

TECHNICAL COOPERATION PROFILE

JULY 10, 2008

I. BASIC PROJECT DATA

- **Country/Region:** El Salvador
- **Program Name/Number:** Flood risk prevention through improved forest vocation land management in El Salvador – ES- T1116
- **Team Leader/Members:** Jose Rente Nascimento (INE/RND), Leader; Tsuneki Hori (INE/RND); Sybille Nuenninghoff (RND/CES); Maria Eugenia Nepote-Cit, (LEG/SGO); and Elizabeth Chavez (INE/RND)
- **Fund Name:** Swedish Trust Fund for Consulting Services (SWC)
- **Beneficiary:** El Salvador

- **Executing Agency:** IDB
- **Financing plan:** IDB: US\$150,000
- **Execution and disbursement deadlines:**

Execution:	12 months
Disbursement:	14 months

II. BACKGROUND

- 2.1 The risk of frequent floods in areas prone to these phenomena is increased when forests or other sustainable use does not cover the forest vocation lands (FVL) found in the related watersheds. In addition, the sustainable use of such lands, which dominate a good portion of the LAC rural landscape, can be a major source of prosperity in those areas. However, FVL have been often subject to destruction or misuse with grave economic, social and environmental consequences, including more intense and frequent floods even when under normal rainfall.
- 2.2 FVL¹ are those that, due to their physical site features such as soil, topography, and the rainfall it receives, should be kept under forest cover or other sustainable

¹ Reference: Nascimento, José Rente (2005). Forest Vocation Lands and Forest Policy: When Simpler is Better. RUR-05-03. Washington, D.C.: Inter-American Development Bank. Available in the Internet at http://www.iadb.org/sds/ENV/publication/publication_210_4298_e.htm

land use if soil or water related negative externalities are to be avoided. FVL classification does not depend on the type of cover the land actually has, nor does it depend on the requirements it may have for agriculture crop or forest production. Therefore, lands with no forest cover or use can still be classified as FVL if their physical features so indicate; while lands covered with forest may not be FVL.

- 2.3 The basic requirement for the proper use of FVL is that they should be covered by forests or be used in such a way as not to generate soil erosion and water conservation related negative externalities for society. When this requirement becomes law as they are in many LAC countries, landowners have their land use options for FVL limited to those that will not generate such externalities. By only being allowed to use FVL with uses that effectively conserve soil and water, landowners are actually internalizing these externalities in their decision making and complying with the Polluter Pay Principle whenever investments in protective measures are required. When FVL land use improves in flood prone watersheds, runoff and erosion are expected to reduce as does the frequency and intensity of floods.
- 2.4 Most LAC country uses, on a smaller or greater degree, the concept of FVL in their forest legislations. However, the actual application of such provisions has been limited by a lack of a comprehensive understanding of this strategy and of operational and pragmatic instruments for their effective implementation. A recent case study for Panama² developed methodologies to identify FVL, establish a base line of their cover, and identify critical areas of high-risk soil and water related negative externalities where FVL have no forest cover. The present operation builds upon the Panama case and adapts the methodologies to prevent or mitigate flood disasters consequences that result from frequent normal floods in El Salvador. It will also provide tools for the design of projects or components that seek to implement such policies for similar purposes in other watersheds in the country or in other nations.

III. OBJECTIVES

- 3.1 The objective of this TC is to contribute to prevent or mitigate disaster risks associated with frequent flood caused by normal rainfall. The TC will support the improvement of land cover in critical areas of forest vocation lands (FVL) with no protective forest cover or other sustainable land use. The operation will finance a pilot proof for: the identification of FVL in a selected flood prone watershed; the establishment of base lines and timely FVL cover and flood monitoring systems; the identification of critical forest vocation lands without forest cover and under risk of erosion and runoff; adjustments of regulations and institutional arrangements to implement FVL based forest policy. The tools development and

² RS-T1259. Instruments for Implementing Forest Vocation Land Policy. Financed by the TC Fund IDB-Netherlands Partnership Program in the Environment

implementation demonstration will provide inputs for the design of projects to extend the application of the policy framework to other watersheds and parts of the country, as well as other interested nations. A project will be prepared to finance the implementation of the policy to other parts of the country. The operation will also promote, train trainers, and disseminate the instruments developed through the Internet.

