

Review

Refining the impoverishment risks and reconstruction (IRR) model: A study of the model's "overlooked"* risks, evidences from the impacts of Tekeze Dam, North East Ethiopia

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This article tried to question the viability of the impoverishment risks and reconstruction (IRR) model in assessing all risks development projects like dams brought to affected communities. It argued that in some cases the model fell short of showing exhaustively all risks communities faced as a result of grand development projects like dams. Taking the case of Tekeze dam in Ethiopia, it unearths some of the risks the model overlooked pertaining to the analysis of risks caused by dam-induced displacement and resettlement. Overlooked risks taken from the case of the Tekeze dam construction included: cattlelessness, constrained community mobility, loss of resilience, constrained access to education, and loss of aspects of human rights.

Key words: Overlooked risks, IRR model, cattlelessness, resilience, dam.

INTRODUCTION

Dwivedi (2002) avers that 1990s marked the emergence of an accumulated research on displacement and its particularly disastrous effects on some segments of a society. Sociology and anthropology as fields of studies that give due attention to the living realities and challenges of human societies have taken the frontal battle in developing a more precise and integrative approach in understanding displacement and its complexities. Since the 1970s and 1980s efforts, fueled by the increased state of globalization and the attendant free flow of ideas and goods with no border restriction, it brought displacement in the right frame of academic research.

More and more people began to be displaced from their

so-called 'stable life styles' in the name of conducting

*This is a study of the "overlooked" risks of the hydroelectric dam in the impoverishment risks and reconstruction (IRR) model. The "overlooked" impacts are impacts which this study has tried to incorporate in its impact analysis of the Tekeze dam by taking into account the different suggestions different researches have pointed out in relation to expanding the horizon and of the IRR model. For example, loss of resiliency (Scudder, 1997), loss of education (Mahapatra, 1999) and loss of human right (Downing, 1996) are stated to be included in treating the impoverishment risks entailed by development-induced displacement. This study concedes that these impacts identified are not its own formulations, but developed from the different literature consulted. But what the study intends to affirm is that "cattlelessness" as a big impoverishment risk has to be included in dealing with the impoverishment process which has been at work in the Tekeze dam affected communities.

development projects. This prophesy has, however, seemed to take a wrong turn as more and more people in the governments' desperate fight to deal with the existing poverty become newly impoverished and the new state of impoverishment and destitution looks to be more lethal than the older one looked to be. To Dwivedi (2002): "this developing impasse necessitated fresh insights into the life-worlds of affected people, and a review of assumptions, questions, and options in social engineering, a challenge that was taken up in sociological and anthropological research".

Following the widespread practice of mega scale and grandiose development projects throughout the world particularly in developing countries, more and more reports about the misfortunes and ill-treatments of communities who directly and indirectly have become affected by these major works of development programs have begun to leak and find their way into the academic circle, spurring huge array of debates. Some debates have even gone as far as the point of questioning the viability and necessity of embarking on the campaign of conducting development projects. Accordingly, several extreme criticisms have been leveled on the carrying out of development projects. Particularly the World Bank, which finance and fund several development programs, especially the construction of dam projects, received hard-coined attacks from different circles of academics, particularly from sociology and anthropology (Dwivedi, 2002).

Giving a welcoming ear to many of the criticisms that mainly are of ethical character, the World Bank decided to find ways to minimize the risks development projects would bring to the affected communities. As part of this program, the World Bank began to finance research works that aimed at exposing problems that loom over the skies of the would-be-displaced people and how to develop an effective mitigating measures and coping mechanisms. Thus, Cernea and Guggenheim's edited volume (1993) became the first of its kind that dealt with the opportunities and threats of development programs in general and dams in particular. This volume, labeling the 1980s as the 'decade of displacement', stresses the need to work more on the issues of displacement, resettlement and impoverishment. Accepting the notion that development-induced displacement literature was in its infant stage, the authors tried to sketch the ways by which a better and sound policies of development project planning and implementation, and strategies that could result in effective resettlement and rehabilitation projects could be devised (Koenig, 2001).

AN OVERVIEW OF THE TEKEZE HYDROELECTRIC POWER PROJECT

This project as part of the Federal Government's move to increase the capacity of the country to generate power began to be studied as an alternative scarce energy coping mechanism in 1996. The Tekeze hydro power dam, which is posited in the regions of Amhara and Tigray, is now considered as one of the major sources of electrical power for the country. Located 80 km west of Mekele (the Capital of Tigray), the Tekeze dam covering a catchment area of 30,000 km² is found in the middle of the Tekeze River. As a major tributary to Atbara that enters into Nile, the Tekeze is also tribute by the rivers of Angereb and Goang. Topographically, the basin of the river is flat and mountainous in the east and west around Ras Dashen Mountain and the Sudanese border, respectively. The basin receives an average rainfall ranging between 500 and 1400 mm. The river flows in a generally northern direction in its middle reaches, though at the dam site axis it flows northwesterly in a deep gorge at an elevation of 970 m a.s.l. The gorge is incised into Precambrian sedimentary deposits to a depth of 350 m. The dam site is located on the high volcanic plateau of Ethiopia, less than 150 km from the western edge of a region with high seismic and volcanic activity: the Afar depression and the East African Rift System (Humphreys et al., 1998).

The Ethiopian Electric Power Cooperation constructed the Tekeze hydroelectric power plant. It was built as part of the national plan of ensuring sustainable energy to help the accomplishment of the national development plans. The plant is designed to accommodate four 75 MW units. According to the feasibility study conducted in 1998, six sites were proposed for the construction of the dam. However, TK5 (Tekeze dam site five) was finally selected to be the dam site. It is found at the coordinates of 13° 21' North and 38° 45' east. This dam site is characterized by a step narrow gorge. The dam site of the large hydropower on the Tekeze (TK5) is located in Abe Merdanos. In this locality, the Tekeze forms the boundary of regional states of Tigray and Amhara (EEPCo, 2009: 14-15).

