

Framework Environmental Mitigation and Monitoring Plan (FEMMP) of Harivo Ban Program (2011/12)						
IR/ Sub-IR	Activity	Year	CE/NDC	Potential Environmental/Social Impacts	Significance? Yes/No	IEE Condition
<b>3 CLIMATE CHANGE ADAPTATION</b>						
3.2.2	Prepare Climate Change Adaptation Plan	1,2				
	Prepare Community Adaptation Plans	2	NDC	Adverse impacts likely due to inadequate vulnerability assessment, impact mapping and/or elite dominance, social/gender exclusion etc.; Potential impacts on downstream users and ecosystems from manipulation of river systems/water supplies; risk of maladaptation.	YES on case to case basis	HB shall ensure integrated approach and technically sound (e.g., CVCA) methods are used within the framework of agreed principles and all inclusive, multi-stakeholder and consultative planning process as guided by NAPA.
	Prepare Local Adaptation Plans	2	NDC	Adverse impacts likely due to inadequate vulnerability assessment and/or impact mapping; Elite dominance and social/gender exclusion etc. Potential impacts on downstream users and ecosystems from manipulation of river systems/water supplies; risk of maladaptation.	YES on case to case basis	HB shall ensure integrated approach and technically sound (e.g., CVCA) methods are used within the framework of agreed principles and all inclusive, multi-stakeholder and consultative planning process as guided by NAPA.
3.2.3	Support to implement Community Adaptation Plans	1,2				
	CAP implementation with technical support from selected resource partners (DE, ANSAB etc)	2	NDC	Adverse impacts likely in absence of i) adequate community capacity to implement CAPA, and/or ii) missing community ownership and governance	NO	HB shall ensure i) robust institutional structure, ii) capacity and skills and iii) and ownership of plan exist within communities to implement CAP.
	LAPA implementation	2	NDC	Adverse impacts likely in absence of i) adequate local capacity to implement LAPA, and/or ii) missing local level ownership and governance	NO	HB shall ensure i) robust institutional structure, ii) capacity and skills and iii) and ownership of LAPA exist at the local government level to implement LAPA
3.3.3	Monitor trends in climate variability and change at landscape level	1,2				
	Monitoring of ecological support systems and ecosystems as they affect human adaptation	2	NDC	Adverse impact unlikely	NO	
<b>2 Sustainable Landscape</b>						
	Forest Carbon Inventory training to LRPs including inventory works and purchase of local equipment (through consultancy)	1, 2	NDC	Direct adverse impacts unlikely, some indirect impacts likely in case heavy tools are used	NO	HB Program shall ensure no heavy tools are used for inventory
2.3	Drivers of deforestation and forest degradation analyzed and addressed					
2.3.1	Address the drivers of deforestation and forest degradation	1, 2				
1.2.1 (bullet 3) included	Grants to local communities for biogas plant establishment in CHAL (650), toilet construction support in TAL (1500)	2	NDC	No specific likely adverse environmental/social impact was observed in case of biogas in TAL. (e.g., increase in no. of livestock, fodder and water demand, mosquito or pests or women's workload etc.). In CHAL area also in general no significant increase in livestock, mosquito or pest population or in women's workload was observed. However, in dry hilly areas of CHAL, seasonal scarcity of fodder and water for cleaning toilets seemed likely and biogas installer/users were rarely aware and skilled about how to manage/maintain biogas plant, toilet and slurry output and maintain cleanliness. A likely adverse social impact is increased no. of dissatisfied among acute poor unable to install and benefit from biogas.	NO	Program shall ensure 1) Communities selected are not likely to face water scarcity in next 10 - 15 years particularly in CHAL; 2) biogas users are knowledgeable about environmental guidelines for installation of biogas and toilets; 3) site/location specific mitigation actions are inbuilt with biogas/toilet construction; 4) biogas installers are motivated and supported for planting few tree/grass fodder species in their homesteads and bari lands.
