



# Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

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Appraisal Stage | Date Prepared/Updated: 23-Feb-2017 | Report No: ISDSA21111



**BASIC INFORMATION**

**A. Basic Project Data**

Country Peru	Project ID P151851	Project Name Peru Integrated Water Resources Management in Ten Basins	Parent Project ID (if any)
Region LATIN AMERICA AND CARIBBEAN	Estimated Appraisal Date 22-Feb-2017	Estimated Board Date 06-Apr-2017	Practice Area (Lead) Water
Lending Instrument Investment Project Financing	Borrower(s) REPUBLIC OF PERU	Implementing Agency National Water Authority of the Ministry of Agriculture - Autoridad Nacional del Agua (ANA)	

**Financing (in USD Million)**

Financing Source	Amount
Borrower	48.15
International Bank for Reconstruction and Development	40.00
<b>Total Project Cost</b>	<b>88.15</b>

Environmental Assessment Category

B - Partial Assessment

Decision

The review did authorize the preparation to continue

Other Decision (as needed)

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**B. Introduction and Context**

Country Context

1. Peru, an upper-middle-income country of roughly 31 million inhabitants, has experienced robust economic growth throughout the last decade, despite recent slowdown. It is the fourth-largest economy in Latin America and the Caribbean (gross national income per capita US\$6,360 in 2014). Economic growth was largely due to prudent macroeconomic policies, favorable external environment, and strong



investments. During 2004–2013, the country’s economy grew on average by 6.2 percent per year and exports increased by almost five times in nominal terms.

2. Over the last decade, Peru has experienced unprecedented progress in poverty reduction, and for the first time in several decades, inequality declined, albeit modestly. Between 2004 and 2014, poverty incidence rate fell from 58 percent to 23 percent with extreme poverty dropping from 16 percent to 4 percent. During the same period, a small decline in inequality was noted: the expenditure-based Gini coefficient declined from 0.49 to 0.44. Despite these results, a great deal of disparity remains across the country: 60 percent of the poor reside in rural areas and about 50 percent of those living in the highlands are poor, against 22.7 percent at national level. Also, a large share of the population remains vulnerable to shocks related to economic growth and gaps in human capital development, and could fall back into poverty.

3. Sustaining the pace of economic development and poverty reduction in times of lower external demand for commodities is expected to be a continuing challenge and is an integral part of the Government of Peru’s (GoP) plan (2016–2021). It is contingent on increasing productivity and export competitiveness, which are strongly linked to the improvement of water resources management (WRM). Indeed, the Peruvian export-oriented economy is based on goods that use significant amounts of water in their production processes (irrigated agriculture, which accounts for nearly 80 percent of water consumption, mining [2 percent], manufacturing [6 percent], and domestic water supply [12 percent]) and 60 percent of electricity generation comes from hydropower, with room for further development. Furthermore, a significant share of social conflicts and environmental damages are related to competition for scarce and increasingly contaminated water resources. There is a concerted effort to adhere to Organisation for Economic Co-operation and Development (OECD) standards as Peru gears up its membership application process.

#### Sectoral and Institutional Context

4. The situation of water resources in Peru has been heavily influenced by the ongoing development of water-intensive productive sectors, such as mining, irrigated agriculture, and growing urban centers. The National Water Sector Policy and Strategy and the National Water Sector Plan (NWSP) 2015–2035<sup>1</sup> identify five major issues and corresponding policy lines for WRM in the country: management of water quantity, quality, opportunity, water culture, and adaptation to climate change and extreme weather events.

5. In Peru, water quantity—and particularly increasing water scarcity—is a major issue in many river basins, especially those in the Pacific watershed, where most of the economic activities and exports take place and more than half of the country’s population reside, but which receives only 1.8 percent of the country’s water resources endowment. The deterioration of water quality, due to untreated mining effluents, insufficient wastewater treatment in urban and industrial areas, unrestrained dumping of municipal and industrial solid waste, and uncontrolled use of agrochemicals is affecting people’s health, increasing the cost of potable water supply treatment, and reducing prospects for agricultural exports.

6. The NWSP recognizes the opportunity to build on the work led by the National Water Authority (*Autoridad Nacional del Agua*, ANA) in partnership with regional and local entities, by promoting more

<sup>1</sup> National Water Resources Plan (*Plan Nacional de Recursos Hídricos*), D.S. N 013-2015-MINAGRI.



integrated water resources management (IWRM) strategies at the river basin level, formalizing water rights, and encouraging greater public and private investments in water infrastructure. It highlights the need of a new water culture that would involve various stakeholders in the IWRM planning process.

