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Renewable Energy Projects are "Green" to the Nature, but Not Always to the People? An Observation-based Study from Chile

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Abstract

This paper describes a grounded theory-based research with a view to theorizing local community people's attitudes towards renewable energy generation projects. The study is conducted in the context of southern rural areas of Chile that has been receiving number of hydroelectricity-based renewable energy generation projects in recent years. Under the broad framework of grounded theory, the study is designed with an actor-oriented approach availing local knowledge as the research vehicle with a view to exploring local realities. The thematic abstraction, in inference, reveals three sets of drivers that affect local community people's attitude and action-building towards such projects. The paper avails a story-telling manner to explain the step by step process of abstracting those drivers from qualitative data.

Introduction

On the very first day I arrived at Valdivia- the Capital City of the Los Ríos Region of Chile, I saw a group of almost 200 people gathering together putting fancy (indigenous) dresses on in front of the Regional Government Office for protesting for something (refer to Image. 1). They were carrying some placards with "*No a Las Hidroelectricas* (Say 'No' to hydroelectricity)" and "*Patagonia Sin Reprasas* (Patagonia without Dams)" written on them. I was wondering why green energy generation projects like hydroelectricity get such resistance from the communities. My six months long stay in Chile, afterwards, has been characterized by my ardour for studying different newspaper articles and journal papers to gain more insights on the issue.

Figure 1: People protesting against hydroelectricity projects (Viveros, 2014)

Unfortunately, I found very insufficient studies in the context of Chile or other developing countries to suffice my question. Most of the social acceptance/resistance oriented studies were conducted in the developed countries' contexts and moreover, for

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wind energy, bio-energy and solar energy technologies with noticeable laxity to the hydroelectricity projects. More importantly, the existing studies had been oriented to the technical knowledge rather than being opened to the local realities. The studies already conducted within the similar thematic scope had mostly been restricted and/or biased by some pre-determined ideology(s) to explore scientific knowledge rather than learning from the people. For instance, studies have been focusing on exploring the impacts of governance and planning processes (Alvial-Palavicino et al., 2011; Breukers and Wolsink, 2007; Gross, 2007; Jobert, Laborgne and Mimler, 2007; Nadaï, 2007; Owens, 2004; Susskind, Kausel, Aylwin and Fierman, 2014; Zoellner, Schweizer-Ries and Wemheuer, 2008), economic dimension (Breukers and Wolsink, 2007; Jobert, Laborgne and Mimler, 2007; Maruyama, Nishikido and Iida, 2007; Warren and McFadyen, 2010; Wolsink, 2007; Zoellner, Schweizer-Ries and Wemheuer, 2008), siting and location (Devine-Wright, 2005; Ek, 2005; Gipe, 1995; Huijts, Midden and Meijnders, 2007; Jobert, Laborgne and Mimler, 2007; Kumar and Katoch, 2014; O'Hare, 1977; Schweizer-Ries, 2008; Warren and McFadyen, 2010; Van der Horst, 2007; Wolsink, 2000; Wolsink, 2007; Wolsink, 2010), temporality dimension (Devine-Wright, 2005; Wolsink, 2007; Van der Horst, 2007; Zoellner, Schweizer-Ries and Wemheuer, 2008), technology (Mallett, 2007; Painuly, 2001; Rogers, 2003), and social dimension (Alvial-Palavicino et al., 2011; Huijts, Midden and Meijnders, 2007; Lind and Tyler, 1988; Sauter and Watson, 2007; Van der Horst, 2007; Walker et al., 2010; Wolsink, 2000) on developing peoples' attitudes towards the projects; but explaining the social process of how local people come up with their certain attitudes and knowledge has rarely been the centre of interest in those studies. These issues played vital role for me to come up with a research idea to explore why and how local community people in Chile (and so in other developing nations in global south) resist to the so-called 'green' hydroelectricity projects.

Design of the Study

In order to fulfil the objective aforementioned, I designed my research as a social situation analysis based case study. As illustrated by Mitchell (2006: 28, 38), case study- in essence- is "heuristic" that can deepen our "understanding of the social processes". Having said that I was interested to learn from the local people and thus explore the local realities for explaining peoples' attitudes, I had to embed my research into the constructivist paradigm that acknowledges the validity of social construction of realities. Actor oriented approach (Long, 2001), in this regard, is availed as the main strategy for accomplishing the research. The approach, as conceptualized from Long (2001, 2002), tries to explain the multiple social perspectives from different actors' viewpoints as well as process of building those social perspectives, and thus, helps in exploring local community people's (varying) perceptions and attitudes towards a social action.

