UNIVERSIDAD NACIONAL DE COLOMBIA SEDE BOGOTÁ

Fundesurco Nariño

FUNDACIÓN PRO DEL SURCO NARIÑO

McGill

Improving potato production for increased food security of indigenous communities in Colombia

Environmental Management

Henry Corredor Triana

IDRC CRDI Project supported by **International Development Research Centre -** www.idrc.ca

Canada

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Third parties

UNB FREDERICTON

CENTRO INTERNACIONAL DE LA PAPA CIP

Collaborators

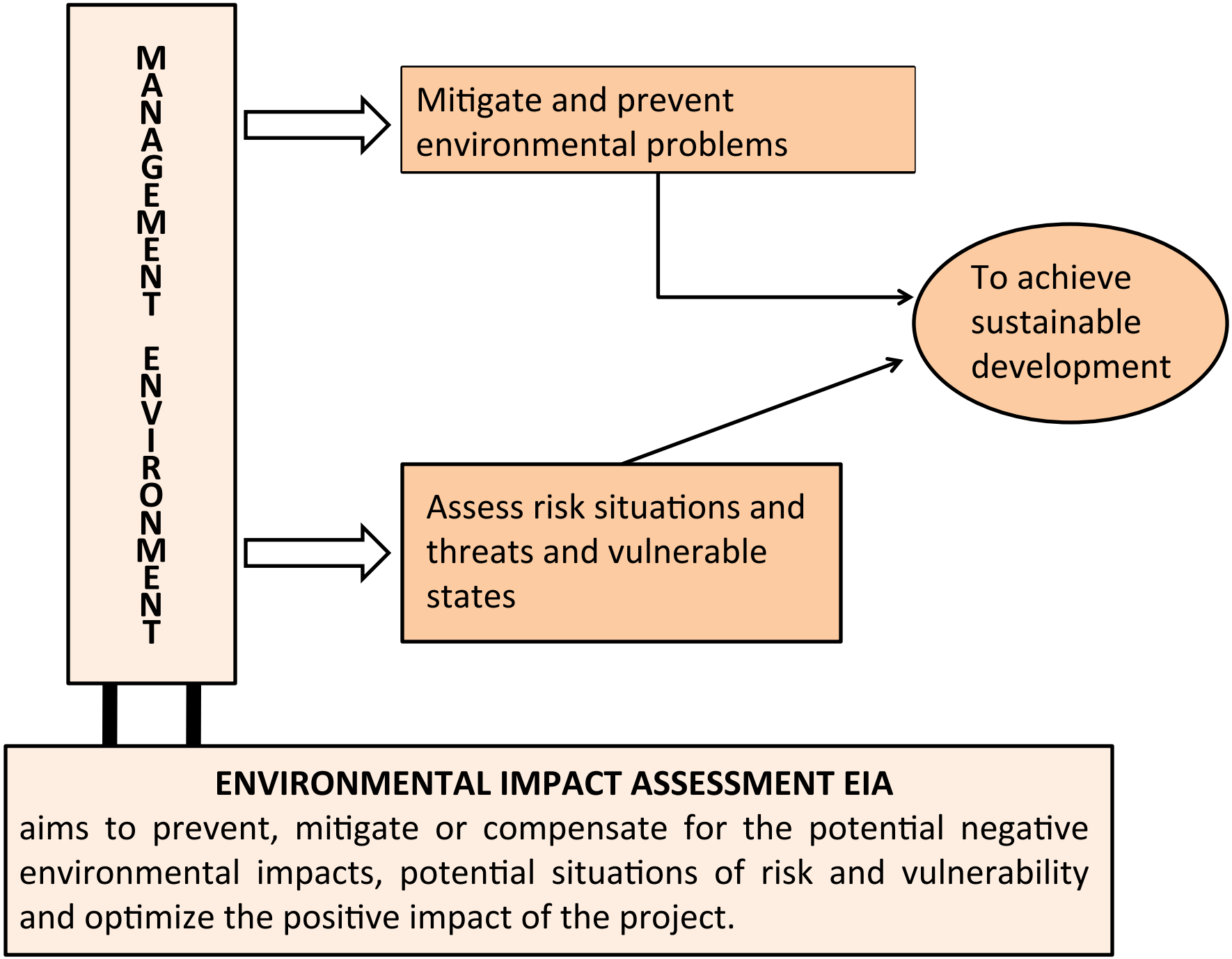
Universidad de Nariño

Nariño

Alcaldías municipales:

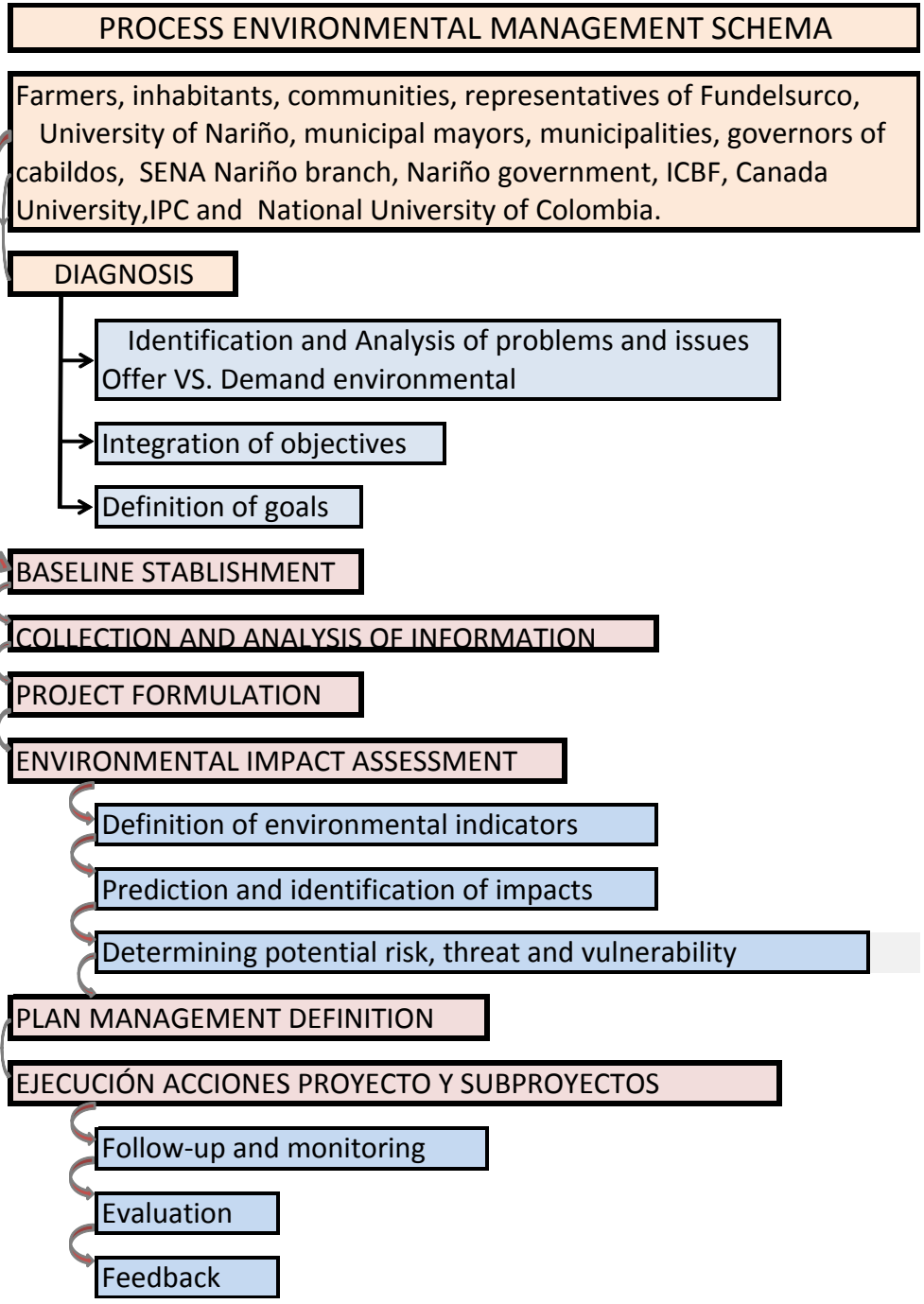
- Carlosama
- Cumbal
- Guachucal
- Pasto
- Túquerres

IDRC CRDI Project supported by **International Development Research Centre** - www.idrc.ca Canada


MANAGEMENT ENVIRONMENT
Mitigate and prevent environmental problems
To achieve sustainable development
Assess risk situations and threats and vulnerable states
ENVIRONMENTAL IMPACT ASSESSMENT EIA
aims to prevent, mitigate or compensate for the potential negative environmental impacts, potential situations of risk and vulnerability and optimize the positive impact of the project.

Objetives

- Propose proactive management guidelines focused on the decrease of environmental responsibilities, where preventive measures are priorities.
- Optimize the potential benefits of positive impacts.
- Establish a system of environmental indicators for the evaluation of the environmental management of the project within the framework of sustainable development.
- Establish a system of monitoring and control based on three types of defined environmental indicators.
- Propose mechanisms for a continuous improvement of the activities to develop during the life cycle of the project.