7. Finally, climate change is raising the complexity of WRM, as uncertainty over hydrological parameters increases. Figures from the Special Report on Emissions Scenarios<sup>2</sup> indicate that Peru will be one of the countries hardest hit by temperature rises due to climate change. These figures predict a dry season with an average temperature increase in the range of 0.7°C and 1.8°C by 2020 and between 1.0°C and 4.0°C by 2050, increasing the risk of water scarcity and quality deterioration. Furthermore, while Peruvian piedmont and coastline are also prone to floods and mudslides due to high precipitation in degraded upper basins, the southern part of the country is affected by droughts. In general, the frequency and intensity of floods and droughts has increased in some basins due to the continuous deterioration of watersheds and climate change impacts, including glacial retreat and variability in precipitation patterns.

8. In Peru, the challenge for WRM is to have in place the necessary strong institutions, reliable data and information for decision making, and adequate mechanisms for the operation and maintenance (O&M) of strategic water infrastructure, to address the above key issues. While major progress has been made over the last years on these fronts, substantial gaps remain, many of which the proposed project aims to address.

9. **A new institutionality that needs to be strengthened.** In 2008, the outlook for sound WRM improved substantially with the approval of a new Water Resources Law (Law No. 29338) and the creation of ANA to oversee its implementation and act as the regulator. Consistent with international best practices, it is based on the IWRM principles (a) integration of sectoral policies, (b) participation of stakeholders, (c) decentralized management of water resources at the river basin level, and (d) recognition of water as a social and economic good.

10. As the governing body for WRM in Peru, ANA is in charge of establishing the rules and norms for WRM in accordance with the Water Resources Law and enforcing their implementation through control and sanctions. Its main functions include:

- (a) Planning of water resources at the basin and national levels;
- (b) Setting economic incentives to increase water use efficiency and decrease pollution;
- (c) Issuing and controlling water rights and discharge permits;
- (d) Collecting, analyzing, and disseminating water-related information;
- (e) Setting-up and controlling ambient water quality standards and environmental flows in coordination with the Ministry of Environment (*Ministerio de Ambiente*, MINAM);
- (f) Managing riverbeds;
- (g) Promoting stakeholders' participation in IWRM;
- (h) Managing water conflicts;
- (i) Adapting climate change in water resources; and
- (j) Managing water-related risks, including dam safety. ANA does not have the mandate of implementing infrastructure projects.

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<sup>2</sup> From the Intergovernmental Panel on Climate Changes.



11. ANA is ascribed to the Ministry of Agriculture and Irrigation (*Ministerio de Agricultura y Riego*, MINAGRI), an arrangement, which carries the legacy of a past where the management of water resources was focused greatly on increasing the availability of water for irrigation expansion. ANA is composed of a central office in Lima and 14 regional offices (Administrative Water Authorities [*Autoridades Administrativas del Agua*, AAAs]), each responsible for 1 of Peru's 14 hydrographic regions. The 14 AAAs have additional decentralized offices (Local Water Administration [*Administración Local de Agua*, ALAs], currently 72) that are responsible for a river basin or group of river basins.<sup>3</sup> These decentralized bodies are responsible for WRM at the local level and are supported in their functions by the newly created River Basin Councils (*Consejos de Cuenca*, CCs). The CCs are responsible for facilitating cross-sectoral and stakeholder participation in IWRM and planning. The newly created CCs have led the multi-stakeholder process to develop and monitor the implementation of the IWRM plans.

12. From 2010 to 2015, the new legal and institutional framework was successfully implemented at the national level, and, on a pilot basis, in six selected river basins (all in the Pacific watershed)<sup>4</sup> with support of the Water Resources Management Modernization Project (WRMMP).<sup>5</sup> Through the WRMMP, as well as a number of reimbursable and grant-funded technical assistance activities, the World Bank supported the implementation of the 2009 Water Resources Law and the 2012 National Water Resources Policy, by pursuing IWRM through the creation and strengthening of ANA at the central and river basin levels (AAA, ALA, and CC). At the national level, the WRMMP was instrumental in defining the methodology for setting water use and pollution charges, which was approved in December 2012. The collection of these charges currently accounts for 77 percent of ANA's revenues, which includes the administrative costs of ANA's office in Lima, its decentralized offices (ALAs and AAAs), and the newly created CCs.

13. Other outcomes included (a) the establishment of the basic infrastructure and the design of the National Water Resources Information System (NWRIS or *Sistema Nacional de Información de Recursos Hídricos*),<sup>6</sup> as well as the strengthening of the National Meteorological Service (*Servicio Nacional de Meteorología e Hidrología del Perú*, SENAMHI) and ANA's hydrometeorological and water quality observation networks in those six basins, all in the Pacific watershed; (b) the improvement of water rights administration framework and the formalization and registration of 75,000 water rights and discharge permits in those priority river basins; (c) the formulation and adoption of the National Water Quality Strategy; (d) increased human capacity through various training initiatives, including development and deployment of a diploma program that has successfully trained more than 100 water resources professionals; and (e) the design and implementation of the Water Culture (*Cultura del Agua*) Program, which increased awareness of water quality and quantity issues among decision makers, water professionals, youth (in partnership with the Ministry of Education [*Ministerio de Educación*, MINEDU]), and general public. At the basin level, the WRMMP was instrumental in the creation of the CCs in six pilot river basins and the formulation of their corresponding participatory IWRM plans. These plans aim