Conceptual abstraction of peoples' attitudes, in transposition, required me to avail the Grounded Theory (Glaser and Strauss, 1967) as analytical framework. The method could be seen as an inductive method of theorizing human behavior from qualitative data, through summarizing the field data into the first level of conceptual categories, re-examining them in the research setting, and gradually refining and linking them to broader conceptual categories in the upper level of abstraction (Glaser and Strauss, 1967:1; Birks and Mills, 2011: 11; Schutt, 2011: 341).

Two dominant means of qualitative data collection- observation and in-depth interviews were availed. Two month-long ethnography helped me with detailed observation of the social processes and 42 in-depth interviews with respective actors to understand the decision-making processes around such projects. *Verstehen* (comprehension) approach pioneered by the nineteenth-century German sociologist Max Weber was availed during the observation and interviews to understand the social phenomena 'from within'. As stated by Patton (2014:56), the approach refers to the understanding of the meaning of an action from the actor's own view-point, metaphorically, entering into the "shoes" of the participants. The collected data, thereafter, were analysed using coding and categorization (Saldaña, 2013) under the broad framework of Grounded Theory.

For the research, moreover, I chose two small scaled hydro-electricity projects as cases. This is because, single 'case' implies a "chance or haphazard occurrence" (Mitchell, 2006: 31). One case, therefore, is merely sufficient sometimes to generalize a fact or phenomenon since people from different cultural, spatial as well as temporal dimensions may view a phenomenon differently (Mitchell, 2006: 31; Yin, 2009:15). In order to facilitate the conceptual generalization, furthermore, I tried to maintain replication logics in selecting the study cases. For instance, I chose two projects from the same geographical, social and cultural contexts ensuring (almost) same level of territorial and cultural influences over the cases. In addition, both of the projects selected were recently undertaken and subject to the ongoing environmental impact assessments by the respective public authority. Furthermore, both projects received extreme social resistance from the local communities living nearby.

Study Area Profile

The two projects selected for the study are the EIA Pequeñas Centrales Hidroeléctricas de Pasada Florín II y Florín III (in short, Florin II and Florin III) and Mini Central de Pasada Huenteleufu Mini Central Huenteleufu (in short, Mini Central Huenteleufu). Both projects are designed with the installed electricity generation capacity of less than 20 MWs and located within the Futrono Municipality of the Los Rios Region of Chile, which has been the habitat for the local indigenous people for hundreds of years. As observed in Figure 2, Florin II and Florin III concerns the *Los Cerillos* community consisting of 206 people where 77.7% belong to the *Juntas de Vecinos* (Neighborhood Association)[1] and the rest 22.3% are indigenous (Mapuche[2]) people. Mini Central Huenteleufu, on the other hand, concerns two communities- *Curriñe* and *Chabranco*. *Curriñe* is inhabited by around 800 people where 25% are indigenous people; around 350 people, on the other hand, live in *Chabranco* where 43% belong to the demarcated indigenous communities.

[1] Neighborhood Association is formed of the local chilean nationals as well as some progressive indigenous community people living in the local community/village.

[2] The dominant indigenous group of people living in the southeast border of Chile, on the Andes valley.

Source: BCN, 2015 (the map has been slightly re-constructed by the author)

Figure 2: Location of the study cases and affected communities

Results and Discussion

Actors' Perspectives

At the beginning of the field-work, I started identifying actors for the projects and tried to understand their roles and interest in the projects. For some obvious reasons, first I visited the *Servicio de Evaluacion Ambiental- SEA* (Environmental Assessment Service) office which is a regional public body controlling the development in the region through assessing socio-economic and environmental impacts of the interventions. Thereafter, I kept visiting concerned public bodies on purposive-snowball sampling basis and talked to them. At the same time, I kept travelling to the selected case communities and talked to the community people.

Reviewing official documents and in-depth interviews with different agencies allowed me identify different actors and their respective interests in the projects that are presented in Table 1. From the table, four dominant actors' perspectives are evident that I would like to tag as meeting national energy demand perspective, commercial profit perspective, territorial and cultural perspective and local economic opportunity perspective. Among them, two- territorial and cultural, and local economic opportunity perspectives are very much embedded into the local community. Understanding these different actors' interests and view-points, however, helped me explore the drivers that shape the attitude and action-building of the local community people towards such projects.