PROCESS ENVIRONMENTAL MANAGEMENT SCHEMA
Farmers, inhabitants, communities, representatives of Fundelsurco, University of Nariño, municipal mayors, municipalities, governors of cabildos, SENA Nariño branch, Nariño government, ICBF, Canada University,IPC and National University of Colombia.
DIAGNOSIS
Identification and Analysis of problems and issues Offer VS. Demand environmental
Integration of objectives
Definition of goals
BASELINE STABLISHMENT
COLLECTION AND ANALYSIS OF INFORMATION
PROJECT FORMULATION
ENVIRONMENTAL IMPACT ASSESSMENT
Definition of environmental indicators
Prediction and identification of impacts
Determining potential risk, threat and vulnerability
PLAN MANAGEMENT DEFINITION
EJECUCIÓN ACCIONES PROYECTO Y SUBPROYECTOS
Follow-up and monitoring
Evaluation
Feedback

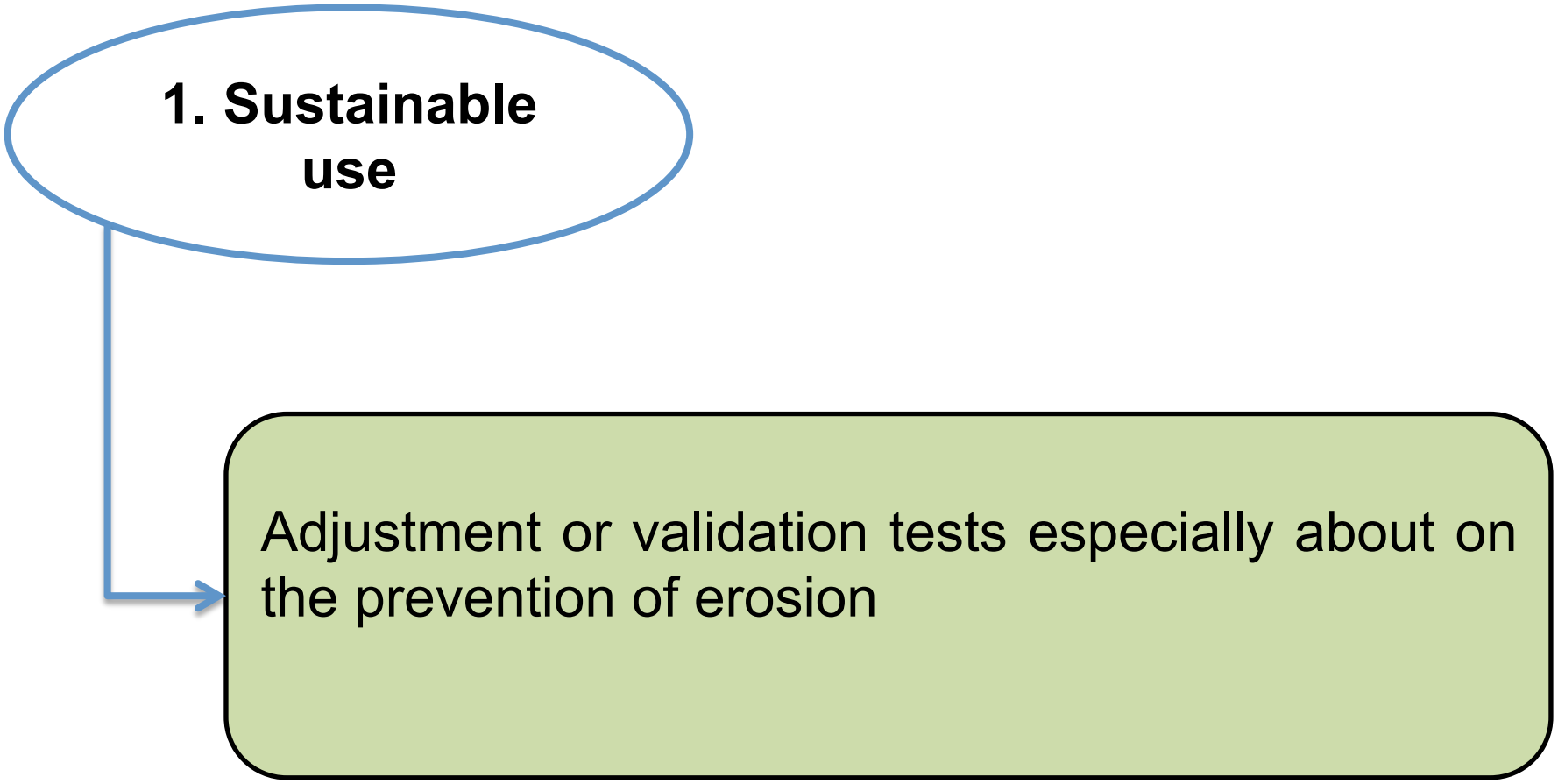
Integration of objectives

- Supporting the communities involved in the sustainable use and conservation of the ecosystem.

