



**UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
- USAID/ECUADOR-**

Contract No. AID-518-C-13-00002

**EVALUATION OF USAID/ECUADOR'S PROTECTING WATER
RESOURCES TO CONSERVE BIODIVERSITY**

**FINAL REPORT
(Select sections in English)**

By

Corporación OIKOS

Marco A. Encalada R., Corporación OIKOS
Alfredo Carrasco V., Consultor OIKOS
Esteban Suárez R., Consultor OIKOS
Ramiro Montalvo H., Consultor OIKOS

February 21st, 2014

Quito/Ecuador

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ACKNOWLEDGEMENTS

This evaluation report was accomplished by the Corporacion OIKOS Evaluation Team, including Marco A. Encalada, Alfredo Carrasco V., Esteban Suarez R., and Ramiro Montalvo H., in agreement with USAID. The entire team assumed the challenge of drafting the report and incorporating USAID's comments. The team maintained the rigor and objectivity of the research as new information and clarifications were made available from diverse sources. Thanks to the people who were interviewed in the research process whose names are mentioned in the list presented in following pages. Special thanks to the following people who were outstanding contributors to the whole evaluation process.

- Rocío Bastidas G., Coordinator of the Education Area, Corporación OIKOS
- Carlos Cabrera, Former Technical Secretary of FONAPA, Cuenca
- Geoconda Chávez, Fondo Páramos de Tungurahua
- Rocío Guevara, Fondo Páramo de Tungurahua
- Wilson Guzmán, Former Technical Secretary of FONES
- Carolina Mancheno, FONAG
- Ana María Pazuña, Technical Secretary of PROCUENCAS
- Oscar Rojas, Technical Secretary of Fondo Páramo de Tungurahua
- Gina Proaño, FONAG
- Malki Sáenz, Technical Secretary of FONAG
- Paola Zavala, USAID

EXECUTIVE SUMMARY

Water is one of the natural resources most threatened by pollution, overdevelopment and environmental degradation. This resource is part of complex ecological systems which are extremely vulnerable to human actions. Human activity can degrade water quality and quantity throughout the world, a fact that is largely ignored by the global population. To address this issue, many decision-makers are trying to protect and conserve water resources through concerted, long-term actions that deal with a number of integrated natural, social and economic factors.

Ecosystem conservation is a priority, in particular ecosystems associated with watersheds that supply water to population centers. Promoting integrated water resource management (IWRM) at all levels is essential for achieving vital social goals such as providing water for residential and industrial use, optimizing food production, meeting demands for renewable power generation, and building resilience to the impacts of climate change. IWRM research and guidelines recommend taking into account the linkages between water supply and use in watersheds to promote collaboration between various actors.

Ecuador is at the forefront of implementing IWRM strategies, primarily through the use of water funds. The Metropolitan District of Quito (DMQ), along with several other institutions including USAID, set up the “*Fondo Ambiental para la Protección de las Cuencas y Agua*” (FONAG) in the year 2000. FONAG is a technical and financial mechanism structured around an endowment fund whose yields are used to finance and implement activities for the conservation and protection of water sources supplying the DMQ, under an integrated management approach. Its main economic contributions come from Quito’s *Empresa Pública Metropolitana de Agua Potable y Saneamiento* (EPMAPS), which has allocated an average of US\$820,000 per year since its creation. EPMAPS is expected to contribute US\$1,800,000 in 2014 which is equivalent to two percent of its water sales as it is established in the trust contract.

In September 2007, USAID signed a cooperative agreement with FONAG (518-A-00-97-00056-00) to implement the project *Protecting Water Resources to Conserve Biodiversity* (from here on cited as “Project”). The purpose of this Project was to a) attain multi-institutional financial agreements in order to protect watersheds and conserve biodiversity; b) raise the commitment among water users for watershed conservation; c) contribute to the financial sustainability of the protected areas (e.g. national parks, biological reserves, etc.) that cover a large portion of the watersheds supplying water to targeted locations; and d) promote the sustainable use of natural resources in rural areas (e.g. using natural resources in a way that complements IWRM rather than degrades the watershed, by providing technical assistance to minimize the environmental impact of economically productive activities, as well as community quality of life). The Project’s main strategy is to strengthen FONAG’s work in the Quito area

In addition to supporting the creation of new water funds, the Project provided economic and technical assistance to develop their organizational capacity as well as to promote and implement conservation actions to decrease human pressure in sensitive watershed areas. The duration of Project was seven years, ending in January 2014, with a total allocation of US\$3.6 million.

USAID evaluated this Project to measure progress toward the Project goals, to provide relevant information for future projects, to determine whether the assistance met the stated objective, and to provide a detailed description of the major accomplishments and weaknesses of the program. USAID formulated twelve primary questions, seven of which addressed the results of Project activities and efficacy of the implementation approach, while the others explored expert opinions on related issues for the future. The use of water funds as a tool for achieving IWRM is a relatively new approach and this Project is an opportunity to derive lessons learned for future work, as well as respond to questions that may arise when entering similar initiatives.

In reference to ***Project implementation***, the following issues were examined: i) Institutional strengthening of FONAG, ii) Effectiveness of the Project's approach to conservation management, iii) Creation of new water funds and/or consolidation of existing water funds that replicate the FONAG model in other watersheds; iv) Technical assistance to the National Water Authority (SENAGUA), v) Water funds as governance models in watershed conservation, vi) Public awareness of water issues and conservation, and vii) Sustainability of water funds supported by the Project. In reference to ***future activities*** the issues under analysis were: i) Other sustainable financial mechanisms for IWRM in the future; ii) Implications of recent legal changes in Ecuador for watershed management; iii) Institutional gaps in the conservation of watersheds in Ecuador; iv) USAID future support to new water funds; and v) Other watersheds that can benefit from a water fund.

The evaluation process measured the achievement of Project activities and indicators by qualitatively and quantitatively assessing the Project's technical approach. For each of the seven questions that focus on the effectiveness of the Project approach, four essential processes were analyzed: a) the theoretical approach; b) the methodology; c) the implementation of activities; and d) the internal monitoring and evaluation. (Details in Annex V).

A. Project implementation

Institutional strengthening of FONAG. The Project greatly contributed to the strengthening of FONAG's institutional capacity and ability to achieve its objectives. The Fund deepened and improved its capacity and potential to conceptualize and organize its long-term efforts to implement IWRM in the Quito watersheds. The Project also strengthened FONAG's ability to effectively implement both Project activities and conservation activities not funded directly by the Project. The Project increased

FONAG's capacity to address future challenges regarding institutional development, technical and technological performance, and relationships with various institutions.

Effective Contribution to Conservation Efforts. The overall Project approach effectively contributed to ecosystem conservation and water resource protection efforts in the six regions where it intervened. The Project was able to reach almost all of its overall quantitative targets, most of their qualitative targets, and the intended results for FONAG itself, as well as the five other incipient water funds. This was accomplished through environmental education, communication, protected area management, environment-friendly productive activities, and hydrologic monitoring.

Environmental education was a fairly effective contribution to conservation management efforts. This approach generated an important knowledge base regarding water and an interest in water resource conservation in student groups in two of the regions (FONAG in Quito and Fondo Paramos in the Tungurahua Province). The approach could serve as a model for the country's basic education curriculum with regards to conservation.

Communication strategies were effective in promoting the concept of integrated management of water resources, the importance conserving the watershed, and providing institutional information about the water funds and the Project to urban audiences. However it did not make use of the opportunity to generate actual dialogue with rural groups who are key in the conservation processes in the field.

As for the **management of protected areas**, various water funds used common technical approaches for "control and surveillance" strategies within the protected areas although it is hard to determine their collective contribution to conservation efforts due to social and natural factors which generate diverse results. The funds were part of the Project for various lengths of time and received unequal resources (see Appendix 2) leading to varied results among funds. Three funds (FONAPA, FONAG and *Fondo Paramos*) were rated highly effective in protected area management with significant differences among them, while the other three funds (FONES, PROCUENCAS and FORAGUA) were rated medium to low with slight differences among them.

Concerning **conservation-friendly productive small projects (also considered alternative economic activities)**, it is also difficult to determine the overall effectiveness of the Project's approach to decrease the environmental impact of agriculture and livestock in most of the intervening watersheds by introducing alternative income sources from crafts, tourism, and small-animal husbandry. The individual performance varied, with some activities being fairly effective and others only average. From this standpoint, the efficiency of this approach to further conservation was high in one fund (FORAGUA), average in two (FONAPA and FONES), and average to low in another two (FONAG and PROCUENCAS).

With respect to **hydrologic monitoring**, the evaluation concluded that the Project established two effective monitoring systems: the Guayllabamba Basin hydro-meteorological monitoring network and the FONAG activity monitoring system.

Technical Assistance to Replicate the FONAG Model. The evaluation showed that the Project's technical assistance to replicate the FONAG model in other regions of the country was effective. The Project helped five regions of the country replicate the fundamentals of FONAG's conservation experience to meet the Project's ultimate goals: to engage water users in watershed protection, to contribute to the financial sustainability of protected area conservation, and to promote sustainable use of natural resources in economically productive and environment-friendly activities. The Project achieved its primary goal of creating, with the participation of public and private water users, three regularly operating water funds that use the trust fund model as a financial mechanism, thereby essentially replicating FONAG's financial and technical conservation approaches. Additionally, the Project consolidated two other existing regional water funds.

The Project provided technical and economic assistance to each water fund. This included the implementation of a long-term agenda for conservation of biodiversity. The Project provided technical assistance on administrative and financial procedures to all of the funds for activities regarding the protection of wetlands and watersheds, management best practices, productive projects, and environmental education and communication, as well as control and surveillance of protected areas for some funds. The Project's technical assistance to the regional funds consisted of site visits to exchange experiences, training workshops, and monitoring of each fund's administrative and financial processes and procedures.

Technical assistance to the National Water Authority (SENAGUA). The Project adequately implemented all of the technical assistance activities planned in collaboration with SENAGUA. These included an examination of SENAGUA's institutional capacity as the sole national water authority, and proposed initiatives to strengthen that capacity. The Project's work with SENAGUA included designing policy guidelines for water resource strategies, laying the foundation for a national water-concession inventory system, and creating a "watershed council" to democratically govern water use and protect water resources.

Water Funds as a Governance Model for watershed management. The evaluation considers that the current structure and management capacity of water funds supported by the Project and their experience developed so far reveal that these mechanisms are adequate to promote democratic governance processes for the use of water and watershed conservation. However, water funds should not be considered "governance models" because governance is a wider social complex process whose leadership needs to be democratically decided upon. Nonetheless, a water fund may eventually serve as management mechanism to facilitate a governance process in any watershed.

Public Awareness on Water Issues and Conservation. The evaluation found that in certain zones of the six provinces where the water funds operate people have high levels of basic awareness about the value of water, watershed protection, and ecosystem conservation. This level of awareness is higher than reported two years ago, but it was not possible to determine to what extent the Project activities have influenced this.

Sustainability of the Water Funds. Four of the six water funds (FONAG, Fondo Páramos, FONAPA, and FORAGUA) are viable and have good sustainability levels according to socio-political, legal, technical, economic and financial criteria. In contrast, the other two funds created prior to the Project (PROCUENCAS and FONES), which the Project attempted to consolidate, were not able to function independently and decided to partner with FORAGUA to act jointly in the southern part of the country. On average, all the funds were more sustainable from a legal and technical perspective, but showed less consistency in political, economic and financial terms. To evaluate the sustainability of each fund various features were assessed that measure their soundness and ability to achieve their main goals at present and in the near future.

B. Future Activities

Other Sustainable Financial Mechanisms to Consider for Watershed Conservation. The evaluation suggested six financial mechanisms that may be considered by USAID in the future to promote governance for watershed conservation and water use: 1) The FONAG mechanism, with the improvement of some structural and functional elements; 2) A Municipal or Provincial Commonwealth Financial Mechanism, as represented by the FORAGUA water fund which comprises a group of local governments that provide a share of an environmental tax on water services to the fund; 3) The Fondo Ambiental Nacional (FAN) Model, which manages resources from international donors for ecosystem conservation; 4) The *Socio Bosque* program wherein the Government of Ecuador pays incentives for the conservation of forests and *paramos*; 5) A Private Environmental Fund Mechanism that brings together private enterprises, entrepreneurial chambers, producers associations, and water users to manage a fund for water management with their financial resources and international donations; and 6) A Community Water Funding Mechanism that brings together community organizations around the governance of water use at micro watersheds with funds from international and national donors.

Implications of Legal Changes for Water Funds Operation. The recent changes in the legislation concerning water and watershed management in Ecuador have no legal implications for the operations of Project-supported water funds. They can continue operating under the prevailing legal circumstances, but must take into account the regulations governing use of public funds, when applicable.

Institutional Gaps in Watershed Conservation in Ecuador. The evaluation found seven institutional gaps present in the process of watershed conservation in Ecuador which USAID could address as part of its assistance programs. These gaps are related to legal, strategic, financial and operational aspects of watershed management, and in the development of scientific research to support conservation of ecosystems.

USAID Support for New Water Funds. The evaluation concluded that USAID should not sponsor the development of new water funds in Ecuador, given the country's current social, economic and environmental situation and the viability of the funds already created or consolidated by the Project. It is preferable to continue supporting the consolidation and strengthening of existing funds, taking into account that their missions are long-term and that the domestic and foreign economic, political, scientific, and technical circumstances relevant to IWRM will have changed by the time the funds fulfill a significant part of that mission. This could create opportunities, if their economic, legal and technical viability allows, for some of them to expand their spheres of influence to cover other watersheds, as appropriate taking into account specific regulations in certain geographic areas.

New Watersheds to Benefit from Water Funds. Three additional watersheds are suggested that could benefit with the support of a water fund on the basis of two criteria: watersheds with high levels of biological and/or socio-cultural value such as the Napo Watershed and the Pastaza medium-Watershed; and watersheds in zones with shortage of water, such as the Guayas Watershed.

General conclusions

The Project achieved most outcomes to a satisfactory degree, as demonstrated by the quantitative indicators and most of the qualitative indicators. The Project met its overall goals in all essential aspects. The Project succeeded in formalizing financial and political commitments among large and medium-sized public and private water users to pursue initiatives for the protection of watersheds outside of FONAG's target area. As a consequence, three new water funds were created while two previously formed were consolidated, all of which assimilated most of the general FONAG model while conserving their own cultural and political particularities. The Project consolidated several innovative financial mechanisms for use in supporting IWRM and management of protected areas which contributed to economic and financial sustainability in the management of the particular protected areas involved. Finally, the Project improved public awareness in key sectors about the need for sustainable use of water resources through integrated watershed management to ensure adequate present and future availability of these resources for both social and ecological needs. It demonstrated that democratic governance of water use and watershed protection is possible when authorities and public/private water users are involved in decision-making, and those decisions are grounded in sufficient scientific information. It piloted various technical approaches to intervening in watersheds that, while not achieving all of the possible

conservation outcomes, generated important lessons learned for the water funds to implement IWRM activities independently in the future.

FONAG's institutional strengthening was an essential outcome of the Project, which significantly increased its ability to carry out its primary activities satisfactorily. Specifically, FONAG invited other domestic and foreign donors to invest in watershed protection through the Fund, effectively managed its endowment and other complementary funds, implemented approaches and strategies of varying complexity for managing protected areas and conservation-friendly production projects, and supported the replication of this financial mechanism in other regions and watersheds in the country. Likewise, FONAG provided technical assistance to SENAGUA to design and implement a national strategy for integrated water resource management, and provided a demonstration of water use governance around IWRM. FONAG's improved institutional capacity contributed to the development of a pilot network for monitoring water quality and quantity and a system for monitoring and evaluating FONAG's conservation activities, as well as its implementation of creative environmental education efforts. This education program laid the foundation among groups of students for water protection, and disseminated abundant information, although it missed the opportunity to generate conservation dialogues with key rural audiences.

The Project raised awareness about the issues of watershed management in the national environmental agenda thereby contributing to public opinion of water as a fundamental part of human rights and essential for quality of life, and the importance of its protection. An overall final result is that it succeeded in encouraging no less than ten watersheds (mostly laying outside the boundaries of the official protected areas) in six geographical regions to adopt elements of structured watershed management for the first time. These elements include the protection of water resources, monitoring of the state of the protected areas, scientific research on the hydrologic and biodiversity resources in the area, training, and education activities.

GLOSSARY

- **Commonwealth:** Association of persons and/or institutions with common interests for a given end - i.e. the local/regional autonomous governments.
- **Conservation:** Refers to the maintenance *in situ* of ecosystems and natural or semi natural habitats, and of viable populations of species in their own natural environment, and in the case of domestic or cultured species in the environments where they have developed their distinct properties. (CDB, Art. 2. Use of Terms: <http://www.cbd.int/convention/articles.shtml?a=cbd-02>).
- **Hydrographical Watershed:** Space of land limited by the highest parts of mountains, hills or knolls where a superficial drainage system converge concentrating water from rivers, rivulets and streams into a main river which flows either to the sea, or to a lake or to any larger river. (Program A7018MIC: Integrated Watershed Management, Agriculture and Sustainable Use of Natural Resources. FONAG 2008).
- **Impacts:** The positive or negative effect of any action or object over a natural or social system that modifies its structure or function..
- **Integrated Watershed Management:** The management and use of the natural resources that exist in the watershed. It also refers to the set of integrated, oriented and coordinated actions around the changeable elements of the environment with the purpose of sustainably raising the quality of life of populations established there (FONAG).
- **Risk Analysis:** The study of actual or potential threats that endanger or can endanger the existence of one or all of the key elements of any watershed financial management system.
- **Awareness:** Perceptive state of people during which they feel predisposed voluntarily or involuntarily to pay priority attention to certain facts or events that threaten their interests.
- **Sustainability:** The equilibrium that exists between the surviving needs of any natural species and the availability of the resources from the environment to which it belongs; also, the quality of any process, object or situation of keeping up itself as such during the necessary time to comply its mission in the space where it develops. (FONAG)
- **Threats:** Aspects of natural and social origin that damage the ability of ecosystem processes to function.
- **Trust:** A legal arrangement whereby control over property is transferred to a person or organization (the trustee) for the benefit of someone else (the beneficiary).
- **Watershed Council:** A governing body from a hydrographical watershed with representatives from its water users and other constituents who decide how to administer the use and protection of water. (FONAG: Plan de Manejo Integrado de los Recursos Hídricos de la Cuenca Alta del Guayllabamba, 2009).
- **Water users:** The people and institutions that use the water for domestic and/or industrial purposes.

ACRONYMS

IDB:	Interamerican Development Bank
CEDET:	Comité Ecuatoriano de Desarrollo Económico y Territorial
CELEC:	Corporación Eléctrica del Ecuador -Hidropaute
COSUDE:	Agencia Suiza para el Desarrollo y la Cooperación
COOTAD:	Código Orgánico de Organización Territorial, Autonomía y Descentralización
QMD:	Quito Metropolitan District
ECUABILITY:	A private company of risk assessment services
ELECAUSTRO:	Compañía Electro Generadora del Austro
EMAPAL:	Empresa Municipal de Agua Potable y Alcantarillado de Azogues
ETAPA:	Empresa de Telecomunicaciones, Agua Potable, Alcantarillado y Saneamiento de Cuenca
EMAPA:	Empresa Pública- Municipal de Agua Potable y Alcantarillado de Ambato.
EPMAPS:	Empresa Pública Metropolitana de Agua Potable y Saneamiento (Quito)
FAN:	Fondo Ambiental Nacional
FONAPA:	Fondo para la Conservación de la Cuenca Alta del Río Paute
FONES:	Fondo Espíndola
FORAGUA:	Fondo Regional del Agua (Loja-Zamora-El Oro)
FMPLPT:	Fondo Municipal Páramos y Lucha Contra la Pobreza en Tungurahua
GAD:	Gobierno Autónomo Descentralizado
GADP:	Gobierno Autónomo Descentralizado Provincial
GIZ:	Cooperación Técnica Alemana
IESS:	Instituto Ecuatoriano de Seguridad Social
IWRM:	Integrated water resource management
HIDROAGOYAN:	Unidad de Negocio Hidroagoyán de CELEC
HIDROPASTAZA:	Empresa Pública Hidropastaza
INAMHI:	Instituto Nacional de Meteorología e Hidrología
IRD:	Instituto Recherche pour le Development
MAE:	Ministerio del Ambiente del Ecuador
MAGAP:	Ministerio de Agricultura, Ganadería, Acuacultura y Pesca
NCI:	Naturaleza y Cultura Internacional
NGO:	Non-Governmental Organization
EDP:	Environmental Education Program, FONAG
PNCC:	Parque Nacional Cayambe Coca
PNLL:	Parque Nacional Llanganates
PNC:	Parque Nacional Cotopaxi
PNEC:	Parque Nacional El Cajas
PNP:	Parque Nacional Podocarpus

