Infrastructural Projects and Land Use Conflicts in Developing and Developed Countries: A Study Based on Comparative Review of Literature and Different Case Studies

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Introduction

Social and environmental impacts of land use change especially construction of infrastructural projects like dams and conflicts due to such projects have always been under heated debate by researchers around the globe. Under hydropower projects, these debates include mainly ecological impacts (Moran, 2004), administrative decisions and inclusions of all stakeholders, resettlement and livelihood, cultural life of communities and different conflicts among different stakeholders over land and property rights (Sabir, Torre, & Magsi, 2017). Several studies on big projects like dams emphasized different conflicts depending upon region and geographic conditions including protestation, legal action, threatening and road blockage, use of police force and death of affected people (Awakul & Ogunlana, 2002; Swain & Chee, 2004). Although projects like dams are in greater interests of society, they are opposed at local level due to their undesirable impacts on land rights and ownerships, inappropriate behavior of certain actors which marginalize others and can result in violent conflicts (Magsi & Torre, 2013).

Different land uses are so integrated with each other that actors cannot reduce their activities to single use without consequences for others leading toward conflicts. Land use conflicts appear as the result of dissatisfaction of one part of population with actions taken by their neighbors, private organizations or public authorities (Torre et al., 2014). Land use planning decisions have potential of generating conflicts due to negative impacts on environment and community (Kaya & Erol, 2016). Infrastructural projects have negative impacts in different forms like social, economic and environment depending upon the nature of project, geographic conditions and

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actors and generate conflicts. These conflicts also vary in intensity and expressions and mainly based on land acquisition, violation of property rights, resettlement and livelihood and environmental degradation.

Construction of dams becomes the need of a country during industrialization and development to fulfill the increasing demand for energy. However, these projects are also the source of conflict between different stakeholders (Swain & Chee, 2004). In developing countries, infrastructural projects like dams contribute to economic and social development as agriculture is the main economic activity, but such infrastructural projects force people to migrate from their lands and lead to dependencies among households, poverty and low living standard (Magsi, 2012). Affected population from such kind of infrastructural projects belong to remote areas or rural areas who have only rural skills which may not be of any use after displacement (Moran, 2004). Compensations and livelihood, displacement and resettlement are major issues causing tensions and conflicts due to infrastructural project (Oppio et al. 2015; Sun, 2013; Williams & Porter, 2006) which led to landlessness, unemployment and social disorder (Brown, Tullos, Tilt, Magee, & Wolf, 2009).

Large dams also has environmental impacts although there is an increased pressure from environmental legislation, i.e., the Kyoto Protocol on all governments to generate clean energy. Larger the hydropower project greater will be the adverse impacts on river ecology, riverside community, etc. Adverse ecological and environmental impacts include loss of ecosystem, biodiversity and architectural heritage, hindrance to fish migration, greenhouse gas emission and reduced delivery of sediments to sea (Moran, 2004; Sun, 2013; Williams & Porter, 2006). A massive damage to environmental conditions exists due to such kind of projects which cause conflicts among concerned stakeholders and project managers. Different dimensions of conflicts due to such projects exist including behavioral differences and varying expectations among different stakeholders (Awakul & Ogunlana, 2002), difference in local values and traditions and social and cultural differences among different stakeholders.

The goal of this article is to assess the main resemblances and differences between infrastructural projects and subsequent land use conflicts in developing and developed countries, based on comparative literature review and studies about two case studies. For the purpose of identification and analysis of conflicts and their impacts, secondary source of information is used. This source includes national and regional dailies, previously published literature on land conflicts especially related to infrastructural projects and other literature published by public and private organizations. It mainly deals with different conflicts related to land use and their social, economic and environmental impacts and goes into the literature of previously conducted studies of land use conflicts. It further discusses two case studies: one from developing country—"Bhasha dam project, Pakistan"—and other from developed country—"Sivens dam project, France." Then, it selects the main issues and conflicts discussed in the literature. The study analyzes the different socioeconomic and environmental impacts with respect to selected case studies and goes deep to examine the individual and common issues leading to conflicts in both developing and developed countries.

Finally, the article concludes the analysis and also provides policy measures and recommendations for better governance and conflict resolution in both cases.

Literature Review with Respect to Different Case Studies

This section deals with land use conflicts due to different projects, especially conflicts related to infrastructural projects and their impacts on different actors. A selected literature is discussed below, first from developing and then about developed countries.

Lessons Drawn from Different Examples in Developing Countries

Land use change due to different projects—especially due to big infrastructures—brings conflicts and has severe negative impacts on local population. Such local population is mainly residing in rural areas and low income, illiterate and related to farming business. People suffer from negative impacts and conflicts due mainly to land rights, compensations, resettlement and loss of employment opportunities and corruption and mismanagement in project activities.

