FINAL REPORT

CONSERVATION EASEMENT – A PLAUSIBLE WAY OF SECURING LAND FOR STREAM RIPARIAN CORRIDOR AND BARREN UPLAND CONSERVATION PROGRAM

Management of Aquatic ecosystem through Community Husbandry (MACH) Project

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Table of Contents

ACRONYMS

AC Land	: Assistant Commissioner of Land
BRDB	: Bangladesh Rural Development Board
BRMO	: Beel Resource Management Organization
CNRS	: Center for Natural Resource Studies
CRMO	: Chhara Resource Management Organization
DC	: Deputy Commissioner
DOF	: Department of Fisheries
EC	: Executive Committee
FD	: Forest Department
GC	: General Committee
GOB	: Government of Bangladesh
HQ	: Headquarters
IDA	: International Development Authority
LGC	: Local Government Committee
LGED	: Local Government Engineering Department
MAI	: Mean Annual Increment
MACH	: Management of Aquatic ecosystem though Community Husbandry
MLGRD&C	: Ministry of Local Government, Rural Development & Cooperatives
MOEF	: Ministry of Environment and Forests
MOFL	: Ministry of Fisheries and Livestock
MOL	: Ministry of Land
NGO	: Non – Government Organization
NSC	: National Project Steering Committee
RF	: Reserved Forests
RPT	: Result Package Team
TE	: Tea Estate
UNO	: Upozila Nirbahi Officer
UP	: Union Porishod
URMC	: Union Resource Management Committee

Executive Summary

1. In the *Hail Haor* and its surrounding sites, growth and changing land use patterns have led to degraded upland watershed areas. *Chharas* (streams) coming out of the hills surrounding the *Hail Haor* carry heavy sediment loads and the banks of *Chharas* are unstable. Water flows through *Chharas* beds during the dry season have also decreased due to changed land use of the watershed over the years. The establishment of a vegetated riparian corridor, better land use of watershed, and critical forested uplands would improve *Chhara* bank stability, and likely reduce erosion and sediment loss from the watershed. Benefits may also accrue to dry season stream flows as well. One approach to ensure critical riparian and hilltop areas vegetated would be to develop "Conservation Easement" along the riparian zone, practiced in other countries, where the width of such riparian corridors can be any things from 30 to 100m on either side of the bank.

2. The establishment of a vegetated riparian corridor and critical forested uplands pose no technical problem. The problems are primarily social and administrative. The *chhara* bank lands in the lower reaches are primarily freehold private properties, while those in the upper reaches are primarily State owned lands either under long-term lease for tea, lemon, and pineapple cultivation; or under unauthorized possession of squatters. The envisaged conservation program, if left to the care of individual landowners, will certainly not accomplish the uniform scale and standard of performance because of the absence of a sense of belonging of any individual to the community and environment based programs. The program thus needed implementation through a suitable local or national organization, specifically entrusted with the task. In either case, land for implementation of such conservation programs will be required at the disposal of the implementing agency through a practicable and viable arrangement with landowners. The present report examines practicability of 'Conservation Easement' system, and in extreme case, land purchase approach or a mix of both, as plausible options to install viable conservation and reforestation programs of denuded riparian corridors and uplands.

3. Wide-ranging consultations were held with individual landowners, local elite, UP members and chairmen, local organizations, GOB officials of MOL and FD regarding the desirability of and land availability for conservation plantation program. The idea received instantaneous support and appreciation of all quarters but the interviewees have expressed reservations about availability of stream bank land up to the envisaged spatial extent and continuous belt needed for effective riparian vegetative corridor from *Haor* to watershed. It transpired through discussions that, in case of private land ownership, while big landowners may agree to land lease or conservation easement terms, the marginal farmers would be reluctant to agree to any of these terms. This is because of the fact that, there would be many marginal landowners whose only parcel of cultivable land or homestead is situated on the stream banks, and that very parcel of riparian land is needed by the project for conservation plantation. Obviously, this category of landowners will be reluctant to compromise their traditional land use with purely conservation program benefiting the community at large. Thus, adoption of a uniform conservation easement policy all throughout a *chhara* length may not be possible on the same principle.

For State owned land, a firm GOB policy decision to devote the *Khas* land for the envisaged conservation plantation or undertaking appropriate soil conservation contrivances will have positive implementation response from the concerned GOB departments and their local level offices.

4. The land lease systems for various categories of privately owned, and State owned lands have been examined, and terms and conditions ascertained. The sale value, and the 'buying & selling' prospects of riparian and hilltops lands were inquired. Conservation easement fees/opportunity cost of RF land have been computed. These data have been incorporated in the body of the main report, and would facilitate conservation easement cost calculations.

5. Analysis of the pragmatism and prospects of conservation easements

Analysis of the pragmatism and prospects of conservation easements system on riparian corridor and uplands revealed the following options for conservation easements:

i. Private Land Owners: The perspectives of private landowners of different land ceiling are obviously different. Through discussions with local people, the following options transpired to be feasible:

(a). Owners of large landholdings would be agreeable to any one of the following three options for agreeing to conservation easements:

- Allow plantation activity in exchange of an annual rental / lease value;
- Willing to be sharecroppers of the plantation resource created by MACH project; their expectation being 80% of the benefit as the owner's share and 20% to the CRMOs;
- In case of high insistence from MACH project and the CRMOs, this category of land owners may, in extreme case, be prepared to sell the land for the conservation plantation program at fair market price.

(b). Owners not having big landholding will largely opt for the first and second options indicated under (a) above. However, when insistence from the local project committee is too high, some landowner may be prepared to dispose of the land to the project/CRMO at fair market price.

(c). Land owners having homestead, or only parcel of cultivable land situated within 100m /30m distance of *chhara* bank will not be prepared to part with such land under any of the above conditions. However, they may agree to a conservation easement agreement if plantation, with species according to their choice, are raised in their land/homesteads at project cost, and left it to their ownership to enjoy total benefit but according to conservation easement terms, and observance of conservation easement covenants to be supervised and controlled by CRMO.

ii Tea Planters: The tea planters would agree to conservation plantations on *chhara* bank or hilltops for areas having no standing tea crop. Whenever such *chharas* passed through standing tea gardens, they are unwilling to allow stream bank conservation plantation as it will harm their tea crop. However, if establishment of tree belt plantation along *chhara* bank becomes inevitable from conservation points of views and come to them as a GOB policy decision, they would agree but ask for compensation for direct production loss suffered by TEs.

Regarding the conservation plantations raised and their future management, TE's terms of agreement would be:

(a). As long as a *chhara* passes through TE, the tea garden owners will not entertain any outside management interventions e.g., CRMO's interference. Management of conservation plantation

along riparian zone inside TE would be under TE's complete control. (b) The plantation resource created through *Chhara* bank or barren hilltop plantation would be TE's property. They will be prepared to enter into an agreement for preservation and proper upkeep of the plantation as required under conservation easement principles but would not share its proceeds with anybody.

iii **Lemon and Pineapple gardeners:** This group of gardeners did not show enough interest in the stream bank conservation plantation on the ground that such locations contain their best fruit plantations because of higher moisture regime. During drought months, irrigation to lemon plants is easier by the *chhara* side. That is the main reason for showing disinterest in tree plantation along *chhara* banks.

In respect of plantations on barren hilltops & steep slopes, the gardeners showed interest only if wide-spaced fruit tree planting with species like Jack Fruit, Mango, shaddock, etc. are planted, and not for close-spaced conservation plantation. However, from the conservation points of views, wide-spaced orchard will never have canopy closure and thus no good for effective conservation of soil and water that need multi-storied vegetation with densely covered forest floor. The gardener's interest in plating is thus different from MACH project interest.

The lemon and pineapple planters are gardening on State owned (Khas) land on a periodic lease basis. Again, all the gardeners are not legal and formal leaseholders; many of them are pure squatters. GOB definite policy to recover the encroached land, and non-renewal or canceling the lease of *chhara* bank strip lands may make plantation on this category of land possible.

iv. **Ministry of Land:** The Ministry of Land owns all stream and river channel lands, and also vast areas of hilly lands and natural waterbodies. The MOL local representatives, the UNOs and ACs Land appreciate the necessity for stream bank stabilization and hilltops conservation plantations, and have no reservation towards implementation of such environmental protection programs. However, they will act only when such programs have been approved by the GOB as a definite policy and instructions conveyed to them though administrative circulars. The National Steering Committee of MACH project should take up the issue with MOL, and arrange for quick GOB decision to make available stream bank *Khas* and delicate hilltop lands respectively for stabilization and conservation plantations.

v. **Forest Department:** Streams and rivers passing through the RF are also RF land, and are under the complete control of the FD. The shoulder lands on either bank of these streams and rivers are also forest lands and support vegetation, both natural and artificial, depending on the traversing site of the stream through natural forests or man-made plantations respectively. Thus, no separate plantation program at the behest of MACH project is necessary on RF stream bank lands; only a conservation easement agreement with FD is required whereby the FD would undertake not to clear-fell vegetation within 100m width of streams and rivers passing through reserved forests.

6. Recommendation:

The following recommendations are offered that will most likely to ensure success in the establishment of permanent conservation easements or protected areas along the stream riparian corridors and selected uplands.

a. **Advocacy and Awareness:** Conservation Easement is a new land use approach for Bangladesh. Familiarization of the GOB bureaucracy, politicians, professionals, media people, civil society activists, local leaderships and common mass, especially those of the project command areas, regarding the concept of conservation easement, its purpose and the way it is sought to be implemented, should be undertaken as an awareness program. This will facilitate creation of congenial background for mobilizing public opinion and support for the much needed GOB policy formulation and framing of necessary legislation to effect ultimate materialization of conservation easements.

b. **Policy and Legislation Declaring 'Conservation Easement' an Authoritative Activity:** The National Project Steering Committee of MACH project should embark on active lobbying in appropriate GOB bureaucratic and political levels for formulation and issuance of necessary policy outline and legislation giving 'conservation easement' concept the shape of a practical authoritative activity. GOB should also issue directives to MOL/DCs and MOEF/FD to finalize conservation easement agreement with MACH project sponsored local management organization (CRMO), respectively for GOB *Khas* land and RF.