The development of Tekeze hydroelectric plant involved the construction of 188 m high, mass concrete double curvature arch dam, and spanning 450 m across 350 m deep natural gorge, two river diversion, an underground powerhouse, water conveyance tunnels and outlet works, a variety of hydro mechanical and electromechanical equipment, substation and a 105 km long transmission

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Table 1. A Brief note on the general features of the Tekeze hydroelectric dam.

Features	Capacity
Total storage	9.3 Bm ³
Maximum retention level	1145 m a.s.l
Minimum operation level	1096 m a.s.l.
Surface area at MRL	147 km ²
Live Storage	5.3 Bm ³
Dead Storage	4.0 Bm ³
Catchment area	30,000 km ²
Mean Annual rainfall	850 mm
Annual inflow	3.75 Bm ³
Sedimentation	30 Mm ³ /year

Source: Ethiopian Electric Power Corporation, Tekeze Hydroelectric Power Plant (2009: 27)

line to link with the Ethiopian National grid at Mekelle (Ibid.) (Table 1).

Based on the interview made with a senior geologist Ato Asfaw Shirga, the paper work of the dam construction required the selection of the right contractors and consultants. Ethiopian Electric Power Corporation conducted the process of coordinating and administering the activities using the Tekeze Project Coordination Office. The consultancy Services Contract including design review and construction supervision of all the civil and electromechanical works was awarded to a joint venture of Harza Engineering Company Inc. of the USA (now known as MHW- Montgomery Watson Harza) and EnergoprojektHidroinzenjering of Serbia. The Lot 1A contract for the design and construction of a new 35 km access road to the site was awarded to Berta construction Company, a local Ethiopian company. The major construction work of the dam was carried out by the CWGS Joint Venture, comprising of CWHEC (Sinohydro) CGGC of China and Sur Construction Company of Ethiopia. Other companies involved in the construction process include the Wanbao engineering Company (CWBE) of China, the Jilin Power Transmission and Substation Project (JPPC), and China National Electric Wire and Cable Import/Export Company (CCC) (EEPCo, 2009: 17).

The project implementation process went through two stages. In the first stage (July, 1998 to July, 2002) the Coordination Office of the Tekeze Project claims that the feasibility study was reviewed and various deficiencies of the new consultant and additional site investigations were performed. Selection of contractors was done during this stage. It was during this phase of implementation that the 35 km access road was constructed to facilitate the actual construction phase. The second phase was the construction phase that lasted between June, 2002 and

September, 2009. Geological problems and non-stop increase in the international market material costs were to have their impact in delaying the construction phase (Ibid, 21-23).

The reservoir of the Tekeze hydroelectric power plant is the biggest man made body of water in Ethiopia, with a total water storage capacity of 9.3 billion cubic meters. Lying on the eastern side of the Semien Mountains, the reservoir will be almost 147 km long at full supply level, with two main branches reaching almost to *Säqota* in the east. It has a catchment area of 30, 000 square kilometers, with a long-term annual average inflow of 3.75 BM³. At this rate of inflow, the reservoir would take at least three years to fill completely. However, the average annual inflow recorded during the years 2008 and 2009 was abnormally low so that the reservoir was still only 52% full at the end of the 2009 wet season (Ibid.). It was in November, 2009 that the project was inaugurated.

According to the Office of Environmental Protection (2009), most of the affected communities of the Tekeze dam-caused displacement are found in *Wag Hemra* zone of the Amhara National Regional State. These communities base their survival from the ecology of the riverian basin of the Tekeze River. Reports show that about 15 peasant associations or kebeles have become swayed by the impacts of the dam and the total numbers of affected households are 1549.

Michael Cernea's impoverishment risks and reconstruction (IRR) model: A critical review

Impoverishment risks and reconstruction (IRR) model, as an applicable model, has been devised and used as a research tool to understand forced or involuntary displacement by both war/conflicts and mega scale development projects in the last three decades. The application of the model has received applauded welcome in the African continent as it has become the testing ground of many development policies and strategies that directly aim at reducing and if possible at eradicating and counting poverty out from the continent. In due course, when such development projects are put into effect they result in the mushrooming of a new type of poverty. Such cropping up of new poverty in the process of fighting the older one bedevils the different planners, government officials, scholars and development advocates. Thus, to develop a better development policy and strategy, concerned organizations and scholars, public officials and development advocates have called and are still calling for the designing of an integrative and inclusive approach. The designing of such a policy is important to deal better with the ails and misfortunes suffered by a segment of a society and how they could be mended and prevented.

Since its inception considering itself as a model that gives emphasis to the ethical element of displacement, IRR has been accepted as the dominant model edifyingly used to assess the intensity and degree of the impact of involuntary, particularly development-caused displacement (Cernea, 2005). This currently widely used analytical tool in revealing displacements and their adverse effects was first adopted to give fuller picture of what social pathologies displacees are made to go through the analysis of the impoverishment risks. In the attempt to better develop a palatable explanation, Cernea, by coining the term Impoverishment Risks and Reconstruction Model, breaks down the impoverishment process into eight different but interconnected risk continuums: landlessness, joblessness, homelessness, marginalization, increased morbidity and mortality, food insecurity loss of access to common resources and services, and social (community) disarticulation. Cernea puts forth the IRR model four functions: predictive, diagnostic, problem resolution and planning, and research methodology (Cernea, 2005). However, this model, though widely accepted and practiced in recent decades, is not without any defects of its own. Cernea left open-ended for possible addition of risks to the list. In view of this, researchers suggested several risks. Scholars such as Maphapatra (1999), Scudder (1997), Feleke (1999) and Cernea (2004), made their attempt to add to the Cernea's list of the impoverishment risks: loss of education, risk of loss of resilience and risk of migration respectively (Kassahun, 2001). Kassahun (2001) also attempted to uncover what he believes are some of the basic deficiencies of the IRR model: unbalanced economic emphasis to the different economic elements of the local economy that could be affected by the displacement processes. For instance, the IRR model when first adopted and even till today gives special attention to the loss incurred in the crop economy than to the cattle economy. It is also believed that most of the IRR-based research outputs give credence to the holism of the impacts to assess the extent of their effect on the local population. Indeed, Cernea later concedes that impacts across different segments of a society have to be taken into consideration so that a better impact-picture could be drawn (Cernea, 2005). Moreover, the author believes that Cernea's attempt to gauge the level of impacts based on the distance relocatees has taken away from their original area of settlement and source of survival seems flimsy. This assessment of impact of displacement processes on the affected people based on geographic distance of move undermines the holistic and integrative nature of the displacement concept (Gebre and Ohta, 2005).