Several case studies have been conducted on land use conflicts due to developmental projects. Land compensations are considered as the main source of conflict in infrastructural projects. No proper compensations and violation of compensation rights are highlighted in case of Chotiari Reservoir Pakistan, where compensation was based on the link with local landlords and some people also deprived of compensation who denied due to low land rate (Magsi & Torre, 2012). More than 3080 families lost houses directly or indirectly in case of Pak Mun dam Thailand and about 10,000 people in case of Bakun dam Malaysia have been displaced. In case of Bakun dam lower compensations, no compensation in case of refusal and use of police force is seen (Swain & Chee, 2004).

Many studies emphasized that the provision of compensation should improve the well-being of affected people (Moran, 2004; Magsi & Torre, 2014). Land quality becomes a major issue when the government provide compensation in the form of land to those whose profession was agriculture (Sun, 2013). Another fact is related to legal rights to land which the majority of the population in developing countries do not have and compensation goes to only few households or landlords (Flood, 1997; Moran, 2004). Compensation for land can be of any type, i.e., monetary compensation and/or land for land or both, etc. In fact, provision of compensation is emphasized in

many ways (Hui, Bao & Zhang, 2013) like social security, monetary compensation and employment alternatives, etc. (Qian, 2015). Moreover, even after the compensation payment most of the people are unable to handle the sum (Moran, 2004) and many people will lose the compensation amount in daily household expenditure or other activities.

Social and economic instability is the most important consequences of displacement and resettlement in developmental projects. Involuntary resettlement issues and negative sociological impacts of large dams are highlighted in some studies (Bui, Schreinemachers & Berger, 2013; Williams & Porter, 2006). Local affected people migrate not only during the construction but also after construction like people who live near the project area due to extreme weather and landslide (Sun, 2013). An acceptable resettlement program should appear necessary for better socioeconomics of local people, whereas resettlement plans fail to reflect the desires of affectees normally due to the hidden interests of land managers (Magsi, 2012). But national resettlement policy is absent in most of the developing countries creating land use conflicts and property rights violations.

Large projects like dams leave a large number of unskilled farm workers unemployed after they are displaced from their lands which could lead to social disorder (Brown et al. 2009). Less than half of the migrants can keep their original profession. Construction of the dam creates employment opportunities which are temporary and diminishes after the construction (Moran, 2004; Sun, 2013). In some cases, the government can arrange job opportunities for local people which are not according to their requirements. People who get cash compensation try to invest in business or land transactions and in most cases lose the compensation amount. This business investment depends upon their awareness to invest and needs training in this sector (Sabir et al., 2017).

Land right conflicts are also significant along with the compensation and livelihood and are of different types and among different actors. These conflicts are mainly due to land acquisition and violations of property rights. Land acquisition act in developing countries like India, Pakistan and Bangladesh cannot be challenged and affected people can challenge only compensation (Awasthi, 2014). Land right conflicts are not only between government and affected people but also among different groups of affected people based on ethnicity and historical settlements which gives the right to specific group. This historical inequality which disadvantages specific group is a source of conflict (Marx, 2016; Sabir et al., 2017). Rural communities most of the time do not have legal rights to lands leaving them without compensations. Tenure reforms involve biasness and favoritism and fail to protect informal land rights (Rigon, 2016).

Unfair allocation of formal land and lack of formal allocation of land are the main sources of land conflicts due to political favoritism and mismanagement (Admasu, 2015). Majority of the landowners are illiterate and socially inefficient because of which some of the stakeholders create fake ownership for compensation benefits (Magsi & Torre, 2013). Mismanagement, cronyism and corruption raise tensions and conflicts (Magsi & Torre, 2014; Swain & Chee, 2004), as World Commission

on Dams already criticized that accountability of government showed corruption, embezzlement and inequality of benefits (WCD, 2000).

Hydropower literature suggests that larger the hydropower project is more the adverse effects to river life, riverside communities and downstream impacts will be (Williams & Porter, 2006). Negative environmental and ecological impacts of large dam include GHG emission, obstruction to fish migration, deforestation, seepage and water logging, etc. (Magsi & Torre, 2012; Moran, 2004; Sun, 2013) which demands attention for better impact assessment and management. Moreover, one of the major issues which are a significant source of tensions and conflicts mentioned above is a lack of participation of all stakeholders in decision-making process. Several studied highlighted the participation of all actors in decision-making lack of which lead to severe conflicts (Diduck, Pratap, Sinclair, & Deane, 2013; Mahato & Ogunlana, 2011; Patel, 2016; Swain & Chee, 2004).

