



**COMPLEMENTARY PERFORMANCE EVALUATION OF
THE INTEGRATED DEVELOPMENT PLAN FOR
THE INTER-ANDEAN VALLEYS (PDIVI)
AREA V – SORATA**

**OUTPUT N° 3:
FINAL EVALUATION REPORT**

Prepared by:



April 2015

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ACRONYMS

AIPE:	Association of Institutions for the Promotion and Education
CECASEM:	Training and Service Center for Women
CRIAR:	Creation of Rural Agrifood Initiatives Project
INIAF:	National Institute of Agricultural and Forestry Innovation
NMA-B:	Norwegian Mission Alliance in Bolivia
OECD:	Organization for Economic Cooperation and Development
NGOs:	Non-Governmental Organizations
PDIVI:	Integrated Development Plan for the Inter-Andean Valleys
PDM:	Municipal Development Plan
PND:	National Development Plan
POA:	Annual Work Plan
PROCOSI:	Coordination Program for Integrated Health
SAFFCI:	Intercultural Community Family Health
TDRs:	Reference terms
UNITAS:	National Union of Institutions for Social Action Work

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OUTPUT N° 3: FINAL EVALUATION REPORT

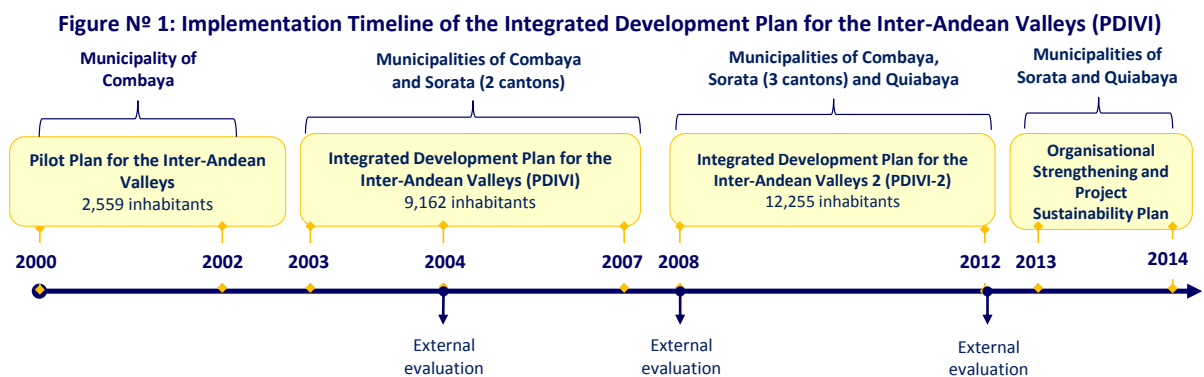
1. Introduction and Background to the Evaluation

1.1. Background to the Evaluation

The Norwegian Mission Alliance in Bolivia (NMA-B) is a not-for-profit non-governmental organisation that promotes the integrated development of disadvantaged social groups through its diaconal work. With 35 years of experience, it has seen its intervention strategy evolve from working for the community to working together with the community.

Since the municipality is the basic unit in which local development is operationalised, local demands are structured in programmes and projects linked to the municipality's Annual Work Plan (Spanish acronym POA) and Municipal Development Plan (PDM), placing emphasis on human and economic development and, from the standpoint of NMA-B, the transmission of principles and values through its Diaconal Development Programme.

It is in this context that the Integrated Development Plan for the Inter-Andean Valleys (PDIVI) was implemented. It began with a Pilot Plan (2000-2002) and continued with the Integrated Development Plan for the Inter-Andean Valleys (PDIVI) in its first phase (2003-2007) and second phase (2008-2012). External evaluations were conducted in 2004, 2008 and 2012, and their conclusions and recommendations were used as inputs for the preparation and implementation of the closure plan or sustainability phase (2013-2014). With these chronological benchmarks, the PDIVI timeline and its implementation process is summarised in the diagram below:



Prepared by: The Authors, March 2015.

With an annual budget of approximately US\$ 620,000, financed by the Norwegian Mission Alliance together with local contributions (from municipal governments and communities), the PDIVI benefited an average of 15,300 people per year in the cantons of Combaya and Sorejaya in the Municipality of Combaya; Sorata, Ilabaya and Laripata in the Municipality of Sorata; and the Municipality of Quiabaya in its entirety, covering an area of approximately 630 km². The categories of programmes and projects implemented were as follows:

Table Nº 1: PDIVI Programmes and Projects

Programme	Project
Human Development	Water and Basic Sanitation
	Children's Rights
	Formal Education
	Local Organisational Management
	Health
Economic Development	Agriculture
	Livestock Farming
	Environment
	Micro-enterprise
Diaconal Development	Strengthening of Churches
	Strengthening of Families

Source: TDRs.

1.2. Evaluation context

The PDIVI was carried out in three municipalities: Combaya, Sorata and Quiabaya in the Department of La Paz. The area is characterised by its rugged geography, with poor quality roads and altitudes ranging from 2,200 to 4,200 metres above sea level. The hillsides are vulnerable to erosion and landslides, especially in the rainy season.

Demographically, the municipality with the largest population is Sorata, followed by Combaya and Quiabaya. Compared to the national average, these municipalities have very high levels of poverty. The municipality of Combaya is the one with the highest rates of poverty, as 82.8% of its population is classified as poor.

Table Nº 2: Percentage of Population with Unmet Basic Needs in the PDIVI Municipalities

Municipality	Total Population	Percentage of Population Classified as Poor	Non-Poor		Poor		
			Basic Needs Met	Threshold	Moderate	Extreme	Marginal
BOLIVIA	9,736,516	44.9	25.2	29.9	35.3	9.2	0.4
Sorata	23,158	80.3	4.3	15.4	51.6	27.6	1.1
Quiabaya	2,598	82.3	5.4	12.2	57.0	24.5	0.8
Combaya	3,668	82.8	3.1	14.1	65.0	17.7	0.1

Source: National Population and Housing Census 2012.

The municipalities in the target area cover a range of ecological levels, which offer great potential for farming. Indeed, agriculture is the main economic activity carried out by the families in the different communities and their ancestors. It is based on traditional farming systems characterised by their small scale due to the ongoing division of plots of land for each new generation. These systems use little technology and are not very diversified. Crops are mainly rain-fed, productivity levels are low and farming is basically for primary production, as there are few alternatives or opportunities to add value. Furthermore, these farming systems use land gradually cleared for agriculture to the detriment of areas with natural vegetation. This means that there are high levels of deforestation and in some cases soil degradation.

Given this situation, through its Economic Development Programme the PDIVI defined its strategy as seeking to make the local economy more dynamic by making sustainable use of its existing potential.

To achieve this, it carried out actions aimed at introducing new production alternatives as well as working to improve traditional farming activities and protect soils by establishing new forest cover.

For all the above reasons and with a view to increasing producers' incomes, the PDIVI's work focused on improving existing farming systems, carrying out activities involving training, technical assistance, technological innovation and improvement, productive infrastructure (micro-irrigation systems), diversifying production, reforestation and forest repopulation, processing produce to add value, and improving marketing systems. All this was underpinned by the organisational processes that were established and strengthened in order to improve production management, as well as improving integrated territorial management from the community and municipal perspectives.

1.3. Description of the Evaluation

This evaluation adopted a participatory approach that encouraged the active participation of the different stakeholders who had some degree of involvement in implementing the PDIVI. The evaluation therefore worked with NMA-B coordinators and technical staff, municipal government authorities, and beneficiaries in the different areas of the PDIVI's work (education, health, water and sanitation, economic development and diaconal development).

The purpose of the final evaluation was as follows:

Evaluate the extent to which the Integrated Development Plan for the Inter-Andean Valleys has fulfilled its objectives and the contribution it has made to the quality of life in the municipalities of Sorata and Quiabaya, by analysing primary and secondary qualitative and quantitative information.

The general objective of the consultancy was as follows:

Determine the degree of fulfilment of the expected results of the Integrated Development Plan for the Inter-Andean Valleys 2008-2012, and assess the performance of the Closure Plan 2013-2014, based on the findings and recommendations of the mid-term evaluation of PDIVI-2 carried out in 2012, in the municipalities of Sorata and Quiabaya.

To achieve this general objective, the following specific objectives were defined:

- Evaluate the relevance of the design of the PDIVI and the fulfilment of its objectives, paying particular attention to the impact of the work carried out on the beneficiaries.
- Analyse the institutional, administrative, operational and financial implementation processes, in order to identify best practices and the external conditions and factors that facilitated or hampered the achievement of the PDIVI's objectives.
- Evaluate the satisfaction and views of the beneficiaries regarding the assistance provided by the PDIVI.
- Evaluate the results and impacts of the PDIVI from the social, gender and environmental perspective.
- Identify lessons learned and propose practical recommendations for the management, follow-up and evaluation of similar interventions.
- Evaluate the effectiveness and efficiency of the PDIVI's work.
- Identify the strengths and weaknesses of the PDIVI as well as the positive or negative external factors that influenced its implementation.

- Evaluate the sustainability of the results achieved.

To fulfil these objectives, the evaluation followed the work plan described below:

- **Stage 1: Desk study.** The first step was to review and analyse all the relevant documents provided by NMA-B, in order to identify the scope and particular features of the PDIVI. This review made it possible to identify the institutional and social context in which the Plan was carried out. An induction meeting was also held with NMA-B staff to find out about the Plan's implementation in detail.
- **Stage 2: Field work.** To carry out the field work, SAXgr organised four teams who gathered qualitative information (through individual and group interviews) and quantitative data (through surveys). The field work was carried out from 9 to 12 February and the teams visited a total of 10 communities: Chacambaya Grande, Quiabaya, Milliraya, Caminaca, Chejje, Icharani, Chinchaya, Sorata, Tutuacaja and San Pedro in the municipalities of Sorata, Quiabaya and Combaya. Once the information-gathering stage had been completed, the information was processed, systematised and analysed.
- **Stage 3: Preparation and presentation of the draft and final reports.** The results of the previous stage were used to write the draft report and, once feedback was received from NMA-B, the final report.

1.4. Contents of the Evaluation Report

The evaluation report is structured as follows: i) an **Introduction and Background** section describes the context in which the PDIVI was carried out, the nature of the evaluation and the level of participation of the different stakeholders; ii) section two describes the **Evaluation Methodology**; iii) section three provides a detailed description of the **Evaluation Findings**, applying the criteria of relevance, efficiency, effectiveness, impact and sustainability; iv) section four sets out **Conclusions and Recommendations**; and v) the final section outlines the best practices and **Lessons Learned** identified during the evaluation.

2. Evaluation Methodology

2.1. Basis of the methodology

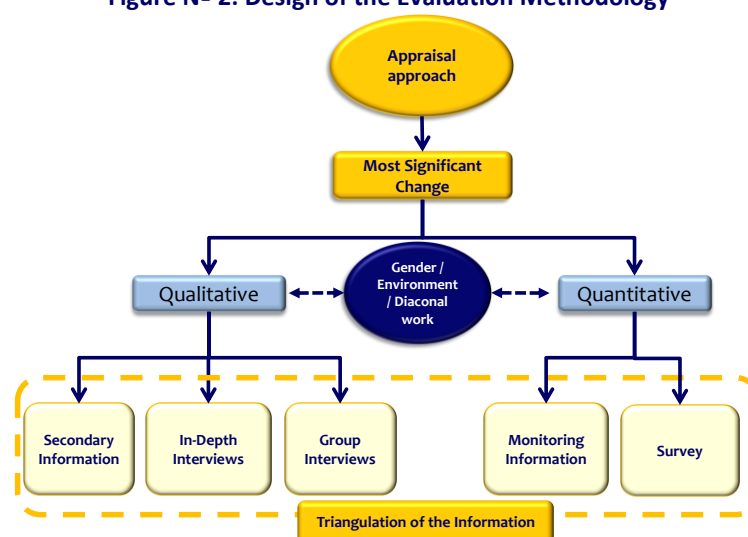
The evaluation was based on a systematic and objective process, the purpose of which was to determine the relevance of the work carried out by the project, the results achieved in relation to the stated and implicit objectives, and the sustainability of these results. The evaluation also aimed to identify unforeseen changes that were brought about or collateral impacts. The methodology called the **"Most Significant Change"** was therefore used. This to identify, together with the stakeholders, the significant trends and changes achieved as a result of the work carried out by the project, pinpoint emerging changes and also find out which elements were the most important to the beneficiaries.

2.2. Design of the methodology

Building on this theoretical basis, the methodology designed included the use of **qualitative and quantitative** research techniques, seeking to identify the particular features of the Plan's implementation and reaching a deeper understanding of it. One important element included in the qualitative analysis was **triangulation of the information**, which involved contrasting different views and sources of information, as well as comparing different social contexts. This made it possible to identify the lessons learned in the different settings.

In addition, the evaluation included the variables of gender, environment and diaconal work, which were important in the design and implementation of the Plan. The methodology designed is shown in the following diagram:

Figure Nº 2: Design of the Evaluation Methodology



Prepared by: The Authors, March 2015.

Based on the methodology design, various information gathering techniques were used, including analysis of documents, individual and group interviews, testimonies and a survey.

A total of more than 50 interviews were conducted with the different stakeholders involved. In the case of the survey, although a sample of 105 surveys had been proposed initially,¹ in the end it was possible to double the number of surveys conducted, thanks to the significant awareness-raising work carried out. A total of 120 parents and 121 schoolchildren answered the survey questionnaire, as shown in the following table:

Table Nº 3: Number of Surveys Conducted

Municipality	Parents	Schoolchildren
Sorata	74	98
Quiabaya	30	23
Combaya	16	-
TOTAL	120	121

Prepared by: The Authors, based on survey data.

¹ The proposed sample had a 90% confidence level and a margin of error of 8%.

In addition, a sample of projects was selected to be visited for the field work, seeking to choose a proportionate number of projects from the three Programmes: i) Human Development, ii) Economic Development and iii) Diaconal Development. A total of 42 projects were identified: 25 in the area of Economic Development, 12 in Human Development and 5 in Diaconal Development. Next, ten communities with the largest number of projects were selected (one community in Combaya, two in Quiabaya and seven in Sorata). These ten communities had a total of **22** projects, equivalent to **52%** of all the projects carried out. The list of the communities and projects selected is included in the annexes.

Finally, in response to an additional request from NMA-B, two case studies were conducted in the same number of communities in the Municipality of Sorata: San Pedro (improving custard apple production) and Caminaca (sanitation and safe drinking water). The aim of this was to describe the work done by the PDIVI in the two communities, highlighting the factors that facilitated, hampered and/or constrained the coordinated work in all the programmes. If relevant, the case studies also identified specific projects that were either successful or that did not become consolidated or were not sustainable over time.

3. Evaluation Findings

The findings of the final performance evaluation of the “*Integrated Development Plan for the Inter-Andean Valleys (PDIVI) – Area V*” presented in this section are related to the requirements set out in the relevant Terms of Reference. They are drawn from the analysis, processing and systematisation of the primary and secondary qualitative and quantitative information that was gathered through various participatory processes, as well as the information from secondary sources formally provided by NMA-B.

Thus, the process of identifying findings from the final evaluation of the PDIVI, both in the field and in the desk work, focused at all times on determining and evaluating whether the Integrated Development Plan for the Inter-Andean Valleys 2008-2012 had fulfilled its objectives and achieved its expected results, as well as evaluating the performance of the Closure Plan 2013-2014, taking into account the findings and recommendations of the mid-term evaluation of the PDIVI carried out in 2012. The evaluation concentrated mainly on the municipalities of Sorata and Quiabaya, but also looked at the results and impact achieved in the municipality of Combaya.

The keynote that the evaluation team set as a principle for this evaluation process was to clearly differentiate it from any financial or even technical auditing exercise. The aim was to carry out a wide-ranging investigation but with a large dose of analysis and, above all, reflection, in order to identify the findings presented here. These can be used as key inputs in a “*feedback process*” for the design and implementation of similar plans or programmes, but are mainly designed to be used by NMA-B as part of a learning process on its performance as an organisation, which may imply adopting any internal corrective measures that may be relevant.

As requested by the Terms of Reference, the findings from the final evaluation of the PDIVI presented here are grouped according to the following five evaluation criteria: **i)** pertinence and relevance, **ii)** efficiency, **iii)** effectiveness, **iv)** impact and **v)** sustainability. The use of these criteria follows the conventional concepts and methods that form part of the programme and project management and evaluation theory developed by the OECD, but with a focus on trying to amalgamate and systematise

the main results of the research work that gathered opinions and testimonies from the PDIVI stakeholders (information from primary sources), together with the documents, information and data from secondary sources that were kindly provided to us by NMA-B staff.

3.1. Pertinence and relevance

The analysis of the pertinence and relevance of the PDIVI set out in this section refers to local problems, the beneficiaries' expectations, and how it fits with the institutional policies of NMA-B and Municipal Development Plans, as an expression of the state's presence at the local level.

a. Compatibility between the PDIVI and municipal policies and NMA-B institutional policies

It is more than evident that rural communities in the area covered by the PDIVI have multiple needs that require the availability of resources, both from municipal governments and from development cooperation organisations present in the region. Therefore, the final evaluation of the PDIVI verified whether the support that can be channelled to different areas or sectors is aimed at meeting some very specific need of a community in a situation of scarcity.

In this context, we consider the strategy to link NMA-B's intervention with the Municipal Development Plans appropriate because it acknowledges and strengthens the role of promoting local development that corresponds by law to the Autonomous Municipal Governments. Furthermore, it is clear that the Plan and the organisation's work are aligned with the sectoral public policies institutionalised in both the Constitution and the National Development Plan (PND). This strategy is pertinent, considering that small Autonomous Municipal Governments such as those in the area covered by the Plan lack the funds and human resources with sufficient technical skills to meet the needs of local communities, as identified in planning processes. In addition, this way of working avoids overlapping roles and the dispersal of efforts and resources, offering the possibility of achieving better results and impacts.

Thus, the intervention arrangement proposed by NMA-B, which involved linking the PDIVI with the PDMs in the target area, is an important factor in the sustainability and institutionality of the projects and the consequent ownership of their results, not just on the part of municipal government authorities and technical staff, but mainly by the beneficiaries themselves. In other words, as the beneficiary communities and Autonomous Municipal Governments internalise and take ownership of the projects and their results, these will remain as a sustainable impact after NMA-B withdraws from the target area.

To take forward the analysis we must start by recognising that the different projects contained in the PDM investment plans in the target area for NMA-B's work in Area V emerged as a result of participatory planning processes, whereby grassroots community members present their priority demands through their representatives or community authorities. Since the PDIVI supports the work of the municipal government through the implementation of the PDM, the projects funded by NMA-B were highly compatible with the expectations of the beneficiaries. Based on our review, analysis of the information gathered during the field work through the interviews and surveys, as well as the various meetings held with local stakeholders and NMA-B staff, we can state that the projects carried out in the different programmes are also fully aligned with the beneficiaries' expectations. In every

community visited, people said that the projects carried out by NMA-B responded to their most clearly felt needs and that these projects were prioritised in a participatory way.

It is also important to point out that the cross-cutting themes of gender, the environment and diaconal work constitute the added value in the NMA-B intervention strategy. For instance, the work done through the diaconal programme had an impact on the restoration and transmission of values, by means of specific activities such as those carried out with church leaders and community members themselves. The appropriate professional and ethical behaviour of the NMA-B technical staff stands out here, as they gave priority to working in a responsible and transparent way. With regard to this, the system of having project funds managed by administration committees should be highlighted. These committees were responsible for obtaining quotes and for buying, storing and distributing the materials and supplies required to implement the projects. This form of administration was an important factor in enabling the beneficiary communities to take ownership of the projects, as it encouraged social oversight, the sense of responsibility, transparency and trust in the organisation (NMA-B) and its technical teams.

With regard to the results achieved by the PDIVI, which were verified during the field work, the evaluation found evidence of a high level of satisfaction with the outputs produced, especially in terms of the infrastructure, which has met many of the basic needs in education, health and basic sanitation. In fact, in the municipalities of Sorata and Quiabaya, where the projects are practically completed, the beneficiary communities and municipal authorities see the work done by NMA-B as *“a social revolution”* which *“has enabled them to understand a reality in which they are the builders of their own future.”*

Likewise, there is a very positive perception of the benefits of the projects in the Economic Development Programme. Here, the micro-irrigation systems and crops supported by the PDIVI are suited to the area's productive vocation. They are given priority in the Municipal Development Plans and even in national production strategies that aim to diversify farming, achieve food self-sufficiency, meet the requirements of the family food basket, achieve food security and sovereignty, and generate higher incomes for beneficiary families.

