An Assessment of the President Chure-Tarai Madhesh Conservation Development Program

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Abstract : Chure landscape is important and valuable because of its topography, geology, geo-morphology and climate. It provides several ecosystem services to the areas downstream, and also, has direct influence on the quality of the environment. The Government of Nepal (GoN) declared Chure landscape as Chure Environmental Protection Area in 2014, and also, formed President Chure-Tarai Madhesh Conservation Development Board (PCTMCDB) to look it separately. In the last four years, the government has entrusted to invest NRs. 6.15 billion in achieving the targeted objectives. This paper looks at whether the investment is worthwhile by assessing the effectiveness of the policies and programs in Chure landscape to achieve its target or goal. The information was gathered through consultative meetings, key informant interviews, focus group discussions and household surveys in the concentrated and distributive sites of river basin systems. The findings show that the formation of a separate body i.e., board and the designed programs, such as river training, soil and water conservation and livelihood support programs are highly relevant. However, the board has not been effective in holding the authority to implement the programs. The programs are being implemented in an ad hoc basis. Similarly, a blanket approach is not appropriate to implement the conservation and development programs due to different physiographic and variation in socio-economic conditions and resource use practices. There is a need of establishing an office with full legal authority along with integrated policy, and also, creation of an independent Chure conservation fund for its sustainability.

Key words: Conservation program, river training, livelihood program, institutions, local body

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Introduction

Chure-Tarai Madhesh landscape region is ecologically diverse as it provides several ecosystem services to the areas downstream, and also, has direct influence on the quality of the environment. The region is structurally weak and fragile due to deforestation, forestland fragmentation and encroachment, rural road construction, overgrazing, forest fire, cultivation on the steep slopes and soil erosion. These have resulted in land degradation in the upstream and siltation and sedimentation in the downstream of the fertile land. Moreover, impact of climate change is unprecedented in the area due to high vulnerability. Intensity of rainfall in the area is high in rainy season and drought and dry in winter. Based on the topography, geology, geo-morphology and climate, the Chure mountain is naturally vulnerable to landslides and soil erosion. According to a latest report (IOF 2019), more than one-third of the Chure region is highly susceptible, and 40 per cent of its region is susceptible to landslide.

With the growing demand for sand, gravel and boulders in both Nepal and India, mining industry boomed, and focused Chure region to extract these materials. The District Development Committees (DDCs) in the Tarai collect sizeable revenue through licensing for the extraction of these materials from the Chure region. Consequently, this region experienced heavy environmental degradation which was frequently reported in media highlighted to illegal logging, unsustainable land use, and uncontrolled quarrying of sand, gravel and boulders (Bishwokarma et al. 2016). The widespread media coverage drew attention of diverse actors including former President of Nepal, Dr. Ram Baran Yadav. The honorable President directed the government about the urgent need of Chure conservation to ensure livelihood of about 60 per cent living in Chure, Bhavar and Tarai Madhesh areas. As a result, the Government of Nepal initiated the Rastrapati Chure Conservation Program as the top priority project, dedicating to the President through establishing Rastrapati Chure Conservation Unit under the Ministry of Forests and Soil Conservation in 2009 to protect the Chure landscape from further degradation, and also, to rehabilitate the degraded land (Giri et al. 2012). Although the government established a separate unit and put efforts to implement the programs, the problems remained pervasive. In order to make it more effective in implementing the program, the government declared Chure region as "Chure Environmental Protection Area" under the Environmental Protection Act (1997) on July 14, 2014, and formed a powerful "President Chure-Tarai Madhesh Conservation Development Board (PCTMCDB) "with the mandate of formulating integrated policy, legal instrument, plan, program, coordination, and monitoring for conservation and sustainable development of Chure-Tarai Madhesh landscape. Since then, the board has been