It is by incorporating all the afore-talked about criticisms that this article tries to apply the IRR model to its case of displacement and impoverishment study. Henceforth, the article analyzes the developments that have brought the

sources of livelihood and means of survival to a bleak state and the ensuing impacts that these have on the life conditions of the displaced people. The article intends to take into account any other impoverishment risk that could be added to Cernea's lists.

Analyzing the “overlooked” impacts of Tekeze dam on the displaced populations

In this section, attempts will be made to show the different impacts the affected communities of Tekeze dam have faced. These impacts, however, are not incorporated in Cernea's IRR model risks of impoverishment and resettlement. Cattlelessness, constrained community mobility, constrained access to education, loss of resiliency and loss of human right are highlighted as some of the risks the affected communities have faced. However, the author stresses that the IRR model has overlooked these impacts.

Cattlelessness: Constrained social and economic capital

In Sub-Saharan Africa in general and in Ethiopia in Particular, cattle economy plays a substantial role in the gross domestic product (GDP) make-up of countries (McCabe, 1996 as cited in Kassahun, 2001). Hand in hand with the farming economy, cattle, for most people of northern Ethiopia, have of paramount importance in supplementing their economic and social lives. Such part of the rural economy, more often than not, is not given the necessary attention among social science researchers and particularly by those who deal with the 'unwanted' impact development projects bring to the displaced people. In any displacement related literature it is the loss, which if incurred by the affected communities to agricultural land that, is given special attention. The impact on the cattle economy is often relegated to the level where it is difficult to come up with a picture of how much loss the affected communities have encountered, referring to it. The recently widely tested IRR model to study the impoverishment risks of displacement processes seems to have overlooked the impact the displacement have on the cattle economy. Cernea (2004) in developing the eight continuum impoverishment risks seems to have given the cattle economy a limited or no place in that he even seems reluctant to treat it under the risk of loss of common property resources. The risk of common property resources refers to the loss of common property regimes, such as grazing lands, water wells and springs, forests and other related ones. But though the IRR model identifies the constrained access affected communities will have on grazing lands, which will have its own direct bearing on the cattle economy, the model

has failed to give recognized place to the loss of the cattle economy which in fact is solely dependent on the availability of grazing lands. This 'unforeseen' impact by the model has resulted in its failure to be taken as a context-specific comprehensive model to analyze all the losses of a community incurred both to movable and immovable assets.

Kassahun (2001), in his work regarding the displacement and resettlement process which was at work on people who lived along the courses of the Gilgel Gibe where a dam was established, aided by the limited space the IRR model has given to the cattle economy tried to include 'cattlelessness' as one impoverishment risk that has to be given attention when dealing with displacement process by taking economic contexts of the affected communities into consideration. He tried to see how the loss experienced in the cattle economy has constrained the capability of the displaced in coping with new environment. For example, he stated that the relocated people of the Gilgel Gibe dam have been forced to be sharecroppers, as they do not have the necessary draught power. He also noted that the constrained access to cattle economy has robbed the relocatees off the income they used to generate from milk and milk products, and thus, according to him, losing their capability to deal with the impacts some economic shortfalls can have on the economic setup of households. But Kassahun's assessment of the cattle economy seemed to be economic-centered and even this economic aspect is not treated well to take 'Cattlelessness' as one impoverishment risk to be included in Cernea's risks-continuum.

In the upcoming pages, this study strongly puts that taking the context nature of including 'cattlelessness' as an impoverishment risk, like the farming economy, the cattle economy in the affected communities have greatly been disrupted. The disruption has brought its impact in the economic and social life of the affected communities in that they have lost many of the benefits they derive from the cattle economy.

In the case of the Tekeze dam-affected communities, almost all the grazing lands are found within the great basin of the river. As thus, when the dam began to take-in much water, grazing lands have started to be filled by the water of the dam until eventually they became inaccessible for the cattle to continue grazing. One of the noticed failures of the dam in relation to the relevance it has had to the local communities is that it undermined the role of these swamped grazing lands for the sustenance of the life of the affected areas. Rearing cattle (locally, *qem*) and goat (locally, *fečer*) have been for long, a source of extra income for the peasants to supplement their agricultural and household needs. It is also based on the cattle wealth a peasant possesses that he will be ranked as rich, middle or poor man. The cattle wealth helps a lot in running several social institutions such as

marriage and it plays huge role in the organization of intra-group and inter-community associations. However, such social and economic derivatives of the cattle economy seemed to have been lost to the dam. This could easily be evidenced by referring to the amount of cattle wealth, which is now left in the hands of the affected peasants, and to how this loss has greatly disturbed the life of the cattle owners. Moreover, the importance of cattle economy in the social life of the affected people is symbolically expressed in such a way that men wear a leather coat like cloth that locally is called *bälebal*. Those who want to show how they are in cattle wealth wear the *bälebal*. Informants stress that the symbolic importance of the cattle economy is manifested in the clothing style of the men. That is, shirts are knitted to have long sleeves that have the shape of a goat's ear (locally called, *koreto*). This is to show, informants claim, how much cattle wealth, especially goats, are valued in the social life of the Tekeze dam-affected communities. This symbolic representation and interpretation can show the view the local populations have on the cattle economy.

The following brief case of an informant shows the impact of the dam in the disruption of the cattle economy to the affected people in such a way that:

"I had sixty cattle, thirty calves and four hundred goats. Last year [2009] I was left with ten cattle and eighty goats. The size of my cattle wealth very much contracted due to the prevalence of drought in the last three years. To save the life of the remaining cattle and goats, I sent my son to eastern *bäläsa* or specifically to the locality of *digeb*. I did not know what had happened to him but he was found dead. He was buried in the church of *Abo*. After this, the remaining cattle and goats died of drought. After all this, I have no cattle property left (Merhawi, The Impact of Tekeze Dam on the Community, 2010)".