The envisaged policy will also give an authoritative footing to MACH and its successor organizations to proceed with conservation easement bargain with private land owners as it will have an awareness affect and psychological pressure on the local government institutions and local people that 'conservation easement' program is a GOB priority activity, and they would be required to cooperate and participate.

c. **Designation of GOB Lead Agency to Oversee Conservation Easement Program after MACH Project Closure:** The Local Government Engineering Department (LGED), a comparatively new GOB department, has been growing as an active institution playing increasing role in rural development. The department is striving hard to have a wider activity protocol ranging from environment to technical engineering disciplines. It is exploring newer fields to act and make its mark in all aspects of rural society. LGED may be associated with this program to give leadership for organizing conservation easement in riparian zone and selected hilltops in close collaboration with MACH, its partner organizations, and CRMOs. After MACH closure, LGED should continue with this program as GOB agency responsible for discharging the same responsibility as MACH is doing with its successor organizations, the CRMOs.

d. **Creation of Conservation Easement Fund:** For the conservation easement practice to be a practical reality, enough financial resource will be required to pay for conservation easement fees and /or compensations. Since all activities envisaged are, primarily environment enhancement oriented benefiting the community at large, no local funding could be expected for such public utility development activities. The fund has to come from the project sponsors.

For privately owned land brought under conservation easements arrangements, till the conservation plantations are successfully established and show up as a prospective growing resource to share, the land owners have got to be paid the lease value from this fund. This may continue for a period of 5 – 6 years. Thereafter, production- sharing agreement, as per terms of conservation easements, would make payment of easement fees/lease value redundant.

For Tea Estate land, no easement fees would be needed if GOB policy decision authorizes conservation plantation establishment on riparian corridors passing through tea estates. However, for payment of compensation for tea plantation damage, money would be needed for which conservation easement fund is required.

For State owned *Khas* and RF land, conservation easement fees payment would be an all time necessity unless exempted by GOB for which also fund is necessary.

e. The Institutional Set Up After MACH Project Closure

The establishment of a wooded riparian corridor and critical forested uplands to improve stream bank stability, and likely reduction of erosion and sediment loss from the watershed through conservation easement system is not an isolated activity. The activities envisaged here are inseparable components of the overall programs of 'Sustainable Management of *Hail Haor* and its Watershed'. Therefore, the same institutional set up, as recommended for the main project of Sustainable Management of *Hail Haor* and its Watershed will be responsible for implementation

of 'Conservation Easement' functions as well. The only deviation being that: LGED will be the lead agency facilitating arrangements for conservation easement functions in place of NGO partners now doing similar job. This is because, with the demise of MACH project, the NGO partner (CNRS) is likely to discontinue association with MACH successor organizations. Thus, LGED's involvement will help continuing program activity in the future uninterrupted.

The institutional set up after MACH project closure should be as follows:

(i).National Steering Committee (NSC) at national level;

(ii). Local Government Committee (LGC) and within it, a Result Package Team (RPT) as sub-committee, at Upozila level;

(iii). Union Resource Management Committee (URMC) at Union Porishod level;

(iv). MACH Apex Committee at project Apex; and

(v). *Chhara* Resource Management Organization (CRMO) at the local level. There will be only one CRMO for a *Chhara* in place of a number of *Chhara* committees now being practiced for upper, middle and lower reaches of a *Chhara*.

Currently, the initiatives for all these committee formation and keeping them functionally active come from MACH core staff at MACH Headquarters and site offices. But with MACH closure, these committees will not function on their own. New initiators and new focal points are required to be organized and made responsible to keep them active, functional and effective. The MOFL/DOFs and MLGRD&C/ XEN, LGED will be the new focal points at the national/district level.

The existing vis-a-vis the recommended committee structures, and their functioning have been elaborated in detail in the main report.

F. Registration of CRMOs and Conservation Easement Agreements

For providing legal status to the CRMOs, and for facilitating its formalized functioning as Community welfare organization duly recognized by authorities, all CRMOs should be registered with Social Welfare Department (SWD). For obtaining such registration, a constitution for systematic functioning of the CRMOs with formal executive committee (EC) formation; fund raising mechanism, fund investment, fund recovery procedure; and accounting methods; benefit sharing formula etc. is required. Such constitution has already been developed by some CRMOs with the guidance of MACH staff. Registration of CRMOs will give it a respectable credible status and due recognition by GOB and NGO for formal interaction and transactions.

The conservation Easement agreements between land owners and CRMOs or LGED (for TE and RF lands) should also be registered with Registrar office to have the force of law in case of violation of the covenants by any party.

g. Education and Training of, and Demonstration to the Hill Cultivators: Conservation easement system is designed to address land use only in a small corridor of land on stream banks or denuded hilltops of watersheds. However, the vast watershed is presently cultivated all throughout for various cash crops adopting wrong cultivation methods. Misuse of land highly provokes and causes severe soil erosion. In consequence, huge sediment load is washed down from the delicate watershed to the streams and thence to the *Haor* resulting in siltation of their beds. Without improvement of hill cultivation methods, the envisaged benefit from conservation easements alone will not solve the agonizing problems of stream and *Haor* bed siltation. To discipline land use in the catchments and to ensure that all land uses conform to scientifically acceptable norms, the hill gardeners ought to be adequately trained through extension services and establishment of demonstration plots in conspicuous locations of the watersheds at the behest of MACH project.

1. Introduction

The environmental debate both within Bangladesh and throughout the world, ultimately revolves around the use of natural resources, primarily the use of land irrespective of whether in public or private possession. The agonizing issue remains, how to ensure that natural resources, particularly land, forests and waterbodies, and the like, are used to meet long-term conservation and biodiversity needs. How to best ensure that the long-term management of suitable public and private lands, and the natural resources obtaining thereon are truly sustainable?

So far as Bangladesh is concerned, the added challenge is: how to achieve sustainability goal when large number of people are dependent on those resources for their food and livelihood, when government itself uses those habitat to produce revenue (for example, land lease permitting land clearence for orchard cultivation, exploitation of natural forests for monoculture or even-aged plantation establishment, leasing waterbodies on annual or periodic basis for fish catching etc)? For attaining resource conservation and sustainability, traditional methods involving awareness raising and government regulations or interventions do work at times but these are time consuming and very often subject to political whims. One very successful approach could be, when funds are available, to simply buy the land, or if that is not feasible or fund constaints limit such option, then utilize 'Conservation Easements' to achieve similar results. World wide, over 40 million hectares (Bangladesh is approximately 14.4 million ha. in size) are sustainably managed by the nature conservancy alone using this and similar mechanisms.

The *Hail Haor* and the *Chharas* (streams) flowing from its watershed are in a bad state due to soil erosion provoking improper land uses in the watershed. Both the *Haor* and *Chhara* beds had been silted up considerably in the past few decades due to ill-use of the delicate watershed lands through various cultivation practices. The degrading land use practices are continuing unabated. The ignorance of hill cultivators about conservation-based cultural practices ranks top. Lack of earnest effort by the concerning GOB administrative departments, especially the State Agriculture and Forest Departments to discipline the misuse of land through appropriate cultural practices is another reason for continuance of improper cultural practices. The establishment of a wooded riparian corridor and critical forested uplands would improve stream bank stability and likely reduce erosion and sediment loss from the watershed. Benefits may accrue to dry season stream flows as well.

Recent attempts to discipline the watershed land use confronted many pronged problems. So far as stabilization of stream banks and soil conservation in the riparian zone and hilltops are concerned, the land ownership is standing in the way of organized land management and appropriate scale of activity required. Numerous and fragmented land ownership of the stream bank land creates complication to a common technology intervention because each owner has different opinion and choice regarding land use, and the project program suffers due to absence of unanimity in appropriate program implementation. This led to the concept of having the conservation targeted land under the disposal of stream bank stabilization and upland conservation program implementing authority to execute the most appropriate land use program.

Purchase of land for the envisaged conservation program implementation is yet another option. But land purchase will, on one hand, be too costly and on the other hand, this may be socially impracticable, as this would involve displacement of some people from their hearth and home which neither the affected people would like nor the government would venture on account of social commotion such displacements might create. The other approach to ensure that critical riparian and hilltop areas are vegetated would be to develop a system of "Conservation Easement" along the riparian zone, a practice prevalent elsewhere in the world. This report examines the feasibility of implementation of 'conservation easement' concept, and suggests the practicable way out for adoption of conservation easements to secure the needed lands for disciplining land use in the riparian zone and degraded hilltops.

2. Categories of Land Obtaining in the *Hail Haor* Watershed

From the land use and land classification points of views, following are the classes of land available on the riparian corridor and catchments situated in the command area of *Hail Haor* watershed:

a. Cultivable tablelands, cultivated for varieties of agricultural crops

b. Homesteads

c. Tea Estates supporting productive tea gardens, as well as timber and other cash crop plantations. The tea estate areas also contain unproductive barren lands; the landscape is primarily hilly and undulating.

d. Orchards, on leasehold or encroached lands, primarily cultivated for lemon and pineapples. Lands are undulating and hilly, slope gradients are generally steeper than tea estate lands. Orchard lands are subjected to improper land use provocative of soil erosion.

e. Reserved Forests: Supporting forest and plantations, located primarily on hilly and undulating terrains constituting watershed.

f. *Khas* land: Lands in the ownership of government in the Ministry of Land (MOL), not settled. Primarily hilly and undulating terrains; also waterbodies and marshy lands.

