1. Country and Sector Background

Argentina’s Exposure to Flood Risk. Flooding is the major natural hazard in Argentina, where the phenomenon poses a major challenge to development. Since 1957, Argentina has had 11 major floods. The floodplains in the country cover over a third of Argentina. That area contains the most developed agricultural and industrial zones in the country, an extensive transportation network and two major hydroelectric dams. Of the 11 major floods in Argentina, three have caused direct damage in excess of US$ 1 billion each: the 1983 flood, US$ 1.5 billion; the 1985 flood, US$ 2 billion; and the 1998 flood, US$ 2.5 billion. According to the statistics of Swiss-Re (1998), Argentina ranks 18th in the world in potential flood losses, in excess of A$ 3 billion a year (US$ 3 billion in 1998). Argentina is also one of 14 countries whose potential flood losses are greater than 1 percent of GDP. In Latin America, only Ecuador has a higher GDP exposure from flood risk. In pure potential economic loss terms, Argentina has the highest risk in Latin America.

Flooding issues for the Littoral Provinces. The provinces of the Paraná/Paraguay River basin are exposed to a high level of risk due to floods. The Littoral Provinces area has the most developed agricultural and industrial zones and contains a wide range of resources. However, its flood plain increases dramatically with a width varying from 13 km in Corrientes to about 56 km in Rosario. In addition, the basin is an area of heavy precipitation almost throughout the year as
a result of rain-producing systems of tropical and extra tropical origins. Consequently flood plains along the Paraná River are periodically inundated.

**Government and Provinces Strategy.** The Government of Argentina, together with the City of Buenos Aires and the Littoral Provinces, have started addressing flooding issue since 1992 with strong commitments expressed through an ambitious investment financing and a renewed institutional organization. The strategy was aimed at evolving from a disaster response to a risk prevention approach, introducing a water basin approach and strengthening the institutions (see box below). The water basin strategy would help prioritize interventions in the rural and urban areas. The institutional strengthening would focus on the provincial level to improve the risk management capacity and better coordinate among jurisdictions, and would expand the scope of the strategy to the city level to reach the urban areas that are more vulnerable.

**Financing Flood Protection Measures.** The Government’s investment in Flood protection program has been of US$630 million since 1992. Based on the comprehensive water basin study exposed above, the Littoral Provinces, Buenos Aires, Chaco, Corrientes, Entre Ríos, Formosa, Misiones, Santa Fe and the City of Buenos Aires developed a risk management strategy. From the program of flood defense investments and non-structural measures proposed by the study, they identified a priority list of measures that have been in part financed with the assistance of the Bank (Flood Protection Project, loan 4117-AR), and that are still being implemented.

In addition, a group of Provinces, from the Northeast region, Chaco and Misiones, the Northwest and Central regions, Tucumán, Salta, La Rioja, Córdoba and from Patagonia, Chubut, have coordinated their efforts to increase the protection of their most sensitive areas from the El Niño event. They identified a series of physical measures and agreed to launch a Water Basin Management study, the NOA study (Noroeste de Argentina). They agreed with the Bank on the objective to prepare a loan before the full effect of El Niño to offset the potential damage (El Niño Emergency Project, loan 4273-AR). The NOA study was only partially completed in the project implementation time.

The Argentinean Government expanded the strategy to assist the Cities in improving urban drainage countrywide, including the preparation of Urban Master Plans, and the definition of drainage network improvement programs. The Government received the support of a Japanese grant (PHRD, grant TF25819) in 2000 to finance pilot cities and prepare a potential project. While the project preparation was stopped in 2002 due the economic crisis, the feasibility study could be fully carried out, and the Government could benefit from the end products, such as total or partial Urban Drainage Master Plans for 15 cities. The preparation of the APL built on these results.

**Urban Flood Prevention and Drainage Program (APL).** Finally, the Government committed itself on a new program aimed at increasing economic resilience to flooding, by putting an emphasis on risk prevention, and developing a strategy which would lead the Provinces from protection to a full risk management scheme. This program targets the urban areas of the most exposed provinces for US$200 million. It is by nature geographical and is aimed at addressing Capital City/Provinces flooding issue according to selection criteria (see para 19). The first phase was directed at the City of Buenos Aires, beneficiary of a $98 million (US$130 million equivalent) direct loan from the Bank, and the second phase is the proposed loan.
2. Objectives

The program will develop a risk management framework to increase economic resilience to flooding. The APL is horizontal and will assist the City of Buenos Aires (phase 1) and provinces subject to flooding (phase 2).

