



FINAL EVALUATION REPORT

PROJECT TITLE:
**“INTEGRATED MANAGEMENT OF THE ECOSYSTEM IN THE
COTAHUASI RIVER BASIN”**

**UNITED NATIONS DEVELOPMENT PROGRAMME
GLOBAL ENVIRONMENT FACILITY**



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The analysis and recommendations made in this document are only the authors' opinions and they do not necessarily reflect the points of view and opinions of the United Nations Development Programme, of its Board of Directors or of the Member Countries of the United Nations.

Table of Contents

1. EXECUTIVE SUMMARY.....	5
2. INTRODUCTION	6
2.1. Purpose of the evaluation	6
2.2. Key issues addressed by the evaluation.....	6
2.3. Methodology of the evaluation.....	6
3. THE PROJECT AND ITS CONTEXT	6
3.1. Project Cycle (from the project idea to the first disbursement of funds)	6
3.2. Key issues addressed by the project	Error! Bookmark not defined.
3.3. Project Objectives	7
3.4. Key Actors	8
3.5. Expected Results	9
4. RESULTS AND CONCLUSIONS.....	10
4.1. Formulation of the project	10
4.2. Implementation of the project	13
4.3. Results	17
5. COMPLIANCE WITH THE RECOMMENDATIONS MADE BY THE MIDTERM EVALUATION.....	29
6. LESSONS LEARNED.....	31
ANNEXES	32
Annex 1: Documents consulted.....	33
Annex 2: Itinerary of the Field Visit and Details of the Interlocutors	35
Annex 3: Training Events and Consensus Roundtables.....	37
Annex 4: Farmers' Income.....	41
Annex 5: Terms of Reference for the Evaluation.....	Error! Bookmark not defined.

Acronyms and Abbreviations

AEDES	Specialized Agency for Sustainable Development
APCO	Association of Organic Crop Producers
APROPLAME	Association of Producers of Medicinal and Aromatic Plants
ASOTURS	Association for Sustainable Tourism in the Cotahuasi Sub-Basin
EEZ	Economic-Ecological Zoning
FECCPLU	Federation of Camelid Breeders of La Unión Province
GEF	Global Environment Facility
GIS	Geographic Information System
INEI	Peruvian Institute of Statistics
NGO	Non-Governmental Organization
PIR	Project Implementation Report
PROEL	Association of Organic-Ecological Farmer Producers of La Unión Province
PRONAMACHS	National Program for Watershed Management and Soil Conservation
RPC	Cotahuasi Landscape Reserve
SENASA	National Service of Agriculture Sanitation
SERNANP	National Service of Natural Protected Areas
UNDP	United Nations Development Programme

Acknowledgements

The Evaluation Team would like to thank the members of AEDES, who provided their support throughout the evaluation and contributed to its success. Even though some time has passed since the project concluded, AEDES responded to the evaluation with the responsibility and the seriousness required, not only in the work sessions conducted in the Arequipa office but also in Cotahuasi. Some people who are no longer members of AEDES were willing to travel to very distant places such as the Cuspa community. This is something which should be highlighted.

We would also like to acknowledge the collaboration provided by the beneficiaries themselves, who devoted their time to the interviews even in the early hours of the morning, as was the case in the Quillunza, Taurisma and Cuspa communities.

1. EXECUTIVE SUMMARY

Since 1996, AEDES works towards promoting the conservation and sustainable use of natural resources in the Cotahuasi River Basin. AEDES made a fundamental contribution towards obtaining the 'Landscape Reserve' category in La Union Province.

The intervention strategy of the Cotahuasi Project focuses on creating economic improvements in order to promote the adoption of environmentally-friendly production practices and services by local actors. In this sense, the promotion of organic production – which makes it possible to access markets where products have aggregate value – was one of the factors for the success of the project.

The project also focuses on building and strengthening the capacities of local actors to perform different roles (producers, decision-makers, organizations) and promotes the implementation of the required infrastructure in the intervention area.

The Cotahuasi Project was also effective in terms of its participation in local decision-making instances (consensus roundtables) and its territorial coverage, which allowed to reach the high areas of the basin in order to work with the communities on issues related to livestock farming (camelids) and conservation of *bofedales*¹.

As a result of the consistent capacity-building effort developed by the project, the concepts related to the sustainable use of natural resources, the recovery of traditional agricultural practices and agrobiodiversity were internalized by the local actors – from producers to community leaders and authorities.

The final evaluation was conducted three years after the conclusion of the project. This allowed to measure to what degree the project's teachings, i.e. the project's legacy to the beneficiaries, have persisted.

The Evaluation Team concludes that the project fully achieved its commitments, both in terms of quantitative criteria (reaching goals) and qualitative criteria (quality of the goals). The majority of the project results were rated as 'satisfactory' and some as 'highly satisfactory'.

However, it was observed that some processes might be affecting the rigorousness of the organic certification process. The evaluation also identified as a pending issue the need to reinforce the aspects related to business efficiency and management quality within the Associations of Organic Producers.

The Evaluation Team regrets that the recommendation made by the midterm evaluation as regards to the preparation of a publication summarizing the achievements and the lessons of the project – so that similar initiatives could benefit from the intervention – was not carried out.

¹ High Andean wetlands

As regards to the lessons learned, the participation in local consensus roundtables was a strategy which proved to have a considerable positive impact. Consensus roundtables (participatory instances recognized by the legislation applied to local governments) perform a role as 'vectors' that enable the technical proposals of the project to reach the local population.

2. INTRODUCTION

2.1. Purpose of the evaluation

The purpose of the evaluation is to review and document the scope and the quality of the results of the project, and to inform about its sustainability, considering that the evaluation is conducted three years after the conclusion of the project.

2.2. Key issues addressed by the evaluation

The following aspects were reviewed by the evaluation team:

- The level of accomplishment of the project objectives and expected results
- The cost-effectiveness of project expenditure (budget execution)
- The permanence and persistence of the processes started by the project

2.3. Methodology of the evaluation

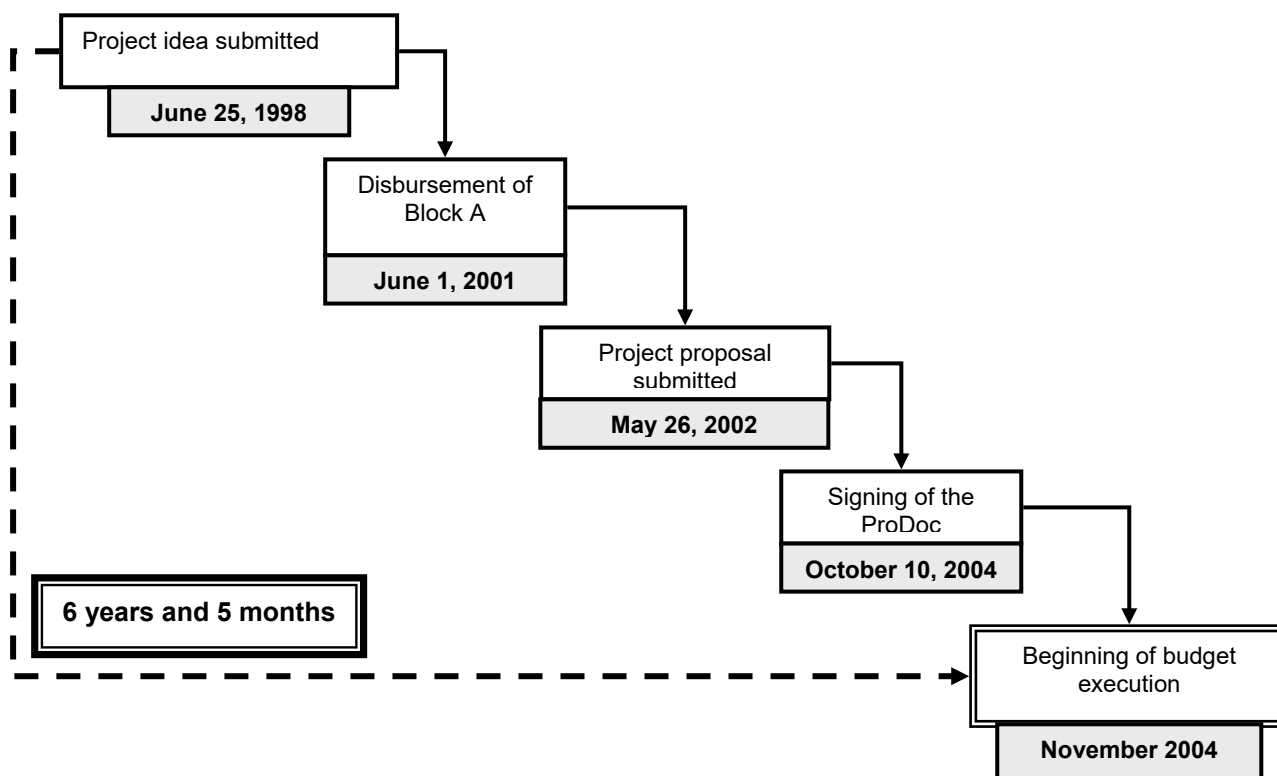
- Review of the project information (See Annex 1)
- Field visit (See Table in Annex 2):
 - Inspection of the works implemented by the project
 - Meetings and interviews with local actors
- Meetings with the project team in the Cotahuasi and Arequipa offices
- Submission of a draft report
- Reception of the contributions made to the draft report
- Submission of the Final Evaluation Report

3. THE PROJECT AND ITS CONTEXT

3.1. Project Cycle (from the project idea to the first disbursement of funds)

Chart 1 shows the timeline of the project management cycle.