- Create and improve processes to permanently enable the participating institutions responsible of environmental and social management.

- Supporting plant breeding research in potato in search of cultivars that will mitigate likely effects in the environment associated with climate change and the use of pesticides.

Definition of goals



2. Educación

- Promotion and appropriation of good agricultural and post-harvest practices.
- Encourage the preservation of the genetic pool of non-commercial potatoes.
- Prevention on health of producers and their families.
- Awareness on accountability in the management of waste, water and soil.

3. Promote participation of local institutions, regional institutions and other entities in the project.

To promote the planning and implementation of activities to reduce the mismanagement of natural resources.

Share learning and ownership of standards and procedures related to environmental sustainability.

4. Development of research for the future

Enhancement of natural resistance mechanisms of potato to the disease caused by the pathogen *P. infestans.*

Improvement in other crops besides potato

Environmental impact assessment EIA

Achieve a comprehensive and total evaluation of the environmental resources that can be affected by the development of the activities of the project or sub-project.

Assessment of risk, threats anthropogenic or natural, states of vulnerability, situations can jeopardize the sustainability of the project .

METODOLOGY

It is based on the definition and use of environmental indicators.

An **indicator of environmental impact** refers to the change in the quality of an environmental element.

Environmental indicator categories PSR

Pressure indicators	State indicators	Indicators of response
Which or what the project or sub-project activity exert direct or indirect pressure and affecting the quality of the environmental elements?	What state have kept the environmental elements once they have been affected?	What measures or activities are proposed in the project or sub-projects to mitigate, compensate or solve environmental problems and to strengthen their potential?

Environmental indicators examples

BIODIVERSITY		
STATE	**PRESSURE**	**RESPONSE**
Decrease in area of natural terrestrial ecosystems. Plant and animal species at risk.	Change of land use. Growth of the road network. Invasive species in terrestrial ecosystems.	National program for the preservation of terrestrial protected areas

Environmental indicators examples

SOILS		
STATE	**PRESION**	**RESPONSE**
-Agricultural area expansion -Hazardous solid waste - Land use problems	-Problems between farmers due to intensive use of tractors - Surface of the ground affected by plows	-Sowing grasses as good practice for soil conservation. -Areas incorporated within institutional programs for conservation - Soils restoration program.

Environmental management plan

The environmental management plan is made based on the positive or negative environmental effects identified in the analysis of the environmental demand required for the development of the project on the environmental offer.

Certain actions of the environmental management plan so far are based on the environmental impacts generated by:

- Liquid and solid waste management,
- Agrochemicals use and application
- Weed control
- Erosion control practices
- Carry out actions on the socio-economic component.

Each of the actions of the environmental management plan is reported in tabs and its content must include at least the following items:

Minimum content of the tabs of the management plan

- Date
- Responsible person
- Negative impact to mitigate
- Form of execution
- Type of corrective action
- Application of corrective measures
- Control and monitoring of implemented actions
- Inter-institutional collaborations or agreements
- Responsibility for the implementation of such measures

MODEL TAB FOR MEP TECHNIQUE

FILE No.: Water pollution				
Date	Responsable	Form of execution		
Type and correction & mitigation measure		Opportunity applic. Med. Corrective		
Control & monitoring applied measure		Interinstitutional agreement		
SIGNIFICANT ENVIRONMENTAL ASPECTS			**ENVIRONMENTAL ASSESSMENT SYNTHESIS**	
Water pollution			*Alteration of the chemical and physical water properties in sorrounding water. *Social and civil problems because of water uses *Change in biodiversity of streams and pond water	
IMPACT ASPECTS	Assessment	-		
	Duration	**media**		
	ocurrence	**low**		
	Threatens	**high**		
MANAGEABILITY	Measured	**residual**		
	Grade	**high**		
RISK MANAGEMENT WITH	Terrestrial ecos.			
	Aquatic ecos.	**medium**		
	Social	**medium**		
OBJECTIVE OF THE STRATEGY		RELATIONSHIP OF GENERAL ACTIVITIES		
Avoid alterations in the physical and biological characteristics of rivers and creeks as a result of the use and handling of pesticides and storage of potentially toxic containers.		1		
		2		
		3		
		4		
Responsible				

Environmental Monitoring Programme

Assessment of the evolutionary process of environmental indicators

CONTROL AND MONITORING

- Evaluate compliance with instructions and protective measures for the EMP.
- Verify severity and impact distribution that especially occur when unanticipated.
- Ensure the development of new mitigation measures or compensation due to them where needed.

FEEDBACK OF RESULTS

Verification of the fulfillment of the objectives of the project.


Thank you for your attention