Table 1: Concerned actors and their interests in the projects

Actors	Actors	Roles and Interests	
Public Service Actors	National Government Represented Regionally by *SEREMI*[3]*- Energía* (Regional Ministerial Secretariat of Energy)	Promoting (renewable) energy generation in the country to meet its growing national demand; attracting investors in renewable energy sector	
	Servicio de Evaluacion Ambiental- SEA (Environmental Assessment Service)	Ensuring socio-economic and environmental soundness of any projects within the region; Accepting or rejecting the projects based on the assessment.	
	Other Public Service Organizations: *SEREMI- Agricultura* (Agriculture) *SEREMI- Obras Públicas* (Public Works) *SEREMI- Salud* (Health) *SEREMI- Transportes y Telecomunicaciones* (Transports and Telecommunications) *SEREMI- Vivienda y Urbanismo* (Housing and Urban Development) *SEREMI- Medio Ambiente* (Environment) *CONADI* (National Corporation of Indigenous Development) *Servicio Agrícola y Ganadero* (Agriculture and Livestock Service) *Servicio Nacional de Turismo* (National Tourism Service) *SuperIntendencia de Electricidad y Combustibles* (Superintendent of Electricity and Fuel) *Ilustre Municipalidad de Futrono* (Municipality of Futruno) *Subsecretaría de Pesca y Acuicultura* (Sub-secretary of Fisheries and Agriculture)	Observing and assessing the project according to their interests. For instance, *SEREMI- Agricultura* evaluates whether the project is going to affect the local agriculture; CONADI evaluates whether the project has any conflict with the indigenous communities living on site; *SEREMI- Vivienda y Urbanismo* assesses whether the project is going to create any 'urban nuclei' etc. The organizations send their assessment results to the SEA or request for more in-depth evaluation.	
(Private) Energy Company Actors	Energy Generator Companies	Implementation of the hydroelectricity generation project for gaining profit.	
	Energy Transmission & Distribution Company (SAESA)	Transmission and distribution of the generated electricity into the main grid lines; for- profit.	
Local Community Actors	*Juntas de Vecinos* (Neighbourhood Association)	Overall territorial development; Personal economic gain	Maintaining nature and calmness of the environment; Protection of the territory, sacredness
	Indigenous Communities (Mapuche) who don't participate in the *Juntas de Vecinos*	Protection of the territory and persistence of the local culture	

Source: Author's Construct, 2019

[3] *SEREMI- Secretaría Regional Ministerial* (in English- Regional Ministerial Secretariat)

Process of Developing Acceptance/Resistance Attitudes

A two-month long ethnography in the affected communities allowed me to develop a conceptual abstraction of the local communities' attitudes towards the proposed hydroelectricity projects. The grounded theory-based analysis results an overarching concept that I would like to call "perpetual negativity" of the community people towards any projects requiring sitting (e.g. hydroelectricity, wind etc). I call it perpetual because this is not something emerged recently, rather took several generations and long period of experiences of perceptions and beliefs.

From a very long time, local community people in southern Chile had been standing against alien invasion into their territory to protect their individual lives, land and culture. We all know that the whole South America was colonized by Spaniards and Portuguese, one thing many of us don't know that the southern part of Chile (on the Andes valley) inhabited by the Mapuche community had never been vanquished by any colony (Restall and Lane, 2011:121). This generational experience helps building three different levels of perpetual negativity among the local community people towards a hydroelectricity project.

Given that these projects are endeavoured by external agencies (e.g. profit seeking private energy companies) to generate electricity for other parts of the country, local community people condemn these projects for the out-leakage of local resources. This wouldn't be the case if the project was intended to generate electricity for the local communities.

