Poverty alleviation and gender balance to prevent environmental degradation - a case study

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PEOPLE-CENTRED APPROACHES TO WATER AND ENVIRONMENTAL SANITATION

Poverty Alleviation And Gender Balance To Prevent Environmental Degradation-A Case Study

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Improvement of the environment in an EIA study is not a sole objective but also should need to serve the purposes of poverty alleviation, gender balance and in a wider sense, regional economic development. The main objective, making poverty alleviation in a project would require the broad range of poverty related indicators like land ownership, education, employment or nutrition etc need to be addressed. Similar reasoning is valid for gender balance, gender mainstreaming and regional economic development. This study developed Inclusion of all these indicators is clearly beyond the scope of the future project, which is limited to technical interventions.

The river Gorai has been the largest perennial distributary of the Ganges River, supplying fresh water to the southwest region of Bangladesh for hundreds of years (Figure-1). This fresh water flow is crucial to the maintenance of an ecological balance in the region, especially in terms of checking salinity intrusion. The dry season flow of the Ganges River has decreased since the commissioning of the Farakka barrage in India, and since 1988 there has been a resultant hastening of the natural decline of the Gorai River as it becomes totally cut-off from the Ganges during the dry season. Closure of the Gorai off-take during the dry season has resulted in a number of hydro-morphological, environmental and social impacts. These include a northward penetration of surface water salinity, increase in soil and groundwater salinity, sedimentation of rivers, deterioration in the quantity and quality of groundwater, reduction in surface water availability, curtailment of irrigation opportunity, adverse impacts on domestic water supply, reduction in crop and fish production, deterioration of occupational and employment opportunities, negative consequences for health and nutrition of the common people, reduction in navigation services, problems of water use by industries, declining bio-diversity in the riperian zone and negative impacts on the Sundarbans. The impact of this hydro-morphological change of the Ganges and Gorai river system is quite significant in terms of increased salt-water intrusion in the coastal area around Khulna and the Sundarbans of the southern par of Bangladesh. The monsoon season flow of the Gorai is also declining, which suggests that the river would die in the absence of human interventions to restore it. Death of this river would have disastrous consequences for the environment in the southwestern region of Bangladesh, especially for the livelihood of the 9.17 million people living in the study area.

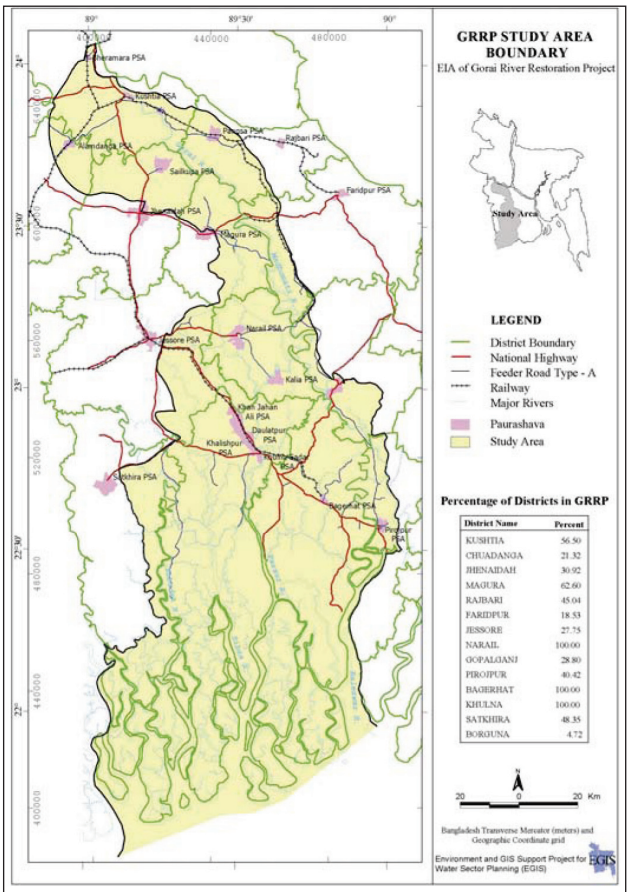

Figure 1. GRRP study area boundary

Assessment framework

During the process of establishing the environmental baseline, a scooping process was undertaken to select the important environmental components (IEC), which could be impacted by the GRRP. The assessment framework,

presented in Figure 2 facilitated an evaluation of changes in the key indicators.

Sequence of indicators

The approach leads to working in a logical sequence through the project's primary and secondary physical impacts to the consequential environmental, social and economic impacts:

- Assessment of *hydro-morphological changes* due to the fresh water flows established by the physical interventions.
- Assessment of impacts of the hydro-morphological changes on the *biophysical environment.*
- Assessment of the *primary benefits and direct effects* resulting from the physical and biophysical changes.
- Assessment of the *consequential benefits and indirect effects*, stemming from the primary benefits and effects. On each of these "levels", indicators are defined to make changes measurable and comparable. Detailed information on poverty and gender indicators is presented in table 1. Indicators and measurement unit are clustered to represent changes, which "measure" performance in terms of the goal and purposes of the physical interventions.

Indicators

Indicators are clustered to represent changes that "measure" performance in terms of the goal and purposes of the physical interventions.

Poverty alleviation:

- Per capita production of rice
- Per capita production of fish
- Labour force with primary occupation in rice cultivation
- Effective employment in rice cultivation
- Damage to settlements and agricultural land due to riverbank erosion

Gender balance

- Distribution of hand tubewells
- Problem in getting surface water for domestic purposes
- Employment opportunities for women in agricultural operations

Employment of women in activities relating to brackish water shrimp (bagda) farming.

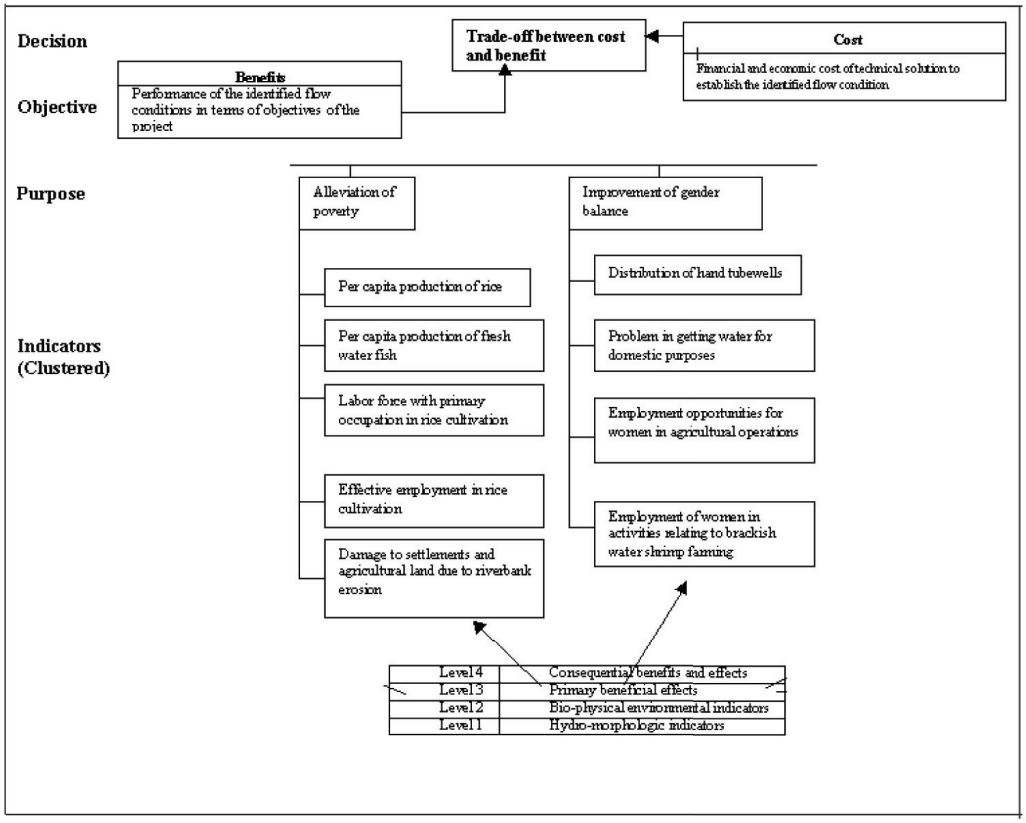

Figure 2. Schematic structure of overall assessment

Table 1. Socio-economic IECs and indicators for EIA of GRRP

	Indicator	Measurement unit
Poverty	Per capita production of rice	Grams per person per day
	Per capita production of fresh water fish	Grams per person per day
	Labour force with primary occupation in rice cultivation	Person-days per year
	Effective employment in rice cultivation	Person-days per year
	Damage to settlements and agricultural land due to riverbank erosion	Ha
Gender	Distribution of hand tubewells	Percent distribution between No. 6 and Tara pump
	Problem in getting surface water for domestic purposes	Percent area with more than 2 ppt salinity; vertical and horizontal distance to be covered to fetch domestic water
	Employment opportunities for women in agricultural operations	Person-days
	Employment of women in activities relating to brackish water shrimp (bagda) farming	Person-days and distance from the fry collection points

Socio-economic aspects of gender issues

Women in rural Bangladesh perform different domestic chores like fetching water for drinking and cooking purposes, bathing the children, washing clothes and utensils, rearing domestic animals and minding the kitchen garden. These activities require reasonably easy access to usable surface water. Since the non-tidal reaches of the Gorai remain dry, or have very little water during the dry season, the women there face a lot of problems. The women folks of rural areas are also involved in post harvest processing of various agricultural crops.