Lessons Drawn from Different Examples in Developed Countries

Land use conflicts are not just restricted to developing countries but also exist in developed countries depending upon land use change, interests and characteristics of actors. Acquisition of land is the beginning of several land use changes and is used by both government and private investors in order to control the land use (Obidzinski, Takahashi, Dermawan, Komarudin & Andrianto, 2013). Land acquisition is a complicated and opaque process, with national and sometimes territorial peculiarities, as different types of stakeholders with different interests are involved under the social, economic and political framework where knowledge about land acquisition becomes compulsory to understand and influence the land use (Van Assche, Beunen & Duineveld, 2014).

Several public or private actors are bringing the land use changes, and governments take land management measures for different purposes which also face substantial resistance from land managers (Rouillard, Reeves, Heal & Ball, 2014). For example, Scotland supports the uptake of rural land management measurements as a part of European flood risk management reforms (Spray, Ball & Rouillard, 2010; Rouillard, Heal, Reeves & Ball, 2012). However, these measures face much opposition not only due to few evidences of the effectiveness of land management measures (Wilby, Beven & Reynard, 2008) but also their socioeconomic impacts mainly on agri-businesses (Kenyon, Hill & Shannon, 2008; Posthumus, Hewett, Morris, Quinn, 2008). Land transactions started by powerful stakeholders like Governments involve interrelations among different stakeholders and activities which influence the behavior of landowners. Knowledge about land transaction is important for understanding and influencing the land use pattern (Broekhof, Beunen, Marwijk & Wiskerke, 2014).

Several land use activities and projects are responsible for conflicts in developed countries. Most of all, natural and agricultural landscape are at stake, especially

in peri-urban areas, where the development of large infrastructures is needed for the sake of urban dwellers. These areas are being devoted to urban developmental projects which upset not only the agrarian landscapes but also the social structures (Murdoch & Abram, 1998). Moreover, farmland use conflicts and their dependence upon the dynamics of territorial governance mechanism in metropolitan rural areas are also highlighted (Darly & Torre, 2013). Every year about one million hectares of land in Europe which is natural or being used for agriculture is transformed into a built area (Nilsson & Nielsen, 2008). Moreover, increasing number of conflicts over farming practices in Canada are also highlighted which come from change in practices, increasing number of large-scale production units and use of resources. Changing trend in social and economic structure of rural communities is a significant source of conflict (Owen, Howard, Waldron, 2000). This brings opposition among different activities like agricultural, residential and industry and also among different socioeconomic or interest groups like farmers, developers and residents (Henderson, 2005; Zérah, 2007).

Land use change especially related to development projects has immense importance for the well-being of the society but also carries heavy cost in the form of socioeconomic impact on affected community and generating conflicts. Such projects most of the time create opposition with local affected people, and there is always a problem with their social acceptance. Buchholz, Rametsteiner, Volk and Luzadis (2009) highlighted that the sustainability of bio-energy systems mostly relies on the support of many stakeholders with different perspectives in several dimensions including social, economic and environmental. In fact to carry on the acceptability with development is a complicated process. Moreover, according to an international energy expert group there exists no holistic approach for social acceptance of any project, however, which is dependent upon several practices combined (Huber & Horbaty, 2010).

Land use planning decisions are often felt on the basis of participation of few interest groups, which may become a source of conflicts due to lack of information and public participation (Mann & Jeanneaux, 2009). Several studies emphasized the consideration of all stakeholders during infrastructural project activities (Slee et al., 2014; Rouillard et al., 2014; Tilt, Braun, & He, 2009), but unfortunately, the perspective of planners is different. Partial advice and lack of information always created project opposition which has comprised economic and social opportunity wrinkled the trust in local government leading toward social unrest and conflicts. Moreover, social learning of participants is also encouraged if the process involves debate on nature, participant's knowledge, understanding and beliefs and how to question them (Rouillard et al., 2014).

Selected Case Studies

Sivens *Dam Project France*

Sivens dam project was visualized in 1969. In the early twenty-first century, the irrigation needs for agriculture especially for corn increased. The dam promoters said that it will benefit the high-value crops by providing them irrigation. In 2003, the water agency of Adour Garonne (AEAG) approved the plan. The dam was supposed to be 315 m wide, and its cost was €8.4 m financed publically (The Economists, November 8, 2014). Many technical studies of this project were conducted. To compensate the flooding of wetland area, CACG (the land settlement company for area of Coteaux de Gascogne) proposed to restore the 19.5 ha of wetland elsewhere. In response, an environmental association "Collectif Tester" emerged to protect the wetland threatened by Sivens dam. The opposition of the dam said that the wetland area is home to 94 species which will be destroyed and it will benefit a few farmers (The Guardian, October 31, 2014; RFI, October 27, 2014).