Complementary to this, the other elements perceived favourably by the beneficiaries are the promotion of Christian values and the community's direct participation in the administration and management of the funds for the projects. The combination of these elements contributed to the overall achievement of the objectives, together with a strong sense of ownership, responsibility and transparency. These elements are the main added value that NMA-B as an organisation has left with the communities in the target area.

Consequently, the evaluation team's conclusion is that both the design and the implementation of the PDIVI were closely aligned with the municipal government policies set out in the Municipal Development Plans and with NMA-B's institutional policies. These policies were respectively determined by means of the same territorial planning and institutional strategic planning processes that enabled local demands to be included in the PDIVI. Therefore, NMA-B's presence in the target area effectively became a means to support the work of the municipal government. The introduction of the organisation's own principles facilitated the work with the beneficiary communities and the Autonomous Municipal Governments and encouraged them to take ownership of project management, based on the involvement of the beneficiaries and their local organisations in the design and implementation of the projects.

b. Relevance to local problems and the beneficiaries' expectations

Based on the local assessments contained in the Municipal Development Plans, the review of statistical data on the local area and the field visits, the evaluation team was able to determine that, bearing in mind the particular differences in each municipality, in general there are significant unsatisfied basic needs in all three municipalities and family incomes are not fully representative of rural areas of the Department of La Paz, although it must be acknowledged that significant progress has been made in recent years in the education, health and basic sanitation sectors as well as with regard to production.

In the years prior to the implementation of the PDIVI, deficiencies were identified in the education sector, mainly with regard to infrastructure, which was inadequate and did not meet the minimum requirements for providing an efficient and effective service. There was also a lack of school furniture in some communities and an absence of suitable housing for teachers. Widespread poverty meant that families were unable to buy their children the necessary school materials, bearing in mind that the average number of children per family is more than four. All these factors have a negative impact on education, reducing years of schooling and increasing school drop-out rates.

Deficiencies in infrastructure and equipment were also identified in the health sector. Some communities did not have a health post, and many people therefore had to travel long distances in order to receive medical care. This obliged them to resort to traditional medicine. Although this is effective in many ways, its ability to treat certain diseases is limited. Another factor that has a negative effect on people's health is the non-existence, insufficiency or poor quality of basic sanitation systems, and especially access to safe drinking water.

Agricultural production is characterised by the intensive use of family-only labour and rudimentary technology, the small size of plots of land (an average of 1-3 hectares per family in scattered plots), and the lack of basic irrigation infrastructure to encourage appropriate use of local water resources. These and other factors limit the development of economic activities, as reflected in the low level of diversification of agriculture and livestock production. Clearly, they also determine the low incomes that significantly affect family wellbeing.

In this local context, the design and implementation of the PDIVI was suitably pertinent in all three of its programmes: Human Development, Economic Development and Diaconal Development, which offered appropriate responses to social problems at the local level. The Human Development Programme had health and education components that sought to improve conditions in these sectors by building or improving infrastructure, including housing for teachers, equipping schools by providing furniture and teaching and learning materials, providing equipment and medical supplies for health facilities, and facilitating training for service providers in both sectors. Thus, the pertinence of the Human Development Programme lies in the fact that it sought to address the shortcomings identified by providing adequate infrastructure and equipment and building capacities so that a better service could be provided to people in the target area. The basic sanitation sector has the same deficiencies, which were correctly identified and addressed by the PDIVI. The Diaconal Development Programme is consistent with the organisation's religious nature, and its purpose is to enable people in the target area to practise Christian principles as a means for the individual and, by extension, the family to achieve spiritual development.

The design and implementation of the PDIVI Economic Development Programme is pertinent and entirely relevant to local problems. This is firstly because the production system in the inter-Andean valleys region is predominantly agricultural. The communities' economic strategies and food security are based on this sub-system, despite the serious constraints that affect it in terms of technology, infrastructure, size of plots of land (smallholdings), environmental sustainability and ease of access to the market. The Economic Development Programme had a strong impact on intensifying the agriculture sub-system, consistent with the need to minimise the risks involved in extensive agriculture (drought, irregular rainfall and degraded soil) and overcome the lack of capacities and resources (technical and financial), thus making it possible to diversify production, improve productivity, add value, facilitate the sale of produce and strengthen sustainable environmental management.

The Economic Development Programme has worked extensively to improve the livestock farming sub-system (extensive and complementary), where the traditional technology used suffers from serious constraints in terms of infrastructure (stables and sheepfolds), animal health, genetic improvement, livestock feeding and marketing. Likewise, an extensive component was designed to promote the sustainable use of natural resources. This principally seeks to address environmental degradation in the local area and develop the potential of the forestry sub-system to protect the ecosystem and produce wood.

Furthermore, and in general terms, it is noticeable that the intervention strategy applied for the PDIVI was integrated across all the programmes. The entry and intervention strategy began with a process to inform the target communities, starting with municipal government authorities, the leaders of local organisations and other local stakeholders.

"It is important for the community to understand how to work and how to improve things. They have to take responsibility themselves – that's a key point. We talked to them about how education and health complement each other, about safe water, how we work with local organisations. That's where the issue of responsibility comes in."

*Human Development Coordinator,
NMA-B Sorata*

Once the information process was completed, the next step was to raise the awareness of all the stakeholders involved so that they knew what their responsibilities were. This made it easier to organise people in committees related to their areas of responsibility: the education committee included the community education councils and the directors of each school; the staff in the health posts participated in the health committee; the water committee participated in the basic sanitation committee; and the community's irrigation committee or association participated in the irrigation committee.

All these local actors organised in Administration Committees began a training process that covered different topics such as leadership, organisation, project management and administration. Issues of self-esteem and citizens' rights were worked on as part of all these topics, including both men and women but placing greater emphasis on the latter. At the same time, the objectives of the projects that would be carried out by the community were discussed, so that people were clear about them. This minimised the risk of failing to achieve the objectives and expected results.

After this, each Administration Committee proceeded to implement their project. The committee was responsible for leading project implementation together with the beneficiaries, who contributed labour (assisting the contracted builders) and local materials (stones and sand). The days of work people put in were recorded in lists which made it possible to identify each family or community member's contribution. This achieved a stronger sense of ownership of the project which in turn

contributes to its sustainability, particularly in the case of projects that require regular maintenance work afterwards, such as those related to basic sanitation and micro-irrigation.

As part of this working approach, NMA-B as an organisation played the role of *“facilitating local management processes, both in the project implementation stage and in the operational stage, by means of actions to strengthen the community organisations and provide them with advice on technical aspects and administration. Emphasis was placed on actions that would strengthen human development, mainstreaming gender, environmental and diaconal issues.”*²

In short, following the appraisal approach applied to this final evaluation of the PDIVI, in the view of the evaluation team, the participatory development model used during the implementation of all four phases of the PDIVI was entirely suitable and fully relevant to local problems. In fact, it was one of the main factors in the successful implementation of the PDIVI. This model enabled the individual with all his or her skills and capacities to be prioritised and valued with dignity.

3.2. Efficiency

Efficiency is understood as the appropriate use of resources, including time, materials, financial and human resources, to achieve the expected results and established objectives. It is determined not only by the use of these resources but also by the whole institutional structure that supports the implementation of the PDIVI in its entirety.

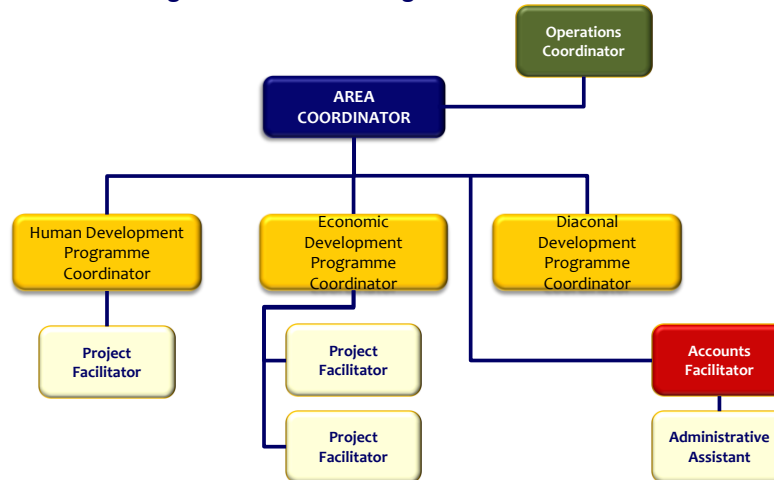
With this in mind and with the aim of providing a broad overview of the efficiency of the PDIVI, in this section we appraise the main areas of the Plan’s performance, which were also mentioned in the ToRs: i) institutional organisation; ii) the intervention strategy; iii) the monitoring and follow-up system; iv) information management; and v) administrative and financial management. We will now describe the most important findings in each of these areas in relation to efficiency as the evaluation criterion.

a. Analysis of institutional organisation (NMA-B)

When analysing the organisation of the staff in charge of implementing the PDIVI, the first aspect that stands out is the imbalance between the number of technical staff working in the field (10 people, as shown in the diagram of the organisational structure below) and the size of the area they had to cover and the number of projects they had to deal with. At first sight, this factor is a constraint hampering the appropriate implementation of such a comprehensive plan. However, the fact that activities were delegated to the community Administration Committees was a key element that enabled the technical staff to cover a larger area than they could have done if responsibilities had not been delegated to these committees, because this arrangement increased the operational capacities of the NMA-B technical team assigned to Area V. Furthermore, their work is extensive in that it maximises the geographical area and the number of people covered, but at the same time this represents a technical constraint preventing them from working on more specialised and/or specific issues in depth. The Area V technical team has tried to overcome this constraint with their professional commitment and dedication. However, the effort they have made was not necessarily sufficient to do so.

² Integrated Development Plan for the Inter-Andean Valleys (PDIVI-2), 2008-2012.

Figure N° 3: PDIVI-2 Organisational Structure



Source: Prepared by NMA-B, 2014.

In the opinion of the evaluation team, the delegation of responsibilities to the administration committees is a factor that had a positive impact on the efficient use of financial and human resources. This is directly reflected in the infrastructure that has been built, which is the same quality or better than other similar works of infrastructure in the area but at a noticeably lower cost. Although there were delays with some of the infrastructure projects, these were caused by external factors such as late disbursements of counterpart funds by the municipal government.

The PDIVI also has functional links with all the organisational areas or divisions within NMA-B. We identified particularly close links with the planning and financial administration divisions, and a slightly looser connection with the organisation's communications division.

The interviews conducted with the staff responsible for planning and financial administration in the NMA-B central office showed the degree of operational autonomy that the PDIVI implementation process had from the NMA-B central office. This meant that the work in Area V on these matters was not linked closely enough to the rest of the operational procedures reported to central office. This situation led to some disparities and difficulties in terms of the PDIVI's conceptual, methodological and procedural alignment with the organisation's policies and objectives, as well as certain communication difficulties between the operational, management and executive levels within NMA-B.

Considering the integrated nature of the PDIVI and the fact that it is structured in three programmes that address development from three perspectives – human, economic and diaconal – which are perfectly complementary, the professional profile of the Area V technical team seems at first sight to lack balance, with a clear bias toward agricultural engineering to the detriment of the social and economic sides. This is because the majority of the field staff are agricultural engineers, and additional engineers and master builders were hired on a contract basis. However, this situation is explained by the importance of the infrastructure component within the Human Development Programme and to a lesser extent the Economic Development Programme. Therefore, from that point of view the composition of the team would be acceptable and justified.

Nevertheless, from the point of view of the technical team's suitability to take forward the PDIVI intervention strategy, as set out in its objectives, aims, strategies and results, which undoubtedly in

the main seek to improve people's quality of life, build capacities, strengthen human and organisational capital, and actively involve men and women in decisions on development and environmental sustainability, the professional profile of the technical team does look unbalanced in terms of the specialised requirements in the area of human development. For this reason, and given the strategic characteristics of the PDIVI, a similar programme would require a larger number of professionals on the social side, especially during the initial stages of the project cycle, to complement the staff in the field of engineering in a multidisciplinary fashion.

Considering the local conditions in which they worked, the technical team was quite small for the task of implementing the Plan given its thematic, geographic and social complexity, in addition to the large size of the target area (three municipalities). Indeed, not having enough time to cover qualitative aspects in depth (training, technologies, follow-up, assimilation, consolidation, quality, etc) was the major challenge mentioned by the technical staff in their group and individual interviews. This situation is understandable considering that, in practice, the technical team had only six people who had to cover the whole area, often on foot and/or on slow and difficult roads.

Finally, the staff clearly have a strong sense of responsibility and commitment, and they all achieved an excellent degree of acceptance, communication and trust with the beneficiary communities. The salary level was judged by the technical team itself to be average and although there is no formal system of incentives, the technical team benefited from training, motivation activities, family events, etc., which contributed to the building of close relationships and the development of a stimulating and stable working environment.

b. Analysis of the intervention strategy

Based on the results of the field visits, it was found that participation by the beneficiaries was one of the cornerstones of the PDIVI's implementation and that it was decisive for achieving the goals of the Plan and its respective projects. At the same time, by encouraging the community to play a leading role it was possible to develop attitudes and skills that are essential for autonomous management. Thus, in several of the communities visited the evaluation team noticed a very high level of motivation, empowerment and social capital. If this is strengthened, it could trigger knock-on development processes.

Likewise, the synergy and strategic partnerships achieved with the Autonomous Municipal Governments had a triple positive impact: i) municipal counterpart contributions were secured and committed for investment in areas of high social sensitivity; ii) direct links were forged between the community and municipal government authorities; and iii) social oversight of public investment resources was encouraged. Although there were some delays in the disbursement of the municipal counterpart contributions, the institutional commitments agreed between NMA-B and the municipal governments made it possible to overcome the obstacles caused by the constant changes in municipal government authorities.

With regard to the management of counterpart contributions, NMA-B initially covered 75% of the cost of non-local materials and supplies and skilled labour, as well as training materials and requirements. The municipal governments covered the remaining 25% of the cost of these items. Since the start of PDIVI-2, these percentages changed to increase the municipal government's contribution to 30%. In both phases (PDIVI 1 and 2), the farming and natural resources component

was funded by a contribution from NMA-B that amounted to 50% of the cost of seeds, livestock, tools, equipment and other inputs, while the beneficiaries covered the remaining 50% of the cost.

The 70/30 counterpart contributions arrangement was introduced and ran smoothly, so that the infrastructure, organisational strengthening and training activities could be implemented without any major problems. This demonstrates the effectiveness of the model deployed, which also makes local stakeholders jointly responsible for the implementation of the PDIVI. However, it was found that the counterpart contributions of 50% for the Economic Development Programme were costly or unaffordable for the majority of the beneficiaries, bearing in mind the prevailing economic conditions in the area. Although this policy affected the achievement of the set targets, since not all the beneficiaries were able to access the PDIVI's Economic Development Programme, it was also found that it contributed to the beneficiaries' sense of ownership of these projects.

Furthermore, most of the activities in which the beneficiaries participated are related to management and planning processes. These created an effective flow of communication and information between the community and the NMA-B technical team. According to the organisational appraisal, the various management reports and especially the statements made by the beneficiaries themselves, participation took place at different times and involved the following different types of activities:

- Regional assessment process. The community participated in identifying potentials, constraints and needs in order to define the local area's vocation. Community assessments were carried out in all the communities.
- Meetings with farmers' union leaders, in order to prioritise community demands and define project management processes. Community members and technical staff participated in these meetings.
- Meetings with municipal government authorities, for the purpose of including community demands in Municipal Development Plans (PDM) and Annual Work Plans (POA). The Administration Committees, community authorities and municipal government authorities participated in these meetings.
- Meetings with the regional-level farmers' union, in order to present progress reports on the PDIVI and plan demands at the canton level.
- Community project meetings, involving the farmers' union, the administration committees and PDIVI technical staff, for the purpose of planning the following week or month's activities.
- Annual conferences. These were held at the end of each year in order to present the annual report and accounts. The Administration Committees, the Municipal Governments, the NMA-B technical team and the Area V coordination team participated in these conferences.

This list of joint activities shows the level of community and municipal government participation promoted by the PDIVI. It also demonstrates how actively the beneficiaries were involved at every stage and in all the coordination and planning processes, which enabled suitable progress to be made in the implementation of the majority of the projects. Looked at from another angle, it shows the effort that the technical team made to secure the participation of people with very little project management experience, to which should be added the physical and social obstacles typical of the target area. Despite all this, the evaluation team believes that an appropriate level of coordination was achieved with the different local organisations or representatives, together with a sufficiently smooth flow of information and communication between communities, local stakeholders, municipal government authorities and NMA-B technical staff.

Community organisation for project implementation was based strategically on the local organisation. Thus, the community acted as the PDIVI's planning, administration and monitoring unit. Accordingly, many local groups or spaces were established or strengthened, and these operated in close collaboration with each other and in coordination with municipal government authorities and other local actors. In practice, these local groups are much more modest and they tend to have between two and four members, in addition to municipal government and community representatives. They jointly approve disbursements to the Administration Committees, approve projects, identify community demands and oversee the fulfilment of agreements. We therefore feel that it is absolutely relevant to acknowledge the efforts made to promote the setting up, establishment and functioning of this "*network of local actors.*"

The community Administration Committees, under the supervision of the farmers' union, are responsible for managing the funds and buying the materials. They also encourage the community to participate, negotiate with NMA-B and the municipal government, monitor the projects, and carry out financial and operational planning for projects to be implemented. It is worth making clear that these committees basically focus on the project implementation phase and their work ceases when the project is completed. This operational structure has been fundamental to the effectiveness of budget spending with a high level of transparency, due mainly to the effort the committees have made to comply with accountability processes and present their reports regularly to the Autonomous Municipal Governments and the community.

One important feature of these committees is that their members are elected in a community assembly meeting. Most of the committees are chaired by pastors, which could be interpreted as a sign of the trust the community places in church leaders, although it could also be interpreted as reflecting a lower level of trust in people who are outside church circles. This situation suggests a certain scepticism or sensitivity regarding the assumption of honesty on the part of the general public, because even in the absence of the Diaconal Development Programme, it is to be expected that church leaders would seek to instil ethical values in people's behaviour. In this regard, it is important to recognise that the communities have acquired the very healthy habit of demanding accountability, presenting accounts and getting involved in the spending of project funds – an aspect that we consider a significant qualitative leap forward in the autonomous management of development.

These committees' relations with others are limited to the municipal level, where they develop relationships mainly involving NMA-B technical staff, local organisations and municipal governments, and they still have little contact with organisations outside the local setting. However, some of them have been in contact with departmental government representatives, the INIAF on the subject of certified seeds and the Ministry of Rural Development and Land's CRIAR Programme, through which they coordinate work related to agricultural production.

With regard to the subject of communication, it was found that the means used are mainly traditional one such as community meetings and assemblies, as well as local radio stations when appropriate. Mobile phones have become the most effective means of communication between people to coordinate and manage projects.

We also found that the NMA-B central office has a communications office that specialises in producing and distributing communications materials, making an efficient contribution to publicising the PDIVI. The materials it produced include videos on NMA-B's most successful experiences;

newsletters with articles providing information on the progress of the projects in the different areas; the organisation's website (www.manb.org); and presentations with comprehensive information about the projects implemented and the work done. However, we also found that the Area V technical team does not have either the space or sufficient resources to systematise and disseminate the PDIVI's most successful experiences, some of which provide evidence of the initiative, creativity, efficiency and effectiveness of the community and deserve to be publicised and disseminated at the municipal level. This situation makes it difficult to share the experiences and successful results achieved as part of the PDIVI with other projects and organisations. It also means that there is a risk of losing and failing to take advantage of the lessons learned regarding the implementation of the Plan.³

c. Monitoring and follow-up system and information management

According to the documents establishing the guidelines for PDIVI 1 and 2, the main tool used for monitoring and evaluation is the Logical Framework and its indicators. These documents also mandate the holding of evaluation meetings with all the local stakeholders participating and regular meetings with the Area V technical team and the staff responsible for planning and monitoring in the NMA-B central office. The process to draw up the Annual Work Plan (POA) also provides an opportunity for evaluation and monitoring of the activities and budget on a quarterly, six-monthly and/or annual basis.