	Support to AEPF for subsidy to biogas plants and to BSP for biogas monitoring	2	NDC	Adverse impacts likely due to absence of 1) sound environmental evaluation of proposals 2) agreed basic minimum monitoring and reporting protocol	NO	HB shall ensure 1) AEPF uses standard/agreed screening guidelines for granting subsidy and 2) BSP applies mutually agreed standard monitoring protocol
	Fire line maintenance in CF	2	NDC	Likely adverse impacts include soil compaction, erosion, sedimentation, habitat fragmentation, loss of natural communities, invasion of non-native plant species and/or obstructed flow of genetic resources and wildlife movement. Nevertheless field observation revealed that this activity is confined only to removal of mostly dry biomass and cleaning of bushes likely to cause fire hazard along the already existing forest block separator lines. This much of activity is not likely to create any significant adverse impact.	NO	Program shall ensure no green trees are felled and natural plant communities and undergrowth are not disturbed to a possible extent including removal of any non-native plant species along the already existing block separating firelines.
	ICS, smoke hood/metal serve, iron prayer flag establishment support	2	NDC	Health hazard likely in case if black carbon leakage exists; Units observed in TAL, nevertheless were found to be leakage proof	NO	HB shall ensure ICS energy efficient devices installation is leakage proof
2.3.2	Promote community based sustainable resource management and good governance - 1.2					
	Nursery establishment and strengthen the existing nurseries	1, 2	NDC	Likely adverse impacts of nursery establishment include soil erosion, enhancement of water scarcity for nearby communities already facing shortage of water, risk of introduction of non-native weeds and contamination of natural water sources downstream.	NO	HB shall ensure best practice guidelines for site selection and raising plants in nursery is practiced
	Plantation support in deforested, degraded land and private land	2	NDC	Adverse impact likely in case of mono-culture and non-native species plantations	NO	HB shall ensure native species already existing in adjoining forest areas are planted
	Support to NRM Groups to reduce drivers of deforestation and forest degradation	2	NDC	The activity is too general to give a clue of likely adverse impacts. On-forest activities for reducing drivers of D&FD (e.g. properly planned grazing control, fuel wood, NTFPs, fodder and timber harvesting) are unlikely to have any significant adverse impact. Off-forest NRM activities (e.g., biogas, plantation of fast growing non-native species, forest-based IGAs) may have adverse impacts depending on the nature of activities.	NO	HB shall ensure activities planned to reduce drivers of D and FD are approved based on their social and environmental screening.
	Leasehold forestry development in CF	2	NDC	Adverse impacts likely in case cash crops and/or NTFPs cultivation uses chemical fertilizers and/or insecticides/pesticides and/or existing natural waterbodies are drained out or diverted or contaminated, and/or perennial crop species prohibited by forest regulations, are cultivated	NO	HB shall ensure leasehold forestry proposals are screened and approved in line with the existing leasehold forestry regulations prior to providing support.
	Revision and amendment of CFOPs (through consultancy)	2	NDC	No negative environmental impacts likely if CFOP revision is done in line with forest regulations, 1995 including intertization of social, gender, economic and environmental aspects of community forestry.	NO	HB shall ensure the terms of reference for CFOP revision incorporates all necessary points likely to induce any potential negative impact
1.4.2 (bullet 4) included	Piloting of Cardamom, Turmeric, Ginger, Broom grass cultivation in CFUG to poor (leasehold forestry concept)	2	NDC	Adverse impacts likely (as reported from India, Sri Lanka) on biodiversity, soil and water quality due to intensive/indiscriminate use of fertilizers and pesticides ( <a href="http://www.wildnet.in/south-asia/news/cardamom-crop-affect-forest-studies-say.html">http://www.wildnet.in/south-asia/news/cardamom-crop-affect-forest-studies-say.html</a> ); Pesticides used in commercial ginger farming is also known for contamination of rivers and water bodies (South India). Plant communities, avifaunal and herpetofauna diversity is negatively impacted due to mono-culture inside forest areas.	NO	HB shall ensure piloting of quick income generating crops cultivation follows organic farming, and inter and mix cropping models are studied for maximising production.