- 3.2 The long-term objectives are to contribute to improve welfare in rural and urban areas affected by frequent floods by promoting a more sustainable use of FVL to reduce negative forest externalities related to soil and water as well as increasing the competitiveness of forest use in such lands.
- 3.3 The purposes for which the financing is requested are to commission a series of background research papers, develop technical, institutional and legal reform proposals, implement a pilot for a selected watershed of El Salvador, prepare a proposal to extend the application of the methodology to the entire country, and disseminate results to a broader audience through a website.

IV. DESCRIPTION

- 4.1 **Activities:** Contract a consultant firm for the definition of base line regarding flood intensity and frequency (p.e., past 5-10 years) for select watershed; One-time identification of the watershed's FVLs; FVL cover base line; identification of critical areas of FVL without forest cover and under risk of erosion and run-off; Monitoring system for FVL cover to support law enforcement and for flood intensity and frequency; Legal framework and institutional adjustment to implement and enforce a FVL based policy; Land owner supports for improvement of FVL management and dissemination of study results; Project design for extending the FVL policy implementation to other priority flood prone watersheds and/or rest of the country; Training of trainers; And dissemination of operational instruments developed and pilot results through an Internet site.
- 4.2 **Consulting Services required.** The TC will finance the hiring of a consulting firm that has to count with the following professionals: forest planner or economist (to coordinate the team); agriculture economist with experience in economic and financial analysis of agriculture and forest projects as well as fiscal analysis; natural resources remote sensing specialist with experience in forest cover and land use monitoring and GIS applications; soil and topography mapping specialist with experience in remote sensing and GIS applications; flood risk management specialist with experience in flood monitoring systems, lawyer with experience in forest and land use legislation; institutional development specialist capable of designing organizational, and procedural protocols review and adjustments; and a professional website designer.
- 4.3 **Outputs expected:** The principal outputs of the operation are studies, methodologies, operational guidelines and protocols, regulation drafts, trained

personal, project proposal to extend the application to the rest of the country, and a website to disseminate the results. The products are: forest vocation land identified for a selected watershed prone to generate frequent floods with no less than 100,000 ha in area; FVL and flood monitoring systems design and operational procedures established; FVL regulations designed and adopted formally; Conflicting forest and non-forest policies identified and modifications proposed to assure consistency; FVL policy enforcement procedures reengineered and implemented in selected watershed; Institutional analysis and proposal to implement the instruments developed; Policy rules disseminated in selected watershed; Landowners' compliance assistance strategy designed; and Terms of Reference and other parameters for project design and evaluation. Investment project to extend the application of the policy to other parts of the country designed. Terms of Reference, guidelines, protocols, and other tools and parameters for project design; execution and evaluation will also be produced and disseminated through the Internet, and training of stakeholders.

- 4.4 The operation would require an estimated 19 person/month of short-term consultants over a total of 12 months of execution.
- 4.5 This TC responds to a request by the Technical Secretariat of the Presidency and the Ministry of Agriculture and Cattle Ranching (MAG) of El Salvador, and will be executed by the Bank. In accordance to T/C Funds norms, INE/RND will select, hire the consulting firm required, and undertake the disbursements of the resources. The GOES, through the MAG, will collaborate with the coordination of the work, and participate in the validation of the methodology.

V. JUSTIFICATION

- 5.1 Flood disasters are important sources of devastation and reduction of welfare in Latin America. During the 1900-98 period, floods and landslides caused 43% of the total number of registered natural events. Moreover, hydro-meteorological hazards could be increased as a result of the climate change.
- 5.2 Periodic floods are import for El Salvador because they generate major damages and losses in affected areas. According to the National Territory Study Service, the country suffers an average of 20-30 floods per year. The misuse of FVLs in the watersheds of the country is considered a major factor contributing to the frequency and intensity of the floods. According to FAO³, El Salvador is the Central American country with the least forest cover (only 14.4%, summing only 298,000 ha in 2005) and that has the second highest deforestation rate in that region.
- 5.3 There are two basic types of floods disasters: those associated with major and sporadic climate phenomena (hurricanes, severe rainfall); and those that occur