PNS: Parque Nacional Sangay
PNSNG: Parque Nacional Sumaco Napo Galeras
PROCUENCAS: Fondo para la Protección de Cuencas de Zamora
REA: Reserva Ecológica Antisana
HR: Hydrologic Resources
SENAGUA: Secretaria Nacional del Agua
TNC: The Nature Conservancy

V. GENERAL CONCLUSIONS

- The various components of the project activities were adequately performed, which made it possible to achieve most outcomes satisfactorily, as measured by their quantitative and qualitative indicators, thereby meeting the Project goals in all essential aspects. The Project was able to formalize financial and political commitments with both large and medium-sized, and public and private water users to work on IWRM initiatives in regions outside of FONAG's jurisdiction. The Project created three new water funds, and consolidated two others that were in the initial steps of formation when the Project started. The Project piloted and delivered helpful lessons learned about several innovative financial mechanisms for promoting the economic and financial sustainability of the management of protected areas. Finally, it promoted the need for sustainable use of water resources through integrated management to ensure adequate present and future availability of these resources for both social and ecological needs among a diverse range of stakeholder groups. As part of this promotion, the national watershed management agenda became more visible, and public opinion gained a reasonable level of awareness of water as a fundamental human right that is essential to life on this planet and must be protected. The Project also demonstrated, with a significant degree of social consensus, that democratic governance of water use and protection is possible when both official authorities and public/private water users and communities in a basin are involved in the decisions made and actions taken, if those decisions are grounded in sufficient scientific, social, and ecological data. It piloted various technical approaches to intervening in watersheds that, although still not able to show all of their ideal attributes, generated significant experiences and lessons learned. This learning was achieved through the implementation of conservation activities by the water funds that will also be in charge of managing an effective transition towards IWRM on a national scale.
- FONAG's institutional strengthening was an essential outcome of the project, which significantly increased its ability to carry out its primary activities satisfactorily and reach important landmarks towards achieving its mission. Specifically, FONAG invited other domestic and foreign partners to invest in watershed protection through the fund, and effectively managed its endowment and other complementary funds. It implemented approaches and strategies of various complexities for managing protected areas and conservation-friendly production projects, and supported the replication of this financial mechanism in other regions and watersheds of the country. FONAG's institutional capacity served to help Ecuador's sole water authority to optimize its use of technical means to develop a policy framework for a national strategy for IWRM. FONAG collaborated with SENAGUA to demonstrate a strategy for improving water use governance and integrated water resource management, as well as develop a pilot network for monitoring water quality and quantity. Finally,

FONAG created a system for following up on its activities, implemented creative environmental education efforts, laid a solid foundation of knowledge and motivation among groups of students for water protection, and disseminated abundant information, although it missed the opportunity to generate conservation dialogues with key rural audiences.

- FONAG's technical assistance to replicate its model in other regions of the country was effective in so far as it supported the creation and consolidation of five financial and technical mechanisms that meet the basic requirements to ensure adequate legal and economic sustainability of the water funds.
- A few specific assistance activities did not meet the funds' expectations, and others were not fully adopted because the lack of agreement with some particular aspects of FONAG's approach. However the three viable funds (*Fondo Paramos*, FONAPA and FORAGUA) adopted the essentials of FONAG's technical approach to implement a long-term conservation agenda; an aspect that was less visible in the other funds.
- Each water fund has achieved its own particular level of institutional sustainability which depends on its local context, but the way each one approaches its organizational development is what has the greatest effect on its sustainability. Three funds (*Fondo Paramos*, FONAPA and FORAGUA) achieved a solid overall sustainability with FONAG, while FONES and PROCUENCAS decided to join FORAGUA because they were not viable as independent water funds. They are all more sustainable from a primarily legal but also technical perspective, while they were less consistent in social, political, economic and financial aspects. The viable funds reached a reasonable level of organizational development during the Project implementation.