Some have been left bare-handed from what they had before the project began. To Ato Woldesenbet, the dam brought nothing good to the maintenance of his cattle wealth. He had 400 cattle and 600 goats. Now he has only 100 cattle and 200 goats. Compared to the other peasants who are left bare handed from their cattle wealth, Ato Woldesenbet seems to be better off. Some of his cattle and goats perished through the agonies of drought while he sold some of his property and has amassed 36,000 Ethiopian birr. Unlike the other negatively affected cattle owners, this peasant has been able to develop an effective coping mechanism. However, this does not mean that the peasants have good access to markets where they could sell their cattle and goats. One of the big problems, which are repeatedly mentioned by them, is the limited access to market centers due to the obliteration of the crossing paths (Woldesenbet, 2010). To Ato Wolde the Tekeze project

brought nothing but the loss of his 15 cattle and 120 goats, which he possessed as good markers of wealth. Now he is left with two cattle and no goat. He now is empty-handed and does not know how to deal with such grim and impasse period. Another informant recounts that he had 30 cattle and 150 goats. Now he is left with nothing and his agricultural plot has been flooded by the construction of the dam (Wolde, 2010).

Hand in hand with the economic problem, the loss of cattle has brought to the affected areas; social woes have also been at work. Cattle, for instance, was used by the affected communities youth as the best alternative to start a living that could help them prepare for their future life. To get bride wealth possession, youth of the affected areas would give their labor to wealthy families to work as shepherds. In return to this service of theirs they will be paid one in four cattle (locally, *Sezäter*) and one in three goats in a term (locally, *Shewena*). That is, if a certain lad gets hired to look after 100 cattle and 400 goats for a term, then at the end of his term he will be paid for his service with 25 cattle and almost 133 goats (Wolde, 2010). In such a way, the cattle economy works its own way of distributing wealth, which paves the way for the younger generation to start a new life to cope up with any upcoming life challenges. However, all this has been constrained as the cattle population has been dwindling at an alarming rate due to ever narrowing tract of grazing land. In the areas of the upper stream of the river, the grazing land has been totally inundated. This has resulted in the acute shortage of pasture for cattle and goats. To cope with this problem, peasants have taken several measures: buying fodder by going to markets as far as *Säqota*, migrating to some areas where there is grazing land to be attended and selling the cattle and goats.

The crisis in the cattle economy has brought several economic and social problems to the affected areas. First, to at least find a temporal solution to the shortage of the grazing land, peasants have opted to looking for grazing land in other areas. Thus, they have started to migrate to areas such as *bäläsa* in north Gondar. This migration has become a new phenomenon to the affected areas since the 1984-85 season of famine. Apart from the moral loss that migration will have on certain migrants, this forced man-made caused migration has resulted in social friction between the migrants and the host communities. The hosts in *bäläsa* have at all not allowed the outsiders to use the grazing lands found in their bounds and this have brought occasional collision and sometimes it out surfaced and overflowed beyond control, resulting in the loss of lives and damage of materials and resources.

Two, the crisis has resulted in the development of stiff competition among peasants of the affected areas in the use of the small plots of grazing lands available. This in the long run may work against the social stability of the

area. Third, the crisis in the cattle economy has worked against the long established levels of social prestige and status. The yardstick at least for now has taken a blurred image and has become fluid. The possession of cattle, not land, has been taken as a good measure of social status and being rich and poor was determined by the amount of cattle wealth a peasant possessed. However, the post construction impact has resulted in the 'narrowing of social and economic differences' in the affected societies. The narrowing has been achieved through the impoverishment of the rich, not by the prosperity of the poor. A certain recently impoverished peasant who used to be a rich one lamented on the bad fortune the dam has brought to him and alike. He now believes that he has forcibly become part of the lower class. He stressed that they have become equals and put the situation as: "*you poor, we rich have become like you*" (Belay, 2010). Those who have large number of cattle and goat have tried to survive by sending their cattle population to markets. This has enabled them to cope up with the economic problems that they have been in for now. However, this measure has started to rob the rich their capability to deal with future economic shortfalls and problems. This seems a work of continuously impoverishing economic situation for the rich ones. It is easy to see the impact the cattle crisis have on the poorer sections of the society as it resulted in declined wealth distribution. More explicitly put, the poorer section has become more impoverished and destitute.

Last, but not least, the crisis in cattle economy has brought its impact on the social life of the communities. Marriages among the locals were enforced through the cattle economy in that a certain lad to get married with a girl has to have good possession of cattle and goats to present them as a *macha* (bride price) for the girl's family. The cattle economy thus has been at the center of any new life the younger generation of the community aspires to start. In the past, the locals were able to finance with ease and simplicity the economic necessities of enforcing marriage. Both families of the boy and the girl would easily come to terms to enforce the marriage relation based on the cattle wealth they possess. Now that the cattle economy has greatly been disturbed and has not been operating the way it had as of the implementation of the project, it has become difficult to see the financing of marriages using cattle. This has resulted in decreased number of newly married couples.

Having a girl to a family has been for long regarded as a means through which an economic bargain could be made. Families of girls consider girls exchangeable and that if properly dealt can bring the necessary and expected better bargain. An interviewee sadly expresses this loss which the crisis in the cattle economy have brought as it has made him unable to find someone who could marry his girl by presenting an acceptable *macha*. For him from now then wards giving birth to a girl will not

be economically beneficial, it only will be a burden to a family (Lakew, 2010). The following verse can show the aforementioned explanation regarding what the locals think is the negative consequence of the dam on the maintenance of the centuries long built in marriage tradition and the value the society has developed towards giving birth to a baby girl:

“The new bride veiled with the headscarf,
Has eaten my heart with love.
What price you have brought,
For our sister [girl] is dear,
[she deserves a better bargain]” (Folk-art).

The verse tells how the society viewed marriage as having a social and economic bargaining element in that the bride is expected to bring the necessary dowry related payments as the bride's families ask something to be paid according to the tradition to the bride. Now that the cattle economy has been disrupted, it will be difficult for the bridegroom to meet the dowry payment expectations.