The phase 1 of the proposed project, approved on April 5, 2005, will be executed over a period of six years. The City of Buenos Aires will benefit from a direct loan from the Bank with a sovereign guarantee from the Argentinean government. The project will help develop a risk management program for the City, through the improvement of the level of protection of its drainage system and the implementation of a risk management program. The project is implemented within the framework of the Buenos Aires Hydraulic Master Plan, involving the whole city for non structural measures and the Maldonado Basin for the first stage of the structural measures. The risk management scheme will aim at providing assistance to the city government to promote a prevention, mitigation and emergency response to floods. In addition, the scheme will strengthen the City Agencies so that the transfer of responsibilities from the implementation unit to the Agencies will be fully carried out during project implementation.

Phase 2 would target the provinces matching the trigger indicators agreed upon and would strengthen the country’s risk management scheme through geographical expansion of sustainable institutions and infrastructure investments. Phase 2 would be prepared in the framework of the Federal Water Agreement and in close coordination with the Federal Hydraulic Committee (COHIFE), which developed a nationwide water management strategy. Priority would be given in phase 2 to provinces located along the two main rivers, the Paraná and Paraguay, which are, with the City of Buenos Aires, highly vulnerable to flooding. Phase 2 will build on priority activities identified by the Water Basin Management study carried out in the preparation stage of the ongoing project.

3. Rationale for Bank Involvement

The Bank has demonstrated that it can play an important role in assisting Argentina in the definition and implementation of a strategic infrastructure program that contributes to the enhancement of living conditions in the country within a framework of fiscal sustainability. Given the relative importance of the economic impact of floods in the Argentine social and economic context, it is anticipated that the results of the program would have significant positive impact on the overall national situation.

The Bank has been involved in flood control and prevention for more than 12 years, financing three projects that have helped recovering the damaged infrastructure, rehabilitating the most urgent transport and social facilities, strengthening national and provincial resources for dealing with periodic flooding. The Bank has initiated its involvement in the sector in 1992. During this period, the 11 Provinces and the City involved with the Bank in the previous projects have
developed a strong technical capacity on flood management as well as a strong knowledge of project implementation, through high capacity PIUs.

On the other hand, the Bank has a breadth of experience in disaster risk management and, since 1983, has worked closely with many Latin America countries with the development of national emergency management systems. The Bank can bring experiences of different clients to bear in the task of building a comprehensive management system, as well as effective information systems.

In the area of water management, the Bank supports this new Government approach because the nature of water management to date has been mainly focused on downstream floods and not on broader multi-sectoral and basin-wide issues. Thus, in application of the new approach of the Acuerdo Federal de Agua, the Bank will proceed with the preparation of an Integrated Water Resource Management program. In parallel, the proposed program can be initiated for the City and specific provinces as far as the selected provinces have previously benefited from basin wide management strategies. Therefore, in the current CAS and draft four-year program (2004-2008) there are three projects with direct involvement in the water sector:

- Flood Management and Urban Drainage program (first phase for Buenos Aires City, and the second phase for Provinces);
- Integrated Water Resources Management (IWRM) program; and
- Water Sector Reform, which invests in water supply and sanitation reforms.

In addition, the “Municipal Development Project 2” is embarking in the preparation of a third Municipal Development Project which may support local drainage works for secondary networks.

4. Description

The proposed project will have 4 components:

<table>
<thead>
<tr>
<th>Component [US$ million]</th>
<th>Total</th>
<th>IBRD</th>
<th>Counterpart</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Institutional strengthening</td>
<td>3.13</td>
<td>3.13</td>
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</tr>
<tr>
<td>2. Improving flood preparedness</td>
<td>13.22</td>
<td>12.56</td>
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<tr>
<td>3. Development of key defense facilities</td>
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</tr>
<tr>
<td>(including contingency amounts)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4. Project Implementation and Administration</td>
<td>2.67</td>
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<tr>
<td>Unallocated</td>
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<td>3.34</td>
<td>19.44</td>
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<tr>
<td>Total</td>
<td>86.10</td>
<td>66.66</td>
<td>19.44</td>
</tr>
</tbody>
</table>