3. Current Ownership Pattern of Stream Riparian Corridor and Hilltop Lands within the Hail Haor Watershed

The following ownership patterns of land located on the banks of chharas, and in the slopes and hilltops of the *Hail Haor* watershed have been identified:

3.1 Freehold Private Ownership (Lands permanently settled by State to private individuals or organizations): These are lands permanently settled by the State to private individuals or organizations. The owners possess authorized 'Records of Right' (commonly known to people as *Khatian*) issued by the Ministry of Land (MOL) in respect of these freehold land, and the owners are required to pay annual Land Development Tax at the scale levied by the MOL (current rate has been indicated in section 4). Almost all cultivable lands in the flood plains (lower reaches of streams) are freehold land. Some hilly and undulating lands also belong to freehold category.

3.2 Leasehold land: Generally three types of leasehold lands are identified in the *Hail Haor* watershed, viz:

a. Long-term leasehold land for Tea Plantation. The initial lease period is 35 years, likely to be extended for longer period when performing well.
b. Mid-term leasehold for lemon and pineapple orchard: The lease period, 10 – 20 years.
c. Annual land lease, not renewed to the self same person.

3.3 State owned land under illegal possessions: Widespread encroachments of GOB *Khas* lands for pineapple and lemon gardening, or for other uses are prevelent. These encroachments are neither regularized through formal settlements and realization of lease consideration value and land development taxe, nor the encroachers are evicted, although the encroachment fact is widely known.

3.4 State Owned Forest land:

State owned Forest Lands fall under two broad categories, viz.,

(i). Reserved Forests: Part of the *Hail Haor* watershed in Balishira and Satgaon hills are legally declared Reserved Forests (RF) under The Forest Act, and the management of these forest lands is vested with the Forest Departmrnt (FD). These forests supported tropical evergreen and semi-evergreen forests as their parent vegetation but currently virgin forests are non-exists; only a few hundred acres of secondary forests of natural origin survived past clearence/deforestation. The rest areas have been cleared of natural parent vegetation and converted to artificially raised even-aged plantatios with long rotation furniture wood and construction timber species, as well as with short rotation soft-hardwood industrial species (pulp wood, peeler logs for veneering and poles). The RF lands are not meant for settlement to anybody, although there may be some encroachments by squatters.

(ii). Khas Forest land: These lands are under direct control of the Ministry of Land (MOL) and administered through the local Deputy Commissioner and his hiererchy. Although the ownership of the land belongs to the State but no management whatsoever (technical or administrative) is done over these lands. The *Khas* lands are virtually treated as "no man's land" and no forest cover is present on them for long time due to unauthorized extraction and land clearance. These lands are meant for leasing to individuals and organizations according to the government policy framed from time to time. Present physical status of these lands has also been stated under sub-item 4 hereafter (under the caption "illegal possessions").

4. Current Leasing System of Lands in the Command Area of *Hail Haor* Watershed

4.1 Leasing System for State Owned land.

For State owned non-agricultural land, also called *Khas* lands, two types of leasing system are in vogue. These are:

i. Long-term lease: Leasing period ranging from 5 to 35 years.
ii. Short-term lease: Leasing period varies from 1 to 5 years.

i. Long-term lease of *Khas* land

Long-term lease of State-owned non-agricultural land is generally granted for the following purposes and durations:

i). For *Commercial cultivation of flowers* for earning foreign exchange through exporting flower to foreign countries: Maximum permissible land lease ceiling for this purpose is: 5.0 (Five acres).

ii). For establishment of *fruit orchard* for growing varieties of fruits: Maximum permissible land lease is 15 acres.

iii). For *rubber plantation*: A maximum of 30 acres Khas land may leased out to individual entrepreneurs, and up to 100 acres to registered public limited company.

iv). For *fish culture:* Up to 20 acres for privately owned individual fisheries, and up to 50 acres for registered limited company.

For all the afore-mentioned category of land leasing, approval of the Ministry of Land will be necessary. However, leasing of land in excess of the afore-mentioned ceiling may be granted but with the approval of the head of the government, for the purposes as aforesaid.

v). For *Tea cultivation*, 3 quality classes of tea gardens are recognized with varying lease period, viz.,

a. A - Class or top category gardens: Leasing period is 35 years, may be increased to 99 years;
b. B - Class or medium category gardens: Leasing period is 20 years but may be increased to longer period based on improved performance;
c. C - Class or sick garden: Leased on year to year basis to closely watch performance and evaluate if the same would be continued as Tea Estate.

ii. Short-term lease of *Khas* land

Short-term lease of *Khas* land, also differently called *Ekshona Bondobosti* (one year, or year to year basis lease) is granted by the MOL for a period not exceeding 5 years. The lease may be taken for a variety of purposes but the bureaucratic principle followed in this system of land leasing being that, the self-same land is not leased out consecutively to the very same person because of anticipated complications that may ensue from long time possession of a land, or scope to change character of the land through uninterrupted possession and make out a case by lessee for long-term settlement. The lessee is also not permitted to establish orchard, or raise permanent tree crop, or construct building on *Ekshona Bondobosti* land.

Ekshona Bondobosti system is not a production or development oriented policy. To the contrary, it harbors under hand dealings and spread corrupt practices in the bureaucracy. There is a strong need for reappraisal of State policy with respect to *Eksona Bondobosti.* If any land is considered to be essentially required for State's purposes in the future, and the exact necessity can not be anticipated immediately but a strategic reserve of Land-Bank under State control is deemed prudent, such land may be maintained as 'Reserved, or 'Protected' areas and placed under the care of appropriate authority for conservation and management. Land not managed by the MOL, nor allocated to appropriate agencies for proper use, should be deemed a waste of valuable national resource. Prevalence of idle land provokes encroachment, which is quite realistic especially in the context of Bangladesh, a country with lowest 'Land to Man ratio', and high proportion of unemployment because of poor industrial growth or absence of enough alternative avocations of life except falling back by citizens on some sort of land based production system to thrive. An encroacher has no long-term perspective on the land encroached upon, and naturally has no soft corner for sustainable future use of the land. The land, therefore, suffer most under encroached use. In fact, the major land use problem in the *Hail Haor* watershed arose in consequence of unauthorized land use by trespassers.

iii. Lease value of *Khas* land

For long-term lease, a lease value is charged to and realized from the lessee. The lease value is determined based on fair market value of land ascertained from the concerned Registrar's office where all deeds for transfer of landed property by sale or otherwise is registered to give a legal coverage for such transfer. Once the recorded fair market value is determined (which is the average recorded sale value for similar

category of land sold and purchased in the locality over a period if time, usually preceding one or two years), this value is increased by another 50% for arriving at the rational value that is ultimately charged to and realized from the lessee. This enhancement is done to guard against concealment of facts, often done by the parties involved in the property disposal to evade payment of stump duty and registration fees to the State because such fees are fixed on the basis of sale value as recorded on the sale seeds.

The lease value is usually realized in cash by one installment, but if the lease is for a longer duration, and the value runs to bigger sum of money, the same may be realized by installments as well.

iv. Leasing procedure of *Khas* land and conditions of Leasing

a. Lease of *Khas* land may be granted to individuals or to Institution/Association by realizing fair market value (*Salami* or possession fee) assessed as per procedure enunciated above. Such lease proposals will need processing through the concerned DCs and Divisional commissioners, and finally approved by the MOL. Besides payment of lease value (possession fee), the lessee is required to pay annual land development tax as prescribed for such category of land (as indicated in Table-1 below).

b. Such lease is required to be registered in prescribed lease deed form. The leaseholders are barred from sub-leasing the leasehold land. If violated, the lease is liable to immediate cancellation.

v. Land Development Tax

a. For agricultural land: According to Land Development Tax Ordinance, 1976 , land development taxes are levied on agricultural land as follows:

Table – 1: Agricultural land belonging to Family and Organization (excludes Tea Estate land):

Steps	Extent of land (Land ceiling)	Rate of Tax
1	0.01-2.00 acre	Paisa 3 (Tk. 0.03) per decimal of land
2	2.01-5.00 acre	Paisa 30 (Tk. 0.30) per decimal of land
3	5.01-10.00 acre	Paisa 50 (Tk. 0.50) per decimal of land
4	Above 10.00	Taka 2 (Two) per decimal of land

Note: [Ref: Land Management Manual, 1991 Edition, published by Ministry of Land (MOL)]

b. For Non-agricultural Land: For non-agricultural lands, the tax ceiling is as follows:

Table – 2: Land Development Tax for Non-agricultural Land

Sl. #	Locality	Rate of Land Tax	
		When used for industrial/ commercial purposes	When used for industrial/ commercial purposes
1a	Greater Dhaka city including Keraniganj, Joydevepur, Naray Bondor, Fotullah, Siddirganj U Thana	Taka 100/ Decimal of land	Taka 20/ Decimal of land
1b	Greater Chittagong city inc Sitakunda, Hathazari, Ranguia U / Thana	Taka 100/ Decimal of land	Taka 20/ Decimal of land
1c	Great Khulna city inculding Fultala Upozila/ Thana	Taka 100/ Decimal of land	Taka 20/ Decimal of land
2	Municipality area of all Old District Town HQs	Taka 20/ Decimal of land	Taka 6/ Decimal of land
3	All areas outside the aforesaid areas except Tea Estate areas	Taka 15/ Decimal of land	Taka 5/ Decimal of land
4	Tea Estate land, all districts	Taka 1.10/ Decimal of land	-

Note: [Ref: Land Management Manual, 1991 Edition, published by Ministry of Land (MOL)]

c. For farming families living in rural areas, homesteads and dwelling house areas will be deemed as agricultural land and liable to land development tax as applicable to cultivable land. However, land located in the rural areas but used for industrial and commercial purposes will be liable to pay land development tax @ Taka 15 per decimal.

4.2 Leasing System for Privately Owned Land

For privately owned landed property, land leasing system, whether long- or short- term, is not a common practiced in the *Hail Haor* vicinity; the most common practice being land mortgage. Because of cash shortage, a land owner mortgages his/her landed property at a mutually agreed upon value (obviously much lower than the fair market price of the land) for a given period on condition that, whenever the owner pays back the mortgaged sum, the mortgagor will release the property. On receiving the mortgaged sum, the mortgagor hands over possession of the land to the possession of the mortgagee who enjoys the land through cultivation or enjoyment of fruit (if that be an orchard) or otherwise as agreed, till the mortgaged value is refunded. For this enjoyment of mortgaged land, no money is deducted from the mortgage value.