According to the interviews with NMA-B staff, both in the field team and in the central office team, we found that the monitoring and follow-up system does not have a formal structure established beforehand. However, we were also able to identify an arrangement that apparently operates on the following levels:

- Strategic monitoring, carried out by NMA-B's Head of Planning and Monitoring, based on the organisation's guidelines and annual reports from all the areas;
- Programme monitoring, carried out by the Programme Coordinators, based on the POAs;
- Operational follow-up, carried out by the Area V Coordinator, based on the PDIVI logical framework and indicators; and
- Project follow-up, carried out by the facilitators or technical staff in the field team, based on the results indicators established for each project.

It was also found that an IT system called Microsoft Dynamics GP is being used. However, it is designed to be used exclusively for administrative and financial management, and it is difficult for the technical staff to make use of it. In practice, therefore, the only person who used it to input data was the Accounts Facilitator. Because they needed a monitoring and follow-up system, the members of the field team have each designed their own format in Excel, based on the programme and project indicators. These spreadsheets are basically used to record quantitative information. However, it was also found that qualitative aspects are not adequately reported, either through a system or in the annual reports that each area prepares for the NMA-B central office.

³ One example of the successful experiences that have not been disseminated is the implementation of the micro-irrigation systems, in which technical and financial resources were clearly used in the best possible way. Significant counterpart contributions were leveraged to complement these resources, both from the municipal government and from the communities themselves. Financial efficiency measured in terms of the cost in dollars per hectare provided with irrigation is estimated at US\$ 1,715 per hectare. This is clearly very different to the average cost of projects to improve micro-irrigation systems in valley environments, where the cost per hectare is usually between US\$ 2,500 and US\$ 3,000.

Although it is true that overall physical progress is adequately measured, this situation makes it evident that there is a need for a more structured and integrated system that would enable the impacts of the PDIVI in particular to be fully evaluated. Such a system would also enable a flow of complementary quantitative and qualitative information between the different levels of planning and monitoring. This requires specific tools for each level, but these do not necessarily have to be online. Ideally, an adequate monitoring and follow-up system should include strategic monitoring and operational follow-up, both based on simple and preferably streamlined tools designed for everyday use, to feed in information that is channelled upwards to the strategic monitoring of NMA-B's institutional guidelines and objectives.

Another aspect that is relevant to monitoring and evaluation is to have the baseline information that makes it possible to measure the impacts or changes produced by carrying out different programmes and projects. However, the evaluation team found that no programme or project had a properly conducted baseline study. Neither do we know whether such studies are being carried out now, under the same institutional guidelines. This significant shortcoming makes evaluation work difficult and hampers the possibility of showing the results or impacts produced by the projects in a more suitable way. The annual reports make a great effort to use indicators, but unfortunately they do not fill the gap left by the absence of the baseline data which ought to underpin follow-up, monitoring and evaluation reports. However, the evaluation team did not find sufficient evidence regarding this situation, and therefore this area is clearly one that requires further work by NMA-B.

With regard to the annual reports, we had access to most of these narrative documents, which follow the standard format required by the organisation's headquarters in Oslo. The organisation's matrix reports based on the physical and financial indicators in the POAs were also reviewed. It was found that the former, in particular, provide qualitative, quantitative and even financial information in their different sections, including with regard to deviations and their causes, as well as assessments of the risks, impacts and sustainability of the Plan, among other aspects. Along the same lines, the matrix reports have the advantage of providing swift and precise information on the achievement or non-achievement of each programme's physical and financial indicators, which makes follow-up, monitoring and evaluation work easier. Both types of reports have the additional advantage of being complementary, since the quantitative information in the matrix reports is perfectly complemented by the qualitative and analytical information contained in the narrative reports.

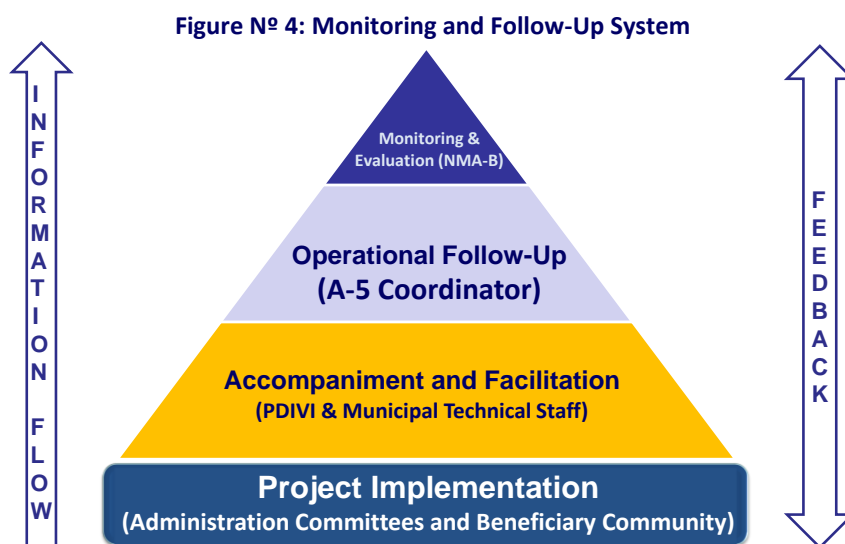
Up until the time of the final evaluation of the PDIVI, we believe that the full potential of the two types of reports has not been taken advantage of, as the information reported in the annual narrative reports has substantial weaknesses in terms of the quality, depth and current validity of the analyses presented in each section. One example of this is that in the section on results, the information is eminently quantitative and follows a format different to the one used in the POAs, which makes it difficult to compare the two. Another additional difficulty is that in several cases the indicators used in the narrative report differ from those established in the POAs, and sometimes new indicators are presented or some that were defined in the annual work plans are omitted.

The sections that should be used for a specific and chronological analysis of the qualitative aspects of the results, the impacts of training and the gradual development of sustainability conditions do not go into sufficient depth about the different causes and effects mentioned in each case. Most of the sections contain information that is repeated practically unchanged throughout the period, making it difficult to know exactly how the PDIVI and its components have developed, overall and separately. This risks diminishing or losing sight of the essential nature and purpose of the reports, which is to

provide regular information about the operational implementation processes and rectify any shortcomings.

The annual work plan has clear indicators at the level of results and outputs for all the projects, and these are related to the Plan's general objectives. Thus, a direct relationship is established between the indicators at the different levels of monitoring and follow-up. This enables the facilitators, managers and coordinators to monitor progress with specific project and output indicators, which contribute to the higher objectives and indicators of the programmes and the PDIVI as a whole. The toolkit available for following up on these indicators includes annual plans, budget spreadsheets, monitoring forms and budget spending spreadsheets. These make it possible to keep up to date with what is happening in the projects and progress with indicators and budgets over time.

However, the main finding of the final evaluation of the PDIVI with regard to monitoring, follow-up and information management issues is, in our opinion, that NMA-B has not yet managed to put together the ideal system that would provide operational, managerial and executive information at the different levels of programme and project management, as we found that operational information is not necessarily consolidated and aggregated in order to produce a report for the next level up. There are gaps and overlaps which are not a problem specific to Area V, but rather a structural problem in the NMA-B central office in the area of planning and monitoring. Indeed, we found that the Area V Coordinator had made significant efforts to rectify this situation, using matrix reports that apply only to the PDIVI and are not necessarily useful for strategic monitoring within NMA-B. In response to this situation, in the diagram below we propose an arrangement that would provide an optimum flow of information (see Figure 4: Monitoring and Follow-up System):



Finally, we also believe that the absence of adequate baseline data made it difficult to carry out strategic monitoring work and especially to evaluate the programmes or plans within NMA-B. Thus, the evaluation exercises are not necessarily cumulative and it is difficult for them to adequately demonstrate the results and impacts produced, in this case by the PDIVI. Another aspect that could have operated better, if the regular reports – both narrative and matrix – had been more effective, is the issue of “*feedback*”. By regularly identifying any deviations, this could have led to corrective measures which, in theory, would improve the performance of the Plan over time (see Figure 4:

Monitoring and Follow-up System). These aspects were addressed timidly rather than by means of the most suitable programme and project management toolkit.

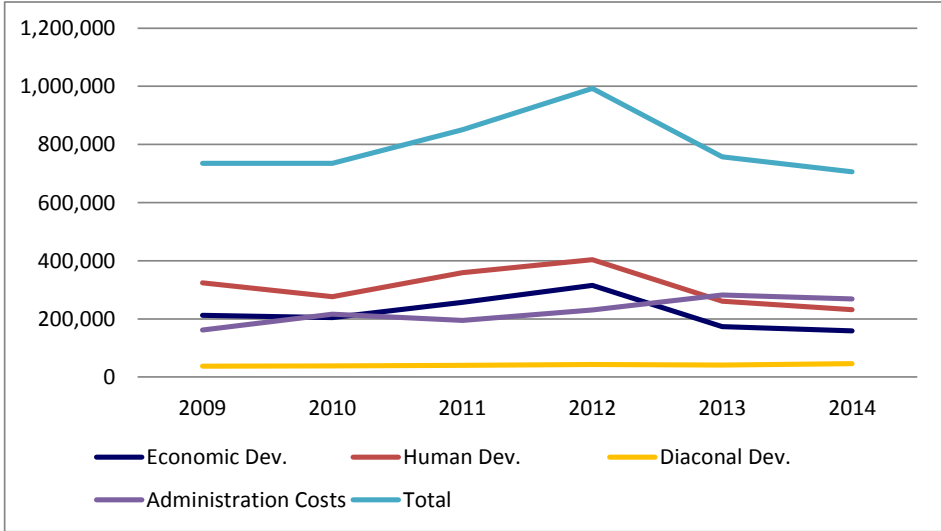
d. Administrative and financial management

The analysis and evaluation of budget spending for the Integrated Development Plan for the Inter-Andean Valleys (PDIVI) was based on the stipulations made in the Administration and Finance Regulations (approved on September 1st, 2012), and started by looking at the different Annual Work Plans (POAs) that were drawn up and approved during the period from 2009 to 2014.

Operational planning and budget spending both refer to the three Programmes: i) Economic Development, ii) Human Development and iii) Diaconal Development, and to iv) Administration Costs. The three programmes are considered investment and the fourth item refers to the Plan’s administration costs, meaning expenditure to enable the PDIVI to function rather than direct spending on its beneficiaries.

The graph below shows how budget spending varied over time in each programme, reflecting the following findings: i) trends in the Economic Development and Human Development Programmes determine the overall trend of spending on the PDIVI over the six years analysed; ii) budget spending per year is relatively even throughout the period analysed, although there is a significant spike in 2012 and this is the year when the Plan’s budget spending was highest; iii) spending on the Diaconal Development Programme is almost the same every year at around Bs. 40,000; iv) budget spending starts to increase in 2010 and falls slightly in 2013 and 2014; and v) as shown in the graph, spending on administration costs tends to be relatively stable, with a slight reduction in 2011 and 2012 and an increase in 2013 and 2014.

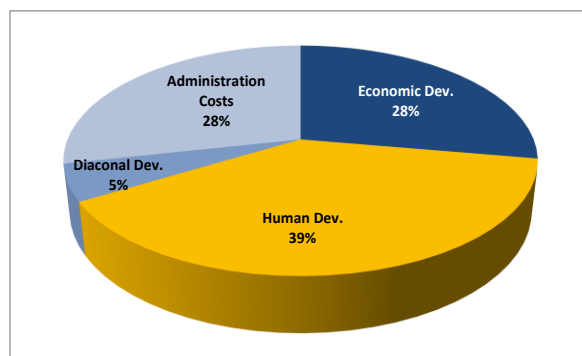
Figure Nº 5: Variation in Budget Spending by Programme (in bolivianos)



Source: Prepared by the authors based on information from NMA-B (administration and finance area).

Furthermore, the pie chart of the Composition of Budget Spending per Programme shows that the two programmes on which spending was highest (Economic Development and Human Development) together account for 67%, while the Diaconal Development Programme only accounts for 5% of the total budget spent. This same analysis shows that administration costs accounted for 28% of the total cumulative budget spent. This could be seen as a striking figure compared with the public investment standards for plans or programmes of this type. However, it is necessary to take into account the integrated nature of the intervention, which requires the participation of multidisciplinary teams with a larger number of professionals. Thus, we can state that at least 72% of the total budget was spent directly on the PDIVI's beneficiary families through investment in production and social projects. This situation represents a significant finding, since it means that more than two thirds of the funds effectively reached the

Figure Nº 6: Composition of Budget Spending per Programme, 2009-2014



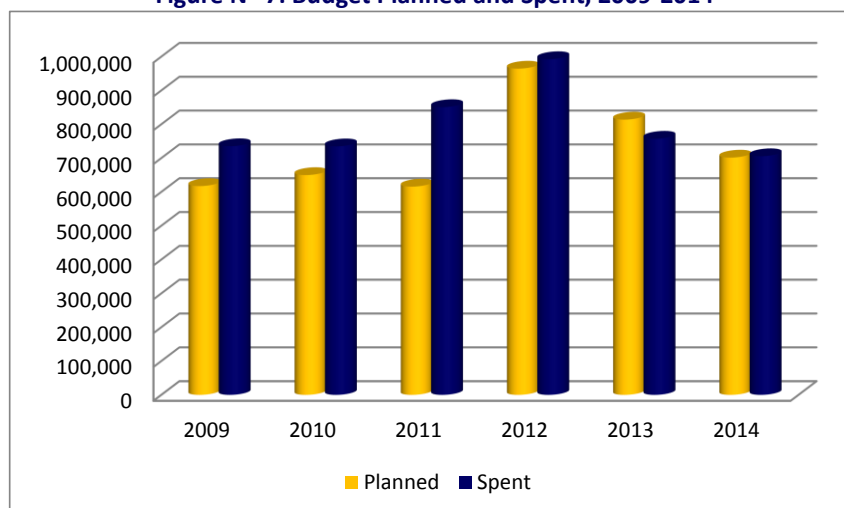
beneficiaries of the Plan in the target area, as shown in the graph.

Source: prepared by the authors based on information from NMA-B.

Therefore, based on the analysis of the composition of budget spending per programme, it has been clearly established that the “*cost-efficiency*” of the investment in production and social initiatives is equivalent to 72% of the total budget spent on the PDIVI. This is because the Economic Development, Human Development and Diaconal Development Programmes accounted for the entirety of the investment made on behalf of the Plan’s beneficiary families. In our opinion, therefore, the PDIVI has a relatively acceptable level of spending on administration (including spending on indirect costs linked to the investment), because it required approximately US\$ 3 to be spent on administration costs in order to spend slightly more than US\$ 7 on investment, whereas experience in the management of public investment programmes and projects shows that administration costs ranging from 15% to 25% are considered acceptable.

The graph comparing the planned budget with the budget spent during the period of PDIVI-2 implementation plus the Closure Plan (2009-2014) shows the following: i) the planned operating budget was exceeded by the budget spent almost every year except for 2013, when 93% of the planned budget was spent – a level considered more than acceptable, and ii) on average, or based on the cumulative data for the period analysed (2009-2014), budget spending reached 109% of the planned operating budget, which shows a significant level of budget spending compared with the planning exercises. Therefore: i) the operational planning carried out by NMA-B together with the Area V coordination team is appropriate and uses a suitable method of financial planning, and ii) the levels of budget spending show that the PDIVI has a significant spending capacity and very even levels of spending, with 2012 being identified as the year with the largest budget, both in terms of what was planned and effective spending. Therefore, taking 31 December 2014 as the cut-off date, and according to the cumulative data, the budget spent exceeded the planned budget by 9%. This speaks very well of the financial performance of PDIVI-2 plus the Closure Plan. Therefore, in the opinion of the evaluation team, no problems could be identified as affecting the financial performance of the PDIVI in the 2009-2014 period, as shown in the graph below:

Figure N° 7: Budget Planned and Spent, 2009-2014



Source: prepared by the authors based on information from NMA-B (administration and finance area).

In the records on the planned operating budget and budget spending provided by the NMA-B Administration and Finance Unit to the evaluation team, the information is broken down by programme and for each year in the 2009-2014 period. According to this data, the budget spent so far (US\$ 4.8 million) as a percentage of the total budget for the Plan (US\$ 4.4 million) is equivalent to a performance level of 109.5%. This rate is better than good, considering the pace of spending that has taken place over the last six years.

As quantitative data backing up the findings set out in this section, we now go on to present two tables showing the budget figures contained in the annual work plans (POA) and the figures for PDIVI budget spending, broken down by programme, over the implementation period from 2009 to 2014 (with 31 December 2014 as the cut-off date). This information was produced by the NMA-B Administration and Finance Unit, which kindly provided it to the SAXgr evaluation team. It is important to mention here that these figures were compared and validated with the data presented in the annual reports that the Area V coordination team sends every year to the NMA-B central office:

Table N° 4: Planned Budget for PDIVI-2 plus the Closure Plan, 2009-2014 (in US\$)

Programme	2009	2010	2011	2012	2013	2014	Cumulative (2009-2014)
Economic Development	178,200	151,440	234,470	319,839	202,050	131,573	1,217,572
Human Development	232,421	241,300	324,546	338,135	267,365	229,500	1,633,267
Diaconal Development	35,557	36,600	35,500	37,577	36,600	42,553	224,387
Administration Costs	171,119	220,512	21,202	269,027	307,800	297,874	1,287,534
TOTAL:	617,297	649,852	615,718	964,578	813,815	701,500	4,362,760

Source: prepared by the authors based on information from NMA-B (administration and finance area), March 2015.

Finally, according to the figures presented in the table below, it is clear that the Economic Development and Human Development Programmes are the ones that account for the bulk of budget spending in the period analysed. The Diaconal Development Programme, in contrast, is the programme on which the smallest amount was spent during the same period. In addition, when the figures for each year are reviewed, it is clear that budget spending from one year to the next

remained even and remarkably similar, with the exception of 2012, when there was a significant spike in budget spending in all the programmes.

Table N° 5: Budget Spent on PDIVI-2 plus the Closure Plan, 2009-2014 (in US\$)

Programme	2009	2010	2011	2012	2013	2014	Cumulative (2009-2014)
Economic Development	212,404	204,477	256,518	315,164	173,796	158,953	1,321,312
Human Development	323,483	275,875	359,254	403,776	260,600	231,825	1,854,813
Diaconal Development	37,211	37,848	39,961	42,639	41,140	46,198	244,997
Administration Costs	162,112	216,518	195,001	231,021	281,817	268,677	1,355,146
TOTAL:	735,210	734,718	850,734	992,600	757,353	705,653	4,776,268

Source: prepared by the authors based on information from NMA-B (administration and finance area), March 2015.

3.3. Efficacy

This section analyses whether the work carried out helped to achieve the goal, purpose and results of the Plan.

a. Achievement of the goal and purpose of the PDIVI

The first part of the analysis seeks to verify whether the goal and purpose defined in each Logical Framework were achieved in each phase of implementation.

Table N° 6: Goal and Purpose Defined in the Logical Frameworks

PDIVI-II: 2008-2012	PDVI: 2013-2014
GOAL	
Improve the social, economic and organisational aspects of the living conditions of people in the inter-Andean valleys region, and include men and women in development processes in their region.	Help to improve the quality of life of people in the Inter-Andean Valleys of La Paz.
PURPOSE	
Improve the living conditions of rural families in the inter-Andean valleys by meeting their social and economic demands, strengthening their organisations, and including men and women in sustainable local development processes.	Improve the living conditions of families in the target area and boost their regional economy, with the leading role being played by men and women who are included in sustainable local development processes, stronger local organisations and a fairer society.

Source: Logical Frameworks.

We believe that both the goal and the purpose of the Plan were fulfilled, because the work done in the Human Development and Economic Development Programmes helped to improve the living conditions and quality of life of the people living in the beneficiary communities and municipalities.

The Human Development Programme managed to meet the need to improve infrastructure and equipment in the health and education sectors, as well as helping to train teachers, supporting vaccination campaigns and teaching children about hygiene and washing practices in the target area. These actions were accompanied by the installation of water systems in several communities with the

aim of enabling people to access safe drinking water, which is a complementary contribution to the improvement of human development rankings.

