **Cultural differences**

Nepal is quite different from the Netherlands and these cultural differences need to be respected. This does imply that it is possible that the sample of interviewees will consist mainly of men and that women are not represented as well as men. Perhaps it is even the other way around, when the men are working and the women are home when I come there. During the field work I will keep track of the ratio men/women of the interviewees.

- **Time**

Since I'll only be in Nepal for 2 months and probably about 4-5 weeks in the field I will not be able to speak to everybody. Still I want to use my time there as efficient as possible and try to conduct as many interviews as I can in those few weeks.

APPENDIX IV – EXAMPLES OF INTERVIEW GUIDES

INTERVIEW GUIDE – ''AFFECTED'' STAKEHOLDERS

INTRODUCTION

- Thank the interviewee for making time
- Introduce myself (from Netherlands, student, MSc Climate Studies, MSc thesis in Nepal, part of bigger research project, working together with Nepalese partners like NWCF and NEC)
- Purpose of the interview (mention thesis subject, data collection, exchange of information)
- Reason why the interviewee is selected
- How the name of the interviewee is acquired
- Importance of interview
    - Interviewing results provide new insights on hydropower development in practice
- Interview will take around 30 minutes
- Global structure + goal of the interview

OPENING QUESTION(S)

- Can you tell me something about yourself and your family?
    - Name, age, nr. of household members, profession, amount of land/animals owned
- How long have you been living here?
    - **Follow-up:** So you already lived here when they started developing hydropower in this area?

MAIN & FOLLOW-UP QUESTIONS

- What keywords spontaneously come to your mind when I say hydropower?
    - **Follow-up:** You did not mention <electrification/influence on river/…>, why not?
    - **Follow-up:** What about <loss of land/influence on tourism/…>?
- How did you first hear about the project?
    - **Follow-up:** What did *they* write/say about it?
    - **Follow-up:** Have you been in touch with the project developer?
    - **Follow-up:** <if yes> How did he describe the project to you?
    - **Follow**-up: <if only/merely positive> Did the project developer also mention possible negative influences?
    - **Follow**-up: <if yes> Which ones did he mention?
    - **Follow-up:** Was this the first hydropower project you heard about?
    - **Follow-up:** <if no> Of which others did you hear?
    - **Follow-up:** <if no> How did you hear about them?
    - **Follow-up:** <if no> What were some lessons learned there?
- How did the project affect you and your family?
    - **Follow-up:** <if negative> Did you give your consent on this? (or: Did you have a say regarding project decisions, conditions, etc.?)
    - **Follow-up:** <if negative> Did you receive some sort of compensation/welfare support?
    - **Follow-up:** <if yes> Do you believe it was enough?
    - **Follow-up:** Do you believe it was fair?
    - **Follow-up:** <if positive> Are you happy that the project developed here?
- Have you been involved in the development of the project?

    - **Follow-up:** If yes, how? (role, influence on decision-making processes, etc.)
    - **Follow-up:** If yes, when?
    - **Follow-up:** <if applicable> Who were invited to the meeting?
    - **Follow-up:** <if applicable> Where was the meeting held?
    - **Follow-up:** <if applicable> How many meetings were held?
    - **Follow-up:** <if applicable> Could you ask questions or express your opinion?
    - **Follow-up:** <if applicable> Did they have any instructions on what you could or could not say?
    - **Follow-up:** <if applicable> What did they do with (critical) comments?
    - **Follow-up:** <if applicable> What did they promise and what did they deliver?

    - **Follow-up:** If no, why not?
    - **Follow-up:** If no, did you want to be involved?
    - **Follow-up:** If no, do you know people that were involved?

- Did you have access to information/documents about the project?
    - **Follow-up:** If yes, what kind of information?
    - **Follow-up:** How was it provided? (presented at meeting/online/ hard-copy/…)
    - **Follow-up:** Was it provided in your language?
    - **Follow-up:** Who presented/provided the information?

- Why do you believe this project was developed in this specific area?
    - **Follow-up:** Are you happy that the project developed here?
    - **Follow-up:** Why (not)?

ENDING

- Ask for supplementations, additions or topics that did not come up
- Ask for other people that I should talk to regarding this topic (snowballing)
- Can I use your name in my thesis?
- Express gratitude for his/her time and effort
- Have a 'social talk'

INTERVIEW GUIDE – ''INITIATING'' STAKEHOLDERS

INTRODUCTION

- Thank the interviewee for making time
- Introduce myself (from Netherlands, student, MSc Climate Studies, MSc thesis in Nepal, part of bigger research project, working together with Nepalese partners like NWCF and NEC)
- Purpose of the interview (mention thesis subject, data collection, exchange of information)
- Reason why the interviewee is selected
- How the name of the interviewee is acquired
- Importance of interview
    - Interviewing results provide new insights on hydropower development in practice
- Interview will take around 45 minutes
- Ask permission to record the interview
- Global structure + goal of the interview

OPENING QUESTION(S)

- Can you tell me something about <NEA/AEPC/…> and its role in hydropower development?

    - Needs to be stakeholder specific (e.g. at the NEA/AEPC website I read … can you tell me more about this?)
- Can you tell me something about yourself and your role within <NEA/AEPC/…>?
    - Name, age, profession, etc.

MAIN & FOLLOW-UP QUESTIONS

- What keywords spontaneously come to your mind when I say hydropower?
    - **Follow-up:** You did not mention <electrification/climate change/…>, why not?
    - **Follow-up:** What about <loss of land/clean energy/…>?
- Why was this project developed?
    - **Follow-up:** What about <clean energy/national interests/climate change/…>?
    - **Follow-up:** Was this the first hydropower project you developed/initiated/promoted?
    - **Follow-up:** <if no> Which others did you develop/initiate/promote?
    - **Follow-up:** <if no> What were some lessons learned there?
- How has this project been promoted?
    - **Follow-up:** Which stakeholders did you want to reach?
    - **Follow-up:** Which means have been used?
    - **Follow-up:** What are the key words that were used to describe/promote the project?
    - **Follow-up:** Do all stakeholders have access to project-related documents/information?
    - **Follow-up:** Is the information available in the local language?
    - **Follow-up:** Did you also inform the stakeholders about possible negative impacts of the project?
    - **Follow-up:** <if yes> What are these negative impacts according to you?
    - **Follow-up:** <if no> Why not?
- Which stakeholders have been included in the decision-making processes?
    - **Follow-up:** Why have these stakeholders been included?
    - **Follow-up:** How have these stakeholders been included?
    - **Follow-up:** When have these stakeholders been included?
    - **Follow-up:** You did not mention <local citizens/concern committees/…>, why not?
    - **Follow-up:** What is the ratio men-women amongst the stakeholders?
- How does the project affect the different stakeholders? (who benefits, who loses?)
    - **Follow-up:** <if not mentioned> How about loss of land and migration of people?
    - **Follow-up:** <if applicable> Why did they agree to move? (e.g. did they receive compensation?)
    - **Follow-up:** <if applicable> Did they believe the compensation they received was enough?
    - **Follow-up:** <if applicable> Did they believe the compensation they received was fair?
    - **Follow-up:** <if applicable> Do you believe the compensation they received was enough/fair? Why (not)?

ENDING

- Ask for supplementations, additions or topics that did not come up
- Ask for other people that I should talk to regarding this topic (snowballing)
- Can I use your name in my thesis?
- Express gratitude for his/her time and effort
- Have a ‘social talk’