Notwithstanding the absence of annual or periodic land leasing system in the locality, the issue was discussed with local Union *Porishod* chairmen and members, local elites, and MACH project beneficiaries to ascertain what will satisfy the land owners of the riparian and hilltop land to permit establishment of conservation tree plantation on their land. Through intensive discussions, it transpired that annual or periodic lease on account of important public interest like this instant conservation issue, raising of protective plantations may become possible on payment of appropriate lease value to the land owner. The

following annual lease value for different categories of land was deemed rational if MACH project finally decides to take land lease for establishing riparian and hilltop watershed protection plantations.

Four categories of agricultural land, and two categories hilly lands have been identified in the program area, and their plausible lease value are indicated in Table-3 hereof.

Table - 3: Annual lease value and sale value of different categories of land in the Hail Haor zone

Serial number	Type of Land	Annual Lease Value	Sale Value (Current Price)
1.	**Cropping land :**		
	Land producing two crops of paddy	Tk.2000-2500/Kayer* (i.e., Tk. 6700–8600 per acre)	Tk. 40,000-50,000/ Kayer*, (i.e., Tk.134,000- 167,000 per acre)
	Land producing one crop of paddy (*Amon* paddy only)	Tk. 500-600/ Kayer (i.e., Tk. 1600 – 2000 per acre)	Tk.30,000-35,000/Kayer (i.e., Tk. 100,000–117,000 per acre)
	c. Land producing one crop of paddy (*Boro* pady only)	Tk. 450-550/ Kayer (i.e., Tk. 1500 – 1850 per acre)	Tk.20,000-25000/Kayer (i.e., Tk. 67,000–83,000 per acre)
	d. High land for vegetable gardening	Tk. 1000-1200/Kayer (i.e., Tk. 3400 – 4000 per acre)	Tk.40,000-50,000 / Kayer,, (i.e., Tk. 134,000- 167,000 per acre)
2.	**Non-agricultural Land**		
	a. Lemon/pineapple Land	Tk. 500-600/ Kayer (i.e., Tk. 1600 – 2000 per acre)	Tk.40,000-45,000/Kayer (i.e., Tk. 134,000–150,000 per acre)
	b. Riparian land, not suitable for valuable cropping	Tk. 200-300/ Kayer (i.e., Tk. 700 – 1000 per acre)	Tk.20,000-25,000/Kayer (i.e., Tk. 67,000–83,000 per acre)
	c. Hilltop Land	Tk. 200-300/ Kayer (i.e., Tk. 700 – 1000 per acre)	Tk.20,000-25,000/Kayer (i.e., Tk. 67,000–83,000 per acre)

* 1 Kayer = 0.30 acre land

4.3 Current Market Price of Privately owned land in the Hail Haor Vicinity

The current market price of various categories of land likely to be encountered in the riparian zone and catchment areas of streams flowing from *Hail Haor* watersheds has been ascertained from the locality. The data is presented in the foregoing Table-3 against each category of land. Should the project think of establishing conservation easement zones by buying land in strategic locations, the tabulated price will be helpful in determining the financial involvement.

5. Conservation Easement: A Plausible Way of Securing Land for Establishment of Conservation Plantation on Stream Riparian Belt and Selected Denuded Uplands

5.1 Easement Practice in Bangladesh: Review of Laws

i). Easements mean the various kinds of rights that one person can have in relation to land which is possessed by somebody else. Whilst a definition is difficult to find, in broad sense, easement means some **accessorial rights**, which the owner of a land may acquire over the land of his neighbors, by virtue of the ownership of his own land being located in conspicuous situation with respect to the neighbor's land. Such accessorial rights may be acquired merely for the **ease or convenience** of the dominant owner without any participation in the profits arising from the land . In some cases, however, easement may be accompanied with participation in profits as well (*profits a prendre*). The land to which the right is attached is said to be the *dominant tenement*, and that upon which it is imposed is the *servient tenement*.

ii). *The Easements Act, I882*, as adopted by Bangladesh, defines easement as a "Right which the owner or occupier of certain land possesses, as such, for the beneficial enjoyment of that land, to do and continue to do something or to prevent and continue to prevent something being done, in or upon or in respect of certain other land, not his own".

This definition of easement substantially differs from English law, which defines easement as "A privilege, without profit, which the owner of one tenement has a right to enjoy in respect of that tenement in or over the tenement of another person, by reason whereof the latter is obliged to suffer or refrain from doing something on his own tenement for the advantage of the former" (Goddard).

The above definition requires that the easement must be of some advantage to the dominant owner; it may be contingent or remote.It does not include those rights which are not annexed to the ownersbip of movable property. Gangladesh law calls easement a right, and not merely a privilege as in English law. It also includes those rights which are called *profits a prendre*.

iii) The Bangladesh *Limitation Act* however defines an easement as - "Easement includes a right, not arising from contract, by which one person is entitled to remove and appropriate for his own profit any part of the soil belonging to another, or anything growing in or attached to or subsisting upon the land of another". This definition includes *profits a prendre,* that means not merely a privilege to do, but the right to take and use the profits arising from the land, e.g., to graze cattle on another's field, to take fish out of another's tank, to take stone out of another's land.

iv). Nature and Ingredients of Easements

Easements are restrictions on the rights of the servient owner. The rights of an owner of land may be either intrinsic i.e. the right to enjoy and dispose of the property, or extrinsc i.e. advantages from situation. Easements are, briefly speaking restrictions on these natural rights or a legalised interference with them. But all restrictions are not easements. Thus, 'A' didictates to the public the rights to occupy the surface of certain land for the purpose of passing and repassing. This right is not an easement. The restrictions must satisfy certain essential conditions in order to give rise to an easement.

v). **Characteristics of Easement**

(1). An easement is a right in rem, i.e. available against the whole world.
(2). There must be two distinct tenements – the dominant and the servient. There can be no right of easement on one's own property. When the dominant and servient owners by the law of merger become one person, the easement ceases.

(3) An easement is a right that belongs to the land, and not to the owners personally. It does not personally bind either the servient owner or the dominant owner. The ownership of the two tenements may change but the easement nevertheless remains so long as there are two distinct owners.

(4) Easements are for beneficial enjoyment of the dominant tenement. It is essential that the easement shall be of some benefit for the occupation of the dominant tenement. Further, the benefit can not be merely personal to the owner. Thus, when the dominant owner sells the dominant tenement, he parts with the sale the right of easement too, and the right goes to purchaser. He can not enjoy the right anymore, as he ceases to be the dominant owner, and the purchaser will step into his shoes and thenceforward enjoy such right of easement.

(5) No easement for the benefit of the servient owner. The servient owner cannot acquire a reciprocal easement by user or exercise of the easement by the dominant owner. For example, A, the owner of a piece of land has a right of easement of discharging surplus water over B's land. B, after incurring heavy expenses found out a mode of utilizing that water and grew crops for twenty years. A suddenly stops to exercise his right of easement of discharging water. B's crop failed in the consequence. B has no remedy against A; he, being the servient owner, acquires no easement.

(6) Easement can not impose any positive duties upon the servient owner to perform an act. The servient owner may be compelled to refrain from doing some act or to suffer something to be done on his land by the dominant owner, but no obligation can be imposed upon him to perform any positive duties. For example, A is bound to cleanse a water course running through his land and keep it free from obstruction for the benefit of 'B', the lower riparian owner. Is it an easement ? No, because it imposes positive duties on 'A'.

(7) Easements, include *profits a prendre*. Under the Easement Act, easements include profits a prendre appurtinent, while under the Limitation Act, it includes profits a prendre in gross as well as profits a prendre appurtenant. The English Law does not include profits a prendre as easement.

(8) Easements are incorporeal right in rem, and not a right to the soil of another's land. Thus, right of way does not confer on the dominant owner any right to the soil or any corporeal interest in such land of the servient owner.

(9) Easements are indivisible. It exists for the whole of the dominant tenement and available against the whole of the servient tenement. If there is a partition of the dominant tenement, each part has the right to enjoy easement.

(10). It is not necessary that the easement should be permanent. An easement for a limited time or an easement on condition may be imposed by grant.

5.2 Conservation Easement

Conservation easement, however, has a somewhat different connotation. It is defined as, 'a legal agreement by which a landowner restricts or limits the type of use and the amount of development that

may take place on the owner's property'; such landowner may be State, organization or private individuals. Easement restrictions are tailored to a particular piece of property, the interest of the individual owner and the resource being protected. The landowner still owns the land and can use it in any way he decides but consistent with the easement conditions. The landowner is obligated to pay taxes on the property and abide by the restrictions.

The conservation easement establishes what future uses are consistent with the needs of the the resource and the land owner's conservation values. The legally binding agreement would be between a land owner and a qualified organization. As a result, no two conservation easements are alike. Easement provisions could allow continued economic use of land while conserving its important natural features.

A comparison of the 'conservation easement' with that the ordinarily understood 'easements' would reveal that there are some fundamental differences in the common understanding and application of easement from that of the conservation easement which is aimed at furthering the cause of nature and natural resource conservation

5.3 Suggested 'Conservation Easement' Model for Bangladesh

The Approaches Involved: It is quite obvious that land use perspectives of different category of land owners are different. While the land owners category in the project area varies from functionally landless through marginal, to subsistence and well-to-do resident farmers as well as absentee landlords; from individual orchard owner to plantation company; and finally to State ownership, Of the individual land owners, some need the land for subsistence cultivation, while others view it as a resource for income generation.

Presenting the cogent need for establishing stream bank stabilization and hilltop conservation plantations to different land owning agencies, explaining things from scientific justification and practical implication points of views, it transpired that, for the envisaged conservation easement program to be realistically possible, different approaches will be required for ensuring participation of different land ownership categories in the envisaged conservation easement program. The land ownership wise most probable and pragmatic conservation easement approaches could be as follows:

(1). Conservation easement on privately owned land

(a). Outright private land ownership: The following categories of outright private land ownership may be encountered:

(i). Homesteaders: This category of landowners can not be expected to abandon their homesteads for stream bank stabilization plantation. The arrangement that is likely to evince homesteaders' willing participation in the conservation plantation program is: plating of the homesteads and appurtenants at the project costs with tree species of the owners choice as well as consistent with effective conservation characteristics, and leave the trees to their care with the execution of a formal conservation easement agreement to the effect that, they will not fell any tree from these plantations except when the tree is mature, and that they will never ever clear-fell the plantations; felling will be done on selection basis, based on tree maturity or sanitation considerations only. The *Chhara* Resource Management Organization (CRMO), the successor of MACH project, will have the right to oversee such exploitation but will not claim any share thereof.

(ii). Functionally landless and marginal farmers: Ordinarily these category landowners will not be prepared to part with their land for other uses. However, strong insistence from the Chara Resource Management Organization (CRMO) may convince them to allow conservation plantation programs on

their land in the greater interest of community at large, but only in exchange of payment of conservation easement consideration value proportionate to the benefits foregone by the owners (i.e., an annual rental assessed at fair market price). Payment of annual rental to the owner will require continuing such payments for a minimum period of five years. By that time, the plantations will have been established and show up as a valuable growing resource attractive for the owner. In this state of the resource, the owners may be prepared to wait for sharing the proceeds of these plantations with the CRMO when felled at maturity at a share percentage of 80% to the landowner and 20% to the CRMO. For such plantation, payment of conservation easement fee may be discontinued after five years.

(iii). Subsistence and big farmer: Farmers of this category are likely to be agreeable to conservation easement on any terms viz., on annual rental payment basis, or production sharing of tree resource created on their land, or even may be prepared to the sale of land required for conservation plantations.

(2). Conservation easement on traditional community lands: The system of traditional community land is almost non-existent in Bangladesh. In some areas including greater Sylhet district, there used to be a system of 'Community Pasture' (*Gopaat*) land but those have gone almost physically extinct; may be legally as well, being grabbed for cultivation in the wake of tremendous land hunger obtaining in the country for agricultural crop production. However, traditionally, the State owned public lands like roads, streams, rivers, *Beels, Haors* etc. are deemed and freely used by the citizens as community land. Therefore, community lands in the real sense of the term are not likely to be met with in the envisaged Conservation Easement program areas.

(3). Conservation easement of land leased from the government

(i). Tea Estate Owners: Left to themselves, the TE owners will not agree to conservation easement for raising conservation plantation on their leasehold land, especially when streams pass through established tea plantations. Thus, for the conservation easements to be realistically possible when streams pass through TEs, a GOB definite policy decision, taken at the Ministry level (of course in consultation with the Tea Board and Tea Planter's Association), will be needed. When a policy decision is issued, payment of conservation easement consideration money will not be required for the land because these are State owned lands, but compensation for abandoning established tea plantation in favor of conservation plantation will have to be paid to the TEs. The conservation tree plantations so raised by MACH project or subsequently by the CRMOs, will belong to TEs but they (TEs) would be prepared to execute a conservation easement agreement for protection and upkeep of these plantations as per prescription of the MACH project or its successor organizations (CRMO).

(ii). On GOB owned land:

(a). GOB Owned Reserved Forests: For reserved forests (RF), definite policy decision of GOB that a 100m stretch of land on both banks of all streams and rivers originating from and/or passing the RF will be permanently retained as forest cover, and never clear-felled nor exploited except on silvicultural considerations (i.e., meaning felling of only mature, over mature or dead, dying & diseased trees), should suffice. Ordinarily, the question of payment of conservation easement fees for such RF land should not arise if GOB is convinced about such a need. Or else, the FD may ask for conservation easement fees equivalent to the opportunity cost the RF land.

(b). GOB Owned Khas Land: Similar to RF land, as mentioned above, a firm government policy decision to earmark a minimum of 100m stretch of State owned *Khas* land on either bank of all streams and rivers originating from the watersheds of *Hail Haor* as protected land for establishment of conservation plantation would be necessary. Such policy decision should be followed by a notification in the official gazette declaring the stream/river bank land as protected areas, and precluding such belt of protected areas

permanently from the land leasing jurisdiction of MOL; all existing valid lease to individuals or organizations should be cancelled (when needed through payment of compensation to the leaseholders). The declared protected areas should be placed in charge of MACH project or its successor organizations (LGED and CRMOs) for enforcing protection and establishment of conservation plantations, of course on the terms set forth by the Government.

(3). GOB Owned Beels / Haors : In *Beel/Haor* situations, lands suitable for establishment of conservation plantation are mostly under encroachment for *Boro* paddy cultivation. Therefore, as applicable for reserves forests and other *khas* lands, a policy decision by GOB to devote such *Beel/Haor* land for conservation plantation, and thereafter active cooperation of the concerned UNO/ACs Land should pose no problem in getting the *Chhara/* river adjoining *Khas* land in *Beel/Haor* situation for conservation plantation establishment. The conservation easement terms of course have to be decided with GOB.

(4). On *Chhara* / River: Wherever *Chharas*/rivers exist, the legal status of such drainage features is GOB *Khas* land. Thus, once a policy decision is taken by GOB regarding the mode of use of a particular *Chhara*/river, and agree to conservation intervention terms, no additional expenditure would be involved to make conservation easement effective.

Presently, sand collection is done from *Chhara*/river beds for using as aggregate materials for construction purposes. The quality of Sylhet sand is generally good, and so big collection takes place which is done with permission from MOL or Ministry of Mining and Natural Resources, obtained through license or through auction bid. The sand collectors usually collect sand from the accessible areas which are obviously locations near bridges and culverts on roads and highways. Most often, sand collection is done so close to the bridge/culvert structures, and so deep that the wing and abutment walls of the bridge/culvert structures are seriously endangered. Evidences of cracks developing and structure collapsing on account of faulty sand collection are also there. The harmful sand mining practice could be guarded against if conservation easement agreement is arrived at between GOB and CRMOs who would pay for the assessed reasonable sand collection fee to GOB and take conservation care for the stability of stream banks and that of bridge/culvert structures. In this sand collection business, the CRMOs are likely to earn some income which could be utilized fruitfully to offset the CRMO's costs for *Chhara* bank stabilization plantation.

5.4 Legal Issues involved in conservation easements: The legal issues involved to give conservation easement a practical shape are :

i. Since the existing 'Easement Law' does not covers 'Conservation Easement' requirements, a GOB definite policy adoption will be the first necessary step for drawing up GOB's own future course action as well as for public information and psychological build up of the administration and civil society including common mass.

ii. Enactment of new legislation or amendment of existing Easement Act will be required to give legal shape to the Conservation Easement thereby installing in the country a permanent basis for ensuring land availability for conservation of stream riparian corridors and barren uplands in the delicate landscapes.

iii. Wherever State owned land still exists in the delicate location mentioned in (ii) above, declare such areas as protected areas, and place such land under care of appropriate authority/ organization. In other areas, legislation should provide for lawful negotiation to establish conservation easement.

6. Analysis of the Pragmatism and Prospects of Conservation Plantation on Riparian Corridor and Denuded Uplands

World wide, dense vegetative cover on hilly and undulating landscapes of watersheds and in the riparian zones of streams and rivers are considered indispensable for stream bank stability and conservation of soils of these delicate areas as well as maintaining navigability of the water courses. For stream bank stability, ideally a 100m stretch of land on either side of the stream should have dense vegetation of multi-storied plants. Such plants should comprise of a combination of big, medium and small-sized trees in the upper canopy, and natural ground flora of shrubby plants and young regenerations of tall trees in the lower canopy, while thick leaf litters on the floor. However, under the Bangladesh socio-economic settings of extreme land hunger and acute scarcity of cultivable land, establishment of an ideal 100m wide belt of tree cover on both banks of streams would be almost impossible especially in the lower reaches when the stream passes through habitation or cultivable meadows. Such wide strips of vegetation may, however, be possible with suitable arrangements when the streams pass through State owned land (RF or *Khas* lands free from encroachment).

Considering the scarce land situation of Bangladesh vis-à-vis its high population density, if an average 30m (100 feet) stretch of vegetation cover on either bank of the streams could be established by a practicable arrangement with willing participation of land owners, such a situation should be considered a good compromise formula and workable achievement for lower reaches of the streams. A belt of such vegetation with proper selection of species has the potential for affording a reasonably stable stream bank; such a width may also be considered a compromise corridor for movement of wildlife from watershed to *Haor* habitat, and vice versa.

Stream bank stabilization could however be fairly guaranteed with a much narrower strip of vegetation if continuous bamboo plantation could be established on both banks of the streams. In situations where 30m wide plantation is not feasible, a 4- 6m wide strip of bamboo plantation will do the job with efficiency but such strips will not serve as a corridor for movement of wildlife because of too narrow width to function as hide out for wild animals. Establishment of only bamboo plantation should thus be thought of as the last resort for vegetative contrivance for stream bank stabilization in marginal situations.

The prospect of establishing the envisaged belt of vegetation on *chhara* bank was discussed with various categories of landowners including tea planters, lemon and pineapple gardeners, private landowners, MOL and MOEF officials. The opinions are varied and vary with land ownership patterns, and are summarized hereunder:

6.1 Private Land Owners (other than Lemon and Pineapple growers)

The private owners having landed property located on the banks of the *chharas* where stabilization plantations are proposed to be established belong to various categories of landowners with varying extent of land ceiling. The perspectives of landowners of different land ceiling are obviously different, which through discussions with the local people transpired as follows:

(a). Landowners having large landholding and more valuable lands elsewhere for cultivation and gardening, would be agreeable to allow conservation plantation on their stream bank land on a mutually agreed terms that may be any one of the following options:

- Agreeable to allow plantation activity in exchange of an annual rental / lease value

- Willing to be a share cropper of the plantation resource created by MACH project; and their expectation being 80% of the wood production as the owner's share and 20% to the CRMO.
- In extreme case, and when insisted by the project and the CRMOs, the owners may be prepared to sell the land required by the project for establishing conservation plantation, in exchange of a fair market value.

(b). Land owners, not having big landholding, will largely opt for the afore-mentioned first mode of conservation plantation establishment on their land, followed by the second mode. However, some landowner may be prepared to dispose of the land to the project/CRMO at fair market price, if insisted upon.

(c). There would, however, be landowners whose very homestead is located within 30m/100 m distance of the *chhara* bank. This may be the only homestead that an individual possesses and naturally, s/he will not be prepared to part with her/his homestead under any condition.

(d). Yet another category of marginal land owner or functionally landless exists whose only parcel of cultivable land may be located on the *chhara* bank which s/he cultivates for cereal or vegetable production. Naturally s/he will not be prepared to part with the land for conservation plantation, howsoever important that may be.

6.2 Tea Planters: The tea planters expressed mixed reaction in regard to the prospect of establishing dense tree belt plantations on *chhara* banks whenever such *chharas* passed through tea gardens. For areas having no standing tea plantation along *chhara* bank, they are agreeable to permit conservation planting up to ideal 100 m wide stretches (in place of the above mentioned compromise formula of 30m wide) without any reservation. In course of discussions, they acknowledged that even with the soil conservation measures taken by them, *Chhara* bank erosion and landslip do take place. Thus, dense tree plantation and undisturbed preservation of forest belt would save *chhara* bank from such erosion and landslip.

But wherever the *chhara* passes right though the tea plantation, they have positive reservation towards establishment of dense tree plantation on *chhara* bank. Their stand being that, they have valuable existing tea crop yielding good harvest, and so the management would not agree to such a production loss. However, if tree belt establishment along *chhara* bank becomes inevitable from conservation points of views and come to them as a GOB policy decision, they would agree but ask for compensation for direct production loss suffered by TEs.

A number of other important issues were raised by the tea planters regarding the envisaged stream bank plantations and their future management:

(a). The TEs management opined that, it is not one or two gardens that are concerned with the *chhara* bank conservation/stabilization plantation program. Since all tea gardens are involved in the land use issue, a policy decision at the Ministry level (Ministry of Commerce and Ministry of Land) involving Tea Board and Tea Association would be necessary for field implementation of the envisaged mode of *chhara* bank land use. When such a policy decision is taken, individual TE will have/ nor could have any objection except, at the most, ask for compensation for tea plantation establishment cost and production loss for the potential tea producing length of these gardens.

(b). In respect of *chhara* bank plantations, as long as a *chhara* passes through TEs, the tea garden management will not entertain any outside management interventions e.g., CRMO activities. The *chhara* bank plantation upkeep and protection management should be under TE's complete control.

(c). The tree resource created through *Chhara* bank plantation will remain as TE's property. They will be prepared to enter into an agreement for preservation and proper upkeep of the riparian plantation as required under conservation easement principles but would not share the resource with anybody.

(d). If proposed by the MACH project, tea estate management is prepared to allow planting of their barren hilltops or slopes but the plantation resource so created will be TE's property. They will, of course, undertake to manage and maintain the plantation as prescribed by conservation easement requirements and agreed upon by both parties.

6.3 Lemon and Pineapple Planters

The farming activities of this group of planters are located in the most delicate landscape (hilltops and hill slopes). The gardeners are practicing a very destructive method of cultivation by totally shaving off all parent vegetation even from the steep hill slopes that the worldwide Sloping Land Agricultural Technology (SALT) prohibits clearing. They are also employing soil erosion provoking 'across the contour' plantation technique in place of scientifically admissible 'contour cultivation' methods.

The lemon and pineapple planters are gardening on State owned (Khas) land on lease terms. Although some have taken formal land lease from the MOL, many either do not have any legal lease at all, or are cultivating much bigger areas of land than actually taken lease. The MOL officials are well aware of the illegal affairs but neither the issue of land lease is formalized nor the cultivators are evicted from their unauthorized activity. As a result, on one hand, the government is deprived of genuine revenue, and on the other hand, the delicate land is very adversely degraded at the cost its future productivity loss, and through siltation of the streams and *Hail Haor* down below due to enormous quantity of silt washed down from these hills and deposited in the stream and *Haor* beds.

The lemon and pineapple gardeners did not show enough interest in the stream bank conservation plantation. According to them, these locations contain fruit plantation and they cannot venture tree plantation in these situations. In fact, the stream bank lemon plantation because of higher moisture regime, yield larger quantity of fruit. During drought months, irrigation to lemon plants is easier by the *chhara* side. That is the main reason for showing disinterest in strip plantation along *chhara* banks.

In matters of plantation on barren hilltops and steep slopes, the lemon and pineapple gardeners showed interest in wide-spaced planting of fruit trees only like Jack Fruit and Mango, and not for planting close-spaced timber trees. Besides, the planters, being guided by orchard concept, will always keep the hilltops and slopes' floor clean of weeds. Such clearance is highly detrimental for and provocative of soil erosion. The gardener's interest in plating is thus different than the MACH project interest of watershed conservation plantation. Wide-spaced orchard plantation will never have canopy closure and thus no good for soil conservation that needs a multi-storied vegetation with covered forest floor.

6.4 Ministry of Land

The Ministry of Land owns all streams and river course lands, and also vast areas of hilly lands and waterbodies. The local UNOs and ACs Land have appreciate the necessity for stream bank stabilization plantation and hilltops conservation plantation, and have no reservation towards such environmental protection programs. But they will act only when such programs have been approved by the government of Bangladesh as a definite land use policy and instruction conveyed to them through administrative circulars. The project's National Steering Committee should, therefore, take up the issue with MOL. When pursued with right earnest, it is hoped that availability of stream bank *Khas* and delicate hilltop lands respectively for stabilization and conservation plantations would not pose any serious bollteneck.

6.5 Forest Department

Streams passing through the reserved forests are under complete control of the Forest Department (FD). The shoulder lands on either bank of these streams are also forest lands and support vegetation, both natural and artificial, depending on the traversing site of the stream through natural forests or man-made plantations respectively. No separate plantation program at the behest of MACH project is necessary for ferest traversing stream/river bank lands, but an agreement with the FD is required whereby the FD would undertake not clear-fell vegetation within 100m width of streams and rivers passing through reserved forests.

As to the conservation easement of the two blocks of reserved forests located in the watersheds of Hail Haor (viz. Lawachhara in Balishira hill ranges and Satgaon in Satgaon-Dinarpur range) , the FD would be willing to preserve these forests as protected areas and suspend all exploitation activities there, if GOB decides so. Alternatively, if MACH project is willing to pay fairly assessed conservation easement fees, a decision to officially declare these two bocks of forests as 'Protected Areas' should be possible.

7 Institutional Arrangements Most Likely to Succeed with Conservation Easement System

Historically and traditionally, conservation and watershed management of delicate hilly landscape in Bangladesh had been the subject/responsibility of the State Forest Department (FD). In fact, constitution of Reserved Forests (RF) in this country started in the second half of nineteenth century with the primary objectives of conservation of the watersheds of major rivers originating from the hilly terrains in the eastern zone of the country. These watersheds that had been subjected to severe soil erosion and land slide ensuing from 'slash and burn agriculture' (locally called *Jhoom cultivation*) practiced by the tribal community living in these forested habitats. On that very account, the various Reserved Forest blocks of this tract derived their name after the rivers that had originated from the particular watershed viz., Sangoo RF consisting of watersheds of Sangoo river, Matamuhuri RF occupying catchments of Matamuhuri river, and so on; the Reserves being placed under care of the FD for their conservation and management.

In line with the above principle, ideally, the control and future conservation management of the riparian zones and denuded hilltops, sought to be achieved through afforestation, reforestation, soil conservation and vegetation restoration measures under MACH project, should be entrusted with the FD, the State Department knowledgeable for such land use. However, since FD has not been involved in the MACH project implementation activity from the inception of the program, involvement now at the fag end of the project life will not leave enough familiarization experience for FD to continue with the program effectively after MACH project closure. Consequently, FD could be expected neither to show proven success in program execution in so short a period, nor establish successful coordination with other program partners of MACH. Besides, FD also does enjoy a good record of accomplishment of participatory resource development activities in collaboration with other agencies, and especially in situations outside its traditional management jurisdiction.

The next agency closely linked to MACH project implementation is the Department of Fisheries (DOF). But this department is not technically competent to carry out watershed conservation afforestation/reforestation management.

The Water Development Board has relevance to stream/river bank stabilization but this organization always think of engineering solution to stream bank stabilization, like undertaking rip-pap, spurring, loop

cutting, high-rise embankment construction etc. Moreover, the board also lacks technical competence in watershed management through soil conservation, and afforestation/reforestation programs.

The Government Department that is fast spreading its activities in the rural areas of the country addressing grass-root problems is the Local Government Engineering Department (LGED). The activities of LGED currently spreads over areas like rural communication artery development; roadside afforestation and institution compound planting; small waterbodies management for fisheries and irrigation; rural stream husbandry with embankment, sluice gate and small dam construction for irrigation and fisheries development; Union Porishod institutional structure building etc. LGED is also exploring and identifying new areas of program intervention. The Department also widened its staffing pattern incorporating personnel of various other disciplines over and above the engineering technical personnel in its staffing base to cope up with activities of specific disciplines. LGED could thus be the lead agency for organizing *Chhara* bank stabilization and conservation plantation in riparian zone and protection areas of watersheds.

LGED should therefore be mandated to organize conservation easements following the land procurement principles laid down in the earlier sections for different categories of land ownership, and undertake implementation of *Chhara* bank stabilization and conservation plantations on riparian zone and watersheds. LGED should also be mandated to organize and execute the envisaged conservation program through the people's participatory institutional arrangements already set up at the grass roots level by MACH project i.e. the CRMO/BRMO.

8. Likely Cost Involved in the Establishment of the Conservation Easements

As discussed in section 3 above, the following land ownership categories will be encountered in the project areas where conservation easement system is contemplated to secure land for establishment of conservation plantations on riparian belt and barren hilltop situations. The likely cost involvement for establishment of conservation easements, from both land lease and land purchase options points of views, is predicted hereunder according to land ownership categories.

8.1 Private Land

a. Conservation Easement fees on the basis of land lease option

The lease values for land of different land capability classes have been provided for in Table-3. Obviously, the lease consideration money is dependent on the productive capacity of the land for its present use. Unless the land capability for each and every individual parcel of land is determined through physical survey, and the extent of different categories of land thereof is also determined physically, definite calculation of the cost involved in land leasing for conservation easement is not possible. However, for the sake of arriving at a reasonable cost estimate for planning purposes, and considering a conservation plantation strip width of 30m on both banks of *Chhara*, the per kilometer *Chhara* length of conservation plantation will require leasing of 1000m x 30m x 2 banks = 6 ha.(about 15 acres). Taking an average leasing consideration value of Taka 8,650 per hectare (or Tk. 3,500 per acre), each kilometer of conservation plantation easement will cost about Taka 51, 900 say 52,000 per year. [The average lease value is certainly not an weighted average because the extent of land in different land capability classes is not known].

It should however be borne in mind that, whatever lease value be offered for homestead lands that are located in the strip of envisaged conservation easement plantation areas, such homestead lands will not be

available on lease terms. For such land, the conservation easement options suggested in section 6.1 (c) and (d) will have to be applied.

b. Conservation Easement fees on the basis of Land Purchase option

Based on the same assumptions, the purchase value per hectare of land would range from a minimum of Taka 238,900 (96,750 per acre) to a maximum of Taka 321,000 (130,000 per acre). Taking an average value of Taka 280,000 per ha (113,360 per acre), the land purchase cost per one kilometer of conservation plantation area will amount to about Taka 1,680,000.

This option will be financially very costly. However, even if fund could be arranged, application of this option will not be uniformly realistic because people having very small holdings will not be prepared to part with their last belonging in exchange of any amount of money.

8.2 Leasehold State owned Land

The leaseholders of State owned land, according to the terms and conditions of lease agreement with the State, can not sub-lease any leasehold land to a third party. If done, as per agreement, the lease automatically stands cancelled. Therefore, for the leasehold land to be available for conservation easement plantation, GOB will have to be approached to cancel the existing lease which the GOB can always do legally. The existing lease holders, if aggrieved by such cancellation order, may legally claim compensation on the ground of loss of investment made by them on the land in question (e.g. for foregoing established tea or orchard plantations, or any other installations). Such claims will be investigated and adjudicated by the respective DCs taking into consideration the condition of the standing crop, or other establishments founded on the leasehold land following GOB approved conditions of lease. The assessment will be made based on the fair market value.

Thereafter GOB, considering the greater national interests that the conservation plantations are going to serve, may grant conservation easements to MACH project and thence to its successor organizations, free of any possession value (otherwise known as *Salami),* or it can charge *Salami* on the basis of according to standard practice and procedure. It is believed that, if the case of conservation easement is properly explained and presented to the appropriate level of GOB, the former option of getting the riparian and delicate hilltop land for conservation plantation establishment should be possible without payment of any *Salami.*

8.3 MOL Khas land

As for MOL *Khas* land availability for conservation easement, the decision making for the GOB is very simple and straightforward. In this case, since the land is already in the *Khas* (own) possession of the GOB, its executive decision to allocate the land for any type of land use is legally valid. GOB, once decides to allocate the land for conservation easement, may ask the DCs for fixation and realization of *Salami,* or make over the land to appropriate organization free of *Salami.* Fixation of *Salami* rate is done based on the same principle as laid down for lease-cancelled State owned land.

8.4 GOB Reserved Forest land

In case of reserved forest land, GOB has two options. Forestlands, of course, will not be handed over to any other agency. GOB may ask the FD to strictly abide by the conservation principles in respect of forests located within 100m stretch on both banks of *chharas* and rivers, and the FD should abide by the GOB decision. In fact, FD is mandated to such a land use practice. Consultation of old forest Management Plans will reveal that the management planners always warned and prohibited clearance of steep slopes and

stream banks. Government decision in this direction would be simple reiteration of the already mandated tasks of FD.

The environmental call on the GOB reserved forests located in the *Hail Haor* watersheds should not be confined to disciplining *Chhara* bank strips or hilltops alone; the entire RF blocks situated in the Balishira and Satgaon hill ranges should be declared as "Protected Areas" as these RFs are vitally important watersheds of *Hail Haor*. Accordingly, all land clearance for artificial plantation raising, and all commercial exploitation of timber and other forest products should be stopped.

However, since the country has limited forest covered area, and there prevails a wide deficit gap in the demand and supply of timber, and GOB is currently importing timber to meet consumers demand. The FD may thus claim conservation easement fee proportionate to the timber production foregone by it by not harvesting timber or other forest products from the specified forest tract.

An exercise to determine the productive capacity/opportunity cost of Balishira and Satgaon RF land through plantation raising was carried out, which works out as follows:

Table – 4: Estimated Physical Yield from Industrial Plantation Raised under IDA Project*

Rotation (years)	**Product**	**Year of Harvest**	**Yield (M^3/ha)**	**MAI (M^3/ha)**
12	Fuelwood	7	50	
	Fuelwood	12	74	
	Peelers	12	170	
	Total	-	**295**	**25**
18	Fuelwood	8	21	
	Fuelwood	12	46	
	Poles	12	23	
	Saw log	12	8	
	Fuelwood	18	45	
	poles	18	68	
	Saw log	18	113	
	Total	-	**324**	**18**
40	Fuelwood	8	6	
	Fuelwood	17	18	
	poles	17	20	
	Fuelwood	24	14	
	Poles	24	34	
	Saw log	24	20	
	Fuelwood	40	23	
	Poles	40	20	
	Saw log	40	174	
	Total	-	**344**	9

[*Background Data Source: Staff Appraisal Report of IDA, Page 86]

Table – 5 : Computation of Easement fees from IDA project plantation output
[IDA estimated 46 years as the period that would be needed by the last plantation raised under the project to become mature and fit for exploitation]

Total project plantation. area (ha)	Product Category	Output			
		Physical Qty. ('000 m^3)	Gross economic benefit (million Taka)	Net economic benefit (million Taka)	Net economic benefit/ha/yr (in Taka)
26,880	Fuel wood	781	781	-	
	Poles	4927	5,759	-	
	Saw log	3915	17,127	-	
	Peeler log	457	936	-	
Total	-	**10080**	**24,603**	**15,347**	**12,412**

The net production output, in terms of money, from industrial plantation raising activity by FD calculates to Taka 12,412 per hectare per year. To this may be added the Land Development Tax @ Taka 272 per ha (Table – 2 : in common with Tea Estate land) so that the total rental calculates to Taka 12,684 say, 12,700 per hectare of RF per year, which should be deemed as conservation easement fee claim for the FD to come to an agreement with MACH project or its successor organization for observing total moratorium on exploitation activities in RF located within the command areas of *Hail Haor* watersheds.

9. Recommendation:

This section summarizes through recommendation the steps required which would most likely to ensure success in the establishment of permanent conservation easements or protected area declaration along the stream riparian belts and selected uplands.

9.1 Advocacy and Awareness

'Conservation Easement' is a new land use approach for Bangladesh. 'Easement' as is ordinarily understood by common people, officials, or by non-accustomed lawyers should not be even tacitly construed as 'Conservation Easement'. Familiarization of the GOB bureaucracy, politicians, professionals, media people, civil society activists, local leaderships and common mass especially those of the project command areas, regarding the concept of conservation easement, its purpose and the way it is sought to be established, should be undertaken as an awareness campaign program. This will facilitate creation of congenial background for mobilizing public opinion and enlisting support for the much needed GOB policy formulation and framing of necessary legislation to effect ultimate materialization of conservation easement system.

9.2 Policy and Legislation Declaring 'Conservation Easement' an Authoritative Activity

MACH project, through its National Project Steering Committee (PSC), should embark on active lobbying in appropriate GOB bureaucratic and political levels promoting formulation and issuance of necessary policy outline and passage of legislation giving 'conservation easement' concept the shape of an authoritative practical activity. Simultaneously, GOB should also be impressed upon to issue policy directives to MOL and MOEF/FD to finalize conservation easement agreement between MACH project sponsored local management organization (CRMO) and the MOL/FD so far as it relates to GOB *Khas* land and Reserved Forests respectively.

Formulation of similar policy and issuance of policy directives for GOB *Khas* lands already leased out for tea cultivation, orchard establishment or other purposes, and the concerned DCs should be urged upon to implement GOB policy making the appropriate riparian and hilltop land available to MACH project sponsored CRMO, through 'conservation easement agreement', for the proper conservation of such land and raising of protective plantations thereon.

The envisaged policy will also give an authoritative footing to MACH and its partners to proceed with conservation easement bargain with private land owners as it will have a psychological awareness for the local government institutions and local people that the 'conservation easement' program is a GOB priority activity, calling upon all to cooperate and participate.

9.3 Designating GOB Lead Agency to Oversee Conservation Easement Program after MACH Project Closure

The Local Government Engineering Department (LGED) is striving hard to grow as an active institution playing increasing role in rural development. A comparatively new department, and unlike other single-track GOB departments, LGED has a wider activity protocol ranging from environmental issues to engineering disciplines, and is also exploring newer fields to act and make its mark in all aspects of rural society needs. LGED may be groomed to give leadership for organizing conservation easement in riparian zone and selected hilltops in close association with MACH, its partner organizations, and local level resource management organizations (CRMOs). After MACH closure, LGED should continue with this program as GOB agency responsible for discharging the same responsibility as MACH is now doing with its partner NGOs and successor organizations, the CRMOs. For being able to do conservation functions professionally, LGED should include forestry professionals in their staffing pattern, as they are already doing for other professional activities of the department.