Regarding compensation, what the government has given attention to is the price it would pay to the lost farming plots especially the flood-recessed lands. Losses incurred from the inundation of the grazinglands, though included in the EIA of the project as losses subject to compensation, seem to have been left uncompensated. To people who regard the cattle economy as one of the epicenters of their lives, it would be very difficult to see their grazing lands swamped and left with no compensation. Those living in the affected areas stress that the cattle economy is tantamount to cultivation of crops as it is one of the life sustenance mechanisms. However, those who studied the feasibility study and the Environmental Impact Assessment have failed in recognizing the central role the cattle economy plays in the social and economic lives of the locals. The cattle economy was greatly disturbed when the water of the dam inundates the grazing lands, which unfortunately were found near the courses of the river. With this inundation of the grazing lands the locals become bedeviled by the question of where to make their cattle graze. Even this bedeviling question is not met by a satisfactory answer as almost all the best grazing lands were swamped and the locals found it difficult to identify a land that could be reserved for grazing. As thus, the cattle have been made to move incessantly from an area to another in search of grazing land. This has been exhaustive both to the locals and to the cattle population. One, the locals become tired of moving for long days away from home and thus, to help themselves economically, began to sell their cattle and goats. Two, the cattle population due to exposure to such problematic situation become unable to withstand the changed conditions and thus there has been gradual decline in

their number. Moreover, it seems that the construction of the dam has a perceived impact on the climate nature of the affected areas which particularly are found near to the reservoir. This seems to have a cooling effect on the climate of the area and this dynamism in the climate of the region seems to have its toll in the health conditions of particularly goats who do not adapt to cooler environments. Some informants argue that their goats have become unable to withstand the changed climate as it has brought some changes in the health balance of the goats. As a result, the number of goats is diminishing from time to time. This situation has become further aggravated by the loss of food the goats had access to when the grazing land was swamped by the reservoir. Not only has the nature of the new climate, the water of the dam also brought the growth of a different breed of vegetation that the goats forage to the detriment of their health. The cumulative impact of all these developments is that there has been decreased dependence on the cattle economy and this, as a result, has its part in disrupting the economic and social lives of the affected communities.

Physical barrier: Constrained community mobility

The other very daunting impact of the dam on the local population and their economy for which there is no dearth of data is the jeopardizing role the dam has played in the transportation sector and in its access. Transportation has been at the center of every human interaction and the more there is an access to transportation the more there is the higher probability of human interaction and intermixing. Especially for communities that are found in inaccessible areas, transportation of different types by any means has to be devised and put into use to open up doors for a better interaction and flow of ideas and goods. Likewise, the Tekeze basin inhabitants live in one of the most inaccessible areas of the country (FGD-A, 2010). As thus, transportation access has been one of the most pressing needs of the local populations. To satisfy this transportation quest they used nine crossing paths which now are totally swamped by the water of the dam.

The construction of the dam has brought its shortfall on the accessibility of transportation to the people, particularly to those who are found immediately near the courses and banks of the river. Crossing paths, which previously were taken as connecting ones to people living on both sides of the river, have now been submerged by the dam water and are not feasible for conducting transportation activities (FGD-A, 2010). Thus, these people have difficulty to pursue what they were able to have as economic and social links with people on the opposite side of the river. Using the crossing paths, people on both sides of the river entered into strong and continuous interaction that have its overwhelming impact

on the social and economic lives of the communities. Through such paths, goods and animals were transported from one side of the river to the other. Peasants brought their farming products and a wealth of the cattle economy to markets crossing these paths. This had for long helped the affected communities to have an outlet for the external economies situated mainly outside the immediate Tekeze basin. However, the construction of the dam has affected the trading activities. Now, the affected people have to make long journeys for about four or five days to get their products sold out in the 'outside' markets. Informants averred that what was hours of journey has now become a day's journey and this has slowed down the rate of interaction their local economy would have with the other local economies and markets (FGD-A, 2010).

For instance, informants disclosed that during the pre-dam period, for a person from Ketfen vicinity (from Säménbärkebele) to go to Yechila (Tigray region) he had to take the route via kolé vicinity in Ambadago kebele. This journey took two days. Now the same person to reach Yechila has to take the route through gilew (in Säménbär) → dābrāabay → sāqzambo → niraq → Yechila. This route takes a week. Moreover, a person to go to Delezeba (in Bāyeda, Gondar) from dāli peasant Association in Säménbär kebele previously had to take the route via fināwa (found in Sāhala Sāyémetworāda). This route took one day. Now this person has to take the route dābrätsehay (Zequalaworāda) → amedät (selazgikebele, in Sāhala Sāyémetworāda) → māharit (Sāhala Sāyémetworāda) → Delezeba. This route takes four days (FGD-B, 2010). Due to the dam, crossing paths that connected māharit (Sāhala Sāyémetworāda) and qedamit (Zequala Worāda), selazgi (Sāhala Sāyémet Worāda) and sāsāmu (Ziquala Worāda), mirebiya (Sāhala Sāyémet Worāda) and dābrätsehay (Ziquala Worāda), čana (Sāhala Sāyémet Worāda) and dābi (Abārgällé Worāda) and, fināwa (Sāhala Sāyémet Worāda) and bālāqa (Abārgällé Worāda) have completely been lost (FGD-B, 2010).

In times of such economically and socially grim period, the inaccessibility of several venues of economic interaction has served as infusing a streak to a wound. These times, peasants have become troubled in their living as they were made to remain bare handed due to the flooding of their farming and grazing lands. This situation was further aggravated by the inability of the local economy to see into the outside markets through which it can develop coping mechanisms.