The water funds made several good contributions to ecosystem conservation and water resource protection through surveillance of protected areas and the implementation of 17 pro-conservation productive projects in four of the six regions where the viable funds had their operations (Quito, Tungurahua province, Paute and Loja). These funds adopted programs with a similar general approach yet tailored to the natural and social diversity of their unique environments,, and adapted the resources available. The non-viable funds implemented few substantive activities.

In the FONAG region, which covers the Guayllabamba basin, the Project strengthened the five FONAG's programs which it supported: environmental education, communication, protected area management, productive projects and hydrologic monitoring. The approaches of these programs were effective in achieving the particular goals because FONAG applied suitable technical, administrative and scientific rigor. As a result, the project's conservation efforts in the Guayllabamba basin generated significant positive socio-environmental dynamics, whose impacts will be seen over several years. In the other regions, the three viable funds were also

fairly effective, as measured by the quantitative indicators of the conservation efforts (e.g. hectares with improved management) and by their impact on human behaviors related to conservation.

- As for conservation practices and productive activities, these small scale actions are still unable to demonstrate sufficient sustainability in some of the activities aimed at contributing to food security and/or creating sources of alternative employment for people. A number of experts in this field have proposed that the availability of time and resources, as well as the use of methodological approaches that require changes in certain cultural traditions, are significant determinants of activity success. In some cases, not enough time has passed to see the social and ecological impacts of various interventions. In general, the project has started meaningful efforts on several fronts of water resource protection and watershed conservation. The subsequent strategic institutional interventions by the water funds will effectively contribute to a solid transition towards integrated water resource management. A final overall outcome is that the project succeeded in adopting for the first time some elements of a structured IWRM practice, such as the protection of water resources, monitoring of human pressures on watershed health, scientific research on the hydrologic and biodiversity resources in various watersheds, and education activities, in no less than ten watersheds in six geographic regions. These elements of IWRM are generating new demands for watershed restoration and protection actions that were not previously recognized.

VI. SUMMARY OF RECOMMENDATIONS

The institutional capacity of water funds

For the implementation team

- In the various water funds, create a strategic plan for the integrated development of each fund covering, at minimum, a period of 25 years. Consider defining indicators in the areas of sustainability and setting realistic goals for institutional growth.
- Broaden the water funds' efforts to build capacity to propose programs and projects that will help meet long-term conservation goals.

For USAID

Increase investments in high-level training for technical and administrative personnel of water funds particularly those with weaker capacities (FONES and PROCUENCAS).

Effectiveness of the Project Approach for Conservation

For the implementation team

- Conduct baseline studies on the various components of the programs in the water fund activity portfolio. For example, in relation to environment-friendly productive

activities: studies about the predominant productive activities in key sectors of watersheds that require conservation actions; number of people involved in productive activities; production trends concerning types of products and services; investment revenues, production costs, productivity, commercialization. In environmental education: surveys on knowledge, attitudes, and behaviors about water issues, protection of water resources, participation in community work, accessibility to technical and recreational information, levels of environmental awareness. On protected areas management: secondary-information studies on the conservation condition of specific places in watersheds; parks rangers training needs; sites of priority surveillance activity; areas under diverse type of conservation management.

- Update the theoretical and conceptual approach of its education efforts in all water funds, seeking to contribute directly to conservation as well as raise awareness about the importance of water resources.
- Broaden environmental education coverage to the entire school system in the water funds' areas of intervention.
- In all the water funds, create a system of indicators for conservation outcomes that will result from alternative economic activities.
- Complement the monitoring system that was developed using data from the hydrometeorology network and other sources, for periodic evaluation and recalibration of the Project's objectives, targeted biodiversity threats and interventions.

For USAID

- Provide greater support for communication activities that contribute to conservation.
- Sponsor water fund projects to research, test and evaluate approaches that enable more direct, sustained community engagement in watershed conservation activities, and ensure the effectiveness of alternative productive activities.
- Sponsor conservation projects aiming to create small watershed development centers for conserving water resources, which will make it possible to create "learning communities" for watershed protection and involve family groups or community groups with shared responsibilities and guarantees.