As a result of the Economic Development Programme, the communities have been strengthened in the areas of productive development and natural resources management. To achieve this, specific actions were taken in relation to productive infrastructure, technological innovation and improvement, training and technical assistance, organisational strengthening and support for micro-enterprises. These actions supported improvements in farming production, which had a positive impact on increasing the income earned by families in the Plan's target area. This likewise represents an improvement in the quality of life of the beneficiary communities.

b. Human Development Programme

For PDIVI-2 (2008-2012), the stated purpose of the Human Development Programme was to *“improve the living conditions of people in the inter-Andean valleys region in the areas of health, education, basic sanitation and organisational strengthening.”*⁴ This purpose did not change much in PDIVI-3 (2013-2014), where the general objective was as follows: *“Families in the target area have better living conditions and opportunities in a stronger regional economy, with men and women included in sustainable development processes, stronger local organisations and a fairer society.”*⁵

To fulfil these objectives, four areas of action (components) were established and maintained throughout the two periods of implementation of the PDVI.⁶ The objectives of these were as follows:

- **Education:** The conditions and coverage of education services have improved, in the framework of the country's education reform process.
- **Health:** The conditions and coverage of health services have improved, in the framework of state health programmes.
- **Basic Sanitation:** Families have drinking water systems and facilities for disposing of human waste.
- **Organisational Strengthening:** Men and women in local organisations participate actively in decision-making on local and regional development.
- **Children and Adolescents' Rights**⁷

Implementation of the *Human Development* Programme in the 2008-2012 period was aimed at supporting and complementing the work of the municipal governments in the areas of health, education and basic sanitation, providing support for activities where the municipal governments did not have sufficient funding.

Reviewing the reports and monitoring information, the following results can be identified with regard to the achievement of the indicators in the Logical Framework:

⁴ Integrated Development Plan for the Inter-Andean Valleys – PDIVI-2 (2008-2012)

⁵ Integrated Development Plan for the Inter-Andean Valleys – PDIVI-3 (2013-2014)

⁶ Taken from the Integrated Development Plan for the Inter-Andean Valleys – PDIVI-2 (2008-2012)

⁷ The project related to children and adolescents' rights was carried out in the last two years of PDIVI implementation, i.e. 2013 and 2014.

Table № 7: Results and Achievement of Logical Framework Indicators in Human Development, 2008-2012

Results	Project Indicators	Target Achieved	Achievement %
The conditions and coverage of education, health, drinking water and sanitation services have improved, in line with the country's development plans.	An average of 190 teachers are trained each year	An average of 135 teachers were trained each year	71.1%
	20 school infrastructure projects and 10 teachers' housing projects have been built	A total of 20 school infrastructure projects and 5 teachers' housing projects were built.	100.0% and 50.0%
	15 schools are equipped with school furniture	59 classrooms were equipped with school furniture (*)	393.33%
	2 health centre infrastructure projects are built and 4 health centres are equipped	5 health centre infrastructure projects were built and 10 health centres were equipped.	250.0% and 250.0%
	2,600 schoolchildren are given medical and dental care each year	5,192 schoolchildren were given medical and dental care each year	199.69%
	Water systems and latrines are built for 1,200 families and 50 operators are trained to maintain them	22 water systems were installed, latrines were built for 758 families and 68 operators were trained in maintenance (**)	63.2% and 136.0%
Men and women in local organisations participate actively in decision-making on local and regional development.	60 community organisations have been strengthened on local management issues.	128 community organisations were informed about local management issues.	213.0%

Source: NMA-B monitoring information and annual reports; **Prepared by:** The Authors.

(*) The percentage calculated is referential, because the indicator statement refers to the number of schools equipped and the reports refer to records of the number of classrooms equipped. / (**) In the annual reports there are records for 2008 mentioning 8 operators trained, but according to the information provided by the technical staff 68 operators were trained with INFOCAL.

In most cases, implementation of PDIVI-2 fully achieved the results and indicators envisaged. Thus, it managed to achieve the objectives set as part of the plan's activities as a whole. However, there were some indicators that could not be achieved as planned.

During the PDIVI Closure Plan (2013-2014), the work carried out as part of the Human Development Programme focused mainly on accompanying the local organisations in the different communities with the aim of laying the necessary foundations for sustainability.

Table № 8: Results and Achievement of Logical Framework Indicators in Human Development, 2013-2014

Narrative Summary	Indicators without the Project	Indicators with the Project	Target Achieved	Achievement %
PURPOSE: (Impact) Specific objective: Families have better access to education, health and basic sanitation services and local organisations have been strengthened with an integrated vision.	In 2012, 82% of families in the target communities have unmet basic needs	From 2015 onwards the percentage of families in the target area has been reduced from 82% to 78% (SIC)	It is not possible to measure the indicator because no up-to-date information about UBN is available	-
COMPONENTS: (Results)				
The teaching conditions and coverage of education services in the target area have improved.	95% coverage of children of school age	95% coverage of children of school age is maintained (SIC)	97% of coverage of children of school age in primary school	102.1%
The health care conditions and coverage of health services have improved.	400 women of fertile age give birth in a health service.	100 women receive childbirth care in a health service	2% increase (from 90% to 92%) in safe childbirth care provided to pregnant women, with municipal government participation.	-
	65% of babies < 1 year old receive the pentavalent vaccine	80% of babies < 1 year old receive the pentavalent vaccine	80% of babies < 1 year old receive the pentavalent vaccine and complete the 3rd dose	100.0%
	5 community health organisations are insufficiently strong to play their role in health (SAFFCI).	5 local organisations strengthened for management and organisation in health (SAFFCI)	There is no evidence or information available to measure the indicator.	-
Access conditions and coverage of domestic safe water and sanitation services have improved.	1,565 families have safe water systems and adequate sanitation	60 families have access to safe water systems and sanitation facilities	180 families have access to safe water systems and sanitation facilities that are adequate and	300.0%

Narrative Summary	Indicators without the Project	Indicators with the Project	Target Achieved	Achievement %
	facilities	that are adequate and functioning	functioning	
Proactive men and women leaders have skills and knowledge and carry out community management tasks.	100 organisations are informed about community development processes	116 local organisations are proactive in community development and municipal POA processes	128 local organisations are proactive, perform their roles properly and make proposals in community development and municipal POA processes	110.3%

Source: NMA-B monitoring information and annual reports; **Prepared by:** The Authors.

The area where the greatest problems can be identified in the measurement of results is in the indicators related to the Human Development Programme in the Closure Plan 2013-2014. This is because different indicators are identified in the annual reports, the final report on the period and the monitoring reports provided to us. For this reason, it was decided to measure the indicators formally provided to us by NMA-B at the start of the consultancy.

Despite this limitation, we found quite high levels of achievement of the indicators formulated for this Programme. In order to get a better idea of the results of the Plan, it is important to look at the results achieved in the different components of PDIVI-2 and the Closure Plan 2013-2014.

In the area of **education**, the objective of the work was to *improve the teaching conditions in schools and the percentage of children covered*. To achieve this, the activities prioritised in PDIVI-2 focused on infrastructure, equipment, training and child health in the priority schools, while in the Closure Plan they focused on complementing school infrastructure and equipment and particularly on strengthening capacities with the aim of ensuring the sustainability of the work done in the different phases of the PDIVI implementation process, especially the final phase.

With regard to school infrastructure, from 2008 onwards 20 infrastructure projects were carried out to build classrooms, bathrooms, offices, etc, with the largest number being built or improved in 2009 and 2010.

Table Nº 9: School Infrastructure Projects carried out, by Municipality (2008-2014)*

Municipality	PDIVI 2					PDIVI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Sorata	1	3	3	2	0	2	1	12
Quiabaya	0	2	1	0	3	1	0	7
Combaya	0	1	0	0	0	0	0	1
TOTAL	1	6	4	2	3	3	1	20

Source: NMA-B monitoring information. **Prepared by:** the authors. (*) Project completion date.

Most of the items of infrastructure built were classrooms, followed by housing for teachers. This is essential for ensuring that teachers continue to work in the school, particularly in rural areas. It is calculated that the 106 projects built 5,806 m² of infrastructure, benefiting about 1,991 families.

Table Nº 10: Type of Education Infrastructure Built, by year

Description	PDIVI 2					PDIVI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Classrooms	19	25	9	2	12	4	0	71
Bathrooms	0	1	1	2	1	1	0	6
Offices	1	4	1	2	2	0	0	10
Teachers'	0	7	0	3	3	0	5	18

Description	PDI VI 2					PDI VI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
housing								
Auditoriums	0	0	1	0	0	0	0	1
TOTAL	20	37	12	9	18	5	5	106

Source: NMA-B monitoring information. Prepared by: The Authors.

Other results of the work done by NMA-B in the municipalities of Sorata and Quiabaya are mainly related to the equipping of schools with furniture and teaching and learning materials. This was highly valued by the interviewees because of its usefulness and the comfort it provides the schoolchildren, which has a positive influence on the benefit they derive from their classes. Another of the activities carried out with good results is the work related to schoolchildren's health, which reached more than 7,400 children and adolescents,⁸ providing them with medical and dental care and training on dental and personal hygiene for children of school age. Under this same approach, starting in 2013 training activities began on the management of solid waste as part of learning on social and production topics in schools.

"The equipment they gave us was very welcome. Before, the children often had to share their desks and even spend the whole class standing up. Now they pay more attention in class."

Member of the School Committee, Quiabaya

Finally, another area in which a positive impact was achieved is the training provided to teachers in the various schools on classroom techniques. This was positively valued by the teachers interviewed. The main achievements are summarised in the table below:

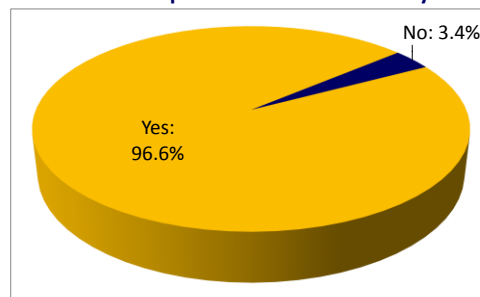
Table Nº 11: Results of the PDI VI's Work in Education (2008-2014)

Description	PDI VI 2					Closure Plan		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Classrooms provided with furniture	4	19	11	18	7	15	16	90
Classrooms provided with teaching materials	13	1	7	0	17	3	5	46
Classrooms provided with learning materials	27	8	50	47	71	79	63	345
Teachers trained	145	234	220	27	51	65	109	851
Schoolchildren provided with health care	1,225	1,100	600	1,217	1,050	1,255	1,047	7,494
Schoolchildren trained on solid waste	-	-	-	-	-	250	387	637
Teachers trained on solid waste	-	-	-	-	-	24	29	53

Source: NMA-B annual reports. Prepared by: The Authors.

In general, the perception of the people surveyed is that the work done by NMA-B in the area of education responded to the community's needs (see chart). This view is shared by the adolescents surveyed, 91.7% of whom responded in the affirmative. This shows the degree of satisfaction with the work done in the beneficiary communities.

Figure Nº 8: Do you feel that the work done by NMA-B in education responded to the community's needs?



Source: Survey

In addition, the people surveyed were found to have a significant level of satisfaction with the work of the NMA-

⁸ The same children were given medical and dental care in different years, so the real number of children who received this care might be lower.

B technical staff, which the majority classified as very good. This was also confirmed in the interviews conducted with teachers and parents, members of the School Committees – now called Education Councils – and the schoolchildren themselves who were surveyed. The survey results are shown in the table below:

Table Nº 12: Parents' Perception of NMA-B's Work in Education

Description	Very Bad	Bad	Good	Very Good	Not Done	DK/NR
School infrastructure	1.70%	3.40%	23.70%	71.20%	0.00%	0.00%
School equipment	1.69%	0.00%	27.12%	67.80%	1.69%	1.69%
Schoolchildren's health	1.69%	3.39%	27.12%	62.71%	5.08%	0.00%
Teacher training	1.69%	6.78%	18.64%	57.63%	5.08%	10.17%
Training on children's rights	1.69%	6.78%	18.64%	64.41%	5.08%	3.39%
AVERAGE	1.69%	4.07%	23.04%	64.75%	3.39%	3.05%

Source: Evaluation survey

The activities carried out were focused primarily on improving teaching and learning conditions. However, as identified in the Mid-Term Evaluation conducted in 2013, the work done does not guarantee increased coverage in terms of the number of children of school age who attend classes. This situation is also influenced by external and in many cases subjective factors such as the precarious economic conditions that encourage people to migrate in search of better livelihood opportunities, the custom for girls to drop out once they have finished primary school, and other factors that make it difficult to increase the coverage of schooling.

One element that stands out and was likewise identified in previous evaluations of the PDIVI is that having the community participate in building infrastructure has proven to be very effective, encouraging a sense of ownership and individual and collective responsibility. It also contributes to an increase in the demand for schooling, including from other communities near where the projects were carried out. As a result, in some places there is quite a lot of pressure to expand the existing infrastructure and improve the equipment in the schools.

The work in the area of **Health** had the objective of *enabling health services to improve care and coverage*. To achieve this, the activities prioritised in PDIVI 2 focused on infrastructure and equipment for health centres and providing parents and schoolchildren with health information. In PDIVI 3 the work focused on complementing the infrastructure and equipment and providing training to the Local Health Committees (COLOSA).

In the area of health infrastructure, eight construction projects were completed from 2008 onwards. The majority of these were for bathrooms, followed by housing for health staff.

Table Nº 13: Type of Health Infrastructure Built, by Municipality

Description	Health Post	Health Centre	Staff Housing	Bathrooms	Perimeter Wall	TOTAL
Sorata	1	0	1	1	1	4
Quiabaya	0	1	1	2	0	4
TOTAL	1	1	2	3	1	8

Source: NMA-B monitoring information. Prepared by: The Authors.

The bulk of the work focused on equipping health centres, with 10 of the 11 health centres present in the target area receiving support. This work was done in phases over the different years, and it is

calculated that a total of 25 initiatives to equip health centres were carried out over the period as a whole. From 2009 onwards, information on health-related subjects was provided to parents and in 2014 to children and adolescents.

Table N° 14: Results of the PDIVI's Work in Health, 2008-2014

Description	PDIVI 2					PDIVI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Equipment for health centres	2	3	5	5	5	2	3	25
Parents provided with information on health	-	90	150	200	334	388	253	1,415
Children and young people provided with information on health	-	-	-	-	-	-	1,047	1,047
Health Committees (COLOSA) trained	-	-	-	-	-	-	2	2

Source: NMA-B annual reports. **Prepared by:** he Authors.

100% of the people surveyed felt that the work done by NMA-B in the area of health responded to the community's needs, and in the majority of cases the interviewees classified the work done as very good.

"The dentistry equipment they gave us will be a great help to the community. It's something we've been waiting for for a very long time."

Director of Quiabaya Health Centre

Although the activities carried out aimed to improve the care provided in the health centres, they do not guarantee that these centres can increase the coverage of care. This is influenced by cultural practices, including the fact that local people are not accustomed to consulting a doctor. Other factors are an insufficient stock of medicines and the preference among some people to go to health centres in large towns or cities.

The work in the area of **Basic Sanitation** had the objective of *improving access conditions and coverage of domestic safe water and sanitation services*. To achieve this, the activities prioritised in PDIVI 2 were focused on installing drinking water systems and latrines, as well as providing training on water system maintenance. In PDIVI 3 the work focused on training system operators.

With regard to basic sanitation infrastructure, the bulk of the work focused on installing drinking water systems, building latrines and installing wash basins.

Table N° 15: Type of Basic Sanitation Infrastructure Built, by Municipality

Municipality	Wash Basins	Latrines	Clothes Washing Sinks	Showers	TOTAL
Sorata	530	571	386	344	1,831
Quiabaya	168	158	74	73	473
TOTAL	698	729	460	417	2,304

Source: NMA-B monitoring information. **Prepared by:** The Authors.

With regard to the installation of water systems, the programme managed to build 23 safe drinking water systems which benefited a total of approximately 1,205 families. 51 Water Committees were given training during the PDIVI implementation period.

Table N° 16: Results of the PDIVI's Work on Basic Sanitation, 2008-2014

Description	PDIVI 2					PDIVI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Water systems being installed	4	3	4	4	2	0	-	17
Water systems completed	3	6	4	4	3	3	-	23
Beneficiary families	160	235	161	268	192	129	60	1,205
Committees trained	8	8	6	13	6	10	16	51
Operators trained	8	-	-	-	-	-	60	8

Source: NMA-B annual reports. **Prepared by:** The Authors.

More than 98% of the people surveyed felt that the work done by NMA-B in the area of basic sanitation responded to the community's needs. In the majority of cases, the interviewees classified the work done as very good.

"They addressed needs that were difficult for us to solve on our own. Now we can say that we're living in a better health situation."

President of CAPIS, Sorata

The activities carried out in this component sought to improve access conditions and coverage of safe water services, which has a direct impact on improving the living conditions of the beneficiary communities.

The work in the area of **Organisational Strengthening** had the objective of helping to *provide proactive men and women leaders with skills and knowledge so that they can carry out community management tasks*. To achieve this, the activities prioritised in PDIVI 2 were focused on equipping community centres, training leaders and providing the organisations with information. The activities carried out in the last year of PDIVI 2 and especially in PDIVI 3 were aimed at strengthening the technical skills of women specifically.

Table N° 17: Results of the PDIVI's Work on Organisational Strengthening, 2008-2014

Description	PDIVI 2					PDIVI 3		TOTAL
	2008	2009	2010	2011	2012	2013	2014	
Community centres equipped	2	1	0	0	1	4	3	11
Local leaders trained	104	87	137	202	202	117	-	849
Organisations given information	56	55	56	74	80	-	90	411
Women given technical training	-	-	-	-	254	302	321	877
Women trained on leadership, rights, etc.	-	-	-	-	219	300	300	819
Municipal care and maintenance plans	-	-	-	-	-	2	-	2

Source: NMA-B annual reports. **Prepared by:** The Authors.

This component promotes participation by the community organisations in development processes, characterised by equity and dialogue. The work was aimed at building organisational management capacities under a gender approach, addressing two levels of action: the organisational level and the individual (leadership, rights, etc.).

In the case of women specifically, the activities carried out had the aim of working on women's rights, equity, violence, self-esteem and leadership. Some outstanding women were identified and they were accompanied to participate in other spaces (the process of drafting Municipal Organic Charters, for example). Women were also given support to strengthen their skills and abilities in sewing, knitting, macramé, etc. This enabled them to make clothes for themselves and their families, and in some cases also to sell. According to the technical staff responsible for implementing the Programme,

one good practice was to introduce the courses to strengthen skills and abilities as a “hook” which made it easier to address the other topics in the community.

With regard to the latter, women recognised the importance of working on these issues and that it was the first time they had been given this type of training. The majority of the people interviewed, particularly the women, valued the work done by NMA-B, highlighting the support provided and the knowledge transferred in the different training events that were carried out. This perception is confirmed in the survey, where more than 90% of the people surveyed mentioned that the work done by NMA-B responded to the community’s needs.

“The topics they covered with us were very important to us as women. It was the first time we had been taught in that way.”

Leader of the “Visión Sol Naciente” organisation, Sorata

One practical difficulty identified in the work with the women is that no physical space was provided for the women to keep the sewing machines they were provided with. This meant that the women had to take the machines from pillar to post, taking turns to keep them in their homes or borrowing a community space on a temporary basis. To some extent, this placed the equipment provided at risk.

Finally, an issue addressed in the final phase of the PDIVI was **Children and Adolescents’ Rights**. This was aimed at strengthening the working conditions of the Children and Adolescents’ Defence Office in the Municipality of Sorata and providing training on rights to children and adolescents. In 2014 this work reached a total of 1,153 schoolchildren.

Table Nº 18: Results of the Work of PDIVI 3 on Children and Adolescents’ Rights (2013-2014)

Description	2013	2014	TOTAL
Equipment for Children’s Defence Office	1	1	2
Baseline studies on children’s rights	1		1
Children and young people trained on rights		1,153	1,153
Curriculum design		1	1
Publicity campaign on children’s rights		1	1
Setting up of children’s rights networks		1	1

Source: NMA-B annual reports. Prepared by: The Authors.

In general terms the Human Development Programme aimed to strengthen already established processes, and each component identified the aspects where the municipal or sectoral authorities were weakest or required the most support. The programme did not develop processes parallel to those taken forward by the relevant institutions, an aspect that is important in raising awareness and encouraging accountability among the authorities in the institutions responsible. Added to this way of working is the integrated nature of each of the projects. This meant that if support was being provided in the form of building school infrastructure, for example, the programme verified whether the conditions were in place for that infrastructure to operate properly over time. The aim was to improve conditions in education, which was also complemented by the training on leadership, values, rights, etc.