<sup>3</sup> The Andes divide Peru into three natural drainage basins or watersheds: Pacific watershed (279,000 km<sup>2</sup>), Atlantic watershed (959,000 km<sup>2</sup>), and Lake Titicaca watershed (47,000 km<sup>2</sup>). According to ANA, there are 159 river basins in Peru (62 in the Pacific watershed, 84 in the Atlantic watershed, and 13 in the Titicaca Lake watershed). These are grouped administratively in 72 ALAs that are themselves merged into 14 River Basin Authorities (AAA) corresponding to the 14 hydrographic regions. So far, CCs have been created in 6 out of 159 river basins.

<sup>4</sup> Tumbes, Chira-Piura, Chancay-Lambayeque, Chancay-Huaral, Quilca-Chili, and Locumba-Sana-Caplina. Together these six river basins represent approximately 18 percent of Peru's gross domestic product (GDP).

<sup>5</sup> WRMMP-P107666, cofinanced by the World Bank and the Inter-American Development Bank (IDB). World Bank ICR Report No: 00003535.

<sup>6</sup> The NWRIS is the technological and institutional network created to give support to the decision making of the National Water Resources Management System. <http://portal.snirh.gob.pe/>.



to achieve IWRM and guarantee water security<sup>7</sup> for all water users, and define the structural and nonstructural investments necessary in the short (5 years) and long term (15 years) to achieve such water security.

**14. Despite this progress, the management of water resources at the basin level in Peru is still in its early stages, and requires continued strengthening going forward.** Moreover, integrated and participatory basin-scale, WRM requires the continued empowerment of ANA at the national and local levels so that it becomes a more efficient and respected water authority, including (a) vesting it with greater autonomy in relation to MINAGRI; (b) improving water governance in priority basins to strengthen autonomy of basin organizations to adequately represent stakeholders' needs and secure financial resources to fulfill their mandates; and (c) continuing to strengthen ANA's human, technical, and administrative resources, as well as with regard to equipment and financing.

**15. Water resources information gaps and needs.** Likewise, good progress was made in supporting the generation and use of information for IWRM. Except for the six pilot basins in the Pacific watershed, water resources information remains limited, and there is a pressing need to improve the availability and quality of water information and develop relevant information products for decision makers, operators of hydraulic infrastructure (dams, dykes, irrigation schemes, and domestic water supply), and general public. Water databases are incomplete, hydrometeorological data are still in analog format, and digital information needs to be reviewed for consistency and quality checks. Hydrometeorological data are scarce; the observation network is incomplete and suboptimal for most of the country. Water data storage, backup, and processing capacity in ANA is limited. Applications to translate data into valuable information for WRM (for example, early warning systems, analysis to inform planning of investments, operation of hydraulic infrastructure, and so on) are still at an early stage. Complementary decision support systems (DSSs) need to be developed to close the data-information-knowledge chain.

**16.** Similarly, groundwater information, monitoring, and management is limited, resulting in a proliferation of illegal wells and the lack of control over water abstractions. The Regions of Tacna and Ica are emblematic of this problem. Both regions rely primarily on groundwater to sustain agricultural activities that contribute significantly to the country's GDP, employment of labor force, and livelihood activities. The Ica Valley, Villacuri, Caplina, and especially La Yarada and Los Palos are among the most overexploited aquifers in Peru with estimated overexploitation percentages of 30, 153, and 120 respectively. The rate of recharge does not cope with the volumes of abstraction. This situation has affected groundwater quantity and quality, creating conflicts among farmers and other groundwater users; jeopardizing economic activities; and increasing the susceptibility to land subsidence, particularly in these geologically seismic areas.

**17. Gaps in the O&M of large hydraulic infrastructure.** As in many Latin American countries, in Peru, large hydraulic infrastructure, particularly dams, are aging. In 2002, the national government handed over the operation and maintenance (O&M) of major hydraulic infrastructure to regional and local governments and water users associations, although uncertainty remains about their respective roles and responsibilities as part of the decentralization.<sup>8</sup> ANA does not have a technical office that is responsible for regulating dam safety. There is a lack of technical guidelines and procedures to evaluate dam safety risks and most of the surveying and monitoring equipment is obsolete. Some of the large

<sup>7</sup> Water security implies guaranteeing a reliable supply of water of adequate quality for human consumption, productive use, and ecosystem services. It is also intended to assist in reducing the risks associated with critical events such as droughts and floods.

<sup>8</sup> Decentralization Framework Law (*Ley de Bases de la Descentralización*), Law no. 27783, approved in July 2002.



dams in Peru can cause severe damage in case of failure due to geological, hydrological, or seismic events. In this context, the creation of a legal and technical framework for dam safety management is of paramount importance.

18. **Rationale for the World Bank's involvement.** The previous World Bank engagement through the WRMMP focused, as a first step, on strengthening ANA's capacity through key instruments such as the NWRIS, the formulation of a national water quality management strategy, and a program to promote a new 'water culture', to name a few. It selected a limited number of pilot river basins in the Pacific watershed to introduce and test the new institutional and legal framework. This enabled the revision of guidelines based on real experiences in implementation and generated successful results, fostering an interest for replication among stakeholders in other river basins. The proposed project represents a subsequent phase of this engagement, which will address key gaps remaining at the national level, such as (a) enhancing and expanding the NWRIS; (b) boosting ANA's capacity in providing guidance and technical assistance on dam safety management; (c) managing the groundwater in critical overexploited aquifers; and (iv) expanding efforts of water quality monitoring and formalization of water abstraction rights and discharges. At the river basin level, the proposed project will seek to expand and adjust the previously tested approach in the Pacific watershed to new priority basins in the Atlantic watershed. Based on a thorough assessment, there is a recognition that creation of new institutions will only be directed to critical basins that require a dedicated entity to manage and plan WRM activities at local levels. As such 24 basins were prioritized and would require the creation of CCs out of the 159 basins in Peru. To this end, the project will support the four new river basins of Mantaro, Alto Mayo, Urubamba-Vilcanota, and Pampas, which are all located in the Atlantic watershed and have been selected based on the following criteria: (a) local and regional governments' interest in participatory IWRM, (b) significance of water conflicts, (c) socioeconomic importance related to water resources, and (d) perceived vulnerability to climate change and extreme events.

### **C. Proposed Development Objective(s)**

Development Objective(s) (From PAD)

The proposed Project Development Objective (PDO) is to strengthen the capacity of targeted water resources related institutions to plan, monitor and manage water resources at the national level and in selected river basins in Peru.

#### Key Results

19. The PDO will be measured against the following indicators:
- (a) National Water Resources Information System providing validated online data, analysis and information products to decision makers, water professionals, and general public.
  - (b) Dam safety unit established and operational.
  - (c) Groundwater committees established for targeted aquifers with participatory management plans approved and under implementation.





(d) Basin councils/committees<sup>9</sup> with integrated, participatory basin management plans approved and under implementation.

#### D. Project Description

20. The project consists of three components: (1) Consolidating IWRM capacity at the national level; (2) Improving IWRM capacity at river basin level; and (3) General project administration. The details of sectoral context underpinning prioritization of activities can be found in annex 4.

21. A Climate and Disaster Risk Screening has been undertaken for the project. The screening identified droughts and extreme precipitation as the main natural hazards in the areas where the project will intervene. The project is mitigating these risks by supporting the expansion and modernization of the hydrometeorological network, the development of flood and drought forecasting tools, the implementation of dam safety procedures and equipment for monitoring and preventing impacts of extreme weather events on dam management, water quality, and water abstraction (Component 1) and, at the river basin level, to enhance the capacity to elaborate climate-responsive IWRM plans, including identifying structural and nonstructural measures for adaptation to climate change (Component 2). Based on the nature of activities to be financed by this project, it is estimated that US\$35m will can be attributed as climate change co-benefits.

#### **Component 1: Consolidating IWRM Capacity at the National Level (US\$69.32 million: IBRD/GoP/ANA US\$32.09/17.78/19.45)**

22. This component aims at improving ANA's capacity and water-related institutions to plan, monitor, and manage water resources at the national level by enhancing and expanding monitoring systems to improve information about water resources' quantity (meteorology, streamflow, groundwater), quality, and use in irrigated agriculture; developing robust mechanisms for safety of dam infrastructure; and strengthening institutions and tools for IWRM. Detailed project activities are outlined in annex 1.

##### *Subcomponent 1a: Enhancing Data Generation for IWRM (US\$43.79 million)*

23. This subcomponent will finance the procurement and installation of equipment for (a) the expansion of a digitized, real-time, national hydrometeorological network; (b) monitoring of water quality; (c) water use, namely abstraction for irrigated agriculture; (d) monitoring of groundwater for selected critical aquifers;<sup>10</sup> and (e) modernization of monitoring equipment for dam safety in selected dams.<sup>11</sup> (Additional details related to context, rational, and breakdown of activities can be found in annex 1)

##### *Subcomponent 1b: Improvement of Water Resources Planning and Decision Making (US\$25.52 million)*

24. The project will finance the following activities:

(a) Strengthen the NWRIS' capacity to store and process data collected from various monitoring networks that are supported under Subcomponent 1a;

<sup>9</sup> For selected basins that are considered primary sub-basins of the Amazon River Basin, creation of legally recognized basin councils is not feasible. In such instances, a Basin Committee will be created to help with the IWRM at local levels.