**Component 1: Institutional Strengthening**

The component is aimed at strengthening the central and provincial institutions in flood risk management. The activities will thus target the agencies involved in flood emergency and in developing prevention. The technical assistance would be provided to:
• Provide support to the National Hydraulic Department in improving the warning system, and developing a water strategy for other regions. This subcomponent, limited to the water sector, will be coordinated with activities planned for the Integrated Water Risk Management.
• Help create and implement an institutional framework in each province to improve risk information and risk reduction. It may result in the creation of provincial prevention units, where feasible. Improvement of civil defense, or other involved agencies is also envisaged.
• Facilitate the development of risk management by the Provincial authorities, with provincial or municipal contingency plans, land use regulation studies, and environmental management.
• Initiate a discussion on risk transfer through incentives to private flood insurance, and
• Prepare the next steps of flood prevention investments, through regional master plans and preparation studies.

Component 2: Improving Flood Preparedness
For vulnerable areas not benefiting from further investment in structural defenses, the component would provide housing in safe areas for lower income families living in flood prone areas. The shelters would be located adjacent to school or community centers to ensure their use and maintenance in non emergency periods. The housing component would follow the same principles as in the previous project, providing funding for a voluntary program of self-construction of houses by the community. The self-building component has been highly successful in the current Flood Protection Project and represents a valuable alternative housing solution for the population with the lowest income of population.

Component 3: Development of Key Defense Facilities
This component would finance works to protect important urban areas against flood effects. It would include fortification of flood defenses in geographic areas with strong economic activity and greatest vulnerability to serious repeated flood damage. Works would concentrate on raising bridges, improvement of existing and construction of new channels, embankments and small flood control works.

Component 4: Project Implementation and Administration
Technical assistance would be provided for US2.67 million to help implement the project and carry out annual audits.

5. Financing
Source: ($m.)
BORROWER 23.51
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT 70
Total 93.51

6. Implementation
Initially, the SUPCEs will be responsible for the administrative and operational aspects of the four components (i.e., preparing bidding documents, carrying out the bidding processes, granting the contracts, signing contracts, approving payments, and supervising the works and services they contracted). The transfer of responsibilities from the implementation unit to permanent Provincial Agencies would be planned in course of the implementation process, and would be carried out after appropriate strengthening of these agencies.

7. Sustainability

The program and the project address long term sustainability through:

a) Increased awareness of Provincial Government on risk management, which will provide the provincial governments with strengthened institutions for flood emergencies as well as prevention; and

b) Ensuring the implementation of adequate investment strategies and the provision of stable financial resources to ensure continuous maintenance of the defense and drainage works.

8. Lessons Learned from Past Operations in the Country/Sector

**Lack of fiscal resources and counterpart funds delay project implementation.** Due to the Government’s efforts to contain public expenditures in order to achieve economic and fiscal stabilization, resources allocated to infrastructure investment programs are suffering permanent modifications that cannot be anticipated by the executing agencies, and which consequently delay or even stop the progress of project implementation, creating cost overruns within the subprojects. Given this, and particularly considering the current fiscal situation in the country in general, the proposed program would be proactively monitored throughout project implementation to ensure convergence to a sustainable situation.

**Expenditure planning and flood protection infrastructure management need to be carefully considered.** Too often in the past, flood protection projects in Argentina were designed and implemented without due consideration to the overall maintenance needs of the assets built. Experience has shown the importance of including comprehensive routine maintenance strategies to maintain the overall condition of the infrastructure.

**Implementation Arrangements need to be adapted.** While the need for PIUs in the 90’s was the most appropriate decision to face the challenge the new Flood Protection projects represented for the Provinces, the project should now foresee the transferring of these responsibility to the provincial agencies involved in flood risk management. This scheme may require preparatory steps to ensure that the provincial governments have set up a risk management organization and that the agencies involved have the capacity to take over the PIUs’ tasks.

9. Safeguard Policies (including public consultation)

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<th>Safeguard Policies Triggered by the Project</th>
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<td>Safety of Dams (OP/BP 4.37)</td>
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<td>[X]</td>
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<td>Projects in Disputed Areas (OP/BP/GP 7.60)*</td>
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<td>[X]</td>
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<tr>
<td>Projects on International Waterways (OP/BP/GP 7.50)</td>
<td>[X]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

10. List of Factual Technical Documents

11. Contact point
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Fax:
Email: Mgautier

12. For more information contact:
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Telephone: (202) 458-5454
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas