NOURISHING THE LAND, NOURISHING THE PEOPLE

A Madagascar Success Story

Brett Shapiro
Assefa Woldeyes
Harifidy Ramilison and
Andrianiainasoa Rakotondratsima

Under the coordination of
Benoît Thierry

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Nourishing the Land, Nourishing the People
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www.segs-mada.net (Information on the progress of the initiative, in French) and

www.capfida.mg (Information on IFAD activities in Madagascar, in French and English).

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NOURRIR LA TERRE, NOURRIR LES HOMMES
La mise en valeur réussie du haut bassin du Mandraré à Madagascar

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THE STORY OF ONE RURAL DEVELOPMENT PROJECT IN THE DEEP SOUTH OF MADAGASCAR THAT MADE A DIFFERENCE

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Enabling poor rural people to overcome poverty
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ABOUT THE AUTHORS

Brett Shapiro is a writer and journalist. For the past 15 years, he has written and edited numerous technical, policy, advocacy and general audience publications for more than a dozen United Nations agencies. He also provides specialized training in writing to UN staff at the United Nations System Staff College in Turin, in headquarters offices and in the field, as well as to diplomats at the Italian Ministry of Foreign Affairs. In addition, he is a visiting professor at the University of Siena. Outside of the United Nations System and his development work, Mr. Shapiro is the author of the best-selling “L’Intruso”, a memoir published in Italy (Feltrinelli) and subsequently a film and theatrical production. He collaborated with the conductor Robert Craft on a biography of Igor Stravinsky entitled “Dearest Bubushkin”, published in the United Kingdom (Thames and Hudson). He has also written two children’s books, “The Adventures of Bailey the Bag Dog” (1998), winner of Austria’s National Book Award and published in France, Germany, Austria and South Korea, and “Bailey Strikes It Rich”. His essays and articles have appeared in numerous magazines and newspapers in Italy and the United States and he has made many guest appearances on Italian television.

Assefa Woldeyes is a field practitioner and has been an international consultant for agricultural and rural development projects/programmes in many countries of Sub-Saharan Africa for nearly 34 years. He has worked with the International Fund for Agricultural Development (IFAD), the World Bank, the African Development Bank, the European Development Fund, the United Nations Development Programme, the United Nations Office for Project Services, FAO, USAID, and other international agencies. He has occupied major positions, including: (i) Project/Programme Supervisor of IFAD-funded projects in Burundi and Madagascar; (ii) Senior Technical Assistant and Advisor, for 17 years to initiatives in Burkina Faso, Madagascar and Mali; (iii) Expert for 11 years in ten countries in Africa. With respect to the Upper Mandrare River Basin Development Project, he supervised the project from 2006 to 2008, and in 2007 prepared a series of technical notes assessing the 12-year performance of the project. In 2008 he contributed to the project’s second review. Dr. Woldeyes holds a Master of Science and a PhD in Economics and Planning of Agricultural Development and Tropical Agronomic Studies from Paris, France.

Harifidy Ramilison, a rural hydraulic engineer, was the first Director of the PHBM (1996-2004) and paved the way for its success. He
specialized in research before taking on an assignment with the United Nations World Food Programme and is a specialist in managing integrated rural development projects and in good governance. He was the Deputy Minister of Agriculture and Livestock and Fisheries in 2007; Chief of Anosy Region from 2004-2006; Regional Director of Rural Development in Anosy and Androy Regions for five years; and Project Coordinator for the Food and Agriculture Organization (FAO) of the United Nations and the European Union. Currently, he is an international consultant.

Andrianiainasoa Rakotondratsima, a civil engineer, was the last Director of the PHBM. After heading the project’s Infrastructure Unit in 1999, he then became Assistant Director of the project. In 2004, he headed up the “Support to the Development of Menabe and Melaky” (Ad2M), another IFAD-supported initiative on Madagascar’s west coast. In the course of his career in development, he has brought to bear his experiences in engineering, irrigation and local development, as well as in project management. He was also integral to the success of the PHBM’s second phase, and the project’s example of a multisectoral and integrated initiative carried out in difficult local conditions and in a context of national institutional transformation.

Benoît Thierry is an agro-economist who completed his studies as a Rural Development Advisor, with a concentration in Local Development, in Nancy, France (1985). He graduated as an Engineer in Tropical Agricultural Economy from the Institut Supérieur Technique d’Outre Mer (ISTOM) in Le Havre, France (1987) and completed a Doctoral Programme in Human Geography from the University of Sorbonne, France (1988). In the late 1980s, Mr. Thierry worked as an advisor to the Bolivian NGO “Suma Mankranani” and for the group, “French Volunteers for Progress” (AFVP) in western Mali. In the 1990s he was a Regional Representative for West Africa with the Group for Research & Implementation of Rural Development (GRDR), which specialized in remittances and as Project Manager in Cambodia with the Research Group for Technological Exchanges (GRET) on a water and sanitation programme. He was also a Rural Development Advisor with the United Nations Development Programme (UNDP) in the same country, monitoring the CARERE reconstruction programme. From 1999 until he joined IFAD, he was Portfolio Manager with UNOPS in Kenya, where he supervised francophone IFAD projects in the Eastern and Southern Africa region. Since joining IFAD in 2004, he has been a Country Programme Manager based in the Eastern and Southern Africa division, where he is in charge of Comoros, Madagascar, Rwanda and Zimbabwe.
### ACRONYMS

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AGEPMF</td>
<td>Agence d'Exécution du Projet Microfinance (Microfinance Project Executing Agency)</td>
</tr>
<tr>
<td>AGRIP</td>
<td>Association pour la Gestion des Routes d'Intérêt Provincial (Association for the Management of Provincial Roads)</td>
</tr>
<tr>
<td>ALT</td>
<td>Andrew Lee Trust</td>
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<td>APEL</td>
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Action Pour un Environnement Lettré (Action for a Literate Environment) |
<p>| APIFM   | Association Professionnelle des Institutions Financières Mutualistes (Professional Association of Banking Institutions) |
| CAC     | Centre d'Appui aux Communes (Commune Support Centre) |
| CAE     | Crédit avec Education (Credit with Education) |
| CCD     | Comité Communal de Développement (Communal Development Committee) |
| CDIA    | Centre de Démonstration et d'Intensification Agricole (Centre for Agricultural Demonstration and Intensification) |
| CEM     | Caisse d'Epargne de Madagascar (Madagascar Savings Bank) |
| CRS     | Catholic Relief Services |
| CSA     | Centre de Service Agricole (Agricultural Service Centre) |
| FER     | Fonds d'Entretien Routier (Road Maintenance Fund) |
| FID     | Fonds d'Intervention pour le Développement (International Development Fund) |
| FIL     | Fonds pour Initiatives Locales (Local Initiatives Fund) |
| FIVOY   | Fitehirizana Voia Ifampisamborana (Plan for securing money to borrow) |
| GCV     | Grenier Commun Villageois (Communal Storehouse, warehouse receipt system) |
| GDP     | Gross Domestic Product |
| GNP     | Gross National Product |</p>
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<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>ICAR</td>
<td><em>Association Internationale de Crédit Agricole et Rural</em> (Agricultural and Rural Credit Association)</td>
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<tr>
<td>IFAD</td>
<td>International Fund for Agricultural Development</td>
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<td>IFRA</td>
<td><em>Institution Financière Régionale de l’Anosy</em> (Anosy Regional Financial Institution)</td>
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<tr>
<td>KMM</td>
<td><em>Komity Mpanara-Maso</em> (Oversight Committee)</td>
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<tr>
<td>KMP</td>
<td><em>Komity Mpitantana</em> (Management Committee)</td>
</tr>
<tr>
<td>MAP</td>
<td>Madagascar Action Plan</td>
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<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organization</td>
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<tr>
<td>PATAS</td>
<td><em>Pérennisation des Acquis, Transfert des Avoirs et des Savoirs</em> (Sustaining Outcomes, and Transferring Assets and Knowledge)</td>
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<tr>
<td>PCD</td>
<td><em>Plan Communal de Développement</em> (Commune Development Plan)</td>
</tr>
<tr>
<td>PDCV</td>
<td><em>Plan de Développement Communautaire Villageois</em> (Commune Development Plan)</td>
</tr>
<tr>
<td>PHBM</td>
<td><em>Projet du Haut Bassin du Mandrare</em> (Upper Mandrare River Basin Development Project)</td>
</tr>
<tr>
<td>PTBA</td>
<td><em>Plan de Travail et Budget Annuel</em> (Annual Workplan and Budget)</td>
</tr>
<tr>
<td>PIC</td>
<td><em>Piste d’Intérêt Communal</em> (Commune Road)</td>
</tr>
<tr>
<td>PSA</td>
<td><em>Programme Sectoriel Agricole</em> (Agricultural Sector Programme)</td>
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<tr>
<td>PSDR</td>
<td><em>Projet de Soutien au Développement Rural</em> (Support Project for Rural Development)</td>
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<tr>
<td>PST</td>
<td><em>Programme Sectoriel de Transport</em> (Sectoral Transport Programme)</td>
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<tr>
<td>SRA</td>
<td><em>Système de Riziculture Amélioré</em> (System of Rice Improvement)</td>
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<tr>
<td>SRI</td>
<td><em>Système de Riziculture Intensif</em> (System of Rice Intensification)</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>WRS</td>
<td>Warehouse Receipt System</td>
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<td>WUA</td>
<td>Water Users’ Association</td>
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<td>WWF</td>
<td>World Wildlife Fund</td>
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ACKNOWLEDGEMENTS

This book covers a two-year period and brings together the efforts of a team that was established and coordinated by Benoît Thierry, who was responsible for the IFAD project. The collective work of drafting and editing, which was led by Brett Shapiro with the support of Assefa Woldeyes and Harifidy Ramilison, was also supported “on the ground” by Andrianiainasoa Rakotondratsima, the Project Director.

From 2006, project staff were encouraged to maintain all paper and electronic documentation (reports, analyses, databases, posters, photos and videos) in order to establish an electronic library of the project. The library can be accessed at www.phbm.mg, which contains all of the project’s activities since its inception, as well as at www.capfida.mg, which provides an analysis of the results of the project.

From June to September 2007, technical notes on project results and impacts were prepared by project staff and Assefa Woldeyes. These documents also provide an overall picture of the project’s 12-year evolution.

In September 2007, a group of journalists from Mediascope/Syfia based in Antananarivo produced about 40 articles based on interviews and first-hand accounts of villagers and project specialists. The articles focused on important changes that took place in the daily lives of the project’s beneficiaries. In addition, Sylvie Le Guével, an intern from ISTOM, prepared case studies, Bruno Jacquet conducted an analysis of project results and impacts, and Nicolas Savajol created a variety of maps of the project area.

Finally, Brett Shapiro spent October and November 2007 visiting the villages in the project area to record the villagers’ “stories” and to sift through the existing documentation to put together this book. His inspiration and talent enabled the massive amounts of information to take shape and, chapter after chapter, tell the story of the PHBM. He knew how to take the story down two paths: recounting the daily life of the communities, and explaining the more technical aspects of the project. The original text was translated into French, primarily by Dominique Evers-Odier, for
publication by l’Harmattan, Paris in 2008. Frédéric Loward selected the photos and formatted the graphic material.

Thanks also are extended to those within and outside of IFAD who reviewed and corrected the text: Helen Gillman, Sylvie Tourrette, Claus Reiner and Carla Ferreira. Sue Price and Caroline Bidault finalised the revision of the English version.

The idea was to capture a resonant experience of rural development and make it accessible to everyone – practitioners and the curious alike – and not to limit it to the usual administrative document that is ultimately buried under mounds of others.

Thanks to this publication and to the internet, the doors of Mandrare open…

Benoît Thierry
PREFACE

By Benoît Thierry and Harifidy Ramilison

Nourishing the Land, Nourishing the People, is a challenge that humanity must confront everyday. This book tells the story of a development initiative in southern Madagascar, the Upper Mandrare River Basin Development Project (PHBM), which enabled a region suffering from chronic drought and famine to become the breadbasket of the south.

For the last eight years, I have personally supervised the project, first under the United Nations Office of Project Services (UNOPS), then under the International Fund for Agricultural Development (IFAD). My visits to the project area have been regular and frequent. The changes I have seen, and the achievements recounted to me deserve to be circulated beyond our limited circle of development specialists and bureaucrats.

While the project’s success may not be unique in the world, it does demonstrate how far rural societies are able to be proactive and productive when the keys for development are in their own hands. Through this book, we wish to share the experience with as many readers as possible, and in a practical form, with the hope of transmitting a message of hope to public decision-makers and others in the public sector, and of inspiring other interventions in those parts of the world where the challenges are similar.

The PHBM is also an example of integrated rural development. This concept, which fell victim to the fashions of the development microcosm, was condemned as a failure in the 1970s and 1980s. The success of this project demonstrates the validity of the concept when it is carried out in its initial spirit, with seriousness and professionalism, and within a clearly defined political framework of regional and local development.
An undeniable success

In raising the living standard by 75 per cent, the PHBM lifted the entire population (100,000 people) of a dozen communes in the district of Amboasary above the poverty threshold. This confirms that the Millennium Development Goals adopted by the international community and the United Nations can be achieved, and in particular the first Goal: to reduce extreme poverty by one half by 2015.