Chart 1: Project Management Cycle



The chart shows that the time elapsed between the submission of the project idea and the first disbursement of funds was six years and five months.

According to the final project document,² the project concluded in May 2008. As regards to the project duration, the time elapsed between the project start date (beginning of budget execution in November 2004) and the project end date (submission of the final project document in May 2008) was four years.

3.2. Key issues addressed by the project

- Deforestation and overgrazing cause soil erosion and result in the destruction of the habitat and the decline of native species of the flora and fauna
- Biodiversity – and particularly agrobiodiversity – is threatened
- Disorderly growth and supply of tourism services
- Traditional ecosystem management practices have been abandoned; this has contributed to erosion and desertification
- Inefficient water management (use and conservation)
- Lack of an integrated strategy for the management of natural resources in the Cotahuasi river basin

3.3. Project Objectives

As outlined in the Logical Framework:

² Project Implementation Review (PIR); 2008 - OP 12

- Long-term Objective: The conservation of biodiversity and the reduction of soil degradation in the Cotahuasi river basin.
- Short-Term Objective: By the end of the project, a system for integrated management of the ecosystem will be in place - implemented, managed and supported by the local population. The system will guide the conservation and sustainable use of biodiversity and natural resources, reduce soil degradation and desertification, and control mining, tourism and other economic activities in the project intervention area.

3.4. Key Actors

The key actors of the project are the inhabitants of the Cotahuasi sub-basin, an area that comprises the entire territory of La Union Province, where the Landscape Reserve is located. The key actors are classified as follows:

- Authorities:
 - La Union Provincial Government
 - District Municipalities
 - *Campesino* communities
- Local organizations:
 - Associations of farmers (APCO, PROEL, APROPLAME); these associations were promoted by the project
 - Federations of *campesino* farmer communities
 - Organizations of Alpaca breeders
 - Associations of Irrigation Users
 - Irrigation Boards
 - *Grupo Empresarial La Union* (a group of 17 micro-enterprises and associations)
 - Mothers' Clubs
 - ASOTURS (Association for Sustainable Tourism in the Cotahuasi Sub-basin)
- Educators
 - School directors and teachers

One of the objectives of the project is to build the capacities of these actors since they are expected to be the 'agents of change,' i.e. the ones who will adopt the attitudes and practices that will help protect the environment and promote a sustainable management of natural resources.

Apart from its role as implementing agency, AEDES is also a key actor. It is worth noting that AEDES was present in the area prior to the project intervention. Box 1 provides an overview of this non-governmental organization.

Box 1: Overview of AEDES

AEDES was created to carry out actions that aim to achieve the consolidation of human and political rights through the promotion of self-help and business development, and the democratization of local governments so that they can be better prepared to undertake sustainable development actions in the Natural Protected Area of Cotahuasi. AEDES is a leading institution at sub-national and national levels in the following areas: (i) local sustainable management of natural resources; (ii) promotion of agricultural produce exports (eco-friendly products); (iii) participatory and concerted municipal management; and (iv) advice to organizations on development planning with focus on gender and interculturality.

During the last few years, AEDES has carried out a number of actions in the Cotahuasi River Basin (La Union province - Arequipa region). AEDES comprises a General Assembly, a Board of Directors, an Executive Management, a Technical Committee, an Administration and Accounting Area, and a Planning and Monitoring Area. AEDES works mainly with local governments, associations of producers (men and women), students and teachers in La Union Province – one of the regions with the highest rate of extreme poverty in the country and the highest in the Arequipa region.

Other actors involved in the project:

- The project team
- SERNANP (former INRENA)
- SENASA (promotion of good agricultural practices, integrated pest management, trade control and use of agrochemicals)
- Regional Government of Arequipa
- UNDP officials

3.5. Expected Results

Result 1: Biodiversity is protected in conservation areas and sustainably managed in other parts of the Cotahuasi basin.

Result 2: Natural resources are sustainably and productively managed under the system for integrated management of the ecosystem.

Result 3: Increased incomes for the local population as a result of the introduction of alternative economic activities based on the sustainable use of natural resources.

Result 4: The population and the local authorities are aware of the relation between the use and the degradation of natural resources, and are trained in the integrated management of the ecosystem of the basin; they support this initiative.

Result 5: Implementation of infrastructure for the integrated management of the ecosystem in the Cotahuasi basin.

4. RESULTS AND CONCLUSIONS

Most of the ideas expressed in the Midterm Evaluation Report also apply to this Final Evaluation Report.

4.1. Formulation of the Project

- Conceptualization/Design

The conceptualization and design of the project are based on the principles that rule the management and utilization of a Natural Protected Area. The strategic components of the project were developed with these principles in mind. In general, the critical points that affect or limit the sustainable development of the Cotahuasi sub-basin were adequately approached. The timeline of the intervention follows a coherent sequence. This allowed to develop the capacities of the social actors who play different roles in the project intervention area.

The project conducted the characterization of the Cotahuasi sub-basin as a center of biological, ecological and cultural diversity, and identified its special conditions and critical points. For thousands of years, the population of the Cotahuasi sub-basin has sustainably managed this rich diversity taking advantage of the technological legacy (in-situ conservation) and the infrastructure inherited from the pre-Hispanic cultures, e.g. *Andenes*.³ However, the characterization process should have included a general baseline, which could have been complemented with the detailed studies conducted in the frame of the project. This would have facilitated the visualization and measuring of the impacts of the processes promoted by the project.

In general, the Logical Framework and the different components and activities proposed by the project were adequate in terms of achieving the project objective. However, as it was previously said, the Logical Framework could have been built on the basis of a more precise and more realistic baseline, instead of one that relied on data from secondary sources – particularly the INEI – as was the case with the project.

As regards to the short-term objective, the proposal for the creation of a Natural Protected Area was positive in the sense that it sets the conditions for achieving the long-term objective.

Table 1 provides a brief assessment of the project results in terms of the level of accomplishment of the activities outlined in the Logical Framework.

³ Terraces dug into the slopes of mountains for agricultural purposes. They were constructed and much used in the Andes mountain range to provide cultivable hillsides; a traditional agricultural practice that dates back to the Inca Empire.

Table 1: Assessment of Project Results

Result	Assessment
Result 1: Biodiversity is protected in conservation areas and sustainably managed in other parts of the Cotahuasi basin.	<p>The activities proposed were appropriate and were accomplished by the end of the project, thereby contributing to the project objective. However, it is worth noting that the indicators did not have a quality baseline.</p> <p>When the project design started, the creation of the Natural Protected Area was a significant and even ambitious goal. When the project actually started, the negotiations for the creation of the NPA were in the final stage. However, this does not diminish the value of the project design and the efforts of AEDES (this institution was seeking this objective well before the beginning of the project).</p>
Result 2: Natural resources are sustainably and productively managed under the system for integrated management of the ecosystem.	<p>In the opinion of the Evaluation Team, the activities were adequately approached. The adoption of Agenda 21 by local governments ensured a very good perspective for the success of the project, particularly when capacity-building programs for officials are included in the process. The proposal for the organization of a national or international knowledge-sharing event per year was too ambitious. Such event should have been proposed for the last year only, as it was finally decided.</p>
Result 3: Increased incomes for the local population as a result of the introduction of alternative economic activities based on the sustainable use of natural resources.	<p>The support to organic production was certainly a positive step on the road towards achieving the project objective. The component on income improvement added motivation and, therefore, sustainability to the adoption of this type of economic activity by the beneficiaries. A baseline indicating the initial level of production and incomes obtained by the farmers before the project would have allowed for more impact.</p>
Result 4: The population and the local authorities are aware of the relation between the use and the degradation of natural resources, and are trained in the integrated management of the ecosystem of the basin.	<p>Result 4 and many of the activities herein proposed could have been included in Result 3. It was not clear what its nature was, as compared with Result 3. Anyway, the activities were themselves appropriate. The activities on environmental education were well approached and were fundamental for the project.</p>
Result 5: Implementation of infrastructure for the integrated management of the ecosystem in the Cotahuasi basin.	<p>Result 5 is relevant to the purpose of the project. According to the activities proposed, the infrastructure comprises roads and irrigation canals – both of them were necessary. Result 5 combines well with Result 2, which promotes decision-making platforms (consensus roundtables, Agenda 21) at local government level on issues related to public expenditure. This articulation allowed the implementation of production and service infrastructure - both of them necessary for the sustainable development of Cotahuasi.</p>

As regards to the watershed approach, the following aspects were included in the project design:

- Focus on water management (efficient use and conservation).
- Wide territorial coverage: efforts aimed at providing attention to the high areas of the basin, e.g. water distribution and conservation of *bofedales* in Culipampa and Cuspa communities.
- Promotion of consensus building spaces with participation of relevant actors in the basin (participatory decision-making).
- An approach that takes elements of the territorial management approach, namely economic-ecological zoning, land-use planning and a conceptual framework that combines the physical and the socioeconomic dimensions.

The project was in line with national and sub-national environmental policies set forth in the following agreements and instruments:

- National Action Plan of the Convention to Combat Desertification (development of information networks in public and private scientific and academic institutions involved in the fight against desertification; participation in the desertification monitoring system at country level; consolidation of food security and emergency plans to relieve the effects of drought; creation and strengthening of associations for the fight against desertification; communities affected by desertification actively taking part in the fight against this problem).
- The Organic Law on the Use of Natural Resources and the Law on Conservation and Sustainable Use of Biological Diversity provide the legal framework for the project. The project will contribute to achieve the objectives for the conservation of biodiversity set forth in the National Action Plan on Biodiversity, including improved knowledge and management systems, improved information and institutional systems, and equal distribution of the benefits derived from biodiversity. The project is in line with the Peruvian Government's current emphasis on the promotion of integrated ecosystem management programs.
- Cotahuasi is one of the poorest regions in the country. According to the HDI,⁴ quoted by INEI,⁵ the main reference for social assistance programs, two of the poorest regions of Peru (Ayacucho and Apurímac) are adjacent to the Cotahuasi Province, which is a clear indication of the socioeconomic condition of this population.

The formulation of the Model for the Management of Biodiversity in the Cotahuasi Sub-Basin – prepared by the Technical Work Group created by CONAM and the Sub-National Environmental Commission (CONAM 2002) – led to the issuance of a number of regulations.⁶ The project reinforced the activities implemented in the frame of the biodiversity management model. Additionally, the Economic-Ecological Zoning of the sub-basin conducted by AEDES in 2005 laid the foundation for concerted land-use planning actions in the sub-basin.

Rating: The conceptualization and the design of the project were highly satisfactory and included a number of successful proposals such as the promotion of organic production, which generated environmental and economic benefits. As regards to the watershed approach, although during the project implementing cycle only the high area of the Cotahuasi sub-basin (Ocoña basin) was contemplated, it is indeed the most adequate approach to the integrated management of a territory with these characteristics, given the high importance of water. It is worth noting that after the end of the project AEDES conducted a successful intervention in the low area of the basin (Ocoña).

⁴ Human Development Index

⁵ National Institute of Statistics

⁶ Municipal Decree N° 004-2002/MPLU issued on April 18, 2002 set the guidelines on environmental management for La Unión Province. Decree N° 014-GR-AREQUIPA (sub-national) issued on May 5, 2003 proposed the creation of a Natural Protected Area in the Cotahuasi sub-basin. Decree N° 021-GR-AREQUIPA (sub-national) issued on August 6, 2003 declared La Unión province a priority area for the promotion of organic production at sub-national level.

- Participation of local actors

The implementing agency has been working with local actors and authorities in the project intervention area since 1995 implementing environmental and social initiatives. Building on these initiatives, the project executed the actions that were planned with the local actors, and established a number of mechanisms in order to ensure a participatory process. The Evaluation Team concludes that the project was built on a participatory base.

Rating: The participation of local actors in the design and the conceptualization of the project was 'satisfactory'.

- Replication

At the time of this final evaluation, AEDES is working with other cooperation agencies in the low area of the basin (Caraveli Province) applying the lessons learned in Cotahuasi. In other regions, AEDES is also engaged in the promotion of agriculture with focus on organic production, articulation with alternative markets and incorporation of the participatory approach.

As indicated in the midterm evaluation, there are other ecosystems in Peru with similar characteristics, such as the Nor-Yauyos Landscape Reserve located in the Cañete Province. However, the Nor-Yauyos Landscape Reserve has had more levels of intervention due to its proximity to the capital Lima and easier access by road. As a matter of fact, the Nor-Yauyos Landscape Reserve is part of a number of well-visited tourist routes.

4.2. Implementation of the Project

- Implementing Approach

The Logical Framework was used at all times by the Project Coordinator, and the project team apparently did not have difficulties in its application. The Logical Framework remained unaltered until the project concluded.

As indicated in the midterm evaluation, the difficult access to the project intervention area and, consequently, the difficulty to hire consultants was a permanent problem for the project, although more progress was made on the issue of tourism. As a result of these difficulties, a '3x1' employment regime was adopted (three weeks of continuous work per one week of rest). However, these difficulties helped to build links with the beneficiaries, as the members of the technical team often had to stay overnight in the communities. This created an environment of trust, which has remained even after three years of the project conclusion.

At present, the road that leads to the city of Arequipa is in a better condition and the travel time has been shortened.

As indicated in the midterm evaluation, the social insertion model implemented by the project (participation in decision-making spaces) produced very positive results. The participation of AEDES staff in local consensus roundtables in the districts where the project operated was a fundamental strategy. It provided an opportunity to propose the adoption of Agenda 21 and the incorporation of a number of technical issues in local public investment plans (through participatory budgets).

At the time of the midterm evaluation, the relation with INRENA was excellent and it remained so throughout the rest of the project implementing period. AEDES and the project were somehow a guarantee for INRENA in the project intervention area.

Various informatics tools were used by the project (word processors, spreadsheets, slide-shows). Geographic Information Systems (GIS) were adequately used to insert geo-referenced data in maps prepared using *ArcView* software. As regards to technical capacities, the project team demonstrated technical competence in the execution of the tasks.

Rating: The implementing approach was 'highly satisfactory'.

- Monitoring and Evaluation (M&E)

The activities were adequately monitored by means of the Planning, Monitoring and Evaluation System developed by AEDES. The project team held regular meetings, especially before conducting field work, in order to plan for the activities and to inform about the progress made. At the time of the final evaluation, this practice was still in place. The consultants were supervised by the project team. The project team members used Excel tables to monitor the consultants' activities on a weekly basis and a global monthly report was prepared.

At the time of the midterm evaluation, two visits by Raul Tolmos (a former UNDP official) were reported (2005, 2006), as well as two audits conducted by UNDP, both of them with positive results. At the time of the final evaluation, no further evaluation visits were reported.

Rating: The monitoring and evaluation processes were 'satisfactory'.

- Participation of local actors

The efforts of the technical team for the dissemination of the technical aspects of the project were remarkable. This produced positive results not only in terms of training but also in promoting a change of attitude among the beneficiaries and a better disposition towards the project as an important initiative for the Cotahuasi region. The training materials were prepared using the appropriate language so that the different target groups could easily read and understand these materials.

During the field visit the Evaluation Team did not observe posters or other dissemination materials about the project. However, the materials prepared by ASOTURS with information about the tourist routes were visible.

Even though three years passed since the project concluded, some of the beneficiaries remembered the traineeships, especially the traineeship on the use of furrow irrigation for kiwicha crops (mentioned in the Quillunza community), which resulted in increased production, and the traineeship on improved camelid farming (mentioned in the Cuspa community).

In the conversations with representatives of associations of organic producers, tourism sector representatives and irrigation authorities the messages and the practices promoted by the project were clearly identified, which was the proof of the success of the participatory strategy.

Rating: The participatory model adopted by the project was highly satisfactory. In this sense, the participation in consensus roundtables and participatory budget processes – mentioned in the midterm evaluation – was fundamental.



A meeting of the Evaluation Team with livestock farmers in the Cuspa community

- Financial Planning

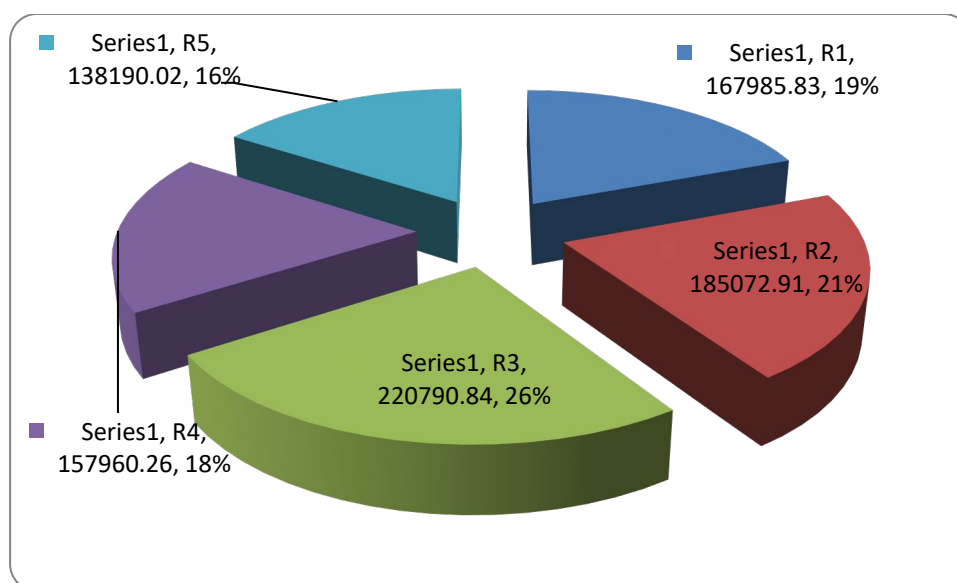
The following table was prepared on the basis of the information collected:

Table 2: Budget allocation per result and per year (US\$)

Project Result	2004	2005	2006	2007	2008	2011	Total
Result 1	3 363.51	64 077.89	48 579.07	48 628.93	3 336.43		167 985.83
Result 2	3 700	64 390.91	49 049.04	64 020.30	3 912.66		185 072.91
Result 3	1 000	71 460.48	104 123.54	41 633.45	2 573.37		220 790.84
Result 4	5 928.1	66 584.87	53 496.24	28 162.64	3 788.41		157 960.26
Result 5	0	6 357.00	14 728.81	64 402.88	31 783.95	20 917.38	138 190.02
Sub-Total	13 991.61	272 871.15	269 976.74	246 848.20	45 394.82	20 917.38	869 999.9

The following chart will facilitate the analysis:

Chart 2: Percentage of budget execution per result



As Chart 2 indicates, the budget execution was more or less even for the five expected results, at the end of the project. If compared with the level of budget execution at the time of the midterm evaluation, there is an increase in expenditure in Result 5, which at the moment of the midterm evaluation was just 8%. In contrast, there was a drastic reduction in the level of expenditure in Result 3, which at the moment of the midterm evaluation was 27%.

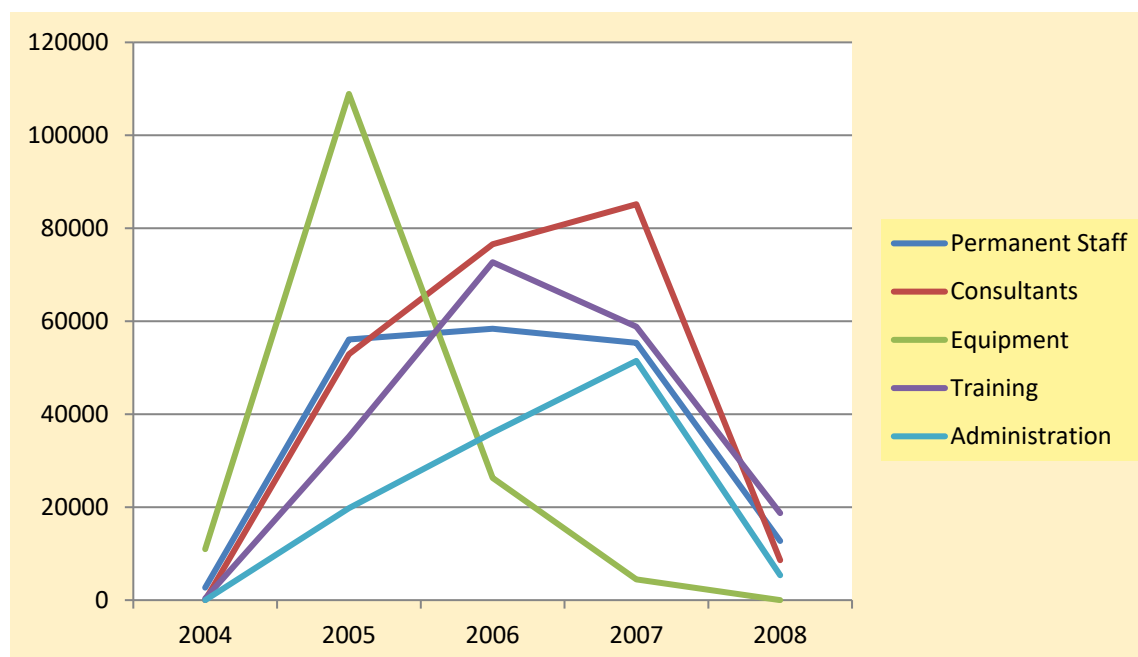
Table 3 shows the level of execution in expenditure in terms of the initial plans.

Year	Planned	Executed	% of execution	% of execution as regards to the total budget	accumulated %
2004	376 550.00	13 991.61	3.7	1.6	1.6
2005	349 950.00	272 871.15	78	31.36	32.96
2006	301 780.00	269 976.74	89.5	31.03	63.99
2007	313 161.00	246 848.20	78.8	28.3	92.29
2008	45 394.96	45 394.82	100	5.2	97.49
2011	20 917.38	10 480.63	50.1	1.2	98.69
Total		859 562.52			98.69

The total project budget was US\$869,999.9. During the first year, only 1.6% was executed. The reason for this was that the project started towards the end of the year and there were not considerable expenses in terms of project installation. Throughout the rest of the project, the level of execution was more or less uniform, except for the last year, in which there was a considerable reduction. According to the available data, an amount of US\$10,436.75 was pending execution (1.31%).

Chart 3 shows budget execution per heading:

Chart 3: Budget execution per heading and per year



As it was expected, an inverted-U pattern is observed in all the budget headings, i.e. a progressive initial phase followed by the 'climax' of budget spending and a sudden decline at the end of the project. As regards to equipment, the peak of budget spending was in mid-2005, which is something normal considering that most of the acquisitions for a project (vans, motorcycles) are usually made towards the beginning of the implementing period.

- Implementation arrangements

In spite of the observations recorded in the midterm evaluation,⁷ there were no difficulties in the project execution until its conclusion. The Evaluation Team concludes that the implementation arrangements were appropriate.

4.3. Project Results

- Achievement of products/results and objectives

This section will analyze the achievement of the project results in terms of what is outlined in the original logical framework. In order to facilitate a clear understanding, sections of the logical framework are included with the exact information contained in the official project documents. The evaluators' appraisal is presented next. The rating of each component (short-term objective, results) is based on the achievement of the goals at the end of the project.

⁷ The ATLAS accounting system was adopted in November/December 2004. Additionally, there was a change in the invoicing procedure: as from April 2005 invoices were issued in the name of PNUD (invoices were no longer issued in the name of AEDES).

SHORT-TERM OBJECTIVE

Short-term Objective	Objectively Verifiable Indicators
<p>By the end of the project, a system for integrated management of the ecosystem will be in place - implemented, managed and supported by the local population. The system will guide the conservation and sustainable use of biodiversity and natural resources, reduce soil degradation and desertification, and control mining, tourism and other economic activities in the project intervention area.</p>	<p>- By the end of the second year, there is increased protection against soil degradation and the elements that threaten biodiversity in the 474,600 hectares of the Cotahuasi basin as a result of the creation of a Natural Protected Area (Landscape Reserve).</p> <p>- By the end of the project, local and national government entities engaged in the management of natural resources and the sustainable development of the Cotahuasi basin have increased capacities for integrated ecosystem management and are in the process of applying these capacities in the districts of the basin (9 districts).</p> <p>Year 0: 0 Ha protected Year 1: 474,600 Ha protected by regulations Year 2: 200,000 Ha effectively managed and protected with the involvement of the local population and government entities Year 3: The population of the Cotahuasi basin has knowledge of the conservation and sustainable use of natural resources in the protected area (474,600 Ha) and supports these initiatives</p>

Appraisal: The project played a major role in the formal recognition of the Cotahuasi sub-basin as a Natural Protected Area in the category of Landscape Reserve through Supreme Decree 0272005-AG approved on May 18, 2005.

Agricultural practices continue to be environmentally-friendly, and the environmental sustainability issue is always present in the discourse of the local population. The participatory processes were conducted basically in the districts under the guidance of local authorities.

In 2007, the 2007-2021 Provincial Development Plan was updated in a workshop in Cotahuasi. The plan set forth the implementation of thematic work groups.

Rating: The short-term objective was achieved in a highly satisfactory way.

The next section contains the tables for each result, along with an appraisal and the rating for each result.

RESULT 1

Result 1	Objectively Verifiable Indicators
Biodiversity is protected in conservation areas and sustainably managed in other parts of the Cotahuasi basin.	<p>The area prioritized for biodiversity protection in the Cotahuasi basin has increased from 0 hectares at the beginning of the project to at least 50,000 hectares by the end of the second year.</p> <p>Year 0: 0 Year 1: 5,000 Ha under conservation Year 2: 50,000 Ha under conservation Year 3: 50,000 Ha under conservation</p> <p>By the end of the project, the local populations of indicator species in the areas prioritized have either remained steady or increased as compared with the initial levels (beginning of the project).</p> <p>Year 0: n/d Year 1: At least 5 indicator species and their population status are prioritized Year 2: The population status of the species prioritized in Year 1 shows a positive variation (above or equal to 0) Year 3: The population status of the species prioritized in Year 1 shows a positive variation (above or equal to 0)</p>

Rating: A number of studies for the creation of conservation areas were started during the implementation of the project, but these areas were actually created after the conclusion of the project, e.g. *bofedales*, *Polylepis* (“*queñual*”) forests in the buffer zone.

Even though the objective regarding the creation of conservation areas was not accomplished, five indicator species were successfully prioritized: queñua (*Polylepis rugulosa*), puya (*Puya raimondii*), columnar cactus (*Stenocereus griseus*), the Peruvian long-nosed bat (*Platalina genovensium*), and the torrent duck (*Merganetta armata*). There were plans for monitoring after the midterm evaluation. However, the corresponding document was not available for consultation.