<sup>10</sup> Ica Valley Villacuri and Lanchas aquifers in the Ica region and La Yarada in the Tacna Region. See annex 1 for more details.

<sup>11</sup> Six large dams and two small dams. See annex 1 for more details.





- (b) Develop decision-making modelling tools for WRM (for example, groundwater modeling, water quality modeling, flood and drought forecasting, and so on) and integrate them into the NWRIS for use at the national and basin levels;
- (c) Create and strengthen institutions for the evaluation and management of groundwater;
- (d) Design and implement a Water Abstraction Monitoring Program for the irrigated agricultural sector, which will formalize water rights and facilitate monitoring and enforcement of efficient water use;
- (e) Design and implement a Water Quality Program at the national level, based on the National Water Quality Strategy developed under the WRMMP;
- (f) Improve water conflict resolution mechanism;
- (g) Strengthen economic incentives for increased water use efficiency and reduced pollution, which will increase revenues that finance WRM activities.

25. As part of the overall efforts to strengthen ANA's water resources planning and management, this subcomponent will also improve information accessibility to end users and simplify ANA's administrative procedures related to aspects such as dissemination of information, water use rights, and water quality.

26. This subcomponent will also design and implement a technical assistance Dam Safety Program, including the following activities: (a) create a regulatory framework for dam safety management; (b) develop technical guidelines and capacity building for dam monitoring; (c) carry out dam safety risk assessment and emergency plans formulation that can be replicated in other dams across the country; (d) formulate and partially implement dam safety management plans for six major dams and two small dams in the Pacific watershed; and (e) create a dam safety information module within the NWRIS.

**Component 2: Improving IWRM Capacity in Selected Basins (US\$15.47 million: IBRD/GoP/ANA US\$2.62/6.69/6.17)**

27. This component aims at improving IWRM at the basin level to take into consideration basin needs, future developments, as well as climate change implications: (a) in the Pacific watershed, by consolidating the CCs established under the previous WRMMP and (b) in the Atlantic watershed, in new pilot river basins in the Atlantic watershed with limited capacity in IWRM (Alto Mayo, Mantaro, Urubamba-Vilcanota, and Pampas). The activities to be supported are summarized in the following paragraphs.

*Subcomponent 2a: Strengthening IWRM in Pilot Prioritized River Basins in the Pacific Watershed (US\$4.80 million)*

28. The aim of this subcomponent is to strengthen the capacity of the existing CCs in six river basins (Chancay-Lambayeque, Chancay-Huaral, Quilca-Chili, Tumbes, Chira-Piura, and Locumba-Sama-Caplina) through the following activities: (a) enhancement of Decision Support Nodes (centers) to develop technical capacities and implement activities such as forecasting, early warning, and analysis of water rights; (b) capacity building and training, including the updating and monitoring of the existing IWRM plans, ensuring balanced representation of basin stakeholders in the CCs, and improving communication mechanisms; and (c) definition of financing mechanisms and legally binding arrangements to finance the IWRM plans.



*Subcomponent 2b: Development of IWRM in Pilot River Basins in the Atlantic Watershed (US\$10.67 million)*

29. This subcomponent aims at improving IWRM in the four newly prioritized river basins in the Atlantic watershed (Alto Mayo, Mantaro, Urubamba-Vilcanota, and Pampas) through activities adjusted to the specifics of each basin. These include (a) establishment of the CCs; (b) implementation of water resources information nodes in each basin to be connected to the NWRIS at the central level; (c) development of participatory IWRM plans; and (d) implementation of the *Cultura del Agua* Program to promote a ‘water culture’ among policy makers, water professionals, youth, and public.

**Component 3: General Project Administration (US\$8.97 million: IBRD/GoP US\$5.29/2.54/1.14)**

30. This component will support management and monitoring of activities associated with project execution through a national project implementation unit (PIU) and will provide technical supervision, which includes technical assistance, administrative support, monitoring and evaluation (M&E) (baseline surveys, midterm reporting, annual audits, final project evaluation), procurement, financial management (FM), safeguards, training, and communication.

Component Name:

Component 1: Consolidating IWRM at the National Level

Comments (optional)

Component Name:

Component 2: Improving WRM in Selected Pilot River Basins

Comments (optional)

Component Name:

Component 3: General Project Administration

Comments (optional)

**E. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

The project will support development of governance structures, methodologies and tools to improve water resources management in different regions of Peru. According to the information provided in the section on components above, the following region will be involved: San Martin, Cusco, Apurimac, Ayacucho, Junin, Huancavelica, Ica and Tacna. Some of this regions are exposed to intense deforestation and biodiversity loss such as the Amazon region of San Martin. Coastal regions such as Ica and Tacna are exposed to overexploitation of



aquifers. In the case of Andean regions such as Apurímac, Ayacucho, Huancavelica and Cusco they have faced droughts during the El Niño event and flash floods during the rainy season. 6 large dams and 2 small dams have been selected for technical assistance pilots to enhance monitoring mechanisms. The selected dams and their respective locations (regions) are: San Lorenzo dam (Piura), El Frayle dam (Arequipa), Tinajones dam (Lambayeque), Poechos dam (Piura), Gallito Ciego dam (Cajamarca), and the 2 small dams are: Condorama dam (Arequipa), Huascacocha dam (between Pasco and Lima).

#### **F. Environmental and Social Safeguards Specialists on the Team**

Raul Tolmos, Fabio Pittaluga

### **IMPLEMENTATION**

*Project implementation responsibilities.* The Project will follow the same institutional and implementation arrangements established for the WRMMP. ANA will be responsible for overall Project implementation. Fiduciary aspects of the Project have been centralized in ANA headquarters. SENAMHI will renew its agreement with ANA for the coordination and implementation of activities related to the expansion of the hydro-meteorological network.

*Project Implementation Unit.* The *Proyecto de Modernización de la Gestión de los Recursos Hídricos* of ANA<sup>12</sup> will serve as the Project Implementing Unit and will be responsible for Project implementation. It will be granted administrative, financial and budgetary autonomy. To implement various activities, the PIU will interface with the responsible units and directorates within ANA to ensure capacity, tools and approaches developed are institutionalized within ANA and its decentralized entities.

*Participation and coordination mechanisms.* Participatory, integrated WRM involves many stakeholders. The Project will rely on a number of existing mechanisms to ensure their adequate participation:

- a. A multi-sectoral Project Steering Committee (PSC), which provides high-level guidance, oversight, and control to the Project. It is composed of the Project Coordinator in ANA and one representative of each of the following entities: MEF<sup>13</sup>, MINAGRI, MINAM, ANA, and regional governments of the target basins, local governments of the target basins, agrarian water users and non-agrarian water users of the target basins.
- b. Multi-sectoral water commissions or working groups established at the national level, which provide technical inputs to cross-sectoral WRM issues. More specifically for the Project, they would be established for the formulation of the groundwater management, evaluation of

<sup>12</sup> Also called Project Implementing Unit (PIU) No 2 of the National Water Authority (ANA).

<sup>13</sup> Ministry of Finance (MEF for its acronym in Spanish - *Ministerio de Economía y Finanzas*).



economic incentives and management of dam safety guidelines and procedures, as well as for some activities aimed at promoting a new water culture.

- c. CC established in the existing six basins in the Pacific Watershed will participate in the updating of basin-scale IWRM Plans, and in water quality and discharge monitoring and control in their jurisdiction. For the three new CCs and one basin committee (Alto Mayo) to be established in the Atlantic watershed, they will be responsible for the formulation and validation of the basin-wide IWRM plans.

Project’s implementation will require close coordination with the Ministry of Education (*Ministerio de Educación - MINEDU*) and the regional governments of the four target basins in the Atlantic Watershed. Regional governments will participate, as members of the CC, in the formulation and implementation of the basin-scale WRM plans. ANA will provide technical inputs to the design and implementation of the water culture program, and more specifically to the activities targeting primary and secondary schools programs (subcomponent 2.2) that will be implemented by MINEDU. Agreements between ANA and MINEDU have been reviewed and renewed prior to project approval.

**SAFEGUARD POLICIES THAT MIGHT APPLY**

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	Based on OP 4.01 on Environmental Assessment the Project is categorized as Category B. This Project will not finance civil work contracts nor detail designs of civil works. Installation of hydro- meteorological stations and other water quantity and quality monitoring equipment might include preparation of terrain and related minor civil works as part of contracts for equipment installation. The Project will support the formulation of different types of water plans: (i) plans for the operation and maintenance of major hydraulic infrastructure (dam safety); (ii) risk management plans in eight priority dams; and (iii) participatory aquifer management plans in selected regions (Tacna and Ica). Activities prioritized in those plans, will not be implemented by the Project, however some of them may have potential adverse social and environmental impacts and risks. For this reason, the operational policy on Environment Assessment (OP/BP 4.01) policy is triggered. To ensure conformity with this policy, the methodology/terms of reference for the formulation of those plans will include specific reference to



understanding and identifying potential social and environmental risks and impacts. Preparation of these plans will follow rigorous consultation processes with relevant stakeholders (e.g. farmer associations, peasant communities, indigenous groups, water and sanitation service utilities, mining companies, electricity generation utilities, local water authorities, etc.) through workshops and meetings convened by the Subnational Government or corresponding Basin Council. Terms of Reference will also include a comprehensive assessment of key relevant environmental and social impacts and risks and corresponding mitigation measures and be subject to prior review by the Bank. In particular, technical assistance activities will be subject to the guidelines contained in the document entitled Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank.

Project funds will not be used for any sort of pre-investment planning (pre-feasibility, feasibility, detailed engineering designs, etc.). ANA does not have the mandate to implement investments, which are under the purview of the regional and local governments. The proposed project will help carry out basin level hydrological assessments (including simulation of existing and potential infrastructure) to ensure adequate water resources are available to sustain various productive uses of water (agriculture, energy, municipal, environmental flows, etc.).

An Environmental and Social Management Framework (ESMF) has been prepared by the National Water Authority (ANA) prior to appraisal. This ESMF describes procedures and criteria to be followed according to the sectoral environmental regulations (set by the Ministry of Agriculture and Irrigation) such as basic environmental management procedures to manage potential impacts of minor civil works, specific environmental management instruments to be prepared at the basin level and specific institutional arrangements at ANA and its decentralized offices to supervise compliance with WB social and environmental safeguards triggered for the Project. ANA has shared the ESMF report with



		<p>Natural Resource and Environmental Management offices at subnational governments involved in this Project, SENACE (Servicio Nacional para la Certificaci3n de Inversiones Sostenibles) and MINAGRI's Direccion General de Asuntos Ambientales Agrarios. Some of them made contributions to the ESMF which were reflected on it.</p>
Natural Habitats OP/BP 4.04	Yes	<p>This safeguard policy is triggered. While the basic objective of IWRM plans are to balance the differing and potentially competing uses for water, the environmental impacts on habitats can be significant if the plans are more heavily balanced toward activities that impact the aquatic resource. The plans should be backed up by not only hydrological modeling but also solid studies of the natural resources dependent on the water flow regimes in quantity, quality, and periodicity.</p>
Forests OP/BP 4.36	Yes	<p>This policy is triggered since the project area comprises the Alto Mayo River Basin in the Amazon region, a highly deforested river basin located in the San Martin region. Development of a participatory River Basin Water Resources Management Plan might involve preparation of forest management plans and corresponding reforestation activities given the close link between water quality and availability and tropical forest cover in this part of the Peruvian Amazon region. No specific instrument will be developed for this policy but the TORs for the formulation of the IWRM plan in this basin should particularly address this issue.</p>
Pest Management OP 4.09	No	<p>This policy will not be triggered since the project does not involve procurement or use of pesticides.</p>
Physical Cultural Resources OP/BP 4.11	Yes	<p>This policy is triggered since development of participatory River Basin Water Resources Management Plans in selected Atlantic watershed basins (located in the Andes) such as Mantaro, Urubamba-Vilcanota and Pampas might include structural and non-structural activities in settings characterized by the presence of known and unknown physical cultural resources. No specific instrument will be developed for this policy but the TORs for the formulation of the IWRM plan will screen impacts and risks on physical cultural resources.</p>
Indigenous Peoples OP/BP 4.10	Yes	<p>This policy is triggered because the project under Component 2b will support participatory river basin water resources management plans and several of</p>



the project selected basins include the presence of Indigenous Peoples both in the highlands as well as in the Upper Amazon.

ANA has prepared an Indigenous Peoples Planning Framework (IPPF) and together with the Bank team's social specialist have identified the presence of Indigenous Peoples in the following basins: (i) Urubamba River: in the upper areas 370 Quechua peasant communities; in the middle area and lower areas 68 Machiguenga, 4 Ashaninka and some Piro native communities; (ii) Alto Mayo river: 15 Awajun native communities; (iii) Mantaro river: 318 peasant communities; (iv) Pampas river: 188 peasant communities. The IPPF will be applied in the basins where Indigenous Peoples are present.

The IPPF will be used to guide implementation of activities to ensure adequate representation and participation of indigenous communities in project activities, and to ensure that specific issues and knowledge of indigenous people, including indigenous forest dependent communities, are adequately identified, assessed and taken into consideration, particularly in the preparation of the water management management plans (basin and groundwater management plans). Installation of monitoring equipment will not take place on IP designated lands. An IPPF will be used because of the demand-driven nature of activities in the basins, which will be defined after a consultative/participatory process. A legal assessment concurred with the use of an IPPF instead of IP Plan, given that specific project activities at basin level that may potentially involve IP communities are yet to be defined.

Consultations with indigenous and peasant communities took place on December 20, 2016. Where representatives were provided information about the scope and objectives of the project. Feedback was provided on ensuring representation in the creation of the basin councils, ways to enhance participation of IP communities during the preparation of the basin plans, articulated mechanisms for redress during project

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		implementation and signaled the need to take into account ancestral wisdom/ indigenous knowledge of water resources management in the planning process. This feedback and suggestions were incorporated into the IPPF and will be followed during implementation during the creation of basin committees and preparation of integrated, participatory basin management plans.
Involuntary Resettlement OP/BP 4.12	No	This policy is not triggered because no involuntary use of land will be required for project activities. The installation of hydro meteorological stations and other water quality and quantity monitoring equipment will be in fiscal lands, and due to the small size of land required, appropriate areas can be found where no people or assets are affected. In the case of technical assistance activities the TORs as well as the outputs for designing the framework and guidelines for potential activities such as payment for environment services program will reflect and be consistent with OP 4.12 principles. These will be subject to the guidelines contained in the document entitled Interim Guidelines on the Application of Safeguard Policies to Technical Assistance (TA) Activities in Bank-Financed Projects and Trust Funds Administered by the Bank.
Safety of Dams OP/BP 4.37	Yes	This policy is triggered. Although the project will not support the construction or rehabilitation of dams nor will support other investments, which rely on the performance of existing dams, the Bank project will provide technical assistance through a pilot interventions to enhance monitoring and dam safety, which operational aspects of an existing dam through the preparation/update of the safety and instrumentation plans. These need to be prepared in a manner and content consistent with OP/BP 4.37 especially in cases involving large dams as defined by the policy. Terms of references for the preparation of such assessments and plans will be reviewed by pertinent safeguards specialist prior to implementation to ensure consistency with the Bank's safeguard policy.
Projects on International Waterways OP/BP 7.50	Yes	This policy is triggered because the project will finance upstream data collection, enhanced monitoring and inventorying capabilities for surface water and also groundwater in some basins. Project interventions will target La Yarada (Caplina) aquifer,



which is a transboundary aquifer with Chile as well as the basins of Alto Mayo, Mantaro, Urubamba-Vilcanota and Pampas, which belong to the Amazon hydrographic basin.

In general, these are all activities fall under the broad rubric of "water resource surveys" as described in paragraph 7(b) of OP 7.50. The Project meets the criteria defined in paragraph 7(b) of OP 7.50 that no riparian notification is required.

Hydrologic analysis that will be carried out during the preparation of the integrated, participatory basin management plans will take into account impacts of downstream uses.

This policy should not be triggered as the project will not finance activities in disputed areas as defined in the policy.

Projects in Disputed Areas OP/BP 7.60                      No

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

No potential large scale environmental impacts are foreseen

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

No long term impacts are anticipated

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

This project is one of technical assistance nature, which will not finance civil work designs and infrastructure. Small civil works will be carried out in association with installation of monitoring equipment that are small in size and will be installed in fiscal lands. The project will also finance preparation of integrated water resources management plans in selected basins and groundwater management plans for selected aquifers, which is the main planning instruments to support the efficient and sustainable use of water resources. Information systems and equipment to monitor water quality and quantity of surface and underground water resources will be installed.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.



To assemble a decentralized social and environmental expert team. A Senior Environmental Specialist will be placed at ANA’s headquarters in Lima who will coordinate and provide guidance to 4 socio-environmental specialists placed at ANA’s offices in four basins located in the Atlantic Basin.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

There is a high degree of community participation in the Project activities, in particular in the 10 targeted river basins under Component 2, as well as the water culture program, are expected to generate and strengthen high level of consciousness about the value of water and IWRM, which are key factors for the social sustainability of the Project investments. Preparation of basin plans and groundwater management plans will be highly participatory. An IPPF has been developed to take into consideration the needs of indigenous peoples identified in targeted basins and ensure their participation in the basin planning process.

**B. Disclosure Requirements (N.B. The sections below appear only if corresponding safeguard policy is triggered)**

**Environmental Assessment/Audit/Management Plan/Other**

Date of receipt by the Bank  13-Jan-2017	Date of submission to InfoShop  17-Feb-2017	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
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**"In country" Disclosure**

**Indigenous Peoples Development Plan/Framework**

Date of receipt by the Bank  09-Jan-2017	Date of submission to InfoShop  17-Feb-2017
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**"In country" Disclosure**

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting) (N.B. The sections below appear only if corresponding safeguard policy is triggered)**

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

No



**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

No

**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?

NA

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

NA

**OP/BP 4.10 - Indigenous Peoples**

Has a separate Indigenous Peoples Plan/Planning Framework (as appropriate) been prepared in consultation with affected Indigenous Peoples?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

If the whole project is designed to benefit IP, has the design been reviewed and approved by the Regional Social Development Unit or Practice Manager?

NA

**OP/BP 4.36 - Forests**

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?

Yes

Does the project design include satisfactory measures to overcome these constraints?

Yes

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?

No

**OP/BP 4.37 - Safety of Dams**

Have dam safety plans been prepared?

No

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

No

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and



training?

No

#### **OP 7.50 - Projects on International Waterways**

Have the other riparians been notified of the project?

No

If the project falls under one of the exceptions to the notification requirement, has this been cleared with the Legal Department, and the memo to the RVP prepared and sent?

Yes

Has the RVP approved such an exception?

NA

#### **The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank's Infoshop?

No

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

No

#### **All Safeguard Policies**

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

### **CONTACT POINT**

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**Borrower/Client/Recipient**

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