This book describes how the project was able to transform the region into an economic hub, despite the fact that only a few years before, the region had been abandoned, isolated, and without public or private services or infrastructure. Food production increased rapidly: rice production rose from 1,600 tonnes in 1996 to about 10,000 in 2002, and then to 25,000 in 2008 (from 98 kilograms per capita to 195 kilograms). In addition, manioc production rose from 23,000 tonnes to 50,000 tonnes, and maize from 2,800 tonnes to 12,000 tonnes.

The economic analysis (impact study and evaluation, 2008) shows that the return on investment was extremely rapid for the project. If one considers that average annual rice production is about 20,000 tonnes (valued at US$7 million, 2007), the loans provided by IFAD and the Government of Madagascar (US$18 million) could be repaid in three years. This is exceptional!

The impact study established that profit levels within the project, which had been estimated at 15 per cent during the project’s design, surpassed 35 per cent. Therefore, the investment of US$15 per project beneficiary per year for 12 years generated a supplementary income of US$100 per beneficiary per year over the same period.

The results can also be observed with respect to the living conditions of the families. In 2007, three out of every four households claimed to have earned money to be able to purchase livestock (31 per cent), purchase jewellery (27 per cent), and to put aside as savings (26 per cent). The increase in family expenditure of
more than 55 per cent, most notably for education (almost 300 per cent) and health (almost 100 per cent), attests to the importance that families place on education and health when they have the financial means.

**The strength of smallholder agriculture**

Over the last two decades, family farming and rural development have been the poor relatives of development aid around the world. Many economists and public decision-makers believe that the sector had receded under galloping urbanization, which accounts for more than 50 per cent of the planet’s population, and under the slow evolution of the rural setting, exacerbated by the number of agricultural development projects. Once again, the PHBM proved the contrary: that agricultural production projects are not only important in terms of poverty reduction but also as a path to sustainable economic development in rural areas. And even with accelerated urbanization, the rural population of many countries is still more than 75 per cent. Therefore, for several more decades it will be necessary to accompany the urban–rural transition and enable the billions of rural families throughout the world to live decently by means of their main source of income: agriculture.

Finally, the recent food crisis confirms that the choice of focusing on food crops enables countries to feed their citizens affordably, to assure their own food self-sufficiency and to export their surplus to other food-deficit regions.

**Global issues**

In reading this book, many contemporary themes will emerge regarding rural development that are treated as watermarks and for which concrete elements for responding are offered:

- Smallholder innovation: the strength of the initiative and the receptiveness of small-scale farmers to new techniques appears throughout the book. It can also be seen that innovation on the ground does not consist of “reinventing the
wheel” but of putting in place techniques from “outside” that serve as a social dynamic in the right place and at the right time.

- Food production: beyond Afro-pessimism, the increase in food prices is a shock to the poor people of the world, but it could also be an opportunity to revive the resources of poor rural people. This is the goal of the government’s Madagascar Action Plan.

- Adaptation to climate change: This theme is at the forefront, although it has been practiced throughout the ages. Smallholder systems have managed risks for a very long time – for example, seed multiplication in the same field to compensate for unpredictable rainfall. In this context, for 30 years, IFAD and other organizations have been financing soil protection and improvement activities in small-scale farming.

- Agriculture extension and the need for services: the PHBM demonstrates that agriculture services and extension work are a *sine qua non* of rural development (here again this goes against the trend that the market alone can drive value chains development). Large numbers of producers cannot apply different, new and intensive practices without proper training.

- Many rural techniques explained in this book involve a considerable amount of sensitization and education that permit the adaptation of moral values as well as the transfer of techniques, economic and social know-how. Development cannot be parsimonious when it comes to training, for both adults and youth. This is the basis of human development.

This book, which hopes to avoid being a panegyric, seeks to be objective: the PHBM also had its failures, and its approach is not a universal one. Only the future will determine which human and physical investments made in the Mandrare will survive.

However, the past decade has been a great human adventure. The many stories recounted by the families in the Mandrare’s villages during visits, supervision missions and independent evaluations demonstrate this: “Now we can feed and take care of our children. They have clothing and go to school”; “The young people cultivate the land and are no longer thieves or
What does the future hold for the Upper Mandrare River Basin?

Beyond the undeniable successes of the PHBM, the major challenge that remains – despite the great care taken by the project with respect to transferring skills and knowledge – is assuring the long-term sustainability of the benefits. This will require the continued intensification of rice cultivation, and the maintenance of irrigated fields and communication infrastructure, by the new producers’ and users’ organizations. It must also be hoped that the Mandrare example is seen and taken up by neighbouring districts that suffer from the same recurring problem of drought.

