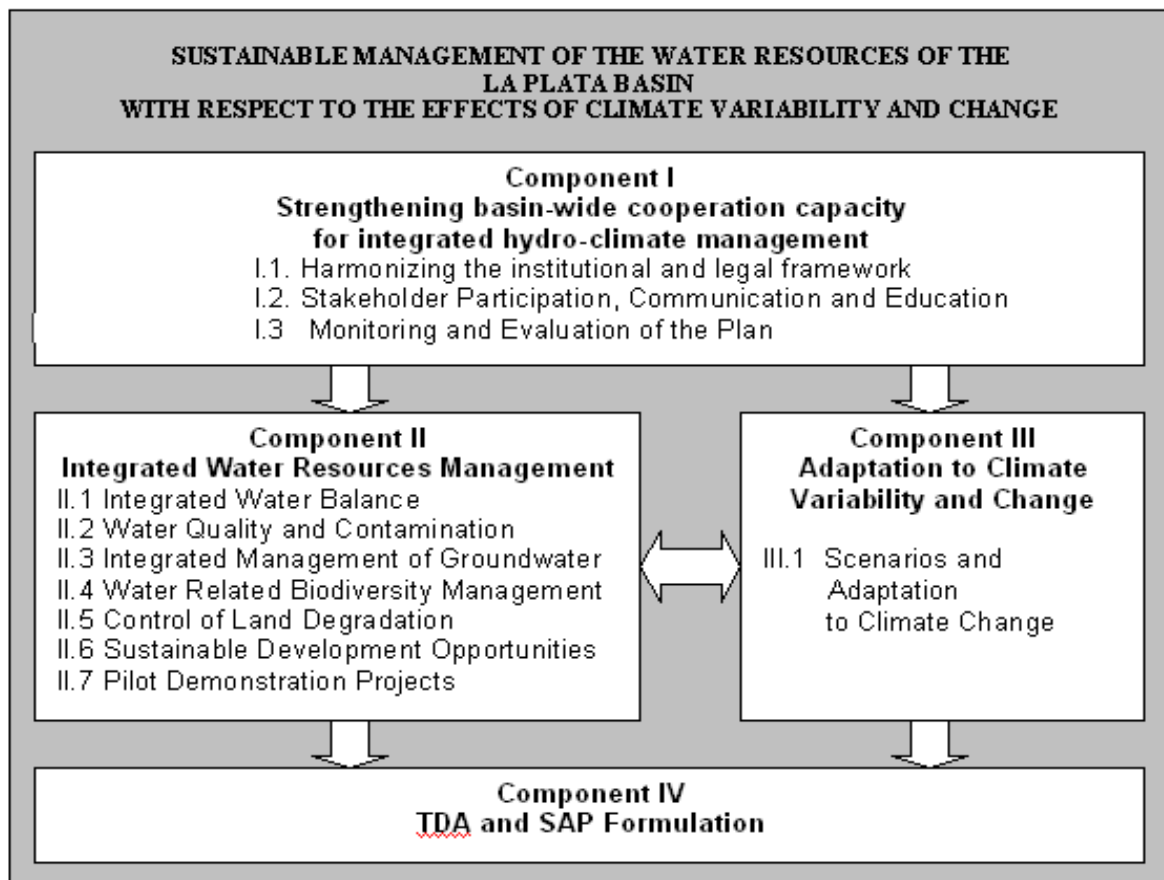


**ANNEX 7**  
**PROJECT COMPONENTS, SUBCOMPONENTS, AND WORK ELEMENTS**



## Components Subcomponents, Work Elements and Activities

| Subcomponent | Work Element | Activities                                                                                   |
|--------------|--------------|----------------------------------------------------------------------------------------------|
| <b>I</b>     |              | <b>STRENGTHENING BASIN-WIDE COOPERATION CAPACITY FOR INTEGRATED HYDRO-CLIMATE MANAGEMENT</b> |
|              | I.1          | Harmonizing the institutional and legal framework                                            |
|              | I.1.1        | Strengthened technical institutional capacity for LPB-IWRM                                   |
|              |              | a) Facilitate basin-wide cooperation for adaptive-IWRM                                       |
|              |              | b) Balancing national capabilities for TDA and SAP preparation.                              |
|              |              | c) Implement institutional capacity building program                                         |
|              |              | d) Organize inter-institutional knowledge exchange program                                   |
|              | I.1.2        | Conceptual legal framework                                                                   |
|              |              | a) Compile and prepare an adaptive-transboundary IWRM conceptual legal framework             |
|              |              | b) Agree on recommendations for conceptual legal framework                                   |
|              | I.1.3        | The LPB-Decision Support System                                                              |
|              |              | a) Coordinate and assess LPB national databases under institutional and legal agreements.    |
|              |              | b) Operationalize LPB-decision support system (LPB-DSS)                                      |
|              |              | c) Complete water resources uses and stakeholders reference system                           |
|              |              | d) Compile digital map for LPB                                                               |
|              | I.2          | Stakeholder Participation, Communication and Education                                       |
|              | I.2.1        | Public participation program                                                                 |
|              |              | a) Engage stakeholders involvement in managing the LPB                                       |
|              |              | b) Document good practices and lessons learnt for preparing the TDA and SAP                  |
|              |              | c) Prepare and implement communication plan                                                  |
|              |              | d) Engage local participation in priority activities and pilot demonstrations                |
|              | I.2.2        | Public awareness education programme                                                         |
|              |              | a) Compile and prepare education and training material                                       |
|              |              | b) Sign conventions and agreements between CIC and institutions for knowledge exchange       |
|              | I.2.3        | Public participation fund (PPF) for IWRM                                                     |
|              |              | a) Establish a PPF for IWRM                                                                  |
|              |              | b) Organize and facilitate the first call for proposals                                      |
|              |              | c) Organize and facilitate the second call for proposals                                     |
|              | I.3          | Monitoring and evaluation plan                                                               |
|              | I.3.1        | Project progress monitoring networks                                                         |
|              |              | a) Collect and analyze data                                                                  |
|              | I.3.2        | Performance evaluations                                                                      |
|              |              | a) Evaluate progress toward achieving project objective                                      |
|              |              | b) Conduct Mid-term and Project Implementation Reviews                                       |
| <b>II</b>    |              | <b>INTEGRATED WATER RESOURCES MANAGEMENT</b>                                                 |
|              | II.1         | LPB integrated water balance methodology                                                     |
|              | II.1.1       | Operational integrated water balance (IWB) methodology                                       |
|              |              | a) Develop a IWB methodology                                                                 |
|              |              | b) Agree to and adopt IWB methodology                                                        |