9.4 Creation of Conservation Easement Fund

For having 'conservation easement' as a practical reality, enough financial resource will be required to pay for conservation easement fees and compensations. Since all activities envisaged through conservation easement system are primarily environment enhancement oriented programs benefiting the community at large, no individual local funding could be expected for such public utility functions. The fund has to come from the project sponsors.

In respect of the privately owned lands brought under conservation easement programs, till the conservation plantations are successfully established on the ground and show up as a growing prospective resource to share, the land owners will have to be paid the lease value at fair market price. This may

continue for a period of 5–6 years. Thereafter, production sharing arrangements, as per terms of conservation easements, would make payment of easement fee redundant.

For Tea Estate land, no easement fee would be needed if GOB policy decision authorizes conservation plantation establishment on riparian corridor of tea estate lands. The plantations so raised would belong to TEs but they would be bound by conservation easement agreement

For State owned *Khas* land and RF land, conservation easement fee payment would be an all time necessity unless exempted by GOB. To be fair, exemption from fees payment to GOB for the State owned lands brought under conservation easement system should be the most rational and pragmatic policy decision because the envisaged conservation activities are all environment enhancement programs benefiting the country to which the GOB itself is committed. Ideally these activities should be done by GOB but for limitation of fund from State exchequer, the moves are currently shy. If outside endeavors come forward to do the jobs, GOB should be happy and extend all out support at least with land allocation for which GOB is not required to undertake any financial obligations whatsoever.

9.5 The Institutional Set Up After MACH Project Closure

The establishment of an well wooded riparian corridor and critical forested uplands to improve stream bank stability, and likely reduction of erosion and sediment loss from the watershed through the practice of conservation easement is an not an isolated activity in itself. The activities envisaged here are inseparable components of the overall programs of Sustainable Management of *Hail Haor* and its Watershed, implemented by MACH project. Therefore, the same institutional set up, as recommended for Sustainable Management of *Hail Haor* and its Watershed main project, will be responsible for implementation of 'Conservation Easement' functions as well. The only deviation being that: LGED will be the lead agency facilitating arrangements for conservation easement functions in place of NGO partners now doing similar job because, with MACH project closure, the NGO partner (CNRS) is likely to discontinue association with MACH successor organizations. Thus, LGED's involvement will help continuing program activity in the future uninterrupted.

The recommended institutional set up after MACH project closure should be as follows:

(i).National Steering Committee (NSC) at national level;

(ii). Local Government Committee (LGC) and within it, a Result Package Team (RPT) as sub-committee, at Upozila level;

(iii). Union Resource Management Committee (URMC) at Union Porishod level;

(iv). MACH Apex Committee at the top program level;

(v). *Chhara* Resource Management organization (CRMO) at the local level. There will be only one CRMO for a *Chhara* in place of a number of *Chhara* committees now being practiced in upper, middle and lower reaches of a *Chhara*.

Currently, the initiatives for all these committee formation and keeping them functionally active obviously came from MACH core staff at MACH Headquarters and site offices. But with MACH closure, these committees will not function on their own. New initiators and new focal points are required to be designated, organized and made responsible to keep them active, functional and effective. Thus, the existing vis-a-vis the recommended committee structures may be as follows:

(a). *Chhara* Resource Management Organization (CRMO):

Starting from the origin of a *chhara* in the hilly watershed, till it loses total entity in the *Haor* basin, a *chhara* should be considered as a single entity/unit of management, and managed by one management organization. The CRMO should be formed involving all *Chhara* bank and hilltop private land owners/easement partners as general committee (GC) members, and an Executive Committee (EC) constituted for carrying out day-to-day conservation and management functions of the CRMO including plantation raising and upkeep. The size of the EC should not exceed more than 15 with members drawn from all strata of the society observing proportionate representation from all types of social interest groups.

(b). MACH Apex Committee

The resource base (*Hail Haor* and its watershed) is so vast that the *Chhara* and *Beel* Resource Management Organizations (CRMOs and BRMOs) working in isolation can not address all the problems especially those originating/happening beyond their individual jurisdiction but affecting their individual functioning adversely. One Resource Management Organizations (RMO) may need certain intervention which others do not feel immediate necessity. But when the resource base is considered as a whole, the particular intervention becomes a strong necessity. Therefore, a federation of all RMOs will be formed to constitute an Apex body that will coordinate the multitude of activities performed by different individual RMOs.

The Apex body will be constituted by including chairman and secretary of each of the federating primary units (the RMOs). The Apex organization will also have an EC comprising of at least one member from each RMO, and would be headed by a president democratically elected by its members from amongst them. Apart from the president, the Apex body will have other office bearers as decided by the body. It will have a constitution portraying its activities, and will have the structure, character and mode of functioning more or less identical with 'Central Cooperative Societies' of the Bangladesh Rural Development Board (BRDB).

(c). Union Resource Management Committee (URMC):

URMC should be a combined body formed with proportionate representation from all the CRMOs located in a UP, the concerned UP ward members and should be headed by UP chairperson. URMC should be a coordinating body charged with overseeing the overall functioning and performance of various RMOs, and take appropriate action to solve local level problems that are beyond the competence of RMOs.

(d). MACH Local Government Committee (LGC):

The MACH Upazila level Local Government Committee (LGC) should be a strong and effective body in the MACH Project Management set up at all MACH sites. As is obtaining now, the committee should be chaired by *Upazila Nirbhahi* Officers (UNO) and includes as members the concerned Union Porishod chairpersons, the Upozila LGED Engineer, Fishery Officer, Forest officer and other related Upozila level GOB officials, Apex body president, local MACH project representative (during the project period only) and others, as appropriate. The committee is

intended to allow local government a voice and involvement in project activities, and ensure their support for agreed to project initiatives and interventions.

The LGC will form a Result Package Team (RPT), as its sub-committee, consisting of 5 - 7 members, to closely oversee and monitor project activities, and report to the LGC about the state of project functioning and relevant matters of the CRMOs, BRMOs and the Apex body, for problem solution and appropriate remedial measures.

LGC should also be designated as the custodian of the conservation easement fund, like that of 'Revolving Fund' created for financing development activities of MACH project including AIG activities of beneficiary group members, with UNO and LGED Engineer jointly operating the fund for activities approved by the LGC . LGC will aid the RMOs with expert technical services through the various professional GOB departments located at Upozila level.

(e). National Project Steering Committee (PSC) and Result Package Team (RPT)

The National Project Steering Committee (PSC) and the Result Package Team (RPT), as now functioning for MACH, are considered useful and effective both in their composition and functioning, and may continue up to MACH closure in 2003.

After MACH project coming to close, the PSC may continue with DOF and LGED playing the 'Lead Agency' role, and MOFL and MLGRD&C coordinating at national level. It has to be borne in mind that, guaranteed access to the publicly owned resource base (Haor, Beel, River section, *Chhara*, watershed sections, access to sand quarry etc.) by the concerned RMOs for their total development following scientific pursuit, is basic to attaining the desired success for MACH program. Ensuring such guaranteed availability of resource base to the RMOs would not be possible without the blessings of and policy directives from the PSC. With the closure of MACH in 2003, the intense persuasion of events by MACH core staff and partner NGOs with GOB will literally come to a halt. Unless program issues are kept alive by holding periodic PSC meeting and reminding the GOB functionaries about the existence of MACH legacies, and the GOB commitment to its sustainability through State patronization, the MACH embryo is likely to face a sad demise.

As mentioned above, the RPT function may devolve to LGC who, on one hand, is located close to the resource base to exercise closer eyes on the functioning of the RMOs and Apex body, and on the other hand, has the services of a whole gamut of technically qualified subject matter specialists located at Upozila HQ. LGC is thus positioned in a better strategic location to monitor events and offer the required advice, and also exercise necessary supervisory control. LGC should therefore be the most momentous committee for the MACH initiated programs after MACH scheduled closure. The Upozila LGED Engineer may function as 'lead agency' for RPT coordination in matters of CRMO activities, of course, with UNO as its head.

9.6 Registration of CRMOs and Conservation Easement Agreements

For providing legal status to the CRMOs, and for facilitating its formalized functioning as Community welfare organization duly recognized by authorities, all CRMOs should be registered with Social Welfare Department (SWD). For obtaining such registration, a constitution for systematic functioning of the RMOs with formal Executive Committee (EC) formation; fund raising mechanism, fund investment, fund recovery procedure; and accounting methods; benefit sharing formula etc. is required. Such constitution has

already been developed by some CRMO with the guidance of MACH staff. The constitution developed should be critically reviewed by the EC of CRMOs and the concerned UP Chairperson before presenting to SWD for registration. Registration of CRMOs will give it a respectable credible status and due recognition by GOB and NGO for formal interactions and transactions.

The conservation Easement agreements between land owners and CRMOs or LGED (for TE and RF lands) should also be registered to have the force of law in case of violation of the covenants by any party.

9.7 Education, Training and Demonstration to Hill cultivators

The conservation easement system, when successfully implemented, is designed to address land use only in a small corridor of land on stream banks or denuded hilltops of watersheds. However, the vast watershed is cultivated all throughout for various cash crops employing wrong cultivation methods. Misuse of land in these locations provokes and cause severe soil erosion and landslides. In consequence, huge sediment load is washed down from the watershed to the streams and thence to the *Haor* causing siltation of their beds. Without improvement of hill cultivation methods, the envisaged benefit from conservation easements alone will not solve the agonizing problems of stream and *Haor* bed siltation. To discipline the watershed land use and to ensure that land uses conform to scientifically acceptable norms, the Hill gardeners are required to be adequately trained through extension services and establishment of demonstration plots in conspicuous locations of the watersheds at the behest of the project.