Transport inaccessibility also has affected the social networks of the affected people living on both sides of the courses of the Tekeze River. Peoples on both sides of the river in addition to the active economic link they had, have had strong social ties such as through marriage, they have been connected for long. This strong social tie seems to have now been in a weak position by the construction of the dam which has made inter-community

social interaction difficult for communities living on both sides of the river. The most glaring social disruption affected by the dam construction and its direct impact on transport accessibility has been the change of attitude locals have towards one another in terms of marriage relation. Because of this constrained relation, the affected communities on both sides of the river have difficulty to make marriage relation as before, which was with ease and simplicity. Thus, the rate of newly married couples coming from both sides of the river has been getting smaller and smaller. Interviewees and group discussants reveal that this new social development began to besiege the mentalities of the localities as allowing their children living on both sides of the river get married is tantamount to making them leave their families forever. The chance for the affected communities to enforce marriage between those dwelling on either side of the courses of the river has been diminishing. The social impact of the transportation problem does not end here. Married couples who came from either side of the river have now started to think over their relation, as they fear that the dam will hamper any future relation they would have with their families. Such a problem is taking roots in some localities and divorce (locally, *Daqaru*) particularly among the young married couples has now started to be taken as an issue to consider for thinking.

This constrained community mobility can have its effect on the affected communities as it in the end will result in the loss of the affected areas social capital which is one of the necessities for a certain society to be operational and functional. Moreover, this transport related problem might have its unnoticed impact in narrowing the social base marriage relations. As people are forced to split from their previous marriage bonds and relations, they have to look for other options and the existing reality shows that the most viable option available is looking inwards to what is present in their own newly created and diminished 'social island'. Rather than looking to the outside to fetch for potential marriage spouses, now local populations may be forced to look into the geographically limited land.

Thus, the aforementioned expositions show that the dam has brought barrier in the physical interaction between communities that live on either sides of the River and this physical barrier has ushered in the development of constrained community mobility.

Loss of education or constrained access to education

The other practical reality the local populations have faced after the construction of the dam is that the number of children who attend schools has decreased. In fact, Maphapatra (1999) has identified loss of education as one of the impoverishment risks that displaced people are made to go through. For those affected people who

live near the Tekeze and for some of the villages to make their children attend education, they had to cross the river. In villages which are found in the upper stream basin, sending such children to school crossing the river is too difficult and has sometimes become unthinkable. Transport inaccessibility-caused education problem is also aggravated by the economic condition to which the affected people have been made to live with. Due to the economic burdens and problems, which have been imposed on the shoulders of the peasants, households were unable to make their children get on with their education. In families where there are many children, some of them were made to attend schools while others were made to look after family related responsibilities. Some families also take the option of sending their children to school on shift basis. This has been a loss to large extent to families who want to see out their children's future through education (FGD-B, 2010). An informant strongly puts his grievance on the impact the dam has on his capability in letting his children attend schooling as:

"All my five children have stopped attending school for I am incapable of making them continue their education. Let's say five of them go to school, what will they eat, drink and get for clothing. When I think of this the answer for me is too big to go with by. We could educate our children by farming our land and rearing animals but the dam robed us off our property. Now that we have become grieved for we are illiterate. However, it is for us despondent to see our children remain uneducated because we are unable to send them to school. Without economic capability a child cannot get his/her education. Now there is nothing. Everything is moving down to deep state of trouble. Anything can happen if there is economic capability, if not..." (Gebreselasse, 2010)

For the aforementioned informant, the constrained education access that his children have faced is directly related to the economic problem his family has encountered as entailed by the construction of the dam. He argued that to put his children in school he needs to have an adequate economic power. He stressed that the loss of the *diffa* and the constrained economic benefits derived from the cattle economy have played their major part in making him incapacitated to send his children to school. Instead, children are made to look after family business and on ways that could make them contribute to relieving of the temporal economic problem of their family. This has hindered the children from ensuring effective access to education. Moreover, this informant lamented on the future fate of his children as he gives huge value to education. He wants to see the future of his children carved out from their educational career. Lamenting that he was made to be illiterate for he had no chance of getting schooling, it has become difficult to see

his children to be out of the educational track that would eventually make them illiterate. He fears that things may take a full circle of wrong turn (Gebreselasse, 2010).

Loss of resiliency

Scudder (1997) suggested that the IRR model has to include some risks in its risk-continuum based on the context of the displacement case to be studied. Accordingly, he added 'loss of resiliency' as one potential risk that may loom over the sky of the would-be-displaced people. For Scudder, resiliency refers to the ability of the displacee in crafting mechanisms that could help them adapt with the newly created social and economic setting and environment. Any society, as to Scudder's belief, has the capability to deal with any emerging economic shortfalls, making use of the available economic and social resources (cited in Kassahun, 2001). Contextualizing Scudder's risk of 'loss of resiliency', though not a major one, based on the data gathered, it can be inferred that the affected communities of the Tekeze dam have lost the ability of dealing effectively with the emerged economic problem through different manipulation of their environment as they used to do in the previous times in times of economic failures.

The area of *Wag Hemra* has been hit by one famine after the other in the previous one or two centuries. In the face of such repeatedly occurring famine, the people had resorted to using several coping mechanisms by which they can withstand the perils of the famines. One of the options which were taken in particular by those living around the Tekeze River was the taming of the courses of the river to their economic good. The Tekeze particularly for those who made their shelter across its courses served as an asylum, making an effective and efficient manipulation of the silt and fertile alluvial soils brought down by the river. Some interviewees draw equivalence to the current situation they are in from the 1984\85 period of disastrous famine which has been claimed to have resulted in the death of hundreds of thousands of Agew men, women and children, and the complete shattering of (for some time) the human, economic and social resources of the area. Even during the 1985 evil days, those dwelling along the courses of the river had escaped the days working on what they best could do by utilizing effectively the deposited alluvial soils and flood recessed lands that helped them to produce at least for mere survival which by then was a luxury. Now they have nowhere to go as this land has been taken away for good to the practical implementation of the project. As a result, interviewees and group discussants have claimed that life has become too difficult to deal with. Henceforth, after 1985 season, it is now that the local populations have taken migration as one coping mechanism. The following case shows how much the dam

has robbed the affected communities off their resilience to deal with social and in particular economic failures they face.