Assistance to replicate the FONAG model

For the implementation team

- Reframe the replication strategy of FONAG's model so it applies other regions considering the common and differentiated technical and financial aspects that can be implemented simultaneously and at different times, so as to provide more solid assistance and create opportunity for "creating learning communities" around issues of common interest.

For USAID

- Design a protocol of the necessary preconditions for sponsoring the creation of new funds.
- Set requirements for investing in productive activities that will ensure that they are designed on the basis of technical, economic and financial assessments, as well as the capacities of the organizations that will receive resources to implement the project.

Technical assistance for SENAGUA

For the implementation team

- Continue providing similar technical assistance to SENAGUA, and define new areas for assistance for water governance and the national strategy for integrated, participatory management of water resources.

Water Fund Sustainability

For the implementation team

- Develop long range policies for building the capacities of internal work teams in water funds as a type of investment strategy that can increase their institutional competitiveness for accessing to resources over time.
- Examine the technical, ethical and economic pros and cons of water fund investment options in profitable public projects, particularly hydroelectric, mining and tourism projects.

For USAID

- Adopt a definition of how USAID perceives the mission and purpose of a "water fund," as a financial mechanism for integrated management of water resources, and as a tool for supporting coordinated watershed governance systems.

VII. LESSONS LEARNED

- Formally involving small users in water funds achieves more political support for fund survival than involving large users.
- Long-term institutional alliances are more productive than occasional strategic alliances for carrying out activities of common interest that require various technical specialties for conservation and when outcomes take time to appear. This prevents water funds from having periods when they need to sharply increase their staff and other periods of downsizing due to a lack of resources.
- Amendments to trust agreements seen in some funds indicate that there are no secure "locks" that will ensure the life of these funds. It is important to find multiple institutional and personal allies who can provide political, economic and legal support from both the inside and the outside of the related chains of influence over time.

- Technical assistance for funds to replicate elements of an intervention approach, when done at a distance without timely, systematic, on-site efforts, tends to be less effective than a face-to-face approach.
- Water funds are unable to develop financial and economic sustainability when the scale of the social economic area in which they intervene is small. Adequate financial analysis is needed before initiating a Water Fund.
- It is difficult to build a successful productive project initiative on weak baselines. It requires more systematic research and technical assistance with beneficiary engagement, to associate the productive activities with effective indicators for conserving and managing the ecosystems or areas to be protected. Otherwise, there will always be problems demonstrating a productive project's ability to contribute to conservation.
- Showing an impact on actual conservation usually requires longer periods, with more differentiation among the diverse elements of the pertinent ecosystems, than projects tend to have.
- The education and communication elements of the Project have limited impact on behavioral changes vis-à-vis conservation needs if they do not have a persistent large-audience coverage that can produce this type of widespread, long term adoption of new attitudes towards water resources and achieve small but recurring changes in people's behaviors, practices and habits.
- Human pressures on fragile ecosystems will not be decreased merely by moving practices or uses from those areas to other sites through alternative productive projects. Their effect will last only as long as external economic support is available, unless value is added to users' traditional practices and support is given for solid technological development of their agricultural processes with sufficient consultancy, training and follow-up. These approaches have to be accompanied by other elements, such as community education, awareness, and the involvement of other sectors i.e. private users.
- It is advisable to engage government stakeholders in building long-term conservation agendas based on identifying goals or areas of common interest. Although these agendas can always change, they reduce the potential for conservation alliances to be left without effect due to administrative changes within the institutions in an alliance.
- The intensity of short-term educational campaigns leaves significant emotional and cognitive marks in students. However, they will develop the ability to learn and accumulate knowledge and experience on the subject if they have an opportunity to interact with their educational communities throughout life starting with their families and school systems, so it is necessary to involve these groups in programs.
- The outcomes of communication efforts towards institutional visibility are not as lasting as efforts aimed at supporting conservation activities.
- Efficiency, effectiveness, and efficacy are concepts that should be studied more deeply to determine a project's contribution to enhancing conservation outcomes, and should be established from the beginning of its design and implementation.