coordinating to implement President Chure Conservation Development Program. The PCTMCDB formation order 2071 section 3 clearly states that the board consists of one chairperson and four members who are appointed by Nepal government for five years. The member-secretary is appointed by Ministry of Forest and Environment (MOFE) from among the gazetted 1st class forestry service technical officer. The Chure program is implemented in nationally important landscape covering 12.78 per cent of the total area within 37 districts of east to west Chure landscape of Nepal inhabited by approximately 5 million people. In the last four years from 2014 to 2018, the government has entrusted the PCTMCDB to invest NRs. 6.15 billion in achieving targeted objectives of the President Chure Conservation Development Program. In this context, this paper attempts to assess the effectiveness of the policies and programs of Chure conservation, and also, the changes brought in the areas following the declaration of Chure conservation area.

Materials and Methods

Study Area

First, four major river systems (Biring, Jalad and Bakaiya, Ban Ganga and Rangun) originating from the Chure/Mahabharat region flowing southwards were selected following the available literature and expert consultation. Then, the field study sites were selected broadly dividing into two parts: concentrated and distributive areas, based on the degree of intervention carried out by the program. One concentrated area in the selected river system from each of the provinces 1, 2, 5, and 7 were selected, each of which covered one upstream and one downstream sites. In addition, one distributive type of site in each of seven provinces was selected. Thus in total, the information collected from 15 study sites were used for initial impact assessment purpose. The concentrated sites were selected using the criteria, such as size of the fund invested, integrated nature of the program, linkage between upstream and downstream setting, and larger coverage from the livelihood and conservation point of view. Similarly, the distributive sites were selected considering the criteria, such as hotpots, multiple stakeholder involvement, Chure dependent marginalized groups, conservation partners' involvement and road sensitive areas. Figure 1 shows the the states and cluster offices in the study area of Chure landscape.

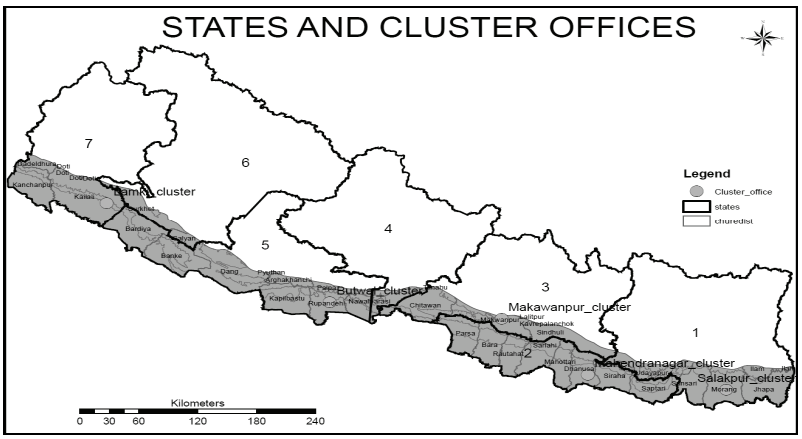

Figure 1 : Study Area - Chure Landscape showing the States and Cluster Offices

Methods

Data Collection

Multidisciplinary team was formed for information gathering. The team employed both qualitative and quantitative assessment through participatory approach. The team carried out field level, province/district level and national level interactions with concerned stakeholders, particularly, MOFE personnel and local governments. The team also conducted interactions and discussions with the concerned beneficiaries and user groups, local partners, district and field level implementers, key personnel and field level staffs. While conducting interaction and discussion, emphasis was given to furnish the information about the parameters like relevancy, efficiency, effectiveness, impact, sustainability, replicability, progress and timeline of the Chure landscape program. A total of four consultative meetings in each province 1, 2, 5 and 7 were conducted at provincial capital by inviting all related stakeholders to know the process, purpose, plan and activities carried out so far through the Chure Board and their views about the outcomes.