Several experts in 2012–13 evaluated the impacts on aquatic media and nature and raised questions on the relevancy of wetland compensation measures. After issuance of building permit in 2013, site occupation was started by nationwide activists called "Zadists." Riots squad was also sent on the request of local authorities. Violence between authorities and opposition party became routine and ended up on the death of an activist Remy Fraisse on October 25, 2014, which was first death after 1986 during a protest in mainland France. After that the work on the project was stopped (The Guardian, October 31, 2014). Government froze the project on 31 October, gave it up on December 4, 2015, and in 2016, the state court canceled the whole procedure.

A very limited interaction between all stakeholders and authorities' will to build the project at any cost was seen during this project. Stakeholders' involvement in project activities was limited to few actors and a few local elected officials supported by a lobbying group, manufacturing companies with the support of major national developer and a few farmers stating that they have no water forced through project and a dam (Pelletier, 2015). Feasibility studies regarding geomorphology, climate and urbanization were conducted with point of view of developer, i.e., CACG and was presented to Tarn council which approved the project and issued building permit. Public opinion was demanded for duration of 5 weeks, but local contest grew which attracted other contesters from all over France. Administrative court rejected the questions raised during public inquiry and authorized the project building to start. The contesters decided to prevent the work progress by occupying the site, faced several expulsions by police. Demonstrations were fought violently by riot squads which resulted in death of an activist with a concussion grenade (Roth, Gerbaud, Boix & Montastruc, 2017).

Diamer Bhasha *Dam Project Pakistan*

Diamer Bhasha dam project is located at the boundary of two provinces in northern Pakistan "Gilgit-Baltistan" and "Khyber Pakhtunkhwa." Diamer is a district in Gilgit-Baltistan, and Bhasha is a village of district Kohistan in Khyber Pakhtunkhwa. Almost all the project activities are located in the Diamer district, while Bhasha village contributes a small portion of land (Pakistan Bureau of Statistics, 2016). Total number of households in the area includes 12,039 in which directly affected households are 4228 dispersed in 32 villages in the form of different ethnic groups, local traditions and values (Sabir et al., 2017).

The project's estimated cost is US$13.684 Billion approved in July 2012, and "Water and Power Development Authority (WAPDA)," Pakistan, is the main agency carrying out this project (Dawn, 2006, April 27). The construction of the project has not started yet. The project on its completion has significant benefits in electricity generation and irrigation water storage, but construction of project has not started yet. In spite of importance of this project, there are disadvantages in the form of displacement of local people and their other socioeconomic losses. Thirty-two villages including 4228 households are going to be displaced due to this project, affecting seriously the livelihood and ultimately living standard of affected people. It will submerge about 2660 acres of agricultural land (GOP, 2014).

There is much opposition among different actors expressed in different forms like legal action, road blockage, threatening the contractors to bulldoze the infrastructure (Pamir Times, October 22, 2015; Mir, June 14, 2012) and death of three people protesting for compensations (GB Tribune, February 19, 2010; Mir, June 14, 2012). There had been severe conflict due to low land compensation rates. These compensation rates are, however, negotiated leaving behind the satisfaction of local people, and rates are accepted with a fear of further clash with government. Further conflicts are seen over corruption and mismanagement in land measurements and land category manipulations. Moreover, conflicts have also grown among different groups of local people on land rights and ultimately compensations from them based upon early settlers (owners) in this area are eligible for compensations and other (non-owners) are not according to local tradition. This conflict is on compensation from public lands which the government obliged to pay according to local law and also respects the local tradition.

A part of these conflicts, some negative impacts of the projects originated from improper resettlement plan and employment opportunities, out of culture resettlement and ineffective capacity building programs. Lack of information dissemination and participation of all stakeholders in nearly all project activities is absent which is a significant reason for conflicts in this project and negative impacts on the local population.

Major environmental impacts of the project include loss of 50,000 trees, depletion of fish stock, contamination of Indus water through a discharge of sewage (Singh, 2012), destruction of animal habitat and wetlands (Dawn, November 17, 2008).

Moreover, it will also impact 33,000 prehistoric rock carving in this area which is one of the rarest sites in the world with such big number of rock carving.

Discussion: Major Issues and Solutions in Developed and Developing Countries

Land conflicts due to infrastructural projects like dams are common in both developing and developed countries. Conflicts are almost built-in phenomenon in the scenario of land use change. They appear in different forms and expressions depending upon territory involved, uses of land and characteristics of actors (Torre et al. 2014) and vary from tensions to violent oppositions. Such conflicts are mainly based on land and property rights, socioeconomics and environmental degradation depending upon geographical conditions and characteristics of actors involved. Whatever the different dimensions of conflicts appear, they are born due to disagreement among two or more parties due to certain elements. Different types of elements are involved in conflict generation which could be common and different in both types of territories.

Land use activities are the source of conflicts among different actors in different ways, including geographical disagreement, superposition of interests and environmental hazards. These conflicts specifically related to infrastructural projects appear in different ways depending upon their intensity and have worse impacts on the affected population. Keeping in view, the case studies and relevant literature discussed above three issues are summarized which can be considered as the main sources of conflicts and under which different conflicts are discussed and analyzed.

Environmental Issues and Compensation Measures

Construction of infrastructural projects like dams is related to many significant environmental problems including inundation of landscape, water diversion and interruption of fish migration (Truffer et al., 2003). Mitigation measures like "fish passes" which allow fish to pass from lower part of the dam to reservoir part are managed in most of the dams in Europe like Norway included these measures while ignored in some countries like in case of Ilisu hydroelectric dam in Turkey (Moran, 2004). Most of the projects in developed countries take environmental consequences of big infrastructures seriously and lowering the environmental impacts is also one of the main agendas like hydrowind power plant in El Hierro in the Canaries (Roth et al., 2017). Significant awareness is seen about environmental issues in these countries and ignoring them could lead to violent conflicts.

Environmental impacts are also highlighted in developing countries, where environmental impact assessment is ignored (Magsi & Torre, 2012), and in some cases, they violate the guidelines about environmental assessment given by international

organizations like World Bank (Moran, 2004). Several studies emphasized the environmental and ecological impacts of large dams like reduced delivery of sediments to sea, loss of diverse ecosystem and greenhouse gas emission (Williams & Porter, 2006). Moreover, loss of architectural heritage and geological hazards are also significant losses of large dams (Sun, 2013) along with destruction of forests and wildlife.

In case of Sivens dam, the environmental association opposed the project to protect the 12 ha of wetland area which is home to 94 species. Several technical studies were conducted, and it was suggested to restore the wetland area of 19.2 ha elsewhere, but the opposition of the dam argued that it will destroy the wetland area and benefit only a few farmers. In September 2014, the clearing of riverside bushes and trees started and violence became routine between authorities and dam opponents which ended up on death of an activist. In 2016, the state court canceled the whole procedure. In case of Diamer Bhasha dam project, the government agency "Water and Power Development Authority" (WAPDA) estimated the environmental loss of 50,000 trees, wildlife and fish stock depletion, wetland and animal habitat. Most importantly, the cultural heritage impact of Diamer Bhasha dam project impacts on prehistoric rock carvings which are 33,000 in number. Environmental management strategies are claimed to be prepared on international standard mainly according to safeguard measures of expected donor agency "Asian Development Bank" (ADB). However, there are several concerns and reservations of local social workers and international organizations like ADB over these measures and their implementations. There is a lack of awareness of environmental issues and importance among most of the stakeholders.

It appears that infrastructural projects like dams have negative impacts on environment in one way or another and need attention for better management. Tensions among various actors and resistance to the project due to environmental impacts depend upon the regions, actors involved and their interests, awareness and capacity to influence the decision making on the basis of their knowledge. Conflicts in developed countries like in the case of Sivens dam projects were on the basis of destruction of wetland area where the opposition party was a group of environmentalists who were well aware of the impacts of the project. Failure to satisfy the concerned stakeholders on the feasibility of Sivens dam project by the government led to violent conflicts. In case of Bhasha dam project, several environmental impacts are observed like deforestation, submergence of prehistoric rock carvings and depletion of fish stock, wildlife and animal habitat. In spite of several concerns over environmental management strategies, no significant opposition over environmental impacts was seen. Local stakeholders lack the awareness, knowledge and importance of environmental preservation, and more importantly, they are significantly going through conflicts over resettlement and livelihood impacts.

Socioeconomic Issues and Land Conflicts

Socioeconomic issues are considered very sensitive in case of infrastructural projects which depend upon several project activities. These affect directly or indirectly the living standard of the affected population. Land acquisition, land rights and compensations are significant issues in both developing and developed countries, whereas resettlement and livelihood issues are prominent in developing countries, mismanagement of which could lead to worse impacts on local people and conflicts. Inappropriate compensation measures led to violent conflicts in case of developed countries as well (Roth et al., 2017). Several studies in developed countries discussed the severe socioeconomic impacts due to land management measures including land acquisition (Kenyon et al., 2008; Posthumus et al., 2008; Van Assche et al., 2014; Spray et al., 2010).

In developing countries, land compensation is a source of conflict mainly in the form of less or no compensation (Flood, 1997), favoritism toward selected people (Magsi, 2012) and threatening the local people to stop protests (Swain & Chee, 2004) due to which people even hesitate to take legal action (McMichael, 2016). Ineffective resettlement plans due to delayed or out of culture resettlement or in general against the desires of local people cause landlessness around the world in such kind of infrastructural projects (Scudder, 2005; Dams & Development, 2000). Moreover, loss of permanent employment and worse livelihood is another drawback of these projects (Moran, 2004; Hui et al., 2013) which could lead to unemployment and social disorder (Brown et al. 2009). Such projects in developing countries are most of the time in tribal/remote areas where local people are illiterate and lack the awareness to use and properly invest the compensation amount. Due to ineffective resettlement plan, people try to migrate and settle in other developed areas and lose the compensation amount in land transactions. In some other cases in developing countries, local people also lost the compensation amount in luxuries lives (Qian, 2015) or in business investments.

Land conflicts appear in different forms in case of land use change including big infrastructures in both developing and developed countries. Use of agricultural and natural land for developmental projects (Murdoch & Abram, 1998; Nilsson & Nielsen, 2008), urban sprawl, insufficient measures for restoration of natural areas and biodiversity are prominent sources of conflicts in developed regions (Roth et al., 2017). Whereas issues like lack of legal rights of lands (Anaafo, 2015; Flood, 1997; Lombard, 2016), political favoritism to specific stakeholders and mismanagement (Admasu, 2015; Zhu & Simarmata, 2015) are seen prominently in developing countries. Tenure reforms also fail to protect the land rights under informal settings (Rigon, 2016) and structural and historical inequalities among different groups of stakeholders also emerged as major source of conflicts (Marx, 2016).

In case of Diamer Bhasha dam, three people died and several injured while protesting for land rate compensations. Several flaws are found in resettlement plan of Bhasha dam where disputed land for construction of model villages and delayed resettlement is prominent. Design of model villages is not also according to local

culture. People lost the compensation amount during resettlement in other more developed areas for better economic and educational opportunities for their children. In order to resolve conflicts, Kaya and Erol (2016) suggested focusing on local people's exact interests rather on symbolic benefit. Several employment opportunities are claimed by the government including capacity building programs for local people. These capacity building programs are devoted to lower category jobs but people with cash compensation in hand prefer to invest in business. In fact, some of the people lost the compensation amount in business investments in case of Bhasha dam project (Sabir et al. 2017). Further, there are several conflicts related to land in case of Bhasha dam including less land measurements and manipulation of land category due to mismanagement and corruption (Singh, 2012). Another significant conflict is on land right and ultimately on compensation among "owners" and "non-owners" due to their historical settlements. The project is still under consideration where its land acquisition has almost completed, but construction is delayed mainly due to conflicts and lack of funds.

Tensions and conflicts due to socioeconomic impacts are significantly observed between directly affected people and Government authorities in developmental projects in different types of countries. Land acquisition, compensation, resettlement and employment opportunities are significant issues in big projects like dams, mainly due to poor planning, mismanagement, corruption and cronyism. Projects in developing countries like Bhasha dam project contain most of the problems mentioned above. There are tensions and conflicts over resettlement and employment where land acquisition and compensation issues created violent conflicts. Poor planning, corruption and mismanagement are major reasons which served in conflict generation. Sivens dam project suffered from violent conflicts which even led to the death of a protester but these conflicts are mainly based on the ecological impacts of this project.

Public Participation and Information Dissemination

Complete information dissemination and involvement of all stakeholders in decision-making process are directly related to conflict resolution (Lombard & Rakodi, 2016). Public participation always offers a chance to the affected people to express their preferences and leads toward fair decision making. Moreover, participation in decision making also builds trust among all stakeholders, avoids social unrest and diminishes tensions and conflicts. Ignoring the public participation as a whole or even partial information dissemination and public participation could lead to mistrust over government, social unrest, loss of economic opportunities and conflicts (Diduck et al. 2013; Hoogester, Boelens & Baud, 2016; Li, 2015; Magsi & Torre, 2012; Mann & Jeanneaux, 2009; Slee et al. 2014; Vignon & Lecomte, 2004). In short, public participation is of great importance (McMichael, 2016; Patel, 2016) and considering all stakeholders in decision making right from the start of the project help in resolving

the conflicts (Huber & Joshi, 2015; Magsi & Torre, 2015). However, public participation is criticized in some ways like lack of guidance on best practice (Carr, Blöschl & Loucks, 2012; Cooke & Kothari, 2001; Innes & Booher, 2004; Reed, 2008), where the evaluation of participatory programs are emphasized whether they are achieving the desired objective and to improve them accordingly (Carr et al., 2012). Collaborative participation is also highly emphasized (Innes & Booher, 2004), and it was argued that stakeholder's participation needs to be supported by empowerment, equity, trust and learning (Reed, 2008).

In case of Sivens dam project, very limited participation of all stakeholders is seen and authorities were determined to construct the dam at any cost, at the expenses of people protestations. The political will was only up to Tarn department council and they were collusive with the developers in the project initiation and selection. However, in some developed countries like Germany Public participation under the factors like accommodation of interests and conflicts resolution showed significantly positive results (Drazkiewicz, Challies & Newig, 2015). In case of hydrowind power plant in El Hierro in the Canaries, the project proved to be a success in terms of stakeholders' involvement, public opinion, political choice and support to local culture. In case of Sivens' dam project, another developmental vision was brought by ignoring the local culture. Compensation measures for restoring the wetlands were proposed two times but could not satisfy the stakeholders and opposition grew stronger. Hence, even if the legal rules about participation were applied, the process was not participatory enough and did not fit the society's will, the conflicts kept on rising which ended up on death of an activist.

In case of Bhasha dam project, the government claimed that the project was introduced to all stakeholders in the form of seminars, workshops and cadastral surveys. Local people, especially notables from the region, participated in different project activities, including land compensation decisions. Moreover, a national consensus for Diamer Bhasha dam was reported according to which all the provinces voted in favor of the project. However, public participation is still questionable in some dimensions, like participation in all project activities and participation of all stakeholders. Local people especially lower caste and non-owners were ignored in participation in several important project activities, which is one of the major reasons of tensions and conflicts in this area. Such project activities include mainly measurement of land, land category decisions, land rights decision on the basis of historical settlements of different groups of local people and land compensations. The subsequent conflicts are in the form of legal actions in the court, threatening the contractors and also death of some people while protesting for land compensations (Sabir et al., 2017).

Participation of all (groups of) stakeholders and proper information dissemination about all project activities are highlighted by several studies as conflict resolution or conflict avoiding mechanism in many ways. Studies from both developing and developed countries emphasized that ignoring public participation lead to violent conflicts. In case of Sivens dam project, conflicts on ecological issues were violent where participation of stakeholders opposing the project was ignored. Later even partial advice with them to restore the wetlands could not satisfy them which jeopardize the conflict resolution process and led to the death of a protestor. In case of Bhasha

dam project, proper information dissemination and participation of all stakeholders in all project activities were ignored and considered as major reasons of conflicts. Poor planning, mismanagement, corruption and cronyism were observed in several project activities like land acquisition, land compensation decisions, resettlement and employment opportunities, where no information dissemination, partial advice or in some cases no participation of stakeholders at all were also prominent.

Conclusion

Infrastructural projects like dams are vital need of the time in order to overcome the energy and water shortage problems. Such projects bring also, along with them, economic opportunities and put the country on the path of progress. But they also carry some heavy costs depending upon different regions and under different conditions in the form of environmental, social and economic impacts. Environmental losses include loss of forests, wildlife and fish stock depletion, wetland and animal habitat and more importantly the destruction of cultural heritage. For directly affected local people the socioeconomic issues include living standard, resettlement, employment and livelihood and property rights. Such issues create tensions and conflicts among various actors, which could take several expressions depending upon different region and conditions in the form of legal actions, bringing the matter to the notice of the public authorities, mediatization (bringing the matter to the attention of the media), assault or verbal confrontation, putting up signs and even in some brutal cases death of people (Torre et al., 2014).

Sivens dam project is an example of conflicts between authorities and opposition of this project on protection of 12 ha of wetland, which was according to them inappropriate both financially and economically. In spite of many technical studies to compensate and restore the wetland area the opposition against the project increased. Compensation measures for restoring the wetlands were proposed two times but could not satisfy the stakeholders and several experts raised questions on wetland compensation measures. Violence kept on increasing between authorities and opposition party, which ended up on death of an activist. Government froze the project, and ultimately in 2016, the state court canceled the whole procedure.

Diamer Bhasha dam project is facing much opposition, and there are several conflicts on different issues related to land rights and socioeconomics. There has been a lot of mismanagement and corruption in land measurement and land category decisions. Conflicts over land rights among different groups of local population mainly "owners" and "non-owners" on the basis of historical settings are also prominent. Moreover, there had been severe conflicts on land compensations. Ineffective resettlement plan is the cause of landlessness of many affectees. Such conflicts have different expressions like legal action in the court, road blockage, threatening the contractors and death of three protestors while protesting for compensations. Several employment opportunities are claimed on the project site for which capacity building programs are arranged. A lot of questions are raised over capacity building

programs which are devoted to lower category jobs and several people lost compensation amount in business investment. People needs proper education and training and lifelong compensation model and insurance must be considered in spite of one-time compensation model (Li, Huang, Kwan, Bao, & Jefferson, 2015). The Diamer Bhasha dam project is still under examination and the land acquisition has almost completed where dissatisfaction over land compensations and conflicts over land rights are still there along with corruption, mismanagement and cronyism in resettlement and livelihood activities.

Our paper reveals that land use conflicts exist in both developing and developed countries in different forms and among different stakeholders over disagreement among two or more (groups of) stakeholders. Several land use changes and land management measures are carried out in both types of countries which become the source of conflicts, sometimes violent, over social, economic and environmental terms including farming practices, construction of expansion of infrastructural projects, urban sprawl and disturbance to agricultural activities and environment. However, nature and deriving factors of these conflicts could be different in both places. In developed countries, several cases show that land acquisition faces very early resistance from opposition to any land use change over socioeconomic and environmental disturbance which could lead afterward from tensions to violent conflicts. In developing countries, significant resistance (which most of the time is local) to land acquisition for project is observed over socioeconomic issues including less land compensation, corruption, mismanagement and cronyism in land and property rights which are followed by landlessness, loss of employment opportunities and ultimately low living standard.

Conflicts over environmental/ecological issues are significant in developed countries whereas in developing countries several actors (which most of the time do not include local affected people) raise voices over environmental impacts of land use change but no significant conflict is seen over these issues. It appears that infrastructural projects like dams have negative impacts on environment in one way or another and have to be managed. Tensions among various actors and resistance to the project due to environmental impacts depend upon the regions, actors involved and their interests, awareness and capacity to influence the decision making on the basis of their knowledge.

Complete information dissemination and participation of all stakeholders in all project activities have significant importance in conflict resolution ignorance of which could lead to tensions and violent conflicts. A new developmental vision in an area and out of culture decisions by stakeholders responsible for the project is always highly disturbing for local stakeholders where their participation has absolute importance at each step to avoid the conflicts. Involvement of all stakeholders, NGOs, media in project activities and public debate could make the process transparent, protect the rights and satisfy all stakeholders especially in developing countries where transparency is highly required due to corruption, mismanagement and cronyism. Stakeholders responsible for the project must also consider its social acceptance at all stages of development. Strong political efforts especially in developing countries are

required to bring all stakeholders together and satisfy them. Although social acceptance is difficult to assess as it depends upon history, culture, identity and values of population (Roth et al., 2017) but it might be improved by some practices including policy and strategy of framework, individual cost-benefit analysis of the project, quality of life, participation of all stakeholders in decision making and strategy to overcome the preset ideas (Huber & Horbaty, 2013).

Capacity building and social learning are also necessary steps for better participation and decision making and ultimately conflict resolution in both types of countries. However, social learning is enabled where participatory process needs a debate on nature, source of knowledge of participants and beliefs (Rouillard et al., 2014). Capacity building and empowerment of local affected people in developing countries are necessary as the majority of them are illiterate and lack the different professional skills. These people need professional/business training to protect the livelihood opportunities. Moreover, higher capacity building of local people probably through NGOs or donor agencies is also needed in common negotiations for land resources and other economic opportunities, so that people can understand the project, express their opinion and defend their rights.

Annex: Methodology

In this paper, tensions and conflicts are as defined by Schelling (1960); opposition without engagement of declared clash is called tension, which turns into conflicts after engagement of one or more actors. This engagement is defined by the implementation of a credible threat, which could take different forms like legal actions, mediatization (bringing the issue to the attention of the media, press, radio, television, etc.), bringing the matter to the attention of the public authorities, protestations, assault or verbal confrontation, putting up signs (signs forbidding access, fences and gates, etc.).

For the purpose of identification and analysis of conflicts and their impacts secondary source of information is used. This source includes national and regional dailies, previously published literature on land conflicts especially related to infrastructural projects and other literature published by public and private organizations. This kind of secondary source was frequently used by the researchers (see Ali & Nasir, 2010; Mann & Jeanneaux, 2009; Torre et al., 2014) in order to cross-check the information from different sources and to carry out better analyses (Deininger & Castagnini, 2006; Mc-Carthy et al., 1996). Information on factors affecting land use conflicts and their impacts is collected from extensive literature review. Such factors include land rights and compensations, resettlement and livelihood, information dissemination and public participation and environmental impacts. Further information on two selected case studies is collected from above-mentioned secondary sources which then further compared and analyzed in light of selected literature of land use conflicts.

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