## Components Subcomponents, Work Elements and Activities

| Subcomponent | Work Element | Activities                                                                                     |
|--------------|--------------|------------------------------------------------------------------------------------------------|
|              | II.1.2       | IWB for LPB                                                                                    |
|              |              | a) Compile information and generate database                                                   |
|              |              | b) Develop capacity for understanding LPB's water balance                                      |
|              |              | c) Calculate Phase 1: surface water balance                                                    |
|              |              | d) Asses water use and demand                                                                  |
|              | II.1.3       | IWB information disseminated                                                                   |
|              |              | a) Disseminate water balance information                                                       |
| II.2         |              | Water quality assessment and monitoring                                                        |
|              | II.2.1       | Water quality information base                                                                 |
|              |              | a) Strengthen water quality riparian institutions                                              |
|              |              | b) Integrate basin-wide water quality monitoring network (in coordination with I.1.3 (b))      |
|              |              | c) Inventory sources of pollution                                                              |
|              | II.2.2       | LPB environmental degradation model                                                            |
|              |              | a) Inventory existing environmental degradation models used in the LPB                         |
|              |              | b) Develop an environmental degradation forecasting model                                      |
|              |              | c) Consolidate and integrate data systems into the LPB-DSS                                     |
|              | II.2.3       | Water quality action plan                                                                      |
|              |              | a) Identify legal framework for water quality objectives                                       |
|              |              | b) Prepare a water quality management training program                                         |
|              |              | c) Train and disseminate water quality information                                             |
|              |              | d) Prepare water quality action plan                                                           |
| II.3         |              | Integrated groundwater management                                                              |
|              | II.3.1       | Priority Activity: Sustainable Management of the Yrenda – Toba-Tarijeno Aquifer (SAYTT) system |
|              |              | a) Establish technical coordination unit                                                       |
|              |              | b) Conduct a transboundary hydro-geologic analysis                                             |
|              |              | c) Analyze the transboundary groundwater's legal, institutional and socio-economic situation   |
|              |              | d) Conduct consultations and synthesize information                                            |
|              |              | e) Prepare a SAYTT strategy                                                                    |
|              |              | f) Prepare and execute a SAYTT pilot demonstration                                             |
|              | II.3.2       | Guidelines for integrated basin-wide groundwater management of the LPB                         |
|              |              | a) Conduct transboundary hydro-geologic analysis for the entire basin                          |
|              |              | b) Characterize basin aquifers                                                                 |
|              |              | c) Integrate regional experiences                                                              |
|              |              | d) Prepare guidelines for conjunctive management of surface and groundwater                    |
| II.4         |              | LPB ecosystem management                                                                       |
|              | II.4.1       | North-south wetland corridor management strategy                                               |
|              |              | a) Compile and integrate existing basin ecosystem information                                  |
|              |              | b) Design a north-south wetland corridor management strategy                                   |
|              | II.4.2       | Priority Activity: "Cultivando Agua Boa (CAB)" in the Itaipu dam's reservoir sub-basin         |