The beneficiary households were also selected for household survey to gather detail information from the concentrated sites using stratified random sampling techniques. The survey was carried out by eight trained B.Sc. Forestry graduate enumerators, and covered the information, such as household composition, landholding, assets and savings, forest resource base, project implementing group information, crises and unexpected expenditure, supports, welfare perception and social capital. A total of 199 households were surveyed. The number of households in the selected site varied based upon the number of beneficiary households in the selected site. In general, 10-15 households from

both upstream and downstream settlements were selected for detail interview. Besides archival data, such as critical review of the project policy documents and project activities carried out in different years, nature of the project activities, coverage together with the support provided at the local level, and the result assessed based on the effects both at community and the households level.

The team spent altogether one and half month (second week of April to last week of May 2019) in the field for observing program activities in different districts from east to west in Chure landscape.

Results and Discussions

Chure Program in National Policy Context

The concern for Chure landscape conservation is not new for Nepal as Nepal has shown its concern by developing policies and programs for Chure in the Rural Forest Policy (1952) and fourth periodic plan (1970–1975) (Graner 1997; Kanel 2010). A separate Department of Soil Conservation was created in 1974 under the Ministry of Forest and Soil Conservation (Kanel 2010). Similarly, a separate legislation on "Soil and Watershed Management Conservation" was also promulgated to conserve soil and watershed management by reducing natural calamities. There are several policy instruments related to Chure landscape conservation. Number of authors such as Kanel (2010), Bishwokarma et al. (2016), PCTMCDB (2074) and Singh (2017) have described the major policy instruments related to Chure landscape that have facilitated to implement the programs in conserving Chure landscape. All these policies highlight Chure as an important landscape, which needs to be conserved because of its very fragile nature, sensitive to erosion and landslides, water recharge for Tarai, and also interconnection to southern Bhavar and Tarai Madhesh landscape. Nepal government had declared Chure landscape as Chure conservation area as per the Environmental Protection Act (1997) in 2014, and also, formed a separate powerful board named "President Chure Tarai Madhesh Conservation Development Board" to look after the Chure landscape. Since then, the board has been coordinating to implement the Chure Conservation Development Programs.

The Chure program is implemented in nationally important landscape covering 12.78 per cent of the total area with 37 districts of east to west Chure landscape of Nepal inhabited by approximately 5 million people. In the last four years from 2014 to 2018, the government has entrusted the PCTMCDB to invest NRs 6.15 billion in achieving targeted objectives of PCTMCDP. The board considers Environmental Protection Act as a *Mantra* for implementing the programs in Chure landscape. Forest and biodiversity conservation, river training, soil and water conservation, and socio-economic and livelihood are the major activities

being implemented under the PCTMCDP in Chure landscape and these activities are found to be partly successful in achieving the targeted objectives. It is observed that the PCTMCDP has been objectively relevant, however, implemented in a less-effective and less-participatory way in the targeted areas and communities.

Assessment of Forest and Biodiversity Conservation

The PCTMCDB annual report (2018) claimed noteworthy achievement in terms of physical targets for the first five years, in particular in forest and biodiversity conservation, a total of 14,000 ha of encroached forests have been recovered and rehabilitated into an established forest; a total of 120,000 households that practiced open grazing have fully adopted stall-fed animal husbandry system; brought 165,675 ha under appropriate silvicultural forest management system; a number of community and collaborative forest user groups adopted conservation friendly management plans; and a sizable number of 27,924,000 tree and bamboo seedlings have been raised and distributed successfully. The PCTMCDP has also made remarkable contribution in conservation of 1900 ha of biodiversity hotspots, tree plantation in 2263 ha barren/degraded land, wetlands and wildlife habitat conservation. The placement of army barrack in appropriate strategic locations in downstream site is conducive with a model plantation in province 4 and for the protection of the upstream sites serves as a demonstration site as well. Besides, a number of conservation ponds have been constructed for rain-water harvesting and making water available to wild animals during the stress period, and the establishment of conservation friendly NTFP demonstration sites. The initiative taken by Nepal Army in rehabilitation of public ponds and wetlands in general is worthwhile, but, is questioned for inadequate transparency and collaboration with users in some sites.

This study validates better positive forest cover change in community forests due to application of appropriate silvicultural practices. The forest and biodiversity conservation activities have important contribution *in-situ* and in demonstrating a culture of conservation and collective livelihood enhancement. However, the scale and magnitude of these activities are implemented, and their coverage is insignificant. Therefore, a much larger funding support is required for longer term investment to achieve the conservation and development objectives of the Chure program. Establishment of the service providing organizations/institutions with sufficient human resources, introduction of appropriate technology and farming practice along with the farmers cooperatives (saving-credit organizations) and providing skill development training and skill-based occupations may create alternative sources of livelihood thereby reducing pressure on forest and land resources. Additionally, off-farm training, such as ecotourism and forest-based enterprise should be implemented

that indeed, not only increase the household income, but also, reduce the pressure on Chure.

Assessment of River Training, Soil and Water Conservation

River training is a major activity in the downstream site, and FY 2074/75 spending reveals that the activity alone consumed one-third of the total budget. The field visit and consultation found hundreds and thousands of hectares of land and forest saved by the river training works in most of the sites. However, there are serious issues observed and also reported during our field visits. These include: work done in patches and guided by political influence rather than technical requirement, participation of insufficient users in contracted work, stability threat of river training structures caused by illegal and rampant extraction of the riverbed materials, etc. For long-term sustainability, the river training works should incorporate bio-engineering with wider participation of local communities. Extraction of riverbed materials should follow robust IEE/EIA process and implementation inspection. To ensure lasting strength of the work, maintenance/management plan must be prepared for and adhered to in the implementation. Moreover, similar attention is required to the rural roads that have been constructed rampantly in the Churia hills, clearing forest areas without conservation measures that result in heavy soil erosion and landslide in the hills, and siltation, sedimentation and flooding in the Dun, Bhavar and Tarai region.

Soil and water conservation, one of the most important programs with nearly one-fourth of total budget, is mostly targeted in upstream site. Field observation and interaction revealed that the program has produced positive intended outputs in intervention sites. The multiple positive effects by the program in turn, have contributed not only to conservation, but also, supported to livelihoods and health of the people. However, field observation and interaction with concerned stakeholders revealed several challenges among others, shortage of technical workforce in local government, inadequate Chure friendly tools and technology, discontinuity of site level activities and less focus on upstream activities. Thus, environment friendly small-scale irrigation canal supplemented with bio-engineering, such as water harvesting in the Chure region and reclamation of the degraded land area through plantation and broom grass cultivation for income generation activities should be replicated. The gabion boxed physical infrastructures created for river embankment with the use of bio-engineering and plantation activities should be scaled-up for enhancing life of embankments and improvement of livelihoods.

Assessment of Socioeconomic and Livelihood

People in upstream areas responded that frequent occurrence of natural calamities, such as landslide pushed them from the place of their origin and

forced to settle in the Chure region, whereas in the downstream areas some pull factors, such as easy availability of the land, better options of livelihood due to the road network to Mahendra highway, etc. are the attractions to settle down in the Chure region. Majority of the households, both in the upstream and downstream areas, responded that their land was unregistered (untitled) though they had been occupying and cultivating that land for more than a generation. On an average, household land holding ranges from 31 katha at Jalad to 11 katha at Banganga (30 katha = 1 ha). The unequal distribution of land and insufficiency are the evidences for the household's inability to survive on available land. In general, the insecurity scenario on land ownership was observed in the entire Chure region which, indeed, negatively affected the willingness of the people in conservation activities.

It was found that the farm-based livelihood improvement programs, such as vegetable farming, fruit farming, improved livestock farming and fish farming were supported by the program in some limited areas. The household survey revealed that more than 50% of them produced food sufficient for up to six months only. Though the average landholding is quite insufficient for the survival from their own production, the primary sources of livelihoods as reported by the households is agriculture followed by remittances. From the focus group discussion, it appeared that households in Chure region wished to improve their agriculture practices and enhance productivity. Majority reported that available resources were insufficient for their livelihoods that demand an alternative and potential source of income.