As indicated previously, the Natural Protected Area was formally established under the Landscape Reserve category during the first year of the project.

Considering that some goals were achieved, the rating given by the Evaluation Team is ‘moderately satisfactory’.

RESULT 2

Result 2	Objectively Verifiable Indicators
<p>Natural resources are sustainably and productively managed under the system for integrated management of the ecosystem.</p>	<ul style="list-style-type: none"> - By the end of the project, the long-term plans for integrated ecosystem management have been prepared and are being implemented in the 474,600 hectares of the basin. Year 0: 2002-2021 Provincial Agenda Year 1: 3 local governments incorporate EEZ principles and guidelines in their management instruments (Agenda 21) Year 2: 3 local governments incorporate EEZ principles and guidelines in their participatory budgets and annual operational plans. 4 local governments incorporate EEZ principles and guidelines in their management instruments (Agenda 21). Year 3: 4 local governments incorporate EEZ principles and guidelines in their management instruments (Agenda 21). The 3 local governments that incorporated EEZ principles in the first place, now incorporate them in their annual organizational plans. The other 4 local governments incorporate EEZ principles and guidelines in their participatory budgets and annual operational plans. - By the end of the project, there is a reduction of 30% in the current level of soil erosion in 82,000 hectares of high altitude pastureland (the baseline shall be established during the first year of the project). Year 0: n/d Year 1: Definition of the baseline Year 2: A 15% reduction Year 3: A 30% reduction - By the end of the project, there is a reduction of 50% in the current rate of deforestation in the priority conservation areas of the Cotahuasi Landscape Reserve (the baseline shall be established during the first year of the project). Year 0: n/d Year 1: Definition of the baseline Year 2: A 20% reduction Year 3: A 50% reduction - An increase in the number of hectares of land recovered from degradation in the Cotahuasi basin, from 100 Ha at the beginning of the project to 970 Ha at the end of the project (an increase of 870 Ha). - 70 hectares of land are recovered as native forest ecosystems with focus on native species with value for forage and firewood. Year 0: 0 Year 1: 20 Ha reforested with native species for domestic and commercial use Year 2: 40 Ha reforested with native species for domestic and commercial use Year 3: 70 Ha reforested with native species for domestic and commercial use

	<p>- By the end of the project, as a result of pasture management techniques implemented (pasture rotation, increased forage production) soil erosion has disappeared in 400 hectares of pastureland.</p> <p>Year 0: 0 Year 1: 150 Ha under pasture management Year 2: 300 Ha under pasture management Year 3: 400 Ha under pasture management</p> <p>- By the end of the project, 100 local authorities, 200 community leaders and 75 government staff and NGO representatives have been trained in integrated management of ecosystems and are implementing these techniques in the basin.</p> <p>Year 0: 0 Year 1: 100 local authorities, 200 community leaders and 35 government staff from 28 communities have been trained and implement integrated ecosystem management initiatives (micro-zoning, programs) in 9 selected communities. Year 2: 100 local authorities, 200 community leaders and 75 government staff from 28 communities have been trained and implement integrated ecosystem management initiatives (micro-zoning, programs) in 19 selected communities. Year 3: 100 local authorities, 200 community leaders and 75 government staff have been trained and take part in the systematization of the intervention in order to influence on policy-making prioritizing the integrated management of the basin at different levels.</p>
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Rating: By the end of the project, all the municipalities had formulated the Agenda 21. The municipal agendas contributed to the formulation of a provincial agenda (La Union Province). AEDES provided advice to municipalities in the frame of consensus roundtables. This resulted in the implementation of the following thematic work groups (the work groups in which AEDES acted as Technical Secretary are highlighted):

- **Production and Bio-Business**
- **Culture and Tourism**
- Habitability
- **Social Affairs**
- Governance and Governability

As a result of the work conducted in these work groups, a number of projects were prioritized. In 2008, in the frame of the formulation of the Strategic Development Plan of La Union Province, AEDES acted as a catalyst. The result was the formulation of a number of proposals for inclusion in participatory budgets.

During the last three months of the project, a forestry engineer was hired. He was in charge of supervising the conservation of Polylepis (*“queñual”*) forests in the buffer zone. Thus, with the conservation of “queñual” forests the goal for the conservation of 70 hectares of forests was surpassed.

The details of the participation in consensus roundtables and training sessions are summarized in the table in Annex 5.

The Evaluation Team did not find any explicit information about any progress made in terms of bio-physical indicators as a result of the project actions. Anyway, due to the lack of baseline data, mentioned previously, the indicators might have less impact. Nonetheless, the project's effectiveness in promoting participatory processes for decision-making which, in turn, promoted a favorable attitude towards environmental issues, the rating given by the Evaluation Team is 'satisfactory'.

RESULT 3

Result 3	Objectively Verifiable Indicators
<p>Increased incomes for the local population as a result of the introduction of alternative economic activities based on the sustainable use of natural resources.</p>	<ul style="list-style-type: none"> - Increased organically-grown agricultural production in 400 hectares, certified in compliance with European Union Regulation N° 2092/91 and commercialized both in Peru and abroad. Year 0: 80 hectares with certified and commercialized organic production Year 1: 150 hectares with certified and commercialized organic production Year 2: 250 hectares with certified and commercialized organic production Year 3: 400 hectares with certified and commercialized organic production - An increase in the number of native crops under extensive farming from 3 at the beginning of the project to 8 at the end of the project. Year 0: Production of 3 native crops Year 1: Production of 5 native crops Year 2: Production of 6 native crops Year 3: Production of 8 native crops - By the end of the project, 400 organic producers have increased their income by an average of US\$350 per year; and 300 producers of medicinal and aromatic plants have increased their income by an average of US\$400 per year, as compared to the beginning of the project. Year 0: n/d Year 1: Increased income as regards to Year 0 (x%) Year 2: Increased income as regards to Year 1 (x%) Year 3: 400 producers increased their income by an average of US\$350 per year from the commercialization of cereals, legumes, roots and other crops; 300 producers increased their income by an average of US\$400 per year from the commercialization of medicinal and aromatic plants. - A total of US\$1.5 million is generated from the provision of tourism services, e.g. ecotourism travel expeditions and lodging, in 9 model communities for the benefit of the local population. Year 0: n/d Year 1: Increased income as regards to Year 0 (x%) Year 2: Increased income as regards to Year 1 (x%) Year 3: Since the beginning of the project, 9 communities have generated an income that amounts to US\$1.5 million

Rating: When the midterm evaluation was conducted, the goal in terms of the number of hectares with organic certification and commercialization in progress (1,052 Ha) had been surpassed. The following native crops were produced: native Quinoa (*Chenopodium quinoa*), Achita (native Kiwicha = *Amaranthus caudatus*), “Mishi” bean, Aguaymanto (*Physalis peruviana*), Tarwi (*Lupinus mutabilis*), “Caballero” bean, “Shulpi” corn and purple corn (*Zea mays* varieties), and white Quinoa from Locrahuanca. Thus, the goal in terms of native crop production was achieved.

The table in Annex 4 shows the evolution in income generation from the commercialization of some products, starting with the year prior to the beginning of the project until the 2008 crop year.

As regards to tourism, little progress was made in terms of the midterm evaluation. The flow of tourists to the region is still very limited, although it keeps attracting people. At the time of the final evaluation, there are two entities working in this field – ASOTURS (Association for Sustainable Tourism in the Cotahuasi Sub-Basin) and the Tourism Work Group.

The achievement of the goals under Result 3 was ‘satisfactory’.

RESULT 4

Result 4	Objectively Verifiable Indicators
<p>The population and the local authorities are aware of the relation between the use and the degradation of natural resources, and are trained in the integrated management of the ecosystem of the basin; they support this initiative.</p>	<ul style="list-style-type: none"> - By the end of the project, 800 inhabitants in 18 model communities have been trained and are applying eco-business strategies. As a result, at least 30 small organic crop processing centers and 120 eco-tourism businesses are implemented. Year 0: 3 small organic crop processing centers and 6 eco-tourism businesses implemented Year 1: 6 small organic crop processing centers and 120 eco-tourism businesses implemented (30% of them have the certification to provide this service) Year 2: 15 small organic crop processing centers and 120 eco-tourism businesses implemented (60% of them have the certification to provide this service) Year 3: 30 small organic crop processing centers and 120 eco-tourism businesses implemented (100% of them have the certification to provide this service) - By the end of the project, 500 producers in 18 model communities have been trained and are applying sustainable soil management strategies in at least 800 hectares (as described in Result 2). Year 0: 150 producers sustainably managing 80 hectares Year 1: 250 producers sustainably managing 250 hectares Year 2: 400 producers sustainably managing 500 hectares Year 3: 500 producers sustainably managing 800 hectares - By the end of the project, 100 local leaders in 18 model communities have been trained and are applying strategies for sustainable management of natural resources. Year 0: p/d Year 1: 100 local leaders in 18 model communities - 70% of them have knowledge of environmental regulations and sustainable management of natural resources Year 2: 100 local leaders in 18 model communities - 70% of them implement integrated ecosystem management actions in their communities Year 3: 100 local leaders in 18 model communities - 70% of them implement strategic partnerships and have the capacity to negotiate the execution of initiatives for sustainable management of natural resources - By the end of the project, 70% of the population of the basin (9,200 heads of households and school students) have been trained on the integration of economic activities and conservation objectives. Year 0: 833 (Globe program; groups engaged in the management of the NPA) Year 2: 25% of the population of the basin understands the relation between the economic activities implemented by their families and the conservation objectives (contests on NPA management, incentives, etc.)

	Year 3: 70% of the population of the basin understands the relation between the economic activities implemented by their families and the conservation objectives (contests on NPA management, incentives, etc.)
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Rating: When the midterm evaluation was conducted, the goal in terms of number of hectares under sustainable management had been surpassed. The tables in Annex 3 show the number of participants and the issues addressed. This is the proof of the quality of the achievement.

The Evaluation Team considers that the achievements were positive and that the actions were sustained over time. Therefore, the rating given is 'satisfactory'.

RESULT 5

Result 5	Objectively Verifiable Indicators
Implementation of infrastructure for the integrated management of the ecosystem in the Cotahuasi basin.	<p>- By the end of the project, at least 400 organic farmer producers benefit from irrigation systems and the investments made for the intake of water. Year 0: n/d Year 1: Organizations of organic farmer producers carry out influence actions that lead to investments on irrigation systems for the benefit of at least 150 producers. Year 2: Organizations of organic farmer producers carry out influence actions that lead to investments on irrigation systems for the benefit of at least 300 producers. Year 3: Organizations of organic farmer producers carry out influence actions that lead to investments on irrigation systems for the benefit of at least 400 producers.</p> <p>- By the end of the project, at least 120 eco-tourism businesses and 30 organic crop processing centers benefit from the investment in market access mechanisms (roads, communications). Year 0: n/d Year 1: 6 villages have unpaved roads as a result of the influence actions carried out by the organizations of organic producers, organic processing and eco-tourism on district, provincial and sub-national entities. Year 2: 5 villages have unpaved roads as a result of the influence actions carried out by the organizations of organic producers, organic processing and eco-tourism on district, provincial and sub-national entities. Year 3: 4 villages have unpaved roads as a result of the influence actions carried out by the organizations of organic producers, organic processing and eco-tourism on district, provincial and sub-national entities.</p>

Rating: As indicated in the tables in Annex 5 and Annex 3, the project had a major impact in terms of irrigation infrastructure and water management. This generated an immediate favorable opinion among the beneficiaries. However, no evidence was found in terms of road infrastructure, telecommunications and electricity, although the project did contribute to these initiatives.

The progress made under Result 5 was 'satisfactory'.

- Sustainability

The concepts on environmental and economic sustainability at the core of the project's action lines have persisted in the local actors who were involved in the project (farmers, authorities). During the evaluation visit, it was clear that the local actors are aware of the importance of preserving the ecosystem of the basin through production. The population now manages a number of concepts such as biodiversity, integrated ecosystem management (management of *bofedales*), agrobiodiversity (in-situ conservation), and these concepts are adequately managed.

This knowledge is not isolated but is accompanied by the environmentally-friendly production practices introduced and promoted by the project. The effects of the results obtained by the project are present in the processes conducted by the key local actors – with different degrees – and are expressed in terms of the importance of the Landscape Reserve, the organization around economic activities with focus on agro-ecology, and the promotion of tourism in the Cotahuasi sub-basin.

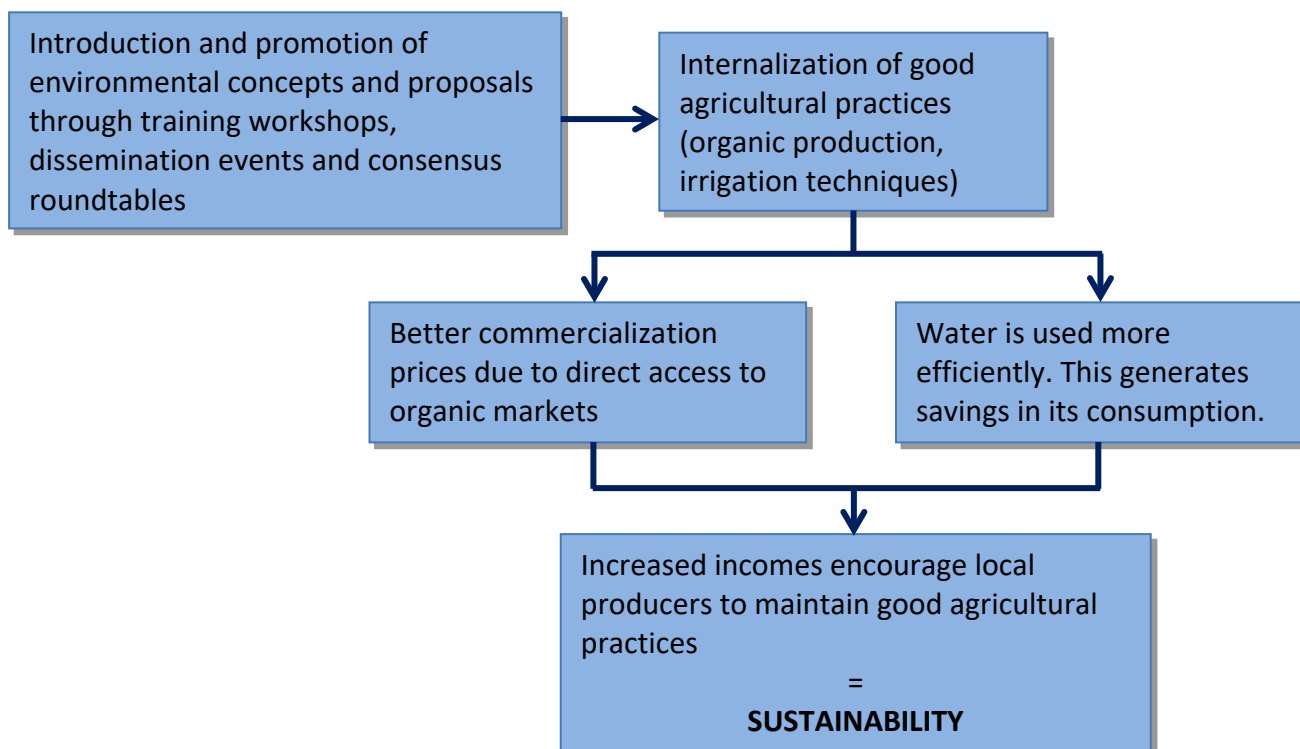
After three years of the project conclusion, organic production (kiwicha, quinoa, wheat, purple corn, other crops) continues to be the only production alternative in the entire sub-basin. The fact that producer associations themselves are engaged in the promotion of organic production and manage their own articulation in the market chain is an important achievement that ensures the economic and environmental sustainability of these economic activities.

As regards to technical innovation and application of good agricultural practices, such as irrigation, these are now important and have been adopted by the local producers, who are interested in continuing with the implementation of the best techniques in this field, such as technical irrigation systems.

The Evaluation Team considers that the project was effective in terms of ensuring the sustainability of the processes promoted.

- Conclusions

Globally, the project reached the objectives related to the environmental sustainability of the Cotahuasi basin through a process described by the following sequence:



The better prices obtained as a result of the direct access to organic markets (aggregate value) and the reduced payment for water rights are the main reasons that encourage local producers to maintain environmentally-friendly production practices. The project was also successful in supporting a number of complementary aspects such as strengthening the associations of producers, construction of irrigation infrastructure, improving the quality of products, and commercialization promotion.

The project consolidated the environmental values that ensure the sustainability of the production activities carried out by the local population. The Evaluation Team confirmed that these values persist even after the project conclusion. The efforts for the conservation of Andean ecosystems, e.g. supporting the formal recognition of the Natural Protected Area, protection of *bofedales* and other representative species, were also successful.

5. COMPLIANCE WITH THE RECOMMENDATIONS MADE BY THE MIDTERM EVALUATION

One of the recommendations of the midterm evaluation, regarding the consolidation of participatory processes, was to track the fulfillment of the commitments made by local actors in the frame of the political agenda, and to foster the participation of the leaders trained by the project in the formulation of budgets (participatory budgets).

The Evaluation Team observed that a number of beneficiaries of the project who reached leadership positions within their communities or associations had implemented processes which consolidated the good practices promoted by the project. For example, in the Quillunza community the local actors who participated in the project and at the same time were leaders of Irrigation Boards (Lorenza Filomena

Quispe, Elar Loayza Vera) are actively engaged in the promotion of technical irrigation projects. The same happens in the Cuspa community, where the community leaders receive support from the local government for livestock farming initiatives (camelids).

Another recommendation was the need to identify the critical points that contributed to the environmental vulnerability of the Natural Protected Area in order to define the political instruments that could minimize these vulnerabilities. As regards to mining activities, the Evaluation Team found that this was not effectively accomplished as mining activities are carried out in the high area of the basin and represent a latent social-environmental conflict.

The midterm evaluation also highlighted the need to reinforce the sustainability of the production and commercialization of organic products. It was observed that the region is experiencing a process which might weaken this fundamental pillar of the project with the introduction of the company Sierra-Selva. This company buys the organic production, mainly kiwicha, under a less rigorous certification process conducted by the company Control Union. Some associations, such as APCO, did not reach the technical sustainability threshold in terms of enterprise and marketing efficiency based management. Some weaknesses in terms of credit (access to credit) were also mentioned – when farmers have to be paid for their production.

It was not possible to verify if the local governments implemented agriculture and environment offices, as recommended by the midterm evaluation.

There is a need to reinforce the links among the associations of producers (APCO, APROPLAME, PROEL). The Evaluation Team perceived that there is an environment of competition among these associations in terms of access to markets and maintaining the number of members.

The beneficial insect breeding program was not successful.

The search for sources of cooperation which could continue supporting the beneficiaries on their way towards approaching thresholds of full autonomy was successful. However, it is clear that they are still in need of technical support and monitoring in this field.

No publication summarizing the achievements and the lessons of the project was prepared, as suggested by the midterm evaluation. A project extension (in response to the crop calendar) was not contemplated either.

It is worth noting that AEDES developed a number of initiatives aimed at improving the supply of tourism services in the region. However, this activity is still incipient due to the difficult accessibility. As indicated previously, what remains pending is an initiative aimed at improving productivity and achieving the consolidation of the commercialization chains.

6. LESSONS LEARNED

The interaction of the project in participatory mechanisms (consensus roundtables, participatory budgets, thematic work groups, etc.) was an effective strategy which should be a model for other similar interventions. The strengthening of capacities, the positive influence on the decisions made in participatory instances, and the trust generated among local actors are factors which determine the success of this type of projects.

In similar projects, i.e. projects that intend to achieve positive environmental and social changes, the development of a social-environmental baseline is something that should not be absent. This could be accomplished with the funds allocated to PDF "A" by conducting surveys in the relevant sample universe. Only in this way will it be possible to show the changes generated by the project in their real dimension.

The development of the fauna and flora inventory contributed to the process of internalization through which the population understood the real value of the local natural resources and the true meaning of the Natural Protected Area. The dissemination mechanisms used by the project were valuable and generated a learning process that contributed to a revaluation of the ecosystem. Nonetheless, a specialized biodiversity database should have been designed by the project to facilitate access to biodiversity data.

In projects with focus on the promotion and development of organic production, special attention should be given to the formulation of a baseline on agrobiodiversity production. This information would allow to have a clear idea about the magnitude of the changes generated by the project in terms of production and income increases.

As regards to tourism, it was a disappointment that the efforts of the project for the promotion of tourism in the region did not produce the expected results (i.e. an increase in the flow of tourists) even after years of its conclusion for reasons not fully analyzed and comprehended by the project. The difficult access to the area (more than ten hours away from Arequipa on roads with large unpaved sections) was a major drawback in this aspect. In such cases, a more consistent political induction should be undertaken so that there can be more probabilities that these issues will be addressed by road infrastructure programs.

ANNEXES

Annex 1: Documents consulted

List of documents consulted:

- Project Idea Note approved by the Council of GEF
- Project Document (PRODOC)
- Documents containing the logical framework and the indicators of impact developed during the project life
- Documents produced by the project (brochures, posters, PowerPoint presentations, technical log books)
- Technical Dossier of the Cotahuasi Landscape Reserve (Natural Protected Area)
- Copies of the internal project reports and other documents with evidence about the impacts of the project
- Project Implementation Reports

Annex 2: Itinerary of the Field Visit and Details of the Interlocutors

Itinerary of the field visit conducted by the Evaluation Team, summary of the actions conducted and details of the interlocutors (the people whose names are underlined participated in the project):

Date	Activity	Interlocutors
June 7	A meeting with the former Project Coordinator in the city of Abancay to review the main aspects of the project	Francisco Medina: Former Project Coordinator
June 28	The Chief of the evaluation team arrives in the city of Arequipa at 21:00.	
June 29	The other member of the Evaluation Team arrives in Arequipa at 7:00. Meeting with AEDES staff at their office, review of the Visit Plan and the logistics of the evaluation visit. Departure for Cotahuasi at 10:30. Arrival in Cotahuasi at around 19:00.	Karen Kraft: AEDES Executive Director <u>José Guevara Cubas</u> : Project Coordinator Ruth Huayta: Specialist in organic production Tomás Quispe: Project Coordinator Teófilo Condori: Planning and Monitoring
June 30	Visit to the Quillunza community, inspection of irrigation infrastructure. Meeting with community leaders and project beneficiaries Meeting with APCO ⁸ Meeting with interlocutors on issues related to tourism Meeting with irrigation users Meetings with organic farmers in Taurisma, visit to their organic orchards, observation of collections of bean and corn varieties (agrobiodiversity)	<u>Lorenza Quispe</u> : President of the Irrigation Board until 2008 <u>Elar Loayza</u> : Vice-President of the Irrigation Committee until 2008 <u>Andrés Quispe</u> : President of APCO <u>Catalina Borda</u> : Coordinator of the Tourism Work Group Felix Anculla: Vice-president of ASOTURS ⁹ Luis Fernando Chávez & Elvis Loayza: President and Technician of the Association of Irrigation Users of La Union - Cotahuasi <u>Ursula Toledo Bernal</u> : Organic producer <u>Justa Toledo Bernal</u> : Organic producer
July 1	Departure for the Cuspa community early in the morning. Arrival at 8:45. Meeting with the project veterinarian, meeting with livestock farmers, observation of the quality of Alpaca fiber, visit to plots with pastures	<u>Gerónimo Huiche</u> : Project Veterinarian <u>Martín Totocayo</u> , <u>Pablo de la Cruz</u> , <u>Gabriel Totocayo</u> , <u>Hubert Totocayo</u> and 25 community members: Livestock farmers (Andean camelids: Alpacas, Llama)
July 2	The evaluation team members leave Cotahuasi at 8:20. Arrival in Arequipa at 18:30.	
July 3	Meeting with leaders of organic producers and final talk with AEDES staff at their office. Review of documents and final coordinations. Departure for the city of Lima at night.	Jaime Vera Huamaní: President of APROPLAME ¹⁰ Karen Kraft, Ruth Huayta, Tomás Quispe, Teófilo Condori (AEDES staff)

⁸ Association of Organic Crop Producers

⁹ Association for Sustainable Tourism in the Cotahuasi Sub-Basin

¹⁰ Association of Producers of Medicinal Plants

Annex 3: Training Events and Consensus Roundtables

Formulation of projects in the frame of Thematic Work Groups

In the opinion of the Executive Director of AEDES, the project contributed directly to the formulation of different projects in the frame of thematic work groups. The following table contains a list of the project proposals submitted, the investment made and the year of execution. It is worth noting that the direct beneficiaries and the local institutions who were interviewed had a very favorable opinion about these initiatives.

Work Group	Project Proposal	% of execution	Amount executed	Year of execution
Production and Bio-Business				
1	Technical profile: Improvement of irrigation infrastructure (Lucmani-Reyparte, Peccse-Cotahuasi)	100%	6000	2006
2	Technical profile: Irrigation project (Pampas de Occpe Tomepampa)	25%	8000	2007
3	Basic profile: Canal construction and improvement (2,750 linear meters)	-		
4	Technical profile: Improvement of the Cachana reservoir	100%	8000	2006
5	Project: VIII Meeting of Irrigation Boards of La Union Province	100%	4000	2007
6	Proposal: First Meeting of Irrigation Users (Women) in La Unión Province	100%	2000	2006
7	Technical profile: Improvement of critical points in the main canal (Quillunza - Cotahuasi)	0		
8	Basic profile: Technical school for irrigation and crop management training in the Huacaccara-Cotahuasi micro-basin	100%	20,000	2005-07
9	Basic profile: Improvement of the Barbacoya canal (Siringay-Toro)	20%		
10	Technical profile: Improvement of the Chacaylla canal, construction and improvement of the Cotahuasi canal (100 linear meters)	100%	2000	2005
11	Technical profile: Canal coating Occpe (Ajopampa-Aranjuez-San Juan) - Tomepampa	100%		
12	Basic profile: Canal improvement Lambrasniyoc - Ccochata, Alca	100%		
13	Basic profile: Construction of a small drip irrigation system (Pallcca - Quillunza), drip irrigation demonstration plot	-		
14	Basic profile: Improvement of the Salcan - Cotahuasi canal	100%	5000	2006
15	Basic profile: Irrigation canal extension (Cachana II)	-		
16	Basic profile: Improvement of control and distribution infrastructure in the irrigation system in Alca - Ayahuasi	100%	2500	2007
17	Basic profile: Improvement of the small reservoir Pessce Chico	100%	3000	2007
18	Basic profile: Improvement of the small reservoir Rumi Rumi – Reyparte	100%	3000	2007
19	Project: Capacity-building for integrated management of water resources in the Ocoña basin	-		
20	Project: Identifying the water balance in the Cotahuasi sub-basin	-		
21	Project: Irrigation contest in La Union Province	100%	6000	2006
22	Project: Implementation of drinking water system in the Cuspa town, Puyca district	100%	10000	2005