2.3.3	Promote forest product based microenterprise	2				
1.4.2 (bullet 1)	Green enterprise development support	2	NDC	Adverse impacts likely in case green enterprises ignore/overlook principles of environment friendly sustainable development.	NO	HB shall ensure green enterprise development activities to be supported is screened from likely environmental/social impacts perspectives as per existing relevant regulations
2.4.3	Develop and implement a carbon financing project	1, 2				
	Develop second gold standard biogas in TAL	2	NDC	Adverse impact unlikely. Bears some risk of adverse social and gender impacts in case the poorest among the poor remain excluded from the program	NO	HB shall ensure lessons learned from first gold standard project regarding reaching to the acute poor is effectively captured in second gold standard project
	Validation for biogas PDD	2	NDC	Adverse impacts unlikely	NO	
<b>1 Biodiversity Conservation</b>						
1.1	Threats to local species reduced					
1.1.1	Research and monitoring	1,2				
1.1.2	Species conservation and reintroduction					
	Black Buck, Gharial/ Vulture/ Ghoral/ Bijaya Sal	1,2	NDC	No likely adverse environmental impacts of conservation, however, species translocation and reintroduction likely to cause adverse	NO	HB shall ensure translocation and re-introduction of species is done in line with the IUCN/SSC Guidelines for species re-introductions
	Management of new Black Buck population	2	NDC	Adverse impact unlikely	NO	
	Important flora (Bijaya Sal, Champ, Okhar, Kaitoi) conservation	2	NDC	Adverse impacts unlikely	NO	
1.1.3	Build capacity to reduce threat to focal species	1,2				
	Capacity building/mobilization of CBAPOs	1,2	NDC	Adverse environmental impact unlikely as already tested model of CBAPO is planned for replication	NO	
1.1.4	Management of HWC	1,2				
	HWC mitigation (through power fencing)		NDC	Likely impacts expected are obstruction in traditional migratory routes of wildlife including elephants and constrained access of forest-dependents to basic forest products. Field visit in TAL revealed that power fencing along forest fringes were not obstructive for the movement of wildlife in their traditional migratory routes. They are strategically aligned along the margin between cultivated lands, human settlements and continuous blocks of forest contributing significantly in HWC. In CHAL, however, local communities in most places reported that monkeys, bear, leopard and porcupine are causing HWC that urgently requires innovative approaches to save agricultural crops, livestock and human lives;	NO	HB shall ensure innovative, transparent and locally governed HWC mitigation measures are planned, piloted and institutionalized in TAL and CHAL wherever its adverse impacts are significant;
1.1.5	Transboundary cooperation					
1.2	Threats to targeted landscape reduced					
1.2.1	Under take habitat restoration and management	1,2				
	Habitat (grassland) management	2	NDC	Adverse impact unlikely	NO	
	Habitat restoration in corridors and bottlenecks	1,2		Adverse impact unlikely	NO	
	Livestock grazing pressure management	2	NDC	No adverse environmental impacts, some social adverse impacts likely due to controlled grazing	NO	HB shall ensure practical options for livestock grazing pressure management are explored, agreed and implemented in a participatory manner.
	Water supply management for wildlife	2	NDC	Adverse impact unlikely as long as the natural water courses are not diverted, water bodies not drained out or disturbed; Increase of wildlife population due to increased availability of water is unlikely as the forest corridor is surrounded by human settlements and forests face grazing pressure.	NO	HB Program shall maintain natural water courses while managing water supply
1.2.2	Wetland management and invasive species control	1,2				
	Mechanism for biological control		NDC	Adverse environmental impact of biological control agent likely	Yes	HB shall ensure that biological control agent selected to be released is neutral to plants, living organisms and human beings prior to its release
	Community engagement to manage IAPS in forest ecosystems		NDC	Adverse impact unlikely as mechanized control method is used	NO	
	Community engagement to manage IAPS in one critical wetland		NDC	Adverse environmental impact unlikely in case of mechanized control method	NO	

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	Wetland restoration and management	1.2	NDC	Adverse environmental impacts e.g., habitat destruction, biodiversity loss likely due to intensive and mechanized restoration work; risk of shortage or too much of water downstream.	NO	HB shall ensure restoration of wetlands is undertaken based on Principles and Guidelines for Wetlands Restoration issued by Ramsar Convention
1.2.3	Critical sub-watershed management					
	Support to communities (including women) to implement sub-watershed management plan		NDC	Adverse impacts unlikely in general however, some specific management activities might require environmental screening	NO	HB shall ensure support for sub-watershed management activities is provided based on environmental screening of proposed activities
1.4	Income from sustainable sources of livelihoods for forest dependent communities increased					
1.4.2	Support community groups for livelihood improvement	1.2				
	<i>Included with green enterprise promotion support under sustainable landscape</i>					
	Promotion of community managed tourism	1.2	NDC	Adverse impacts likely e.g., increased pressure on forest for fuel and fodder, unsustainable demand of water, cultural problems and pollution of water sources.	NO	HB shall ensure eco-friendly and resource efficient approaches are practiced, incoming tourists are sensitized about local culture
	Micro-credit and IGA	1.2	NDC	Adverse impacts likely from forest-based IGAs with increased pressure on forest for raw material	NO	HB shall ensure proposals on forest-based IGAs confirm sustainable supply of raw materials and extra pressure on forests is not likely
	<i>Cultivation of broom grass and cardamom ( Included in 2.3.2 last bullet)</i>		NDC	Adverse impacts unlikely due to broom grass cultivation (refer to 2.3.2 last bullet for cardamom)	NO	
	Swertia cultivation and marketing		NDC	Adverse impact unlikely to the extent that natural plant communities on the forest floor are retained	NO	HB shall ensure support proposals for Swertia cultivation are not based on heavy clearance of forest floors
	Agro-based enterprise		NDC	Adverse impacts unlikely directly yet might require environmental screening for potential indirect adverse impacts	NO	HB shall ensure all agro-based enterprise proposals are supported after environmental screening
	Bamboo plantation and handicraft		NDC	Adverse impact unlikely; however bears the risk of increased pressure on natural forests for supply of bamboo	NO	HB Shall ensure proposals supported for bamboo based handicrafts are based on sustainable supply of bamboo
	Conservation plantation and handicraft		NDC	Adverse impact unlikely provided no extra pressure on natural forests for raw materials is assured	NO	HB shall ensure proposals supported are based on sustainable supply of raw materials

Specific Mitigation Actions	Person responsible to implement mitigation actions; Timing	MoV of implementation of mitigation actions	Person resp. for monitoring the effectiveness of mitigation actions; Time
1. Develop standard training package to include technical, institutional and process related elements; 2. Train responsible people to use integrated approach and differential impact assessment methods	1. Thematic Coordinator for 1); Landscape Coordinator and consortium partner's staff for 2); Time: whenever training is planned and implemented	i) Existence of multi-stakeholder forum; ii) community minutes of CAP development process	Thematic/Monitoring Coordinator; Time: whenever training is planned and organized
1. Develop standard training package to include technical, institutional and process related elements; 2. Train responsible people to use integrated approach and differential impact assessment methods	Thematic Coordinator for 1), Landscape Coordinator and consortium partner's staff for 2); Time: Whenever training is organized.	i) Existence of multi-stakeholder forum; ii) community minutes of LAPA development process	Thematic/Monitoring Coordinator; Time: whenever training is planned and organized
Design, plan and implement training for local target groups' representatives to take charge of CAP planning and implementation	Landscape Coordinator and consortium partner staff; Time: In CAP development process	Existence of active community institutions and skilled community representatives	Thematic Coordinator; Time: during periodic field visits
Design, plan and implement training for local target groups to take charge of the CAP planning and implementation	Landscape Coordinator of consortium partner staff; Time: In LAPA development process	Existence of active community institutions and skilled community representatives	Thematic Coordinator; Time: during periodic field visits
In Consultant's ToR, categorically mention not to use heavy tools for FC inventory	Landscape/Thematic Coordinator	Training/field reports	Thematic Coordinator; Time: during periodic field visits
1. Develop (or adapt from BSP) and provide a simple pictorial guideline for biogas users that includes environmental issues, health hazards and safety measures; 2) Institutionalize a system of site specific and feasibility-based biogas installation procedure to ensure potential environmental/social inequities are avoided/mitigated; 3) Innovate pro-poor approaches in biogas and toilet installation support.	Thematic Coordinator for 1); Thematic Coordinator jointly with consortium partners in the landscape for 2); Landscape Coordinator jointly with consortium partner staff for 3).	1) Printed guidelines in biogas user HHs; 2) Standardized biogas installation procedure used by field staff.	Landscape, Thematic and Monitoring Coordinators; Time: during periodic field visits
Include in MoUs with i) AEPC and ii) BSP 1) environmental screening of proposals prior to granting subsidy, and ii) agreed standard monitoring protocol	CoP/DCoP, Thematic and Monitoring Coordinators	Standardized 1) biogas subsidy approval guidelines, 2) Monitoring protocol	Landscape and Thematic Coordinators; Time: during periodic field visits
Develop and put in practice a simple guidelines for fireline maintenance. It should include general does and don'ts and mitigation actions for specific situations e.g. tree felling	Thematic Coordinator for guidelines; Landscape Coordinator for fireline maintenance work; Time - during planning of fireline maintenance	A simple guidelines for fire line maintenance available and being followed	Landscape and Thematic Coordinators; Time: during periodic field visits
1) Improve the skills of selected community members through appropriate training to construct locally feasible, leakage proof and quality ICS units; 2) Monitor the installed unit prior to final payment and ensure the ICS user household demonstrates the know how for cleaning the smoke pipe and chimney	Landscape Coordinator and concerned consortium partner field staff; Time: during training and prior to making payment	Feedback from CFCC and field staff's periodic observation report	Landscape Coordinators; Time: during periodic field visits
Put in practice the existing MFSC/DFRS - issued forest nursery guidelines	Landscape Coordinator; Time - whenever and wherever a nursery is established	Periodic report from field staff and/or CFCC	Landscape Coordinators; Time: during periodic field visits
Promote mix plantation of native species that safeguard ecological conditions of the plantation site and also meet the livelihood/income needs of local communities	Field staff of consortium partners; Time: while planning support for plantation	Nursery register, field staff report	Landscape Coordinators; Time: during periodic field visits
Develop and implement an environmental and social screening guidelines for activities proposed/planned to reduce drivers of D and FD based on existing good practices and innovative approaches	Thematic Coordinator for activities screening guidelines; Time: Once; Consortium partners and Landscape Coordinator for screening activities; Time: Prior to providing support	Concerned partner's field staff's periodic progress reports	Landscape Coordinator; Time: during periodic field visits
Develop and put in to practice a simple leasehold forestry proposal screening guidelines incorporating relevant clauses of leasehold forestry regulations	Landscape Coordinator guided by Thematic Coordinator; Time - once and prior to providing support	Concerned field staff's periodic progress reports	Landscape Coordinator; Time: during periodic field visits
Make it mandatory in the ToR for the potential consultant/service provider to follow the CFOP manual and forest regulations, 1995 in the process of CFOP revision	Landscape Coordinator guided by Thematic Coordinator; Time: while developing ToR, and during support for the activity	Concerned field staff's periodic progress reports	Landscape Coordinator; Time: during periodic field visits
Prepare and implement a simple guidelines based on organic farming principles for piloting of cardamom, turmeric and ginger cultivation in forest areas	Landscape Coordinator guided by Thematic Coordinator; Time - once and prior to piloting	Approved guidelines for piloting of cardamom, ginger and turmeric, field staff's periodic reports	Landscape Coordinator; Time: during periodic field visits