“We derive our livelihood from the rearing of animals. We used the *diffa* [the fertile and productive flood recessed land] to escape from occasional drought and famine. When a drought visited our land as we had the wet fertile and silt soil of the Tekeze we went there and got benefited by producing on the land. Our cattle and goats saw the bad days off by grazing the different grasses found along the courses of the river. Now our only and best alternative coping mechanism has gone for good. Due to lack of nowhere to go, we saw a part of our cattle died of drought and others died when we migrated to *bäläsa* in search of pasture. Even reaching *bäläsa* after such a mess, we have faced several problems and challenges from the host communities. We have not encountered such a problematic situation. We are in a great trouble but we have found no one to look after us. No one has noticed that we are living like this [wretched and morally unfair life]. Alas! We are in a great trouble” (Kasa, 2010).

The aforementioned recount tells the impact the Tekeze dam has in making the people loss a sort of their resilience power. It puts that in times of economic failures precipitated by rain shortage, the Tekeze-bounded people make use of the moisturized alluvial soils of the Tekeze to escape from the perils of drought and famine. Even the cattle economy survives such periods by depending on the pastures found along the courses of the River. But this resilience power, informants indicated, has been stripped off the local population. This injecting out the resilience power has exposed the locals to look for unsecured coping mechanisms to, for example, save the life of their cattle. That is, they have opted to migrate to some pasture rich neighboring areas such as *Bäläsa*.

Loss of human right

The loss of human rights has also been one of the adverse effects of the dam on the affected communities. Scholars like Downing (1996a) as cited in Cernea (2004b) suggested loss of human rights as one risk to be considered in dealing with the impoverishment risks of the IRR model. It is internationally and locally stated that internally displaced people has to be given protection in practicing their human rights and the protection has to also be directed to the ensuring of how the displacement process could result in the better management and protection of the human rights of the affected people. What has happened to the internally displaced people across the world has been more often than not depressing and embarrassing to the signatory nations of the UN.

Reports that have come out from particularly in areas where the mega scale development projects are implemented strongly suggest that there is a wide spread global breaching of the human rights of the affected communities (Cohen and Deng, 1998). Cohen and Francis identify that “without doubt, the protection of subsistence needs [food, water, clothing, and others] is one of the most important human rights issues for many of the displaced” (Ibid, P.100). Similar developments that result in the loss and breaching of the human rights of the affected communities of the Tekeze dam characterize the dam development process.

It is against this background that the 1986 Declaration of the UN General Assembly on the Right to Development makes it clear that: “every human person and all people are entitled to participate, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized” (IDMC, 2009). Though this declaration calls for the protection of the human rights of people who repeatedly are debased and embarrassed by implementation of development projects, these development programs are put in place under the name of accessing development benefits to many people through the sacrifice of the few. Accordingly, four major human rights and social justice have been identified to see the better protection of the rights of the internally especially development displaced people: right to participation, right to life and livelihood, rights of vulnerable people and right to remedy (Ibid, p.3). Pertaining to the right to life and livelihood, the following words of an informant clearly sum up the conditions of the local affected people.

“This government was a father and a mother to us. We did everything what it told us to do. When it told us that a person’s human rights have to be respected and protected, we believed and accepted it. Nevertheless, when it built this dam it did not consult us whether it benefits us or not. It built the dam with no heed and respect to us. It built the dam using its power. Is not this a case of the breaching of the human rights of many individuals? It talks about the respect of human rights but it destroys its own beliefs. Man lives based on the fulfillment of four needs: health, food, transport and shelter. However, we have lost everything but shelter” (Wondimu, 2010).

These people, as the aforementioned recount shows, due to the special experience they had in the *Derg* period, they have taken the government as one of their own who worked a lot to redress their economic and social problems. They also believe in the tenets and principles of human rights protection as told to them by the government. But such on paper-put protection of the human rights principles could not pass their litmus paper test. The government which prophesied and promised a

lot to protect the human rights of its citizens, for the people of the affected communities, have finally shown its true face by utterly ignoring the human rights of the affected people, throwing it to dust. As thus, the locals pointed that they have lost faith in the government as it has made them lose their sole source of survival: Tekeze. They are very surprised to see that the government is not that much committed to protect human rights of its citizens on the ground as its commitment to talking (Wondimu, 2010).

The other human right issue that has been jeopardized by the dam development is the right to participation. That is, there has been utter absence of informed community consent. Research works conducted on the impact of dams on several dam-affected communities suggest that owners of a project and other concerned bodies have to give emphasis on ways by which the economic and social lives of the affected communities could be normalized. However, in the case of the Tekeze dam the Environmental Impact Assessment (EIA) seems to have failed to predict what future life the dam holds for the inhabitants of the affected areas. Though owners of the project claim that the feasibility study and the EIA documents were circulated to the concerned regional, zonal and *Woräda* administration bodies to make them get informed regarding the construction of the dam and the possible impacts of the dam on the people, how things have unfolded for the local population tersely shows that they did not take the necessary dam construction methods by which risks of impoverishment could be minimized and mitigation measures could be enforced well on the ground. This could all be done first by dragging down the plan of constructing the dam to public participation and consultation. The project owners did seem to have overlooked this necessary phase in that now the local populations strongly feel that they have been mistreated. Group discussants reveal that had the government initially made the local populations participate and consulted and had made them believe, they could have regarded the project as one of their own and things might have taken a different direction in that it may be possible to minimize the different risks of impoverishment which have now become materialized. Researches show that in many countries when development projects that could largely result in the disruption of local economic lives are to be implemented, making the would-be-affected-people participate in the decision making process through public hearing and reviews have been the hall mark of the early phase of dam construction. Bartolome et al. (2000) stresses that such public hearings and reviews to be effective tools of empowering the local populations to withstand any predictable economic and social shortfall caused by the dam have to be practiced on the appropriate time and context. Or put differently:

“Once the site of the dam and the purpose of the project

are determined and defined by parameters of engineering cost, scheduling and the analysis of social and environmental impacts, the ability of information gathering through public hearings to significantly change the features of the project are reduced, flexibility on these matters is sacrificed” (Bartolome, 2000).

This report at the same time reveals that public hearings could be used as far to the point as they could be given with the opportunity to result in the better implementation of the project that in a sense could also be beneficial to the local population. Experiences in Nepal, Sirilanka and India show that the effective implementation of dam projects needs to be backed up by transparency through which public hearings and reviews could easily be put into effect. But most of the time dam projects have been bedeviled by many problems such as information on projects which is difficult to come and to get access to, difficulty to put facts and figures together, and enquiries met with stony silence. The inability of the concerned bodies and officials to come up with the necessary worked up reports on project implementation, human costs, Environmental Impact Assessment and mitigation measures is also another manifestation of the smaller degree of participation allotted to the affected communities.