23	Project: Implementation of drinking water system in the Sayrosa town, Puyca district	100%	10000	2005
24	Project: Implementation of drinking water system in the Occoruro town, Puyca district	100%	10000	2005
25	Project: Construction of water trough for Andean camelids in the Cuspa town, Puyca district	100%	5000	2005
26	Project: Construction of water troughs for Andean camelids in the Sayrosa town, Puyca district	100%	5000	2005
27	Project: Construction of 2 water troughs for Andean camelids in the Culipampa town, Puyca district	100%	10000	2005
28	Project: Construction of 2 water troughs for Andean camelids in the Huarcaya town, Puyca district	100%	10000	2005
29	Project: Construction of water trough for Andean camelids in the Occoruro town, Puyca district	100%	5000	2005
30	Project: Certified agro-ecological production in the Natural Protected Area of the Cotahuasi sub-basin	-		
31	Project: Fruit fly monitoring and surveillance (<i>Ceratitis capitata</i>)	-		
32	Implementation of sprinkler irrigation system (demonstration plot)	100 %		
33	Agricultural mechanization for farming production	100 %		
34	Implementation of a stock facility for distribution and promotional commercialization of agro-ecological products	-		
35	Technical irrigation modules	-		
36	Training in commercialization, participation in fairs	50 %		
37	Project: Conservation of seeds	-		

Training (per district)

District Municipality	CR (in place)	Consensus Roundtable	PARTICIPANTS		
		Functionality*	Authorities	Leaders	Gov. staff
Alca	1	2	16	18	4
Huaynacotas	1	3	20	25	2
Pampamarca	1	3	19	33	2
Toro	1	3	13	23	5
Puica	1	3	24	26	6
Charcana	1	2	12	21	3
Tomepampa	1	3	16	15	3
Cotahuasi	1	2	16	47	9
Quechualla	0	0	0	0	0
Sayla	1	2	15	11	2
Tauria	1	2	12	9	4
Total	10		163	228	40

TRAINING THEMES

- Planning, participatory processes
- Risk management, decentralization
- Democratic governance
- Decision-making
- Agenda 21 (sustainable development)
- Sustainable management of natural resources
- Participatory certification
- Conflict management
- Alcoholism and self-esteem
- Formulation of basic profiles
- Managing and leading assemblies
- Management of a natural protected area
- Economic-Ecological Zoning, land-use planning
- Climate change, prevention of risks
- Participatory budgets
- Water management in the Cotahuasi sub-basin
- Organic production
- Soil management and conservation
- Fertilizing native pastureland
- Extensive rotational grazing
- Management of Alpaca farming calendar
- Decline of exotic species
- Construction of mini-reservoirs

Functionality Rating

0 Non-existent

1 Passive

2 Regular

3 Good

* Functionality: A criterion established in terms of representative participation and the frequency of meetings. It is worth noting that all the consensus roundtables are in the process of formulating medium-term and long-term action plans with the support of the project – except for the Quenchualla community, where the new authorities have not yet defined their policy.

Annex 4: Farmers' Income

Income obtained from the commercialization of the products promoted by the project

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Annex 5: Water Management

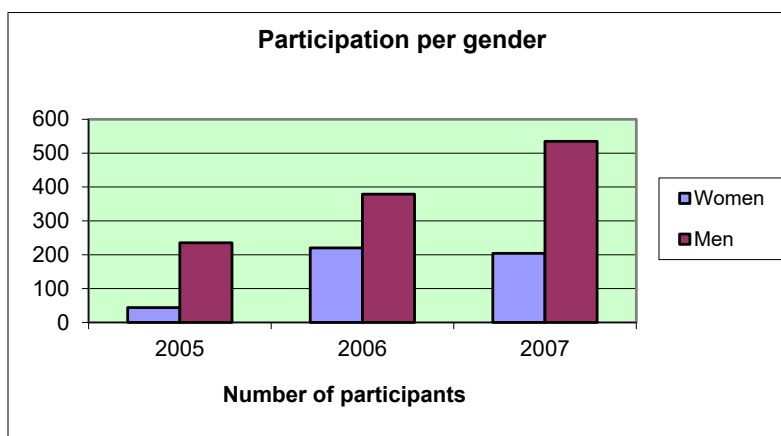
Training on water management for irrigation users (men and women) in the Cotahuasi sub-basin

During the implementation of the project, a total of 118 formal training events¹¹ were conducted with participation of 1,057 irrigation users representing 29 Irrigation Boards and 5 individual Irrigation Committees. An average of 32 users and 6 leaders per irrigation organization were trained by the project.

N°	Organization	Description	Leaders	Users
1	Toro	Irrigation Board	7	40
2	Andamarca	Irrigation Board	7	35
3	Locrahuanca	Irrigation Board	6	50
4	Maghuanca	Irrigation Committee	4	31
5	Siringay	Irrigation Board	10	36
6	Ancaro	Irrigation Board	3	20
7	Mungui	Irrigation Board	7	44
8	Pampamarca	Irrigation Board	7	44
9	Ayahuasi	Irrigation Committee	7	81
10	Achambi	Irrigation Board	2	20
11	Cancha	Irrigation Committee	3	14
12	Charcana	Irrigation Board	14	39
13	Lancaroya	Irrigation Board	7	24
14	Churca	Irrigation Committee	3	20
15	Antabamba	Irrigation Board	5	20
16	Cahuana	Irrigation Committee	4	11
17	Taurisma	Irrigation Board	9	30
18	Tomepampa	Irrigation Board	7	39
19	Jochapampa	Irrigation Board	12	55
20	Pampamarca	Irrigation Board	7	52
21	Quillunza	Irrigation Board	14	150
22	Cachana	Irrigation Board	7	32
23	Reyparte	Irrigation Board	7	50
24	Chacaylla	Irrigation Board	5	20
25	Cotahuasi Piro	Irrigation Board	7	20
26	Chaucavilca.	Irrigation Board	4	20
27	Luicho	Irrigation Board	2	10
28	Alca	Irrigation Board	4	30
29	Pampacocha	Irrigation Board	3	20
Total Number of Participants			184	1057

¹¹ Two types of training events were conducted – formal and informal. Formal events were organized in coordination with the authorities through a formal call for participation; informal events were conducted in the field by assisting users and leaders.

The attendance record shows that there was an increase in the participation of irrigation users (men and women) throughout the implementation of the project, as illustrated by the following chart.



In 2005, women's participation was barely 20% of the percentage recorded in 2007. The following reasons determined this increase in women's participation: (i) when women were informed about the training sessions they felt more motivated to participate; (ii) when the authorities realized the importance of the training they encouraged their wives to participate; and (iii) women are increasingly interested in training, and this is illustrated by the comment of a woman in the Churca community: *'We also want to be trained, not just men...'*

As regards to the participation of men, in 2005 their participation represented 45% of the percentage recorded in 2007, which shows that there is an increasing number of people who are interested in being trained in order to improve their water management skills. In the practice, this is observed by the fact that there is an increasing need for technical assistance among grassroots organizations.

The project provided technical assistance to 11 irrigation boards considered as strategic in the sense that the neighbor irrigation organizations could appreciate the water management techniques implemented so that these could be replicated in the future. In 2006, the irrigation users implemented demonstration plots with furrow irrigation¹² [Toro (13), Charcana (5), Antabamba (2), Chincayllapa (4), Siringay (5), Andamarca (1), Cahuana (3), Jochapampa (10), Ancaro (5), Churca (5), Maghuanca (3)] and other agronomic practices such as preparation and use of organic inputs. In 2007, as a result of the experience with the demonstration plots, other users replicated the furrow irrigation technique.

¹² Furrows are long, narrow, shallow trenches in the soil made by a plow in order to facilitate irrigation. This is the most efficient irrigation technique used by farmers in La Union province.

Improvement of the production

Irrigation Board	Potato production (Kg/Ha)		Corn production (Kg/Ha)		Comments
	With furrow	Without furrow	With furrow	Without furrow	
Lancaroya	4500	3600	1000	850	Demonstration
Chaucavilca	4000	3500	800	600	Mass implementation
Cotahuasi Piro	4500	3000	1500	800	Mass implementation
Reyparte	5000	4500	800	700	Mass implementation
Quillunza	4000	3000	1100	700	Mass implementation
Cahuana	3500	3000	700	500	Demonstration
Cachana	4000	1800	900	700	Training plot
Chacaylla	5000	4000			Mass implementation
Charcana	3500	2800	1000	500	Demonstration
Ancaro	4000	3500	900	750	Demonstration
Siringay	4000	3000	1500	900	Demonstration
Toro	3000	1800	500	300	Demonstration
Churca					Demonstration
Chicayllapa					Demonstration
Antabamba					Demonstration
Pampamarca					Demonstration
Maghuanca					Demonstration
Other					Talks

Other advantages mentioned by the farmers:

- Less water consumption
- Economic savings in terms of labor
- Minimum soil erosion
- Greater irrigation coverage
- Facilitates pest control
- Facilitates fertilization and elimination of weeds
- Discipline in agricultural tasks