## Components Subcomponents, Work Elements and Activities

| Subcomponent | Work Element | Activities                                                                                                                |
|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------|
|              |              | a) Plan and design CAB priority activity                                                                                  |
|              |              | b) Identify and plan specific farm intervention                                                                           |
|              |              | c) Implement specific farm interventions                                                                                  |
|              |              | d) Monitor and evaluate intervention activities                                                                           |
|              | II.4.3       | Sustainable biodiversity management strategy for the LPB                                                                  |
|              |              | a) Prepare sustainable management framework for biodiversity / fisheries / aquaculture resources                          |
|              |              | b) Design of an ecological corridor for biodiversity conservation and water protection in the upper catchments of the LPB |
| II.5         |              | Controlling Land Degradation                                                                                              |
|              | II.5.1       | Land degradation diagnostic analysis                                                                                      |
|              |              | a) Assess and compile basin-wide data and information on land degradation                                                 |
|              |              | b) Evaluate the soil erosion processes in the basin                                                                       |
|              |              | c) Collect, compile and disseminate information on best-practices for land degradation control for the LPB                |
|              | II.5.2       | Priority Activity: “Selva Misionera Pranaense (SMP)”                                                                      |
|              |              | a) Compile and analyze available technical information                                                                    |
|              |              | b) Prepare SMP pilot activity                                                                                             |
|              |              | c) Implement SMP pilot activity                                                                                           |
|              | II.5.3       | Basin-wide land degradation control strategy                                                                              |
|              |              | a) Compile and integrate information and lessons learnt                                                                   |
|              |              | b) Prepare basin-wide land degradation control strategy                                                                   |
| II.6         |              | Sustainable Development Opportunities                                                                                     |
|              | II.6.1       | Priority Activity: Clean-technologies to mitigate climate change                                                          |
|              |              | a) Explore opportunities for clean-technologies to capture greenhouse gases in the basin                                  |
|              |              | b) Select areas for mutual cooperation and secure financing                                                               |
|              | II.6.2       | Priority Activity: Nautical Ecotourism (NE) in the Lower Uruguay River/Parana Delta                                       |
|              |              | a) Study the socio-economics aspects of nautical/cultural tourism                                                         |
|              |              | b) Study the environmental aspects of nautical/cultural tourism                                                           |
|              |              | c) Assess the opportunities and investment potential                                                                      |
|              |              | d) Develop proposals for eco-cultural nautical tourism                                                                    |
|              |              | e) Implement and prepare implementation and financial framework to replicate priority activity                            |
| II.7         |              | Pilot demonstrations and scaling-up strategy                                                                              |
|              | II.7.1       | Pilot Demonstration: Biodiversity conservation in the regulated Parana River                                              |
|              |              | a) Establish pilot-demo coordination unit                                                                                 |
|              |              | b) Evaluate of basin’s ichthyic fauna habitats                                                                            |
|              |              | c) Define a socio-economic legal framework for the basin’s biodiversity                                                   |
|              |              | d) Prepare a biodiversity management plan and scale-up strategy                                                           |
|              |              | e) Monitor and evaluate pilot demonstration                                                                               |
|              | II.7.2       | Pilot Demonstration: Hydrologic alert system at confluence                                                                |

## Components Subcomponents, Work Elements and Activities

| Subcomponent | Work Element | Activities                                                                                                                                   |
|--------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|              |              | of Paraguay and Parana Rivers                                                                                                                |
|              |              | a) Establish pilot-demo coordination unit                                                                                                    |
|              |              | b) Develop an operational forecasting and hydrological observation model                                                                     |
|              |              | c) Develop an operational model for contaminant spill                                                                                        |
|              |              | d) Develop DSS for a bi-national hydro-environmental alert system                                                                            |
|              |              | e) Prepare contingency plans                                                                                                                 |
|              |              | f) Prepare hydrological alert system manual and scale-up strategy                                                                            |
|              |              | g) Monitor and evaluate activity                                                                                                             |
|              | II.7.3       | Pilot Demonstration: Water Use Conflict Resolution in the Rio Cuareimi/Quarai Basin                                                          |
|              |              | a) Establish pilot-demo coordination unit                                                                                                    |
|              |              | b) Formulate an integrated management system                                                                                                 |
|              |              | c) Assess sustainable use of water resources in pilot area                                                                                   |
|              |              | d) Put in place mechanisms for water resources conservation                                                                                  |
|              |              | e) Monitor and evaluate activity and prepare scale-up strategy                                                                               |
|              | II.7.4       | Pilot Demonstration: Control Contamination and Erosion in the Pilcomayo River                                                                |
|              |              | a) Establish pilot-demo coordination unit                                                                                                    |
|              |              | b) Identify control and mitigation measures for mine contamination in Tans and train Tasana stakeholders on environmental management systems |
|              |              | c) Evaluate and approved integrated management plan for the Tupiza and Cotagaita basins                                                      |
|              |              | d) Design and implement, in coordination with subcomponent II.2, a water quality monitoring system for the pilot area                        |
|              |              | e) Monitor and evaluate and prepare scale-up strategy                                                                                        |
| <b>III</b>   |              | <b>HYDROCLIMATIC MODELS AND SCENARIOS FOR ADAPTATION PLANNING</b>                                                                            |
|              | <b>III.1</b> | Hydro-climatic scenarios                                                                                                                     |
|              | III.1.1      | Basin-wide climate scenarios                                                                                                                 |
|              |              | a) Plan and provide training for climate issues                                                                                              |
|              |              | b) Complete a basin-wide gap analysis of basin models                                                                                        |
|              |              | c) Using the LPB-CLARIS model, develop hydro-climatic scenarios for the LPB                                                                  |
|              | III.1.2      | Vulnerability assessment                                                                                                                     |
|              |              | a) Prepare hydrological alert risk map from hydro-climatic scenarios                                                                         |
|              |              | b) Estimate climate change impacts                                                                                                           |
|              | III.1.3      | Adaptation measures and public awareness                                                                                                     |
|              |              | a) Formulate a set of adaptation measures to be incorporated into the SAP                                                                    |
|              |              | b) Communicate with public on issues and adaptation measures                                                                                 |
| <b>IV</b>    |              | <b>TRANSBOUNDARY DIAGNOSTIC ANALYSIS (TDA) AND STRATEGIC ACTION PROGRAMME (SAP) FORMULATION</b>                                              |

## Components Subcomponents, Work Elements and Activities

| Subcomponent | Work Element | Activities                                                                                                                                       |
|--------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| IV.1         |              | TDA and SAP                                                                                                                                      |
|              | IV.1.1       | Hydro-climatic assessment for TDA                                                                                                                |
|              |              | a) Prepare hydro-climatic assessment for TDA                                                                                                     |
|              |              | b) Generate forecasts and adaptation scenarios                                                                                                   |
|              |              | c) Identify vulnerabilities and risks                                                                                                            |
|              |              | d) Compile and integrate supplemental studies that support the TDA                                                                               |
|              |              | e) Riparian counterparts endorse TDA                                                                                                             |
|              | IV.1.2       | SAP formulated                                                                                                                                   |
|              |              | a) Collaborate with stakeholders, incorporate TDA-identified issues, and findings from priority activities and pilot-demonstrations into the SAP |
|              |              | b) Riparian counterparts endorse SAP and pledge financing                                                                                        |