“In health we don’t buy medicines. What we do is support health campaigns. In each case we identify the weakest aspects and that’s where we try to provide support.”

NMA-B Human Development Programme Coordinator in Sorata

Finally, in keeping with the evaluation's appraisal approach, it is important to identify those factors that helped or facilitated the implementation of the Programme, as well as those aspects that hampered its implementation.

The facilitating aspects identified are as follows:

- In the area of education, one factor that the programme took full advantage of was the participatory approach encouraged by the legal framework (Law Nº 070 Avelino Siñani – Elizardo Pérez), which promotes active participation by local authorities and parents. This situation facilitated the inclusion and materialisation of their contributions.
- The setting up of Administration Committees for the autonomous management of the projects was very important in enabling people to take ownership of the projects.
- The advantage of focusing on the local setting is another strength, because in some cases the municipal health or education authorities do not perform this role.
- The participatory development model employed, which closely involves community organisations, facilitated the programme's implementation. This model values individuals with all their skills and capacities and strengthens them with dignity.
- Finally, the commitment and dedication of the NMA-B staff team is to be valued.

The following aspects were negative or hampered the process:

- In some cases it was found that certain teachers and district health and education authorities were reticent and did not really get involved. This means it is necessary to make more of an effort to raise the awareness of these professionals or authorities.
- The programme attempted to cover a lot of ground with only a small staff team. In some cases this meant that they could not devote sufficient time to the implementation of some of the projects.
- In the case of Sorata the work was only done in three cantons, which caused certain sensitivities regarding the approval of projects, particularly those for women.
- In some cases there were delays in the disbursement of funds by the municipal governments. This led to some setbacks in the fulfilment of the defined work schedules.
- The lack of relevant information on the mechanisms for funding the municipal government counterpart contribution caused some problems within the community organisations.

c. Economic Development Programme

The Economic Development and Natural Resources Programme was implemented from the PDIVI pilot phase until its closure phase (from 2000 to 2014). It took as its reference or starting point an initial assessment of the situation or context, characterised by the following factors:

- The communities in the target area manage several ecological levels, and this offers significant potential for people to develop and diversify farming.
- Agriculture is the main economic and productive activity engaged in by the farming families. People develop their livelihood strategies around agricultural production, although the division of land into smaller and smaller plots represents a constraint. Families have access to land based on the collective property rights system, with each having small plots scattered around different areas of their communities. Each family has a total of between one and three hectares of land, which in many cases are not all suitable for growing crops.
- Farming systems are not very developed and are based on the use of family labour. They combine agriculture with livestock farming on a very small scale. The agriculture sub-system

is based on growing “traditional” crops,⁹ which are mainly raid-fed. The use of technological resources is limited, and productivity levels are tending to diminish over time. The livestock farming sub-system is rudimentary and not very relevant in terms of the quantity of livestock owned. This is due mainly to the small area of land available for pasture, the parasite diseases that affect the animals, and the limited capacities and possibilities for growing and storing fodder crops.

- Crop losses are recurrent and sometimes highly significant, due to the increase in attacks by pests and diseases, as well as periods of drought and the increasingly irregular rainfall during the rainy season.
- Productive infrastructure is practically non-existent, due to the farming families’ low investment capacity as well as the limited amount of municipal government support for the farming sector. It should be pointed out that some communities had rustic gravity-based irrigation systems, which only benefited a few families.
- Farmers lacked knowledge of productive alternatives that would enable them to diversify and make better use of their productive resources. At the same time, however, the farming families were very open to introducing new types of crops and welcomed the prospect of technological innovation.
- There were no community-level economic organisations for farmers or farming enterprises run along business lines. The rural trade union organisations in the communities also had a weak capacity to manage development processes.
- Farmers had limited access to larger and better markets, and weak negotiating capacities to market their produce.
- Both cultivable and non-cultivable land was deforested, lacked tree cover and suffered from progressive soil erosion.
- Municipal governments had the intention and commitment to promote and support economic and productive development, but they lacked clear strategies and appropriate means and mechanisms to do so.

Based on an appropriate reading of the factors listed above, and faced with the challenge of promoting and boosting economic development in the valleys region,¹⁰ NMA-B defined a range of possible actions to support productive development and natural resources management and offered these for the consideration of the local community. As a result, an intervention strategy was established, based on five lines of action:

- **Productive infrastructure:** Under the co-financing arrangement, farming families gain access to the minimum productive infrastructure they need to carry out their farming activities. This strategic line of action includes the micro-irrigation systems, greenhouses for growing flowers, tree nurseries, facilities for raising pigs, egg-laying hens and barbecue chickens and fattening beef cattle, and the anti-parasite dips.
- **Technology innovation and improvement:** Under the co-financing arrangement, farming families gain access to the minimum equipment they need to carry out their farming activities and/or introduce innovations in their production systems. As part of this strategic line of action, investments were made in equipment and tools (sprayers, pruning and grafting tools, fumigation backpacks, pesticides, veterinary supplies, certified seeds, farm equipment, etc.).
- **Training and technical assistance:** This was mainstreamed across all the projects, enabling farming families to gain knowledge and develop the skills they need to improve their farming

⁹ Maize, potatoes, broad beans, peas and other vegetables.

¹⁰ Prior to the PDIVI, NMA-B had only worked in the high-Andean puna and altiplano environments.

activities. This line of action included holding formal training events (courses, workshops and exchanges of experiences) as well as training and technical assistance in the field to support production processes.

- **Organisational development and strengthening:** This enabled farming families to strengthen their existing organisations and/or set up new organisations to improve the management of farming. This line of action involved, firstly, organisation for project management processes, and subsequently organisational processes that focused on the administration of the productive infrastructure and the sustainable management of production processes, in a sort of local governance arrangement.
- **Micro-enterprise to add value to local produce:** Pilot initiatives were carried out to add value to local produce. Three specific experiences were taken forward in this line of action, involving the processing of wheat, maize and peaches.

Thus, the PDIVI carried out various production projects with the aim of increasing the farming families' income, contributing to food security and preventing and controlling soil degradation and erosion. The proposed work in this area was welcomed and taken on board by the municipal governments, as it fit with their aim of giving the concept of the “productive municipality” concrete form, as well as introducing actions related to the sustainable management of natural resources.

Implementation of the **Economic Development and Natural Resources Programme over the 2008-2012 period** was a relevant and effective process which made it possible to address the problems affecting local production linked to the farming sector, taking advantage of the target area's productive potential and initiating sustainable natural resource management processes. Thus, PDIVI-2 was able to achieve an appropriate fit between offering viable alternatives suited to the local reality, and responding to the different demands and needs of local communities for improving their productive activities. At the same time, all this had the added value of facilitating the municipal governments' work to support local economic and productive development.

Table N° 19: Results and Achievement of Logical Framework Indicators in Economic Development, 2008-2013

Results	Project Indicators	Target Achieved	Achievement %
Improvement in irrigation systems and coverage, the farming system in the communities and the marketing of their produce.	Micro-irrigation infrastructure to irrigate 300 hectares.	Increase in the area covered by irrigation systems. 340.2 hectares can now be irrigated by means of spraying and gravity-based micro-irrigation systems, benefiting 350 farming families.	113.4%
	Increase in the yield of 5 traditional local crops and participation by an average of 300 families per year.	Improved yields of five traditional crops (potatoes, peas, broad beans, custard apples and peaches), with an increase in productivity of approximately 25%.	100.0%
	Development of non-traditional crops with the participation of an average of 60 families per year.	One alternative crop, Liliun flowers, adapted well, its productivity is gradually improving, and it is gaining in economic importance for the families who grow it.	100.0%
	4 communities per year are equipped to control pests and diseases that affect crops.	298 farming families in 12 communities in the municipalities of Sorata and Quiabaya have been provided with equipment and supplies to control pests and diseases that affect crops (potatoes, peas, flowers, peaches and custard apples).	300.0%
	One item of infrastructure for agriculture and livestock farming is built every year.	Productive infrastructure has been built for agriculture (greenhouses for growing flowers, storage silos for potatoes) and livestock farming (sties for pigs, sheds for egg-laying hens and barbecue chickens, stables for fattening beef cattle and anti-parasite dips).	100.0%
	Animal health campaigns are carried out.	Animal health campaigns were carried out and covered 10,463 heads of livestock – cattle, sheep	100.0%

Results	Project Indicators	Target Achieved	Achievement %
		and horses – in the municipalities of Combaya and Quiabaya, with the participation of 29 communities and the leadership of the livestock farmers' organisations in the two municipalities.	
	An average of 400 farmers per year receive training and information on production issues.	442 farmers were given information to strengthen their technical management capacities for farming in 37 workshops. This enabled farmers to find out about appropriate technologies and techniques for more efficient production.	110.5%
Natural resources are used for forestry, beekeeping and flower cultivation under sustainable management practices.	Increase in forested areas by planting an effective average of 20,000 tree seedlings per year.	With the effective planting of 20,966 seedlings per year of native and introduced tree species, an increase of 39.7 hectares under appropriate forest management was achieved, under community responsibility and administration.	104.8%
Micro-enterprise development is strengthened.	Value is added to 3 local agricultural products.	Workshops were held with 20 farmers to add value to 2 agricultural products (wheat and maize) by processing them to make by-products such as flour and wholegrain bread. Two associations were set up and two processing facilities were installed with the appropriate physical conditions and equipment.	66.7%

Source: Prepared by the authors based on the Logical Framework established for PDIVI-II and the Annual Self-Evaluation Report 2012.

In general terms, PDIVI-2 fully achieved and even exceeded most of the expected results and targets. Thus, it managed to fulfil the objectives set as part of the work of the plan as an integrated whole. However, there were also some activities that could not take place in the manner envisaged or that were only partly carried out.

In the case of the micro-irrigation projects, it should be noted that the increases in the area of land under irrigation strictly refer to land that could be irrigated. In other words, this is cultivable land that can be irrigated but not all of it actually is irrigated during any one planting season. This means that a farming family may have three plots of land that could be irrigated but not all of them are used to grow crops at the same time. In any case, in many of the micro-irrigation systems farmers are still carrying out tests to see if the flow of water is sufficient to grow crops on all their irrigable plots of land in the same planting season.

To improve crop productivity, work was also done to introduce improvements in cultivation techniques for peaches. However, it will only be possible to assess any increases in the productivity of this crop in the medium term.

Among the non-traditional items introduced, one of the most outstanding is **Lilium**, which is the species that grew best in the different communities. However, work was also done with another two species of flowers that were also introduced: **astromelia** and **anastasia**, the success of which is still being evaluated.

The projects aimed at adding value managed to lay the foundations for two traditional products, wheat and maize, to be processed and marketed. However, the processing facilities have not been brought into operation because the inputs required for the processing are not available. The market prices of both products have increased substantially, and farmers have therefore chosen to market their harvested produce as grains, rather than making the effort to process them.

The tree planting carried out as part of the natural resources component involved a quantity of seedlings larger than the number initially envisaged. However, it is important to point out that a true assessment of this indicator would need to be based on the number of seedlings that effectively took root and are now growing in the definitive planting sites. According to the farmers, about 70% of the seedlings planted have become firmly established.

During the **PDIVI Closure Plan (2013-2014)**, the work of the Economic Development and Natural Resources Programme focused mainly on support and strengthening processes for the farming families involved in the production projects, their producer and union organisations, and municipal governments. The aim was to put in place the sustainability conditions that are necessary for the results and achievements of the projects supported in the previous years to last over time and eventually reach the desired levels of replicability and scaling up. With this in mind, the work was based on the premise of encouraging and supporting the beneficiaries to take over the administration of the activities supported and perform this role effectively and fully.

Table N° 20: Results and Achievement of Logical Framework Indicators in Economic Development, 2013-2014

Narrative Summary	Indicators without the Project	Indicators with the Project	Target Achieved	Achievement %
PURPOSE: (Impact) Increase the income of families in the target area.	In 2012, families in the target area had: *Average per capita income of US\$ 853.	From 2013 onwards, families in the target area have increased per capita income to at least US\$ 1000.	By 2014, the per capita income of farming families in the target area is at least US\$ 1,023.60 per year.	102.4%
COMPONENTS: (Results)				
Expanded micro-irrigation systems autonomously managed by irrigation associations.	*620 hectares under irrigation, with efficiency levels of 65%. *258 families with guaranteed access to irrigation as part of irrigation associations.	*An additional 50 hectares under irrigation with micro-irrigation systems with average efficiency levels of 70%. *600 families have guaranteed access to irrigation as part of autonomously managed irrigation associations.	508.1 hectares can be irrigated by 28 micro-irrigation systems, benefiting 664 families organised in irrigation associations and committees.	110.7%
Yields of traditional and alternative agricultural crops increased by economic organisations.	<ul style="list-style-type: none"> • 3 traditional agricultural crops with average yields of: <ul style="list-style-type: none"> - Potatoes 5 Ton/ha - Peas 1.17 Ton/ha - Broad beans 1 Ton/ha • 2 alternative crops: <ul style="list-style-type: none"> - Flowers 75 F/m² - Custard apple 5 Ton/ha 	<ul style="list-style-type: none"> • 5 improved agricultural crops maintain yields and farmers' economic organisations find secure markets. 	The production chain has improved for 5 agricultural crops, yields have been maintained and markets secured through local economic organisations.	100.0%
Livestock production yields increased by economic organisations.	<ul style="list-style-type: none"> • Yields of 3 species of livestock: <ul style="list-style-type: none"> - Cattle, average weight 270 kg. - Sheep, average weight 45 kg. - Pigs, average weight 60 kg. 	<ul style="list-style-type: none"> • 3 improved species of livestock maintain yields and economic organisations find secure markets. 	Good yields of 2 species of livestock (cattle and pigs) and one of poultry (barbecue chickens) are maintained and markets secured through local economic organisations.	100.0%
Natural resources management improved in quality and quantity.	<ul style="list-style-type: none"> • 44 hectares under forest management 	<ul style="list-style-type: none"> • Communities increase the area under forest management by 10 hectares. 	The 44 hectares already under forest management has been increased by 17 hectares.	170.0%
Agricultural products with added value are strengthened in micro-enterprises.	<ul style="list-style-type: none"> • 1 association is processing maize and wheat. 	<ul style="list-style-type: none"> • 1 association increases the processing of agricultural products. 	1 association has a processing facility and is adding value to local agricultural products.	100.0%

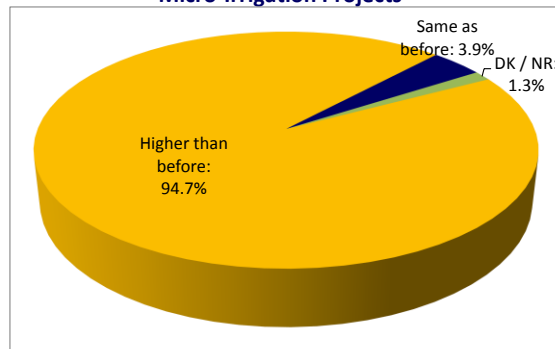
Source: Prepared by the authors based on the Logical Framework established for the PDIVI Closure Phase, the PDIVI Annual Report 2014 and information from interviews conducted during the evaluation process.

The increase in the income of the farming families who worked in the projects carried out by the Economic Development and Natural Resources Programme is mainly due to the shift from rain-fed

agriculture to irrigation. The micro-irrigation projects enabled them to improve agricultural productivity, increase the number of planting seasons per year, expand the area of land used for agriculture and practically reduce crop losses due to water stress to zero.

According to the evaluation process, 94.7% of the farmers surveyed said that their income had increased as a result of having irrigation, 3.9% felt that their income had stayed the same, and 1.3% didn't know/didn't answer. According to the farmers interviewed, the micro-irrigation has given rise to increased income of between 20% and 30% more than what they earned before. This is due mainly to the fact that they are now obtaining larger quantities of better quality produce to sell in the market.

Figure Nº 9: Perception of the Increase in Income due to Micro-Irrigation Projects



Source: Survey of farmers.

Considering that the starting point indicator for the PDIVI established an annual per capita average income of US\$ 853, it can therefore be inferred that by the end of the Plan this income had reached at least US\$ 1,023.6 per capita per year due to micro-irrigation alone.

This means that the increase in income for the families as a whole is basically due to the transition from rain-fed agriculture to irrigation. Therefore, the higher incomes that each family in particular may be earning will depend on the improvements in their farming systems as a result of other projects implemented with NMA-B support, and also some of the following factors or elements which, taken together, mean that the income indicator is a variable that is difficult to calculate:

- Not all the farming families work with the same product categories or under the same conditions. In some communities, families are increasing their income as a result of their participation in several projects and therefore on the basis of several product categories. For example, in Cheje some farmers are growing flowers, potatoes and peas and raising pigs at the same time; therefore, their income from all these categories is higher than that of other farming families in the same community who are only working with flowers. To give another example, the increase in the income of a family growing potatoes in the community of Chinchaya (an area that does not have a tradition of potato farming and where families mainly grow potatoes for their own consumption) is lower than that of other farming families in communities in the Ilabaya Canton (Pacollo, Humanata, Achispaya) where the climate and the soil are appropriate for the crop and, furthermore, farmers see it as more important and devote more effort to it, since it is their main source of income.
- By the close of the PDIVI, not all the projects had given rise to increases in farmers' income, and therefore some families have not seen any other increase in their income additional to that obtained from micro-irrigation. For example, in the case of the projects to improve the production of peaches, many of them simply remained at the level of trying out improved production techniques¹¹ and have not yet generated additional income.

¹¹ The projects to improve peach production included pruning, grafting, and planting new trees using grafted seedlings. The results of these activities are not immediate and it will therefore be necessary to wait until the plants start to bear fruit before the results obtained and also the increase in income can be evaluated.

- Some farming families have greater market access capacities and knowledge, and therefore obtained higher incomes than others who worked with the same project and in the same product category. For example, the women poultry farmers in the community of Tutuacaja have managed to establish contact with buyers of barbecue chickens in Sorata and some mining communities. Their income is therefore higher than other women poultry farmers, for example those in Cheje, who have only recently decided to switch from egg-laying hens to barbecue chickens.
- Some product categories, such as poultry, flowers, pigs and beef cattle, are being well managed and have high levels of profitability and turnover.¹² Therefore, some farming families who managed to gain a full understanding of the production process and business dynamic are now growing their businesses using their own efforts and resources, and consequently earning higher incomes than others.
- Some farmers have found that their income from certain items is not sustained and in some cases this means that their production is intermittent (they stop producing for a time and then either return to the same product later or change to another). For example, the flower producers said that to start with their Liliun flowers fetched a good price in the market (Bs. 150 for a bunch of ten flowers), but the oversupply of these flowers in the market and, worse still, the competition with flowers from other areas where growers' costs were being subsidised by the national government, meant that the price fell to Bs. 60 for a bunch of ten flowers. This led many families to stop production until market conditions improve. A similar situation also arose with egg production, where prices fell to levels that gave producers very little profit. This led many women poultry farmers to shift to producing barbecue chickens.
- It is also important to point out that in order to quantify the increase in farming families' income more accurately, an analysis of farming systems is required, because many farming families not only have incremental incomes but also substitution incomes, meaning that they stop producing one thing in order to produce something else. For example, a flower-producing family in Icharaya built their greenhouse on land where they used to grow vegetables. Therefore, the calculation of the increase in their income must take into account the difference between their net current income from flowers and the net annual income they no longer receive from the vegetables.

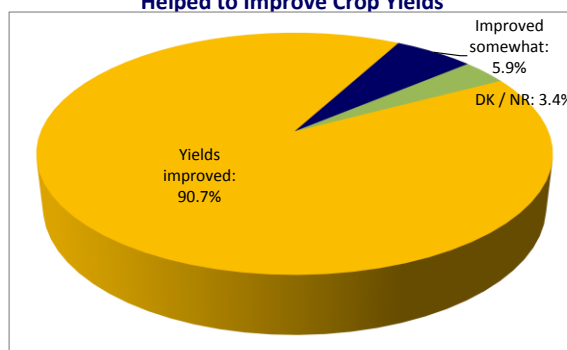
According to the interviews and information from the PDIVI annual reports, evidence was found of increases in the productivity of two of the region's traditional annual crops (potatoes and peas) and improvements in the management of two species of fruit trees (custard apple and peach). It was also found that the production of Liliun as an alternative crop has been strengthened and consolidated.

According to the surveys of the farmers in the communities visited, 90.7% of them believe that the NMA-B production projects helped to improve crop yields. 5.9% think that yields improved somewhat and 3.4% don't know/didn't answer.

¹² Having scaled up their production of barbecue chickens, one family in the community of Tutuacaja has a gross monthly income of Bs. 16,000 from the sale of 200 barbecue chickens every 15 days. Another family in the community of Cheje has a gross income of Bs. 45,000 every 3.5 months after scaling up their production of flowers in three greenhouses.

The improvements in the productivity of the different crops did not take place uniformly in all the communities or in every family. This is because yields depend on the particular agroecological conditions as well as the time and effort each family devotes to their crops. In potato production, the improvements promoted by the PDIVI were the use of better quality (certified) seeds and pest and disease control. These measures led to increases that practically doubled previous production levels,

Figure N° 10: Perception of whether the NMA-B Projects Helped to Improve Crop Yields



Source: Surveys.

although not in every case. According to the farmers' calculations, previous yield ratios were between 1:8 and 1:10 and these increased to between 1:15 and 1:20, which is equivalent to a harvest of 10 tons per hectare on average. In pea production, the improvements were related to the use of good quality seeds (brought from Tarija) as well as pest and disease control, and resulted in yields that reached as much as 1.5 tons per hectare.

In fruit production, rather than productivity increases, improvements were made in how the plants are managed, in addition to the planting of new trees. Thus, any changes in yields as a result of these measures can only be evaluated in the medium term. The work done with peach trees basically involved pruning, grafting, plant health control and the planting of new trees along the edges of fields and in orchards, using grafted seedlings. Although some farmers just left their trees to fruit, the majority followed the technical recommendation of pruning flowers and fruit so that subsequent harvests would be better. The work done by the PDIVI on custard apple trees was limited to just one community (San Pedro), which has the best agroecological conditions for growing the crop. The work involved pruning, plant health control, seedling production, planting new trees and artificial pollination. As a result of the latter practice, the harvest came earlier, so that farmers could pick the fruit at a time of year when its market price is more than favourable. This is an achievement that is perhaps even more important than increased productivity. In any case, the farmers stated that thanks to the improvements made, some trees are now producing 1@ (25 lbs) each (on a regular size plantation of 4x4 m). This rate of productivity per tree will in future bring yields of approximately 6.9 tons per hectare.

Flower production is an activity that was strengthened by the PDIVI by means of the following activities: introducing new flower species (Lilium, Astromelia and Anastasia) and developing the skills to grow them, introducing the technique of growing flowers in greenhouses and boosting the outdoor production of Lilium and the traditional species that were already being grown (gladioli, arum lilies, dahlias and gypsophila). The yields obtained vary a great deal and depend on how each producer family manages their crop. Average yields of Lilium, which is the species best received by the producer families, range from 500 to 700 flowers per greenhouse.¹³ Flower production is very variable, as some producers stop growing them during the rainy season, while others keep going all year round; some producers only grow flowers in greenhouses, others only grow them outdoors, and others grow some in greenhouses and some outdoors. Nevertheless, for all the families involved in growing Lilium, it is considered an "alternative" crop that has produced good results.

¹³ The greenhouses cover an area of 96 m² on average.

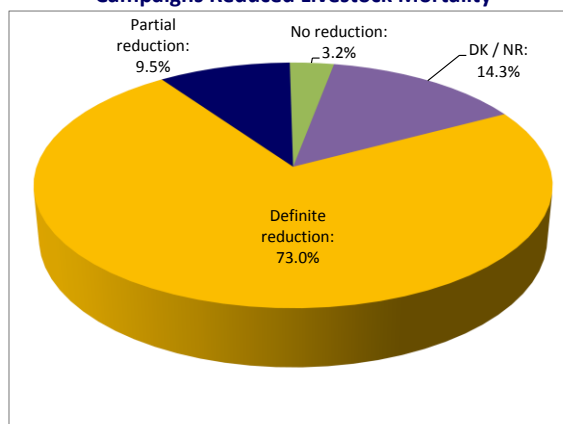
In the area covered by the PDIVI, livestock farming (cattle, pigs, sheep and poultry) is a widespread activity in almost all farming families but takes place on a very small scale. Therefore, the actions taken by the PDIVI did not seek to increase this activity or make it much more profitable. Instead, they aimed to improve the conditions in which it takes place. Nevertheless, three projects were carried out which did change the existing production system and managed to improve the economy of the families involved. Breeding egg-laying hens was a project that benefited only a few families and at one time was successful, given that every day each family was taking to market 200 eggs laid by batteries of 270 to 300 hens (the eggs were sold at Bs. 0.60 or 0.70 each). However, these yields rapidly decreased until the activity became unsustainable. Some families therefore decided – on their own initiative and using their own resources – to shift to the production of barbecue chickens. This initiative is now well consolidated, with good levels of productivity and profitability. Thus, some families have scaled up production to as many as 200 barbecue chickens every 15 days, which they sell for Bs. 40 each. The other two income-generating projects involved breeding pigs and fattening beef cattle. These likewise benefited only a few families and resulted in interesting yield and income increases: the fattening of beef cattle achieved increases of up to 20% in the live weight of the cattle, while in pig production there are farms that are managing to produce 20 to 25 pigs per year, which they sell for Bs. 200 to 250 per live animal.

In addition, animal health campaigns were carried out as part of this component, at the municipal as well as community level. These consisted of treating livestock for internal and external parasites as well as giving them doses of vitamins. These activities contributed to livestock farming in better health conditions as well as a certain increase in productivity, both in terms of animal traction (for ploughing) and in the production of meat and milk, although not to any significant degree due to the small scale of the activity. The major achievements of these projects were probably to reduce livestock mortality and train local human resources, who are now able to administer parasite treatment and vitamins to livestock.

According to the surveys, 73% of the farmers surveyed said that the animal health campaigns helped to reduce livestock mortality, 9.5% felt that the reduction in mortality due to these actions was partial, 3.2% said that the campaigns had no effect on livestock mortality and 14.3% didn't know/didn't answer.

With regard to the work to add value to agricultural products, two projects and some specific activities were carried out but have not yet managed to become consolidated as alternative economic activities benefiting the community. Firstly, two projects were implemented to set up a bakery and a *pasankallera*¹⁴ in the municipality of Combaya. These are not currently functioning, because the prices of the raw materials (wheat and maize) have gone up significantly. This means that farmers prefer to sell their produce as grain in the market rather than processing it. Another reason is that the local market for the two processed products is relatively small. In addition, as part of the projects to

Figure Nº 11: Perception of whether the Animal Health Campaigns Reduced Livestock Mortality



Source: Surveys.

¹⁴ The *pasankallera* is a facility equipped to make “*pasankalla*”, which is a type of sweet popcorn made from maize kernels.

improve the production of peaches and fatten beef cattle, training and equipment were provided to promote and encourage the production of jams, juices and dried peaches, and an association was set up to add value to the beef by processing the fresh meat to turn it into dried meat known as "*charque*". Although these activities achieved interesting results (good quality products), the constraints preventing them from becoming consolidated as an economic activity are the small quantities produced and the lack of a market.

Activities in the natural resources component were mainstreamed across all the production projects and sought to raise awareness and train local people and authorities about the importance of taking on board the concept of the sustainable use of natural resources (water, soil and biodiversity) while carrying out different production activities. As a result, in some projects (peaches, custard apples, potatoes and peas) soil management and conservation practices began to be implemented, including the use of organic fertiliser, curved furrows on a level, banked terraces, etc. In addition, some of the ancestral knowledge about cultivation techniques and the sustainable use of soil was restored, including the building of *tacanas* or slow-formation terraces.

Furthermore, tree planting and forest repopulation projects were carried out at the community and municipal level. At the community level the actions were on a small scale and involved distributing seedlings of native and exotic tree species and planting trees in areas where the soil was becoming degraded. The trees were planted along the edges of fields and in places vulnerable to erosion. At the municipal level the projects were more structured and, in addition to the activities just described, tree nurseries were set up for the production and supply of seedlings on an ongoing basis,¹⁵ and areas were also set aside for tree planting. It is difficult to quantify the amount of land forested or reforested, because the families who participated in these projects received different quantities of tree seedlings according to their requests and preferences (between 5 and 30 seedlings per family), and also because the percentage of trees planted that actually took root was not the same everywhere. According to the farmers, an average of approximately 70% of the trees planted became established.

The work on natural resources was carried out in the final phase of PDIVI implementation, as part of the integrated approach sought in its implementation process and also following a recommendation made by the mid-term evaluation. However, as well as being carried out in a very short space of time, this work lacked the necessary focus, strategy and consistency to address the issues properly, as evidenced by the fact that local people still do not give priority to this component. Most of the farming families who planted trees did so with the idea of obtaining wood rather than stabilising soils or establishing an agroforestry system. Territorial management processes are also still weak on natural resources issues and environmental problems in general.

With regard to the assumptions related to the Economic Development and Natural Resources Programme and risk management, the stability of the economic and social situation in the country as a whole was a decisive factor enabling the purpose of the Economic Development and Natural Resources Programme to be fulfilled.

Firstly, there were no social conflicts that had a direct impact on farming production or the sale and marketing of products in the target area. Furthermore, the country experienced average economic growth of 5.39% in the 2010-2014 period, together with a sustained growth in GDP from 2010

¹⁵ These tree nurseries have the capacity to produce 20,000 seedlings per year.

(4.14%) to 2013 (6.78%).¹⁶ As a result, the prices of farm products increased significantly, with a knock-on effect on farmers' incomes. This economic bonanza also had an impact on demand, as the population as a whole had higher incomes and greater purchasing power. In addition, the levels of inflation recorded during this period did not affect demand or the consumption of goods.

Secondly, climate factors also had a favourable effect on the production process in the target area. There were some crop losses as a result of hail, frost and/or attacks by pests and diseases, but these were localised and within normal limits.

No additional risk management actions needed to be taken to fulfil the purpose of the Economic Development and Natural Resources Programme, because the micro-irrigation and production diversification projects themselves, taken together, represent a strategy and mechanisms to minimise the risks to farming production and economic development.

3.4. Impact

a. Human Development Programme

Through its different components, the Human Development Programme produced positive impacts on the beneficiary communities because it managed to address many of their demands in the areas of health, education, basic sanitation, etc., resulting in improvements in the beneficiaries' quality of life.

"Life has improved. Some communities had water systems installed, others had classrooms built, and those things improve the quality of life."

Former Mayor and Councillor, Combaya

Certain specific impacts can be identified in the different components of the Human Development Programme. In the case of **Education**, there are sufficient indications to state that it contributed to improving the quality of education, specifically in terms of the conditions in which children attend classes, but also through the training of teachers in the classroom.

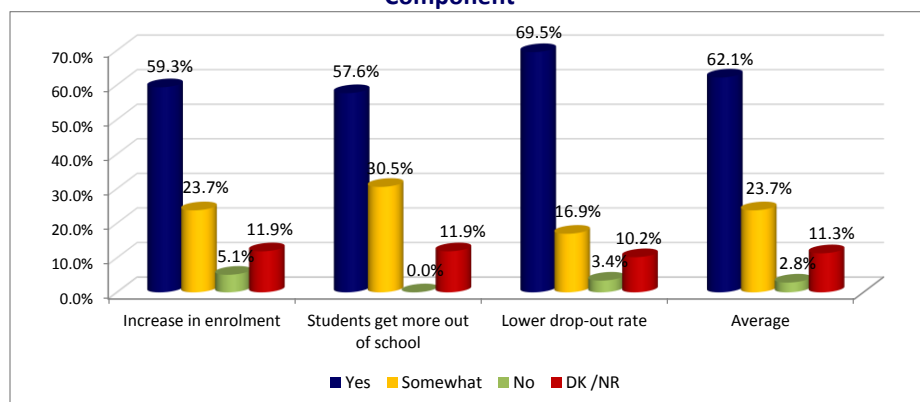
In the survey, parents and students were asked whether the work supported by NMA-B had produced any improvement in the different intervention settings. The majority responded that a significant improvement had been made in every aspect of the intervention, although they identified the construction of infrastructure as the greatest and most noticeable impact, together with participation by parents in the management of schools. This latter impact can be explained by the integrated work done by all of the projects, where the entry point was always to get people to think about rights, participation, leadership, etc.

¹⁶ Figures on Gross Domestic Product (GDP) issued by the National Statistics Institute (INE).

Similarly, in the various interviews conducted people mentioned that the work done by NMA-B has motivated students to attend classes because of the suitable and well equipped facilities that are now in place. This perception seems to be confirmed in the survey of parents and students, where the perception of the majority is that improvements have been made in terms of increased enrolment in school, students getting more out of school, as reflected in better grades, and a reduction in the drop-out rate in the schools and communities where NMA-B provided support by implementing the Programme.

“There has been a change in attitudes. Thanks to the help we have received with building classrooms, housing and equipment, the students are more motivated to attend school.”
President of the School Council, Chacambaya Grande community, Quiabaya

Figure Nº 12: Perception of the Results of NMA-B’s Work in the Education Component



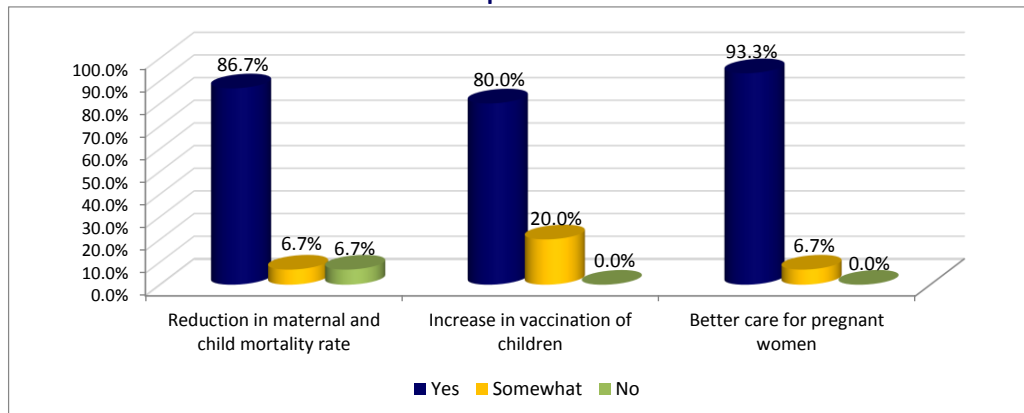
Source: Survey of parents.

In the **health** component, there is a noticeable improvement in the conditions in which care is provided in the different health centres that received support from NMA-B. This situation is confirmed by the parents surveyed, more than 90% of whom stated that in the last few years the care they receive in the respective health facilities has improved. This has apparently led to an increase in the number of people seeking medical care in the different health centres.

“Now the community is not afraid to go to the health centre, and that’s why the number of people they are seeing has increased.”
Municipal Councillor on the Health Committee, Quiabaya

Although it was not possible to access official health sector information, the widespread perception of the people surveyed is that the work done by NMA-B has led to a reduction in rates of maternal and child mortality, thanks to the campaigns to vaccinate children and an improvement in the health care provided to pregnant women.

Figure Nº 13: Perception of the Results of NMA-B's Work in the Health Component



Source: Survey of parents.

In the **Basic Sanitation** component, more than 80% mentioned that they have a domestic water connection. This percentage is very much higher than the figure identified in the Population and Housing Census, which reports that only 49.25% of households in Sorata and 24.63% in Quiabaya receive water through the supply network. These domestic connections will ensure improvements in the health of the families who benefited from the installation of water systems. People in the communities that now have water and sanitation systems value them positively, as the availability of safe water and basic sanitation is one of the most keenly felt priorities for rural people.

One activity that is essential for water systems to operate properly is the training given to the Water Committees on maintenance and operating the system. When asked about this, people replied that the training provided by NMA-B was good or very good. It also enabled them to gain new skills and abilities in this area.

One important issue that was identified in the community of Caminaka, where the water system project encountered some difficulties which will need to be avoided in future interventions, is that not everyone in the community was in agreement with the building of the system, basically because of the cost of the counterpart contribution that families in the community had to provide. This was compounded by the lack of information about the counterpart contribution allocated by the municipal government, which was understood as a contribution for the whole community that “exempted” them from having to provide the community contribution. This situation caused certain internal problems which weakened the community and even led to arguments between members of the community, placing the viability and sustainability of the water system at risk.

In the **Organisational Development** component, in general terms it is noticeable that the community and farmers’ union organisations have been strengthened, partly thanks to the furniture that was provided to each community centre, but principally through the training on leadership, rights and project management. This represents an important contribution that the leaders can make use of when they have to negotiate with the municipal government or supervise the implementation of municipal projects.

“We now have the furniture we needed for our building. Also, our leaders are now better able to perform their roles.”

Farmer, Chinchaya community, Sorata

In addition, different organisations (in Laripata and Sorata Cantons) were supported to reorganise their bylaws, which enabled these organisations to structure and formalise their operations appropriately.

Within this component, the work which had the most and firmest impacts was undoubtedly the activities carried out with women. The work done on leadership, self-esteem, rights, etc enabled women to strengthen their participation in community organisations and, importantly, even at the municipal level. It is reported that some of the women were closely involved in drafting the Municipal Organic Charters, while others were elected to stand as candidates in the municipal elections. This represents an unforeseen impact of the intervention. In general terms, it is clear that in the majority of cases the women who participated in these processes have lost their fear of speaking out in public, and this has improved their participation in public spaces in the community. This situation was also confirmed in the survey, where more than 96% of the people surveyed said that NMA-B's work has led to increased participation by women in their community. Although these impacts are in the process of becoming consolidated, there are sufficient indications to determine the effectiveness of the work.

"A significant change has taken place in us. Now we participate more in the meetings, and we know our rights. Some women have their own businesses and they've even gone and trained other women, which has boosted their self-esteem."

*Leader of the Women's Association,
Chacambaya community, Quiabaya*

Furthermore, the work carried out to strengthen women's technical capacities and skills in knitting, macramé, etc has provided them with new opportunities and challenges within their families. Some have taken on a role that allows them to contribute to the household economy, either by saving money on clothes by making their own, or in some cases by selling what they produce in nearby local settings. These identified results allow us to state that the women beneficiaries of the process have changed not just their situation but also their status within the family and the community. This represents a very significant impact generated by the implementation of the Programme.

"We've learned knitting and sewing and now we're making clothes for ourselves and our children. We also sell some clothes, but we only make them to order."

*President of the "Flor de Liliun" Women's
Organisation, Chinchaya, Sorata*

Finally, one topic that was worked on at the end of the process was **children and adolescents' rights**, the main impact of which was the support provided for the setting up and functioning of the Children and Adolescents' Defence Office in the Municipality of Sorata.

In general terms, positive impacts can be observed at the level of the Human Development Programme. These were identified and mentioned specifically by all the people involved. The most outstanding element is the participatory approach adopted for the work, which enabled management and administration capacities to be developed among the people who participated in the different processes taken forward by NMA-B.

b. Economic Development Programme

The Economic Development and Natural Resources Programme was one of the PDIVI's main pillars. Through co-financed investments, specific actions and production processes with improved technology, it managed to meet many of the local communities' demands in the area of production. This resulted in improvements in farming systems, thus contributing to food security, as well as new

products and surplus produce which are being sold in local and regional markets and also in the city of La Paz. Thus, the programme made a major contribution to boosting the local economy.

In general terms, the projects that were part of the Economic Development and Natural Resources Programme managed to mobilise local resources from the beneficiary community, both in kind (the traditional arrangement) and also in cash. The mobilisation of counterpart contributions in cash from farmers has led to several impacts:

- The beneficiaries prioritised and specified their demands based on what NMA-B was offering. There were several possible projects available for farmers, but they prioritised one or more that best fit their interests.
- The counterpart contribution in cash meant that the farming families took ownership of the projects immediately and achieved significant levels of empowerment while managing these projects. In other words, by providing their counterpart contributions in cash, the farmers saw the project as belonging to them, and also felt they had every right to control how it was implemented.
- A culture of investment in production was promoted. Before the PDIVI projects, most farmers only made use of local inputs and family labour to carry out their production activities, but now they have seen for themselves that by investing in technological improvements they can earn higher profits.
- The farmers developed their entrepreneurial skills. Some farmers quickly understood the business dynamic (investment-return) and decided to use the profits they had generated through the projects to make new and larger investments to develop and scale up their businesses (eg, building more sheds to produce more barbecue chickens). Some also used their money to set up businesses complementary to their farming activity (eg, a new company to import and supply seeds for flower production).