In the case of the Tekeze dam project, public hearings and reviews that are largely done to tap information to help the effective implementation of the project are totally lacking from the first till the last stages. Surprisingly enough, the local informants lamented on the way the project owners have treated and how they have secluded them from participating in any level of decision making process. The project, it seemed, was designed and carried out by the project owners with little or no respect to the right of the local people. The feasibility study was not thoroughly studied as 80% of the dam is situated in one of the most rugged terrain and inaccessible mountainous areas of the country. This made it difficult, as to the argument of the project owners, to garner the necessary data that could greatly help them develop the necessary and appropriate mitigation measures and coping mechanisms for the local population to the problems that rose in time of the implementation of the project. The following two recounts by the informants of the affected communities clearly show the utter dearth of consultation on the part of the communities regarding the proposal, study and implementation of the Tekeze dam project.

“We became aware of what was happening when they (the officers of the project) came to measure the land to determine the compensation price. They never did consult us. It is the people that are the country, not the mountain. Doing what has to be done without consulting us is very much saddening. Without the people [and its backing], everything is valueless. They built the dam for

they thought that we could not do anything. Indeed, we have no power. We have got no power to get collision with the government. If it had consulted us about the dam, even we might not have cared about compensation. The government after building the dam, it told and still tells us that compensation is to be delivered. But are we children that it continues to tell us something which is not coming? Sadly, we have felt being ridiculed as children. They measured the land after it was impounded by water. We were not told to get ready for this moment. Hence, we were not given the chance to protect our cattle and goats. All this sadly happened for the government was too careless in informing us the impending grim reality. As a result the water covered our land before we took the necessary measure to save our farming and cattle wealth” (Yigzaw, 2010).

Similarly, an informant from *Bäläqa* notes that:

Here in AbäMärdanos it was said that there were some Chinese men. Our eyes saw what was happening but we did not know what was being done. No one told us that. We thought that a highway to Gondar was being built. When there was a blast, we asked if it was thunder and lightning or anything else. We knew nothing. We were at all not told. The project officers did not come when the feasibility study was conducted. It was after the completion of the dam that they came to us. This could be expressed as “throwing a stone after the monkey has gone”. If we had been told when it was studied, we would have taken an alternative to cope with the impending reality. Local elders recount “the world would pass until the north got civilized” to show how much the government has written them off from any participation. They [the project officers and the office of the project management] did this because they think that we are backwards and know nothing. They told us that as the dam was going to get impounded we have to register our land. We said we had to be told when the project was proposed and studied to be conducted for if we lost our farm, we would lose our water and grass” (Mekonen, 2010).

The aforementioned recounts show how the local populations is dismayed to see the construction of the dam without being informed what fate the dam would entail to them. This stony silence of the project officers, informants stalwartly stressed, have robbed them the chance to take the necessary preparation in dealing with the inevitable realities that the dam would bring. Most surprisingly, the local men thought that a high way was being built when they saw some ‘Chinese’ men working in the construction. As Chinese contractors carry out many of road development projects in many parts of the country, it would not be surprising to hear the local populations saying that they saw Chinese men and they thought a high way was being built to Gonder. Informants

stressed that they did not go to the local kebele, *woräda* and zonal offices, as they did not expect that they were going to be victims of the project. They informed that it was only after the impoundment of the grazing lands and the *diffa* that government officials and project officers began to get in touch with the local populations (Mekonen, 2010). However, it is very difficult to get this information of the local populations as granted. These local people go on different time intervals to *Säqota* for marketing and it will be difficult not to think that they did not hear something about what was going on around the Tekeze River.

Considering that the information could be gathered while the construction was being carried out, the responsible bodies felt that they could easily come up with the necessary amends to the changes that would fall on the basic means of deriving economic and social survival for the people of the affected areas. What was most depressing for the local population is that their land was taken away without being consulted. They knew that their land had gone forever not to be reclaimed back when they saw that the water of the dam inundated the land. The affected people have been relegated to the level where they could play no role to the effective implementation of the project that could better ensure the introduction of contextualized coping mechanisms and mitigation measures and the acceptance of the project as one of their own.

For all such mismanagement and stony silence, the reaction of the peasants has been repeated accusation against the government in such a way that they needed to be informed beforehand so that they could at least take their own mitigation measures and coping mechanisms. Thus, the project has been a failure in terms of its inability to consult the affected people regarding what fate the dam have held for them.

CONCLUSION

This article tried to look into the different impacts the Tekeze dam in northern Ethiopia had brought on the affected communities. It strongly argued that some of the impacts the communities had faced had not been included and studied by Cernea’s impoverishment, IRR model. Arguing that the communities practiced a wide spread rearing of cattle, this paper avers that no strong attention was given to the impact the dam would have on the cattle economy of the affected area. It skipped cattleness as a potential risk. Such a measure resulted in the negative perception the people of the affected area had toward the construction of the dam. Moreover, other risks, including loss of resilience, constrained community mobility, constrained access to education and loss of human right have been discussed as risks that the IRR model has overlooked in its risk analysis as can be

evidenced from the case of the Tekeze dam. This paper thus challenges the IRR model and the need for refining it along the economic and social realities of the affected communities of grandiose development projects such as dams.

Conflict of interests

The author has not declared any conflict of interest.

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APPENDIX

List of interview and FGD informants

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Glossary of local terms

- ¹Qem: cattle.
- ²Fečer: goat.
- ³Bälebal: an Agew traditional leather coat produced from a goat's skin.
- ⁴Koreto: an Agew traditional shirt.
- ⁵Sezater, Shewena, Sizna, Akunti and Walṭent: Types of sharecropping in Wag.
- ⁶Macha: dowry or bride wealth.
- ⁷Daqaru: Divorce.
- ⁸Diffa: the flood-recessed land found along the course of the Tekeze River.