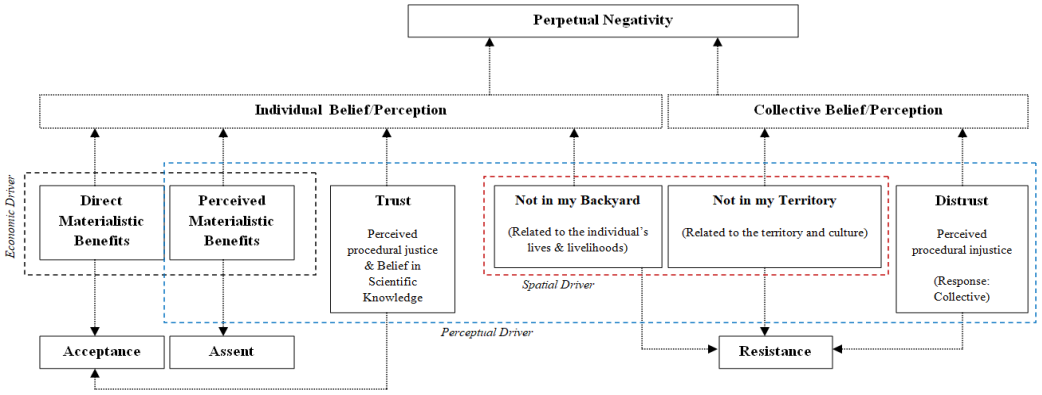
The second level of negativity comes in realization due to the so-called NIMBY effect of the project where local people do not want such project due to its (negative) impacts on their individual living in the area. The indicators affecting the NIMBY phenomenon range from the destruction of local landscape to the impacts on natural resources-based livelihoods of the local individuals. The third level of the negativity is bit more serious as it concerns local people's cultural and territorial identities[4].

The first two levels of the perpetual negativity, however, might get re-shaped in the course of time, through some negotiation mechanisms or social decision-making processes. For instance, those who are prone to the materialistic benefits might have active acceptance motives towards the project upon receiving direct economic benefits from it as illustrated in Figure 3. The direct economic benefits could be in the forms of extra-legal monetary transaction, satisfactory compensation from renting/selling lands/services to the project etc. The same group of people would be giving passive acceptance (assent) to the project, if they are not entitled with any direct economic benefits instantly, but can perceive such benefits in near future upon the realization of the project.

During my ethnography, I had been living with a family in the community who runs a local hostel business. They perceive that the project would attract more visitors (e.g. the workers/employees of the hydroelectricity plant) that would increase their business and that make them assenting to the construction of the project. This group of people holds "wait and see" approach rather than supporting actively. On the other hand, the group of people located far from the hydroelectricity plant and renting their farm land to the company to install electricity transmission poles at high price would support the project actively. I would refer this as economic drivers that make the project more likely to be

[4] This third level of *negativity* has been detailed later in this section.

accepted by the concerned group of the community people as opposed to foment perpetual negativity.



Source: Author's Construct, 2019

Figure 3: Social construction of the drivers for acceptance and resistance attitudes to hydroelectricity projects

I found trust as one of the most important drivers that can make local people to accept the project. Different other researchers such as Wüstenhagen, Wolsink and Bürer (2007), Huijts, Midden and Meijnders (2007), Walker et al. (2010), Alvial-Palavicino et al. (2011) and Lind and Tyler (1988) established the fact in their respective studies as well. The most important element of achieving trust from the local people, however, is to ensure procedural justice as I found from the study. In one of the study communities, the energy company and other relevant public bodies (e.g. SEA and Municipality) came and consulted to the *Juntas de Vecinos* (neighbourhood association) several times. These extensive participatory meetings explained the project design and possible impacts clearly to the people, and made fair negotiations with the concerned participants, which, in turn, generated a feeling of procedural justice to the members of the neighbourhood association. Almost all the members of this sub-community, therefore, trusted in the company and believed that the project outcomes would be positive for them as well as for the whole community. For the same reason, however, other parts of the community (indigenous community who do not participate in the neighbourhood association) denied to trust into the project since the company did not consult with them properly. Such partiality gives the excluded group of the community a perception of procedural injustice that made them distrust into the project and thus resist to it. It should be noted here that the generation and expression of distrust is more collective as opposed to the trust that could be individual.

> "…they (Energy Company) come and talk to the neighbourhood association always; why don't they come and talk to us? Because it is obvious that we are going to lose and the neighbourhood association is going to gain…" – An indigenous community member who is not member of the neighbourhood association

A person's innate proclivity to scientific knowledge is another reason for him to trust into the company as I found from the cases. Some of the members from the neighbourhood association, for instance, opined that the company comes to them with scientific

knowledge that is trustworthy; and therefore, they shouldn't "distrust" into the company. In contrast, if a group of people don't believe in other forms of knowledge but their own one, it is difficult to achieve trust from them as a foreign company. For instance, when a company comes with the so-called 'technical information' proving that the project is not going to affect the community at all, but the community people with their local knowledge could perceive that the "project is going to flood a portion of land"- for example, the community would resist to the project strongly. Accordingly, when the company tries to proclaim technical/scientific knowledge by avoiding the local knowledge, the community people intrinsically sense "bad intention" of the project or company. This is one source of developing "distrust" among the community people that takes place frequently for indigenous and religiously/culturally leaned group of people.