“... When they told us we’d have to pay a counterpart contribution, we chose the projects we were most interested in”

Farmer from Icharani community

“... The barbecue chickens are a good business, that’s why we’re using the money we earn to build more sheds”

Poultry farmer from Tutuacaja community

The projects in the Economic Development and Natural Resources Programme also managed to mobilise local funds from the municipal governments, giving rise to the following impacts:

- In the agreements with NMA-B and the beneficiary communities, the municipal governments found suitable mechanisms for supporting productive development effectively in their municipalities. Before the PDIVI, they had found it difficult to provide this support because there are restrictions on their ability to transfer funds to private individuals.
- There was an improvement in municipal government management in general, because their work became more visible and efficient. In the beneficiary communities, people changed their previous opinion of successive municipal government administrations. Many farmers mentioned that past municipal governments had done little or nothing for their communities and they viewed the authorities as inefficient or even corrupt.
- New instruments were designed to improve the municipal government’s work in support of productive development (eg, sustainability plans for the micro-irrigation systems, agreements with NGOs as a way to provide support to the productive sector).

In several projects and specific activities, women played a leading role and were the owners of productive businesses (eg, breeding egg-laying hens / barbecue chickens, flower growing, improving custard apple production, peach processing). This meant that their participation in economic activities

increased and they also participated actively in meetings and decision-making processes. In this way, they were managing activities that also provided them with employment. Therefore, the levels of women's empowerment that took place through the projects taken forward by the PDIVI's Economic Development and Natural Resources Programme were a very noteworthy achievement.

Based on the surveys, it was found that 95.8% of the farmers surveyed said that women participated actively in the agricultural activities supported by the PDIVI projects, while 90.5% said that women participated actively in the livestock farming activities supported by these projects. 1.7% of the people surveyed said that women participated to some extent in the agricultural activities and 1.6% said that women participated to some extent in the livestock farming activities. Finally, 2.5% of the people surveyed didn't know/didn't answer about women's participation in agricultural project activities and 7.9% didn't know/didn't answer about women's participation in livestock farming activities. These survey data are clear evidence that women have achieved significant participation in family farming activities.

The **micro-irrigation** projects were the PDIVI actions that had the greatest impact on production, as they managed to bring about a transition from rain-fed farming systems to irrigated crops. This generated a series of impacts (described below) which, taken together, have strengthened agricultural production as the essential basis of the farming families' livelihood strategies.

- The micro-irrigation is leading to an increase in agricultural production, as the number of times per year that crops are planted has increased. In most of the communities, people mention at least two planting cycles per year: the major or aseasonal planting, where the micro-irrigation systems provide complementary irrigation, and the winter planting or "*milli*", where the systems provide supplementary irrigation. In some communities farmers already practised late plantings (of maize and vegetables), which take place immediately after the aseasonal planting and finish before the winter planting.

"... The micro-irrigation provided by NMA-B has been a great help. Now we can grow crops all year round ..."

Farmer from Cheje community

The survey data show that 97.4% of the farmers interviewed said that micro-irrigation is enabling them to plant crops more than once a year, 1.3% said that it doesn't, and another 1.3% didn't know/didn't answer.

- The micro-irrigation has led to the introduction of new technology (pipe conduction and upgraded irrigation techniques using sprayers) which enables a highly efficient use of water. Before the PDIVI, the few rustic irrigation systems that existed were gravity-based and the water ran along open channels, with losses from leaks and evaporation as high as 75%.
- Crop productivity has improved as a result of the micro-irrigation, and unusually high crop yields are being achieved. This increase in productivity is largely thanks to the fact that crop losses due to water stress have been reduced. These losses used to be very frequent in times of drought and/or as a result of irregular rainfall in the rainy season. According to some of the farmers interviewed, there were times when they lost their entire crop.

"... With the micro-irrigation our production has improved. We've had good harvests, better than we've seen for many years ... The water has brought the land back to life ..."

Farmer from Chinchaya community

According to the surveys, 94.3% of the farmers surveyed said that their crop yields have increased as a result of the micro-irrigation, 5.3% said that productivity has not increased, and 1.3% didn't know/didn't answer. Likewise, the survey data show that 97.4% of the farmers surveyed think that the micro-irrigation has helped to reduce crop losses caused by the lack of water, 1.3% think that production is the same and there has been no reduction in crop losses, and 1.3% don't know/didn't answer.

- Access to water for irrigation is giving rise to the diversification of production, as many farmers are trying out new crops (mainly different types of vegetables). This also means that the micro-irrigation has encouraged farmers to experiment. According to the survey data, 93.4% of the farmers surveyed think that micro-irrigation has enabled agricultural production to diversify, 5.3% think there has been no diversification and 1.3% don't know/didn't answer.

“... When you have water you can grow all sorts of things. So we're trying out vegetables such as broccoli, and we might be able to grow other sorts of fruit, too...”
Farmer from San Pedro community
- In many cases, the micro-irrigation projects have made it possible to irrigate areas or parts of communities where nothing was grown before. Thus, the farming families have started to use new areas of land to grow crops under irrigation. This expansion of the amount of land used for agriculture has involved forested areas and/or native grassland (*poromas*), and in some cases land that had been left fallow for many years. According to the people interviewed for the evaluation, the amount of new land brought into agricultural use is as much as a quarter of a hectare per family.

“... Here in San Pedro we have an area that's as hot and dry as the Chaco. We're now using that whole area to grow crops under irrigation ...”
Farmer from San Pedro community
- Access to micro-irrigation has meant that agricultural land has gained in value and an “internal” market for land has developed. Although there is no formal land market, because the communities have collective property rights (communal titles that by law are indivisible, permanent and untransferable), there is a market within the communities, which allows irrigated land to be bought and sold (according to the farmers interviewed, land in the community of San Pedro was sold to farmers from Luribay and Río Abajo,¹⁷ for example).
- Micro-irrigation has helped to reduce agricultural risks as well as contributing to the increase in crop productivity. Because of this situation of better and more secure production, migration rates have fallen substantially, and many farmers who had migrated in the past have even returned to their communities.

“... Nowadays nobody wants to go and work somewhere else ... It's better to work here in the community ...”
Farmer from Icharani community
- Another important impact is the reduction in some cases and the emergence in others of conflicts over water. The farming families say that in some communities that had rustic irrigation systems there were often conflicts between farmers because there was not enough water for everyone and at dry times of the year they all wanted to irrigate their crops at the same time. This problem was overcome because now, thanks to the micro-irrigation systems, all the farmers who worked on the systems have access to water, the system is managed properly, losses due to leaks and evaporation no longer happen and water use is maximised thanks to the sprayers. In another case (the community of San Pedro to be precise), the micro-irrigation system is shared with farmers in another two neighbouring communities, and the main pipe crosses their land. These communities are constantly threatening to cut off the water to San Pedro, which is a source of worry to the farming families.
- As part of the micro-irrigation projects, organisational strengthening processes were carried out with a view to the management of the systems. The organisations or Irrigation Associations were set up in previous phases and strengthened in the closure phase of the PDIVI. Most of them are operating properly as they have bylaws and regulations, apply turn-taking arrangements and have established certain mechanisms for the operation and

¹⁷ Río Abajo is a valley region in the lower-altitude watershed area of the River Choqueyapu, which crosses the city of La Paz, and Luribay is another inter-Andean valleys area in Loayza province in the Department of La Paz.

maintenance of the systems. Therefore, an important impact of these projects and the organisational strengthening work has been to create local organisations with the capacities to manage the micro-irrigation infrastructure. According to the survey, 14.5% of the farmers surveyed said that in their community the micro-irrigation system is very well managed, 51.3% think that it is well managed, 22.4% rated the management as average, 1.3% think there is no management and 10.5% don't know/didn't answer.

- Likewise, the surveys show that 13.3% of the farmers surveyed think that the maintenance of their system is very good, 60% rate it as good, 24.4% as average and 2.2% don't know/didn't answer.

In general, the main impacts generated by the **production projects** are the increase in the farming families' income, the improvement in agricultural employment (farming now takes place in better conditions and with more technological resources) and, at a higher level, the boost to the local economy. This latter impact is due to the fact that now the farming families are producing more or producing a surplus, they are selling their produce in local markets, buying items they don't produce and making use of certain services to carry out their productive activities. Furthermore, the PDIVI target area is now gaining its own identity in the market thanks to certain products that are reaching markets beyond the local area (in the city of La Paz, market traders prefer flowers from Sorata over those from other regions because they are of better quality).

Other immediate impacts that have resulted from the implementation of the projects to support farming production are the following:

- The diversification of production with the introduction of product categories that the farmers call alternative: before, no-one grew Liliun flowers or thought of fattening beef cattle; now, however, both activities have been incorporated into family farming systems. A process of diversification is also going on in the production of vegetables, as families are growing types of vegetables they didn't produce before. This is also helping families to diversify their diet, as they now are eating foods that were not part of their diet in the past.
- Some production projects are contributing to the revaluing of product categories that for various reasons had ceased to be important to farmers. One example is the production of peaches. In some communities the peach trees were not producing much fruit and the peaches were bad quality. Therefore, production was only for the families' own consumption and they kept the trees because they were part of the farmers' culture. Now, however, the peach trees have gained in value and the farmers have high expectations of the harvests they will obtain in the coming years.
- The work of the PDIVI's Economic Development and Natural Resources component has led to the development of production initiatives run by women, achieving greater inclusion and more recognition of women's productive work. Through some initiatives such as flower growing, barbecue chicken production, and making shawls and skirts, women are earning their own income and making a greater contribution to the household economy. It should be pointed out that women have always worked in productive activities since before the implementation of the PDIVI. With the above-mentioned projects, however, their participation and contribution have become more visible. Therefore, one important impact of the production projects in which women participated and ran their own businesses has been to reduce the gaps and inequality between women and men, enabling women to have more and better access and rights to productive resources and economic opportunities.

".... In the countryside, women have always worked alongside the men, but now they are producing things themselves and they're talking more loudly (laughs)..."
Farmer from Tutuacaja community

- The projects that supported the development of the product categories with the highest turnover and profit margins (poultry production and flower growing) have given rise to processes of swift reinvestment to expand the business. In the case of the women poultry producers, for example, some now have two additional poultry sheds apart from the one provided by the project. Likewise, some flower producers now have as many as four greenhouses (having added three more to the one provided by the project). This shows that the farming families have gained good capacities to manage their productive activity and that the projects helped to support the entrepreneurial skills of some farming families.
- Some projects have led to the development of specialised services run by local entrepreneurs as well as the development of business initiatives. In the case of potato production, some farmers have started to provide crop spraying services, which are increasingly in demand. In the case of the animal health campaigns, some vets and local promoters are providing the service of treating livestock for internal and external parasites and giving them doses of vitamins. In addition, a group of three families in Cheje community have set up a business that imports and supplies Liliun bulbs. They are distributing their product in their community and others in the target area, competing with suppliers from the city of La Paz.
- In one of the production projects, a new organisation was set up with a business approach: the Visión Sol Naciente (VISOL) association of flower growers in Cheje community. Likewise, farmers in other communities had the idea of setting up new associations around their main product categories. It was found that for the time being these organisations are there in name only, because they are not yet bringing any benefit to the farmers (they are not working on economies of scale, providing bulking and collective marketing services or looking for new markets). The greatest impact of these organisational processes so far is probably the increase in the contact farmers have with municipal government authorities.
- The extent of the farming families' participation in the production projects varied. In some projects several families registered to participate to start with, but as the work went forward the participants who carried on were the ones who were the most interested, the most dedicated or those who were able to provide their counterpart contribution. Conversely, there were projects that to start with had very few families registering to participate but later, when other people saw the achievements, a larger number of families decided to join in. Many of them even replicated and made investments in the activities using their own resources.

"... When the flowers project started there were 15 of us, later there were only 8 left, and now there's 29 of us, although not everyone is active ..."

Farmer from Cheje community

The ***natural resources projects*** were implemented in the last phase of the PDIVI, and therefore their results and impacts, which usually become evident in the medium and long term, are not yet visible. Nevertheless, it is important to highlight the following elements that can be considered changes brought about by the work done in this component:

- People in the communities where the tree planting and forest repopulation projects were carried out are now more aware of all the aspects involved in or related to the use and conservation of natural resources in general, and especially the use and conservation of those resources on which their livelihoods are based (water and soil). Thus, the communities value the resources they have available more highly and take greater care of them, together with the surrounding environment. However, it is important to mention that in some

communities, especially those in the potato-growing areas,¹⁸ rather than adopting biological pest control or integrated pest management, farmers prefer to use moderately toxic chemical pesticides (harmful products with a yellow label such as the insecticide KARATE and the fungicide RIDOMIL). Although the use of these products was part the proposed technology developed by the projects NMA-B supported, the use of less toxic products was always encouraged. In extreme cases with a high incidence of pests and diseases, the above-mentioned products were used, but they were always strictly managed in accordance with their technical specifications.

- The tree planting and forest repopulation projects managed to place the issue of natural resource management on the territorial management agenda of community authorities, people in the beneficiary communities and also two municipal governments: Quiabaya and Combaya, which established municipal forest development plans as local policies. This achievement and the project's impact would probably have been greater if these policies had been worked on in a broader, more integrated way, mainstreamed across all the projects, so that environment and natural resources issues were taken on board by all the projects to support productive development.
- Many of the farming families who participated in the tree planting and forest repopulation activities have included wood in their production systems and strategies. For these families, wood is the main benefit they see as being provided by trees, rather than soil protection or conservation of the areas that refill aquifers. This shows that wood production has the added value of helping to stabilise the soil, although it is also true that the tree species used for the purpose (pine, cypress and eucalyptus) compete fiercely for water with other species of trees, bushes and grasses that are native to the region.

“... I only want trees for wood. That's why I only received 8 of the 30 seedlings they were supposed to give me ...”

Farmer from Cheje community

3.5. Sustainability

a. Human Development Programme

In general terms, one important effort that sought to contribute to the sustainability of the PDIVI's different projects was the drawing up of the “*Strategic Sustainability Plans for Projects and Works of Infrastructure*” in the municipalities of Sorata and Quiabaya. These plans were designed by means of a participatory approach that started with an assessment, followed by a strategic framework analysis (institutional mandate and management policies) and finally the formulation of strategic guidelines (strategic areas of work, actions and objectives).

In the plan seen by the evaluation team, which is for the Municipality of Quiabaya, three strategic lines of action can be identified:

- ***Institutional and organisational strengthening***: Focused on promoting increased access to finance, improving operational capacities and boosting citizen participation throughout the project cycle. The institutional and organisational strengthening line of action is integrated and aimed at enhancing the management capacities of the municipal government and civil society organisations at the community and supra-community level.

¹⁸ In the potato-producing areas the soil is infested with the disease called late blight (*Phytophthora infestans*) and the pest known as *Piqui Piqui* or jumping flea (*Epitrix spp.*). These are very difficult to control biologically or through IPM.

- **Maintenance of public works and infrastructure:** Aimed at strengthening capacities in the municipal government in the areas of planning, implementation, supervision and maintenance of the projects, in coordination with urban and rural communities, with the objective of achieving the sustainability of the projects by means of the proper operation and timely maintenance of common assets.
- **Shared responsibility and social and community leadership:** Implies the community's capacity to respond during the project operating stage, which includes community awareness and dedication, society taking responsibility for the roles and tasks it is allocated, collectively looking after community infrastructure and setting aside time to carry out community development work.

Having these plans in the two municipalities represents a significant effort that will need to be formalised by approving a municipal ruling or law to give them the formal status that is required. Whether they achieve the desired results will depend on the outgoing authorities' ability to transfer the strategic plan and involve the new municipal government authorities in implementing it.¹⁹

The design of the strategic plans is one of the main actions taken to ensure the sustainability of the work done in the PDIVI's Human Development Programme. The plans seek to work with and involve the direct beneficiaries of the projects, with the objective of ensuring that they take ownership of their own work and value it.

"We've learned to work together as a community. It's more difficult with the municipal authorities because we've got new authorities coming in who haven't worked with NMA-B."

Former mayor and councillor, Combaya

In projects directly related to infrastructure and equipment, mainly in the areas of education and health, there is no great difficulty in ensuring sustainability, because the community authorities themselves are responsible for looking after them and they have shown a significant degree of ownership of the projects carried out.

Where sustainability does carry some risks is in the water systems, as these require routine operation and maintenance work which demands a significant level of commitment and involvement from the members of the community. With regard to this, the work done by NMA-B to strengthen and train the Water Committees was important because it increases the likelihood that the systems will remain operational for longer. However, it will be important to undertake an awareness-raising process with the new municipal government authorities so that they make a commitment to support these communities with technical assistance and materials to keep the systems operating.

In the case of the **Organisational Development** component, the results seem to be more sustainable over time, due to the entry strategy followed throughout the Programme's implementation. This was based on a process of awareness-raising and training on leadership, rights, values, etc, which has changed the people (men and women) who participated in these processes, to the benefit of themselves and their communities.

In the particular case of the processes aimed at women, as well as having led to changes in the individual beneficiaries' participation practices and customs, alliances were sought or joint work done with existing women's organisations (known as the Bartolinas) that already have a strong presence in the area. In addition, significant efforts were made to set up and strengthen women's organisations

¹⁹ New departmental and municipal government authorities will be elected everywhere in the country in March 2015.

or associations, some of which now have official legal status which will enable them to access new funds from public sector sources. However, it is still important to develop follow-up mechanisms to continue supporting these organisations with the aim of addressing certain basic requirements for them to operate and function.

b. Economic Development Programme

Various projects were carried out as part of the PDIVI's Economic Development and Natural Resources Programme, achieving results that can be seen as different for each activity. This means that the conditions for the sustainability of the processes and results obtained in the different projects are likewise varied, although it is also logical that there should be elements of sustainability common to most of the projects. Given this situation, we will now go on to present the main elements that constitute the foundations for the sustainability of all the support provided by the PDIVI in the area of production.

- In general, the management of all the projects (administration and accounting as well as operational management) was the responsibility of Management Committees or Project Committees whose members were the project's beneficiaries. People who took on this responsibility as members of these committees participated in the entire project implementation process. This means that local human resources have gained the capacities required to continue managing the processes initiated and developed in the different projects. They also have the capacity to propose and manage new projects.
 - Local people developed high levels of ownership of their production projects and this is another element that makes a huge contribution to ensuring the sustainability of the processes developed and the results achieved. The beneficiary community as a whole sees the production projects as belonging to them, because of the way the projects were designed (responding to the demands expressed by the farming families), the arrangement used for managing them (placing trust in the community), the contributions made by the beneficiaries to enable the projects to happen (counterpart contributions in the form of labour, local materials and cash), and the contributions they are continuing to make in order to maintain them (in the micro-irrigation projects the farmers are paying monthly contributions to cover the cost of maintenance of the systems and any repairs).
 - The organisations set up and levels of organisation achieved by some groups of beneficiaries (though not in all the projects) are likewise decisive factors for the sustainability of the work done. In the micro-irrigation projects Irrigation Associations or Committees were set up. They are now managing the irrigation in practice and have also taken on the responsibility for the operation and maintenance of the systems. The organisational strengthening work carried out as part of the Human Development Programme is also contributing to the sustainability of the production projects, as the community authorities and leaders have developed community and territorial management capacities that they are also applying to production activities.
- According to the survey, 85.5% of the farmers surveyed believe that once the PDIVI comes to an end the micro-irrigation system in their community will continue to operate under their direct administration. 2.6% think the system will continue to operate to some extent, 1.3% said that it will not work without PDIVI support, and 10.5% didn't know/didn't answer.

"We've learned how to manage projects, how to go to the bank and present the accounts. Now we want to manage more projects because that way we can guarantee that all the funding actually reaches the community."