³ FAO. 2006. Global Forest Resources Assessment 2005: progress towards sustainable forest management (FRA 2005). FAO Forestry Paper 147. Rome.

frequently and result from normal rainfall. This operation is designed to implement a strategy to prevent the devastating consequences of frequent floods that result from normal rainfall, even though it also contributes to mitigate the consequences of severe weather associated floods as well as improve welfare of TVF landowners.

- 5.4 Forest vocation lands are those that, because of their soil, topography and rainfall erosivity, are more prone to erosion and generating runoff if they do not have a forest cover or another sustainable land use. The erosion and runoff generated in FVL at risk because they do not have a forest cover contribute materially to the frequency and intensity of floods and, thereby, the resulting devastating welfare consequences. This operation will assist the GOES to develop demonstrate the effectiveness of a forest policy based on the concept of FVL as one of the tools to prevent the frequent flood risks resulting from normal rainfall. It will set technical, monitoring, institutional and legal instruments, and apply them on pilot scale. The results of the pilot operation will facilitate the application of the strategy to other parts of the country and serve as motivation for other LAC countries in the application of similar policies as an instrument to manage frequent flood disaster risks. The operation will allow the GOES and other governments in the region to design projects to implement their FVL policies. The TC will also provide partial input for the preparation of a loan project.
- 5.5 Government costs for the implementation of a FVL based policy are relatively small. There are two basic types of costs involved: FVL identification costs and enforcement costs. There is an initial one-time cost to identify only the forest vocation lands located outside officially created protected areas⁴ and others⁵. The first task in identifying FVL in the field would be to map the landscapes with slopes greater than 30% and those between 8% and 30%. Slope gradient can be identified through remote sensing at relatively low cost. Areas with slopes between 8% and 30% can be matched with soil erodibility maps to identify those that are at greater risk for soil erosion. If rainfall varies substantially within the study area, this factor can be added to help to identify the FVL in this second set. Otherwise, a simple rule of thumb may be devised to limit the decision to soil erodibility and slope gradient. The general methods to undertake these tasks are well known, since they are a subset of methods used in other soil classifications, and they have been already successfully applied in the case of Panama (<http://www.stcp.com.br/bid/>).
- 5.6 FVL-based policy enforcement costs are also substantially smaller than traditional forest law enforcement that requires the control of the entire custody chain. There are many ways to enforce the requirement of forest cover on FVL. Law enforcement costs are expected to be smaller because the lack of forest cover resulting from the misuse of FVL is relatively simple to detect by remote sensors

⁴ Protected areas are under a separate regimen of use and do not need to be identified because they are assumed to be already avoiding soil and water conservation problems.

⁵ Such as water bodies (rivers, lakes), urban areas, dry or desert regions, etc.

and on the ground. Law enforcers can be easily directed by remote screening to FVL without forest cover by the georeferential address to verify whether current use generates soil erosion and water conservation related negative externalities. Therefore, enforcers need to be concerned only with FVL without a forest cover, not having to expend resources with non-FVL, regardless of their use or cover.