Prepare a simple guideline for environmental/social screening of proposed green enterprises activities and implement it	Landscape Coordinator guided by Thematic Coordinator; Time - guidelines - once, screening - prior to providing support to specific activities	Approved guidelines, field staff's periodic reports	Landscape Coordinator; Time: during periodic field visits
Plan and implement translocation and re-introduction of species as per the IUCN general and species-specific re-introduction guidelines	Landscape Coordinators guided by Thematic Coordinator; Time - before and during species re-introduction	Species re-introduction plan as per IUCN guidelines	Thematic Coordinator; Time: as and when species re-introduction is planned
1) Undertake study on a) HWC impact in selected wildlife hotspot areas of CHAL and TAL and b) socio economic impact of power fencing in TAL; 2) Undertake feasibility assessment of institutionalizing effective HWC mitigation measures in areas with severe adverse impacts and institutionalize accordingly	Thematic Coordinator jointly with Landscape Coordinators; Time: as per annual planning	Study/assessment reports, operationalized HWC mitigation mechanisms	Thematic Coordinator; Time: during periodic field visits
Undertake participatory assessment of site specific constraints of grazing pressure management and implement the best possible options in agreement with concerned communities	Landscape Coordinator jointly with consortium partner coordinators; Time: field staff's periodic reports	Assessment reports, agreed options implementation arrangements	Landscape Coordinator; Time: during periodic field visits
Field test the performance of the biological control agent found most suitable under lab conditions prior to its release	Thematic Coordinator jointly with Landscape Coordinators	Field test performance reports	Thematic Coordinator; Time: during periodic field visits

Specific Mitigation Actions	Person responsible to implement mitigation actions; Timing	MoV of implementation of mitigation actions	Person resp. for monitoring the effectiveness of mitigation actions; Time
1. Plan the wetland restoration as guided by the Principles and Guidelines for Wetlands Restoration adopted by Resolution VIII.16 (2002) of the Ramsar Convention; 2. Implement the restoration work accordingly.	Landscape Coordinators in consultation with Thematic Coordinator; Time: in planning and implementation stage as per annual planning	Wetland restoration plans, progress reports	Thematic Coordinator; Time: during periodic field visits
1. Develop simple sub-watershed management activities screening guidelines; 2. Undertake environmental screening before approving the support to proposed activities.	Thematic Coordinator for 1), Landscape Coordinator and consortium partner coordinators for 2)	Sub-watershed activities screening guidelines	Thematic Coordinator; Time: during periodic field visits
1) Develop and disseminate a user's guidebook for planning and operationalization of community-based tourism for use of communities; 2) Screen the in-coming proposals for support as per the guide book prior to promoting	Thematic Coordinator for 1) and Landscape Coordinator and consortium partner coordinators for 2); Timing: once for 1), as per annual plan for 2)	User's guidebook for community based tourism promotion	Thematic Coordinator; Time: during periodic field visits
1) Develop a forest-based KGA proposal screening checklist for use of field officers; 2) Screen the KGA proposals before providing support	Thematic Coordinator for 1) and Landscape Coordinator and consortium partner coordinators for 2); Time: once for 1), as per annual plan for 2)	KGAs screening checklist, field staff's periodic reports	Thematic Coordinator; Time: during periodic field visits
1) Develop a Swertia cultivation proposal screening checklist; 2) Screen the proposals prior to supporting	Thematic Coordinator for 1) and Landscape Coordinator and consortium partner coordinators for 2); Timing: once for 1), as per annual plan for 2)	Swertia cultivation screening checklist	Thematic Coordinator; Time: during periodic field visits
Develop an agro-enterprises screening checklist; Support the proposals that pass the screening	Thematic Coordinator for checklist, Landscape Coordinator jointly with consortium partner staff for screening	Agro-enterprises screening checklist, screening records	Landscape Coordinator; Time: during periodic field visits
Screen the bamboo-based handicraft proposals to ensure they have a sustainable source of bamboo supply	Landscape Coordinator and concerned consortium partner field staff; Time: whenever proposals are received	Bamboo-based handicraft proposal screening checklist	Thematic Coordinator; Time: during periodic field visits
Ensure sustainable supply of raw material required for handicraft making prior to supporting	Landscape Coordinator and concerned consortium partner staff; Time: as and when the activity is planned	Assessment ensuring sustainable supply of raw materials	Landscape Coordinator; Time: before approval for support