Distribution of hand tubewells

As indicated above, one of the major activities of women folks in rural Bangladesh is to collect water for drinking and other domestic purposes. As far as drinking water is concerned, the main source in most parts of the study area is hand tubewell. The overall dependence on tubewells for drinking purposes is over 80 percent.

Problem in getting surface water for domestic purposes

The shortage of surface water during the dry season creates many types of problem for the women folks in performing their household chores. There is a greater reliance on ponds for bathing and washing clothes. Relatively few people have access to tubewell water for these activities. There is, however, a widely shared preference for river water for bathing and washing clothes. The ponds in the dry season become shallow and quite polluted, so that the people are generally less inclined to use pond water for bathing and washing clothes. For rearing cattle, all households would like to use river water. Apart from the uses of water for the domestic purposes mentioned above, some households fetch water from the river for various activities.

Employment opportunities for women in agricultural operations

Women folks devote quite a bit of time in post harvest processing of various agricultural crops. The bulk of such employment for women is found in the processing of paddy. Given the somewhat depleted production of paddy in the Direct Impact Area, this employment has also suffered to an extent.

It is estimated that three person-days of women employment could take care of the domestic level post-harvest processing of a ton of paddy. Given the level of paddy production in the study area, it is found that a total of 6,884,573 person days of employment is created in the activity for the women in the study area. Employment generated for women in the given context may have different connotations. Those who are self-employed to process paddy owned by their own families help in saving money as well as in saving time for the men who are busy with other work. For those women who are employed to process the paddy owned by others, it means extra income for their families.

Employment of women in activities relating to brackish water shrimp farming

Villages to the south of the study area with relatively higher levels of surface water salinity have favorable physical condition for brackish water shrimp (bagda) cultivation. Thus, 42 percent of the area of Shanbandha has been found under bagda farming. In the context of shrimp cultivation, it is curious to note that although the physical conditions for bagda cultivation are existent in Darun Mallik village of Paikgachha thana under Khulna district, no shrimp is cultivated there. This is due to the presence of a strong ecological movement in the area, which developed momentum in the eighties with support from various NGOs and other activists. Those involved in the movement were opposed to the proliferation of shrimp cultivation since they considered such activities to be injurious to the ecological balance of the area. Female labour is often employed for preparation and maintenance of ghers. Besides, they are engaged in the harvest and processing activities. Per hectare female employment in this sector is estimated to be four person-days per annum, so that the total female employment in this sector comes to 147,604 person days per annum.

Social impacts on Gender issues

As in the case of other projects involving physical work, some social impacts are expected during the pre-construction

as well as construction phases of the selected option for the GRRP. The most significant pre-construction social impact relates to the requirement of land for the construction of the different structures suggested under the option. This impact would be felt most by those who would stand to lose their own land due to acquisition of land from them. It has also been found that some of the public land in question is under certain private uses at present. There may be some disturbance caused during this phase by the setting up of the work sites and mobilization of materials for construction. One positive impact will be the employment of some local labour in some of the works in connection with the setting up of the work site, constructing the work sheds and building the approach roads. These impacts would be felt more in the locations where the relatively bigger structures are to be built.

The expected social impacts during the operation phase of the selected option are summarized in Table 2.

Table 2. Social impact matrix: operation phase

Issues	Impacts
Water for domestic use	Availability of tubewell water for drinking purposes will be improved Availability of surface water for bathing and washing will be enhanced Availability of water for rearing of cattle will be improved The southern areas will benefit from the lowering of the problem of salinity
Women employment	Employment opportunity will increase in post-harvest processing of agricultural crops Employment opportunity in activities relating to bagda farming will be reduced Employment opportunity in activities relating to golda farming will go up
Marketing activities	Marketing of rice crop will go up Marketing of fish will go up Easier access to markets through waterway navigation will act as a stimulant

Conclusion

In comparing the environmental and social impacts of the different options formulated for the restoration of the Gorai River, a summary of the analysis relating to flow regime as well as impacts of the construction work in the vicinity of the proposed structures need to present. The Environmental and Social Impact Assessment conducted by EGIS shows that the level of flow that is expected to result in the Gorai through the implementation of GRRP would be beneficial to the bio-physical environment of the study area. It would also have positive impacts for miscellaneous socio-economic activities of the communities living there. Thus Poverty Alleviation and Gender Balance is major required for any EIA study.

References

Environmental and Social Impact Assessment of Gorai River Restoration Project, EGIS-II, October 2001

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