- 5.7 As in several other LAC countries, the forest legislation of El Salvador applies the concept of forest vocation land (locally called land capability classes VI-VIII) as one of its basic strategies. The law establishes that FVL are important for soil erosion and watershed protection, and should be used sustainably. The application of such a directive would improve land use in the country, increase forest use feasibility and landowners' income, increase the production of forest based externalities (soil and water conservation, carbon sequestration and stock maintenance, and biodiversity), and reduce negative externalities associated with the misuse of the landscape. However, this legal directive has not been fully implemented in the country, among other problems, because it does not count with an operational normative framework. Neither landowners nor forest authorities know where the FVL are or understand the full implications of the strategy. This confusion has led to uncertainty and misapplication of enforcement activities.
- 5.8 This operation contributes to promote economic growth through improved environmental management and prevention of natural disasters as established in paragraphs 4.15 and 4.16 of the Strategic Objective I--Promote sustainable economic growth by increasing competitiveness--of IDB's Strategy for El Salvador (GN-2384-1). It will develop operational instruments that will be useful for the design and implementation of forest projects in LAC that include the full application of FVL based policies for the purpose of preventing flood disasters and generating poverty reduction benefits by improving the sustainability of their land cover.
- 5.9 This operation will assist the GOES to develop the norms, procedures and institutional mechanisms and apply them on pilot scale in a selected watershed prone to frequent floods for a total of no less than 100,000 hectares so that it can evaluate and select the best alternatives for the full implementation of policy. The results of the pilot operation will facilitate the application of the strategy to other parts of the country and serve as example for other LAC countries in the application of similar policies to contribute to prevent frequent flood disaster damages. The operation will allow the GOES and other governments in the region to design, execute and monitor projects to implement their FVL policies with such a purpose.

VI. ENVIRONMENTAL AND SOCIAL ASPECTS

- 6.1 The TC will have no substantial negative environmental or social impacts. The operation will create and demonstrate the application of tools, regulations and institutional arrangements that facilitate the sustainable use or cover of forest vocation lands reducing soil erosion and water related negative externalities and, thereby, contributing to prevent frequent floods damages. The proper use of the land will also help landowner increase production and productivity, and create additional associated business opportunities; thereby reducing rural based poverty and improving the environment. It will also reduce the risks in urban and rural areas prone to flood damages. Therefore, this operation is proposed to be classified as category "C".

VII. BUDGET

US\$1.00

Description	IDB (Swedish Trust Fund for Consulting Services (SWC))
Honorariums:	128,000
- Forest Econ. Coordinator (5 months x 7,000)	35,000
- Natural resources monitoring specialist (3 months x 6,000)	18,000
- Agriculture economist (3 months x 6,000)	18,000
- Soil mapping specialist (2 months x 6,000)	12,000
- Flood risk management specialist (3 months x 6,000)	18,000
- Lawyer (2 months x 6,000)	12,000
- Institutional development expert (2 months x 6,000)	3,000
- Website design (for task @ 3000)	
A. Per Diem	5,120
- 40 days in El Salvador (average 100)	4,000
- 4 days in Washington, D.C. (280)	1120
B. Travel expenses	8,400
- El Salvador*	6,000
- Washington, D.C.	2,400
C. Workshops, supports, contingency, promotion activities	8,480
D. TOTAL	150,000

VIII. RESPONSIBILITY IN THE BANK

- 8.2 Technical Responsibility: Mr. José Rente Nascimento from the Environment, Rural Development, Disaster Risk Management Division - Infrastructure and Environment Sector (INE/RND), tel. (202) 623-3752, Fax (202) 623-1417, email renten@iadb.org, is the Bank officer assigned to the operation.
- 8.2 Responsibility for Disbursements: INE/RND is responsible for disbursements.

IX. RECOMMENDATION

- 9.1 José Rente Nascimento, designated team leader for the project of the reference, recommends the approval of this operation and the use of resources from the Swedish Trust Fund for Consulting Services (SWC) totaling up to USD 150,000 in order to finance the corresponding project.

X. CERTIFICATION

- 10.1 I hereby certify that this operation was approved for financing under the Swedish Trust Fund for consulting Services (SWC) in Environment through an email from Jerker Soderlund, Program coordinator for Nicaragua, Swedish International Development Agency, dated on June 11 2008. Also, I certify that resources from the Swedish Trust Fund for consulting Services (SWC) are available for up to USD150,000 (one hundred fifty thousand dollars) in order to finance the activities described and budgeted in this document. This certification reserves resources for the referenced project for a period of eleven and a half (.11.5) calendar months counted from the date of signature below. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country.

- 10.2 No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this Plan of Operations. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

ORIGINAL FIRMADO	01/Jul/08
_____ Marguerite S. Berger, Chief, VPC/GCM	_____

XI. APPROVAL

ORIGINAL FIRMADO	02/Jul/08
_____ Hector Malarin, Chief, INE/RND	_____