> "….the local peoples' understanding, their knowledge are ancient enough for the modern age; they don't want to believe in scientific information we bring….."- An energy company official.

> "……. the SEA came here once, we conveyed them our opinions. They (SEA) told us that some of our opinions were not right; we don't know, they are educated persons, may be they know better than us. They should show us with logic that why our opinions are not correct. But, none of them came afterwards to talk to us anymore, neither SEA nor the company….." – An indigenous community member.

I found the validity of the classic "Not in My Backyard" (NIMBY) phenomenon for a location based project like hydroelectricity plant. When a project, by its close proximity affects an individual person's life and/or livelihoods, the person tends to resists to the project. Such attitude of resistance, however, is more individual than a collective action. When it comes to the collective action, I would not call it "Not in My Backyard" anymore, but "Not in My Territory" (NIMT) effect which, in previous researches, was mistakenly inter-exchanged with the concept of NIMBY-ism. A clear difference between these two is that, NIMBY-ism is more related to individual's life and livelihoods, whereas NIMT-ism dominantly involves cultural and territorial implications and therefore, the local community's response in this case is more collective. For instance, a group of people with socio-cultural or spiritual attachment to their territory would not welcome any foreign entity into their territory that disturbs their collective life-styles. NIMT-ism would be severe in the territory populated by indigenous and religiously/culturally leaned group of people. This NIMT-ism foments the third level of perpetual negativity which is more severe than other two as discussed earlier.

In the study, I found that the proposed hydroelectricity project is going to affect the river and its water explicitly, which is normal river water to the company or outsiders, but highly "spiritual" for the local indigenous people. As explained by one of the indigenous respondents, some places on the bank of the river are regarded as "sacred praying place" for the local Mapuche people; implementing the project on the upstream indicates destroying the "spiritual value" of those places. Similarly, some of native plants that are going to be cut for the implementation of the projects are not just normal plants, but these are with "spiritual and medicinal values" for the local communities. This explicit impact of the project on the local culture and cultural identity is one of the most important reasons for NIMT-ism.

NIMBY-ism being related to individuality could be dealt with by offering effective instruments (financial instruments in most cases) to the affected person. NIMT-ism,

however, is more obvious for them who feel more attached to their territory and prioritize their territory and culture over than financial instruments.

> "…….we use a special type of herbs with spiritual power as medication to all our diseases; those herbs grow upstream only in that untouched part of the river where they are going to install the power-plant……." - An indigenous community member.

I would group these NIMBY and NIMT phenomena under the spatial drivers that, at initial stage, make a project more likely to be resisted by the local community. NIMBY phenomenon could be negotiated in the course of time through some appropriate negotiation mechanisms such as community consultation, financial instruments etc; NIMT-ism, however, is some kind of "hard to negotiate" phenomenon given that this is related to the cultural identities of the community.

This group of spatial drivers, moreover, falls within the broad spectrum of perceptual drivers as illustrated in Figure 2. Perceptual drivers include peoples' perceptions in building their actions towards a project. These drivers are, however, ambiguous in nature; could lead to positive attitudes with positive perceptions and vice-versa.

Conclusion and Policy Recommendations

In the research, I tried to focus more on the local realities rather than judging the local peoples' knowledge in the light of scientific validity. It is true that their knowledge is contextualized with spiritual and obsolete beliefs with minimal scientific validity (Blaikie et al., 1997: 219-220), however, that is their knowledge that drives them in developing perception and motive towards a project (Noë, 2004: 34). Achieving acceptance, or in other word, negotiating resistance should, therefore, be driven primarily by the local peoples' knowledge. This approach is very much important in giving the local community people a feeling of procedural justice.

There are some aspects as well such as NIMT feeling, that are true for indigenous/culturally leaned group of people and that are "hard to negotiate". Dealing with NIMT-ism should have different approach than so doing for NIMBY-ism. NIMT-ism, in addition, might require changing the design of the project in order to avoid severe cultural conflicts.

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