In the downstream areas, natural disasters such as flooding, siltation and continued reduction of the cultivable land and degrading quality of soil resulted in the decrease in productivity. The skill-based training and livelihood support program given to them are also limited, and are found not adequately tied up with the local viabilities. On the other hand, livestock does not contribute much to livelihood. Households reported that the trend of rearing livestock has been significantly decreased in recent years, mainly due to the low return in terms of monetary value, shortage of labor and controlled access for grazing in the nearby forests. This means, though highly contested, grazing will not be a serious problem for the depletion of the forest resources in Chure region in coming days.

The continuous encroachment, occurrence of flood, landslide, mud flow and river cutting are serious problems in the eastern part of Chure, particularly in Provinces 2 and 1 whereas, occurrences of forest fire and inadequate knowledge and awareness are more serious issues in the western Chure. Despite these burning issues, there exists ineffective coordination among different institutions through which Chure board's programs were implemented. The new practice of channelizing the budget flow through the local government is found ineffective

due to inadequate capacity to invest on the given resources efficiently on one hand, and their development priority on the other. Thus, social and power structure analysis at local level in a larger socio-economic context must be done in order to better understand the social dynamics at local level. The people whose livelihood depends on Chure resources can be the genuine partner in conservation efforts, without whose involvement its conservation and controlling it from further degradation is impossible.

The respondents in upstream areas stated that due to high fragility for cereal crop production, agro-forestry practices, such as broom grass with fruit trees are viable option also in order to minimize shifting cultivation. As moisture deficiency is the major problem in farm production water source protection and irrigation facility will support increase in farm production and livelihood improvement in the valley and stable land. In the downstream sites, great potential exists to reclaim degraded land by planting multi-purpose tree species along the riverbanks as bio-engineering and vegetable farming (sandy/loamy soil- Cucurbits species, watermelon, etc.) in winter (January to May) every year. Formation of the farmers' user groups and support to establish their network by concerned institutions may significantly improve the household income in the short run. We suggest for consideration of the immediate need of nationally prioritized integrated Chure conservation program that helps to compliment or reciprocate the livelihoods of people and conservation of Chure in the long run.

Conclusions

In the present context, the declaration of Chure conservation area under Environmental Protection Act (1997) and formation of a separate committee, PCTMCDB is highly relevant for conserving and developing the Chure landscape. Although the President Chure-Tarai Madhesh Conservation Development Program adopts the policy of Environmental Protection Act, the activities being implemented in the Chure landscape are not following the procedures as per the Act. For instance, the road constructions through the Chure region and the excessive extraction of river-bed materials (stone, gravel, sand, soil) are done without considering EIA measures which is emphasized in the Act.

Chure is an important region for biodiversity. Forest and biodiversity conservation activities such as hotspots, species conservation, plantation, wetlands and community mobilization for resource conservation by linkage with livelihood activities indicate tangible progress. However, tiny spread of the Chure program activities with the required wide coverage may not obtain concrete outcomes in the future. Soil and water conservation is one of the focus activities of PCTMCDP occupying the major share (70% of the investment).

Mstly the achievements in terms of received budget in soil and water conservation programs are noteworthy. River training activities were found effective as these activities supported mostly in the engineering work particularly in embankment construction. However, this is costly to maintain in a long run. There is a need of laying higher priority for upstream soil and watershed conservation and integrating bioengineering technology.

The programs such as income generation activities, improved farming practices, training and cooperative formation were found effective for livelihood support. The land management and ownership in the context of livelihoods in Chure landscape merit special settlement provision. Therefore, an integrated approach is required to manage Chure as a complex landscape with physiographic variation, resource use, socio-economic conditions and forest services.

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