*Former president of the Project Committee,
Chinchaya community*

In **economic** terms, the sustainability of the work done in the Economic Development and Natural Resources Programme depends on the following factors:

- The market: while there is a demand, decent prices and conditions in place to transport and market the produce, the production activity will carry on and the farming families will make the necessary effort to carry on producing.
- The investment capacity of the farming families or the realistic possibility of obtaining new funding. It should not be forgotten that most of the investment made in the projects was subsidised. Therefore, in the future, when the families want to make their business grow or when it becomes necessary to replace one or another productive asset, the farmers themselves will have to cover the entire cost of the investment or otherwise obtain funding from other organisations that support development. In fact, the PDIVI has managed to ensure that some projects – the micro-irrigation systems, principally – have sustainability plans that formalise the commitment of the municipal governments and the beneficiary communities to ensure that these systems continue operating properly on a permanent basis.
- The possibility of working with financial services for the development, sustainability and growth of production activities that have already demonstrated their viability and profitability (eg, the barbecue chicken and flower production businesses).
- Based on the experience of joint work between NMA-B, the municipal governments and the beneficiary communities, municipal governments have discovered mechanisms, procedures and instruments that they can use to support the development of production projects. This is another factor that favours the sustainability of the work done because, in the future, the municipal governments will be able to establish strategic partnerships with other development support agencies present in the target area (CARITAS, CECASEM and possibly others that may start working in the municipalities) and allocate resources to support production initiatives or businesses.
- The work done in the natural resources component is likely to be sustainable firstly because of the change in people's attitudes with regard to the use of the natural resources on which their livelihoods are based (people are now more concerned to protect and conserve water and soil), and secondly because of the existence of municipal plans that have been approved and are now being implemented. However, it will still be necessary to work on municipal policies and regulations for the management of natural resources in general (water, soil and biodiversity). Although this was not worked on by the PDIVI, the municipal forest development plans that were drawn up set a precedent and represent a first step in achieving this aim.

"... Some producers have stopped because the flowers don't sell like they did at the beginning, and that's why not all of us are active at the moment ..."

Flower producer from Icharani community

"... We'd never have been able to build the sheds and buy the equipment without NMA-B's support ..."

Poultry farmer from Icharani community

It is also important to highlight that, in order to make productive development strategies compatible with natural resources management strategies, and with a view to the sustainability of the work done in the two components, in future it will be necessary to review the practice of using chemical products to control pests and diseases. For the time being, the serious pollution problems usually caused by the use of such products have not yet become evident. But in future the municipal governments – and possibly other development organisations as well – will need to carry out intensive awareness-raising processes with the local community.

4. Conclusions and Recommendations

4.1. Conclusions

a. Pertinence and Relevance

- The strategy to link the NMA-B intervention with the Municipal Development Plans is appropriate because it acknowledges and strengthens the role of promoting local development that corresponds by law to the Autonomous Municipal Governments. Furthermore, it is clear that the PDIVI and the organisation's work are aligned with the public policies institutionalised in both the Constitution and the National Development Plan (PND).
- Since the PDIVI supported the work of the municipal government through the implementation of the PDM, the projects funded by NMA-B were highly compatible with the expectations of the beneficiaries. Thus, the projects carried out in the different programmes were fully aligned with the beneficiaries' expectations. In every community visited, people said that the projects carried out by NMA-B responded to their most clearly felt needs and that these projects were prioritised in a participatory way.
- Both the design and the implementation of the PDIVI were closely aligned with the municipal government policies set out in the Municipal Development Plans and with NMA-B's institutional policies. These policies were respectively determined by means of the same territorial planning and institutional strategic planning processes that enabled local demands to be included in the PDIVI. Therefore, NMA-B's presence in the target area effectively became a means to support the work of the municipal government. The involvement of the beneficiaries and their local organisations in the design and implementation of the projects encouraged them to take ownership of project management.
- The design and implementation of the PDIVI was suitably pertinent in all three of its programmes: human development, economic development and diaconal development, which offered correct responses to social and economic problems at the local level. Therefore, both the design and the implementation of the PDIVI, based on a participatory development model that was applied in the implementation of its four phases (Pilot Plan, PDIVI 1, PDIVI 2 and Closure Plan), were closely aligned with the municipal government policies set out in the Municipal Development Plans and with NMA-B's institutional policies.

b. Efficiency

- The professional profile of the field team was quite unbalanced in terms of the specialised requirements in the area of human development. It is evident that professionals on the social side are required, especially during the initial stages of the project cycle. Because of the strategic and integrated nature of the PDIVI, staff with a solid social sciences background required to work on the initial stages of the project cycle, to complement the staff in the field of engineering in a multidisciplinary fashion.
- Considering the local conditions in which they worked, the technical team was quite small for the task of implementing the PDIVI given its thematic, geographic and social complexity, in addition to the large size of the target area (three municipalities).
- As one of NMA-B's intervention strategies, the organisation's staff have acted as facilitators of the development process rather than playing the leading role, in order to encourage the community to take the lead and mobilise to take forward their own development.

- Based on the results of the field visits, it was found that participation by the beneficiaries was one of the cornerstones of the PDIVI's implementation and that it was decisive for achieving the goals of the PDIVI and its respective projects.
- It was found that the counterpart contributions of 50% for the Economic Development Programme were costly or unaffordable for the majority of the beneficiaries, bearing in mind the prevailing economic conditions in the area. However, this policy contributed to the beneficiaries' sense of ownership of these projects.
- The beneficiary communities have acquired the very healthy habit of demanding accountability, presenting accounts and getting involved in the spending of project funds – an aspect that we consider a significant qualitative leap forward in the autonomous management of development.
- Because they needed a monitoring and follow-up system, the members of the field team have each designed their own format in Excel, based on the programme and project indicators. These spreadsheets are basically used to record quantitative information. However, it was also found that qualitative aspects are not adequately reported, either through a system or in the annual reports that each area prepares for the NMA-B central office.
- NMA-B has not yet managed to put together the ideal system that would provide operational, managerial and executive information at the different levels of programme and project management. The evaluation team found that operational information is not necessarily consolidated and aggregated in order to produce a report for the next level up. There are gaps and overlaps which are not a problem specific to Area V, but rather a structural problem in the NMA-B central office in the area of planning and monitoring.
- The absence of adequate baseline data made it difficult to carry out strategic monitoring work and especially to evaluate the programmes or plans within NMA-B. Thus, the evaluation exercises are not necessarily cumulative and it is difficult for them to adequately demonstrate the results and impacts produced by the PDIVI.
- The following conclusions were reached regarding administrative and financial management: i) trends in the Economic Development and Human Development Programmes determine the overall trend of spending on the PDIVI over the six years analysed; ii) budget spending per year is relatively even throughout the period analysed, although there is a significant spike in 2012 and this is the year when the Plan's budget spending was highest; iii) spending on the Diaconal Development Programme is almost the same every year at around Bs. 40,000; iv) budget spending starts to increase in 2010 and falls slightly in 2013 and 2014; and v) spending on administration costs tends to be relatively stable, with a slight reduction in 2011 and 2012 and an increase in 2013 and 2014.
- The planned operating budget was exceeded by the budget spent almost every year except for 2013, when 93% of the planned budget was spent – a level considered more than acceptable. On average, or based on the cumulative data for the period analysed (2009-2014), budget spending reached 109% of the planned operating budget, which shows a significant level of budget spending compared with the planning exercises.
- The operational planning carried out by NMA-B together with the Area V coordination team is appropriate and uses a suitable method of financial planning. The levels of budget spending show that, through the PDIVI, NMA-B developed a significant spending capacity and maintained even levels of spending, with 2012 being identified as the year with the largest budget, both in terms of what was planned and effective spending.

c. Efficacy

- In general terms, the Human Development and Economic Development Programmes fulfilled their strategic objectives and made a significant contribution to the achievement of the PDIVI's purpose and goal (improving the quality of life of people in the target area).
- The infrastructure built and equipment provided for health and education led to an improvement in the quality of these services. In education in particular, this was complemented by the training provided to teachers.
- The PDIVI's integrated strategy produced positive results. By introducing topics related to values, leadership and rights, it was able to raise awareness and motivate the beneficiaries, thus facilitating project implementation.
- The organisational strengthening activities, particularly those aimed at women, are the ones that achieved the best results. They led to significant changes in the women beneficiaries' lives, which resulted in a change in their position and status within the community.
- It is clear that the proposal to improve farming systems and include and mainstream natural resources management in productive and territorial management processes is a complex, comprehensive, long-term task that requires paying constant attention to local demands, and its achievements in turn give rise to new demands. In interventions of this type, therefore, the time will never be sufficient to complete and address the expected development process in full.
- In some of the projects in the Economic Development and Natural Resources Programme, the improvements in production or natural resources management activities were carried out by responding directly to people's specific demands, but without taking into account the integrated approach that is required as part of a broader view of farming systems or addressing environmental problems. For example, animal health campaigns were carried out, but these were not very useful when there are other factors that likewise affect livestock: over-grazing, insufficient cultivated or stored fodder, bad genetic quality of the livestock, etc. Similarly, in the natural resources component, areas were planted with trees but without considering complementary measures such as soil conservation initiatives or introducing agroforestry practices. Because of this, the complementary actions that are required to cover all aspects of the work taken forward in these projects will be the responsibility of the beneficiary families, who will also have to cover any costs involved.
- The benefits of the PDIVI in terms of improving production and increasing the farming families' income were not perceived by all the beneficiaries equally or evenly. Neither were all the families able to participate and access the benefits of all the projects. The effort that each family devoted to any given product and the decision to work with counterpart contributions in cash were probably the factors that gave rise to such differences in impact.
- Agricultural production under irrigation is giving rise to farming processes that make more intensive use of the soil. Consequently, it is leading to a faster loss of soil fertility as well as changes in soil structure, although these effects are still imperceptible.
- The arrangement for managing projects by applying the idea of "*trusting in the community*" was a decisive factor in the success of these projects. It empowered local people and enabled them to build confidence and capacities in the administrative, financial and operational management of development activities. These elements also brought about greater efficiency, social oversight and transparency in the management of resources.
- The Economic Development and Natural Resources Programme helped to strengthen the work of the municipal government in the area of production, by offering operational mechanisms, processes and instruments that can be institutionalised and applied in future development

initiatives that may be supported by other international cooperation agencies, the state or private development support organisations.

- In the Natural Resources component, the actions carried out by the PDIVI were aimed at raising people's awareness about the use and management of the resources on which their livelihoods are based. Principally, they sought to introduce forestry activities in the communities, with clear prospects of obtaining economic benefits (production and marketing of wood) in the long term. This was complemented by the implementation of a mainstreamed environmental approach.
- In the opinion of the municipal governments and NMA-B, the work in the Natural Resources component helped to raise people's awareness about environmental issues and also launched forestation/reforestation processes to protect the soil. In the view of the people involved in these activities, however, they value them mainly because they planted trees which will bring them economic benefits (production and marketing of wood) in the long term. Neither of these views is better or more important than the other. However, it would have been advisable to encourage people to take on board the idea that tree planting should be complemented by other actions which, taken together, contribute to appropriate and sustainable natural resource management (eg, forestation/reforestation to protect water sources and areas that refill aquifers, stabilise the soil, or as part of agroforestry practices, by planting trees around the edges of fields or paddocks, stands of seed trees, to protect river banks, etc).
- The production projects that were carried out with PDIVI support have generated a high demand locally for new and larger investments to be made in production (in other words, a culture of productive investment was promoted). However, the farming families cannot find or do not know of ways to obtain such investment other than by seeking outside support. Because of this, it is highly likely that many of the production initiatives will not be able to grow and others will not be scaled up to the extent that they could be.

d. Sustainability

- During the PDIVI's closure phase (2012-2014), the work focused on creating or strengthening the conditions that will ensure the sustainability of the different projects that were carried out in the previous phases. However, this work did not include creating or strengthening conditions to ensure the sustainability of the three programmes (Human Development, Economic Development and Natural Resources, and Diaconal Development), or the PDIVI itself on a more general level and on the understanding that development in the inter-Andean valleys should continue with or without the presence of NMA-B. With regard to this it was found that, firstly, people in the communities in the target area have internalised and developed concepts, capacities and skills that will enable them in future to prioritise their demands and manage projects; and secondly, that the municipal governments have managed to establish and apply mechanisms and instruments that will allow them to support projects that respond to local people's demands. However, it is also the case that without clear policies or a solid and functional institutional framework for local development, it will be difficult for the relationships between the communities and the municipal government to be maintained at the levels achieved by the PDIVI. Neither will it be easy to find another agency to take over the facilitation and promotion role that NMA-B played throughout this process. Given this situation, putting in place the conditions for the sustainability of the programmes and the PDIVI is a challenge that remains to be addressed by the local stakeholders.
- The drawing up of Strategic Sustainability Plans is an important initiative aimed at establishing the necessary conditions for the sustainability of the projects. However, it was not possible to

identify a clear strategy for transferring this valuable instrument to the newly elected municipal government authorities.

- The basic sanitation projects are the ones that are most vulnerable and require special treatment if they are to be maintained over time. However, this weakness seems to have been overcome thanks to the sense of ownership that the beneficiaries have developed in the majority of the projects.
- The participatory management approach that was applied in project implementation facilitated this sense of ownership, providing favourable conditions for the projects' sustainability.
- The work of the PDIVI in its Closure Phase was aimed at consolidating processes and ensuring the sustainability of the results achieved by the activities supported in the previous phases. This was only partially achieved in most of the production projects, because efforts to connect local production with the market were not carried out with the necessary consistency. This aspect is decisive for the sustainability of income-generating production processes.
- The degree of ownership of the production proposal in general, and each production project in particular, at all levels (farming families, community authorities, local organisations and municipal governments) is high, due to their relevance and legitimacy (all these stakeholders were involved in the activities), and because the farming families' production systems and the improvements proposed fit perfectly with the concept of the productive municipality, the production potential of the target area and the capacities of local actors to play the leading role in their own development.
- The organisational strengthening work that sought to achieve the sustainability of the projects in the Economic Development and Natural Resources Programme was only applicable to the micro-irrigation projects and one of the flower growing projects where a Producers Association was set up. In the rest of the projects, production is carried out individually, and sustainability will therefore depend on the level of commitment and performance reached by each farming family.

4.2. Recommendations

- It is necessary to have a structured and integrated monitoring and follow-up system to enable the impacts of the PDIVI in particular to be fully evaluated. Such a system would also make it possible for complementary quantitative and qualitative information to flow between the different levels of planning and monitoring. This requires specific tools for each level, but these do not necessarily have to be online. Ideally, an adequate monitoring and follow-up system should include strategic monitoring and operational follow-up, both based on simple and preferably streamlined tools designed for everyday use, to feed in information that is channelled upwards to the strategic monitoring of NMA-B's institutional guidelines and objectives.
- Another aspect that is relevant to monitoring and evaluation is to have the baseline information that makes it possible to measure the impacts or changes produced by carrying out different programmes and projects. The annual reports make a great effort to use indicators, but unfortunately they do not fill the gap left by the absence of the baseline data which ought to underpin follow-up, monitoring and evaluation reports.
- For the monitoring and evaluation system it is important to design indicators that can be measured autonomously and immediately, meaning that their measurement does not depend on having national information or statistics that are not produced very regularly (such as population, health or farming censuses). The indicators should be designed to enable constant and independent monitoring and should be in line with the project's objectives.

- Production projects should continue to be implemented under an integrated approach to the production system, so that there is interaction and complementarity between the different components.
- Local economic development processes should be addressed by investing in production activities and product categories that are viable and profitable, as this is the only way to help to boost the local economy. Therefore, the policy of co-financing the productive investments with cash contributions from the beneficiary families was an important and correct decision by the PDIVI, as it meant that the beneficiaries themselves prioritised which product category they wanted to invest in and how much, based on their own possibilities. However, it should be made clear that this policy or way of working does not exclude farmers with low incomes. Rather, it is a way of promoting or incentivising the most enterprising farming families. This means that mechanisms should be sought for the farming families who cannot currently afford to co-finance the investment to be able to do so in other ways (eg, through financial services).
- Following the rationale of the previous recommendation and given the production conditions that have been achieved through the PDIVI, it will be important for future production support actions to be carried out under a value chain approach. This will ensure that the support is aimed at improving the production systems used by small-scale farmers (improving productivity and quality), but guided by the indications provided by the market and with direct links (through commercial agreements) to players who represent the market for the produce. It would be even better to begin by working to link farmers with municipal governments so that they can supply the products included in the school breakfast programme.
- In future interventions, it will be important to include actions to promote the appropriate management of all the resources on which people's livelihoods are based, but especially the sustainable use and management of soil.
- It is suggested that NMA-B should systematise the experience of working with municipal governments through agreements, and disseminate this to the networks of development organisations (UNITAS, AIPE, PROCOSI, etc) and also to the Bolivian Federation of Municipal Associations.
- Work on Natural Resources requires an integrated intervention strategy, with well-defined territorial boundaries, a broader approach to environmental problems and a local institutional framework that enables the roles and responsibilities of the different players to be determined. This will facilitate ongoing dialogue between farmers, community authorities, local organisations and municipal government authorities, giving rise to clear policies that take on board and mainstream environmental issues in human and economic development initiatives.
- To reach a better understanding of how rural women are empowered through their inclusion and increased participation in economic and productive activities, it would be interesting to carry out a study to determine how the income they are generating is being used and their views on this income (whether it belongs to the women themselves or to the family).
- Economic development programmes should have a complementary financial services component or programme that could be implemented in coordination with specialised financial institutions, so that the supply of finance to support the productive sector can be increased and diversified.
- A process to accompany the new municipal government authorities needs to be developed, seeking to raise their awareness and involve them, with a view to ensuring the sustainability of the work done.

- In future interventions, it will be important to develop practices and tools that facilitate and consolidate ways to systematise successful experiences.
- It is important to develop processes to keep community members constantly informed and clearly explain the mechanisms for the co-financing of projects.
- When handing over the projects in the Human Development and Economic Development Programmes, NMA-B should also give the people responsible for operating them manuals and guides on operation and maintenance. These should describe the actions involved in the different types of maintenance (preventive, routine, etc) and their respective yearly budgets, identifying the potential different sources of funding. These technical documents are very important for the people responsible for managing the projects in the future to be able to ensure their sustainability.
- With the aim of optimising results, it is important to take forward processes to strengthen community participation at key and strategic moments in local planning and management.

5. Best Practices and Lessons Learned

The following are some of the best practices identified:

- The ***integrated approach*** adopted for the PDIVI intervention combined economic and human development actions and provided a promising framework for strengthening local policies and municipal government management processes. The PDIVI also played an important role in facilitating public policies at the municipal level.
- The working approach based on a ***Participatory Development Model***, which involves local organisations, produced good results. This model values individuals with all their skills and capacities and strengthens them with dignity.
- The setting up of ***Project Committees*** or ***Management Committees*** to design and implement the different projects enabled the beneficiaries to get involved and become empowered by the project. This facilitated project implementation and had a positive impact on the training and strengthening of human resources, as people gained the capacities required to manage projects and take forward production management processes.
- The ***mainstreaming of diaconal matters and values*** enabled project implementation to be taken forward in the different communities in a context of solidarity, efficiency and transparency.
- Having ***professionals committed to diaconal work*** facilitated the introduction of these issues in the projects. Diaconal work should not be something that people do because they are obliged to. It should come from within, and it is something that is lived and practised on a daily basis.
- In the work on women's empowerment, one good practice was to provide an incentive for women to participate by offering ***technical training on knitting, macramé, dress-making***, etc. This training process was taken advantage of to address other topics such as values, leadership, etc.
- The ***Strategic Sustainability Plans*** that were drawn up represent an important formal tool which improves the likelihood that the projects will be sustainable, especially in view of the transition between municipal government authorities.
- The ***gradual consolidation of production processes*** linked to growing community demands is encouraging increasing investment by local governments and consequently helping to ensure higher and better spending of municipal government budgets.

- The **micro-irrigation systems intrinsically promote organisation processes in the communities**, as users immediately realise that there needs to be an organisation responsible for managing the water and carrying out operation and maintenance work. Furthermore, the quality of this work is directly related to the benefits perceived by the farmers using the irrigation.

The lessons learned identified include the following:

- In all projects, it is important **to obtain the agreement of all members of the community**, developing mechanisms to provide information to everyone about the nature of the project, the counterpart contribution arrangements and percentages, and the conditions for new users to be admitted, right from the start of the project, in order to avoid discontent and misunderstandings.
- In all projects that have co-financing from the municipal government, it is important to obtain the **endorsement of the community in a general assembly**.
- Although the setting up of Project Committees or Management Committees was important, they are temporary and play a specific role. **They do not guarantee the sustainability of the projects and the results achieved**.
- When starting to work in new target areas, it is important for the technical staff involved, who will be responsible for carrying out the work, **to participate in the entire planning process and the design of the tools to be used for the follow-up and monitoring** of the activities (developing indicators, for example).
- The inclusion of environmental and natural resources issues in production and community and territorial management processes requires **extensive awareness-raising and education processes**, as well as a large investment of funds, in order to change cultural habits and introduce new concepts and practices in the use and management of natural resources.