Nevertheless, the future of the area is promising. Southern Madagascar is now part of a regional development pole that is bringing together new mines and other emerging local industry. After a long period of isolation, the Upper Mandrare River Basin is now at the edge of large and unusual investment activity. In addition, the nearby region of Ambosaory is covered by thousands of hectares of sisal (an industry that has prospered for more than 70 years); and the coast of Fort Dauphin has recently begun developing a mineral mine, which will dramatically change the economic future of the region. Moreover, the old uranium mines on the periphery of the Mandrare region (Tranomaro) are being reopened.

These development poles, which are multiplying throughout the country and fulfilling the objectives of the government’s Madagascar Action Plan, are bringing together a whole host of resources and promoting local development and the integration of poor families. Thus, the new mine should bring about an improvement in infrastructure, the establishment of small and medium enterprises, and the development of an agricultural market for the more isolated areas. A significant portion of production from
the project area is already being exported to Fort Dauphin. It must now be hoped that, with the support of the authorities and of the local and regional organizations, the populations of the region – the Bara, Antandroy, Antanosy and recent immigrants – also benefit from these investments and are able to make their environment green, as was done in the Upper Mandrare River Basin.

Rome, October 2008
Benoît THIERRY
IFAD’s Country Programme Manager for Madagascar

***

In the deep south of my country in 1991, there was great starvation and death. The government launched an appeal to different donors, such as the World Food Programme, the World Bank and the International Fund for Agricultural Development (IFAD). IFAD expressed interest in looking at the area. I met IFAD’s formulation mission in 1994 which was under the instruction of the CGDIS (the General Commissariat for Integrated Development of the South), when I was working with the World Food Programme during its interventions. WFP worked especially in the south where drought was common. A distinct feature of the Upper Mandrare River Basin is that there are many tributaries cascading from the hills, and therefore a high density of water resources. Because of the drought, which happened four or five years in a row, the mountainous regions became food-insecure. The mission concluded that the government and IFAD could launch a project to alleviate poverty and fight the food insecurity of the people in this area. At the time, about 60 communities were living in an extremely difficult situation.

In 1996 after the loan was negotiated and became effective, the government and IFAD launched the project. The main objective was to help the poor people return to their standard of living in the area, which was landlocked and had virtually no infrastructure, especially for the use exploitation of water resources. The communities themselves were not organized. The long period of
drought had brought with it an attitude of resignation and a loss of cohesion, communication and collaboration.

This first phase of the project was to satisfy basic needs in terms of infrastructure, and a project formulation mission was conducted for nine or ten communes. However, sapphire was discovered, and as a consequence many people abandoned their agricultural activities. The IFAD formulation mission was somewhat apprehensive of this phenomenon so it limited the project area to four communes (these became five communes after one commune was split into two further to administrative reform). In these communities, IFAD and the government launched three project components: infrastructure, organization of groups, and project management, with some sub-components such as vaccinations, dams and health centres.

We tried to design and implement the project as an integrated project. For example, if we launched some activities in one community, such as dam construction to increase rice yields, we tried to rehabilitate the road as well, to help people reach the market in Tsvory, to sell their products outside of their immediate area. At the same time, we tried to link the project and its population with other stakeholders within the region, for example with World Bank projects. Our approach was highly participatory. The workplan, activities and budget were based on the people’s needs. We asked the people, the communities, we discussed directly with them and we helped them to make a plan of how to address their needs themselves.

Admittedly, people hesitated to trust us in the beginning, because donors and projects had already come, talked to them, told them they would help them face this hard situation, and then didn’t come back. But we came back, and with a large staff. We launched what we called “incentive actions” based mainly on old dam rehabilitation. Once this started and worked, others came wanting the same thing. This helped us to launch the participatory approach and to begin to see the local populations work together again.
During implementation, the participatory approach became broader and broader in its application. We had to implement new subcomponents, and we tried to integrate these with other projects. For example, we requested support from the Ministry of Public Works in our efforts to extend and improve the network of roads leading in and out of the project area.

Throughout our activities, we needed strong tools to communicate with the people. This was a particular challenge because the project area was very large, with many isolated communities, and 80 per cent of the adults were illiterate. We created a small Communication Unit, and with some extra help we established a radio station, which is one of the most effective ways of reaching the people. However, it was small, and we were not able to reach all four communes, which are located in a very mountainous area. At the same time, when people from the different communes came to Tsivory and saw the radio station, everyone wanted it.

Participation was certainly important, but taking care of the staff is very important too. Some of the project staff left the project because they felt so isolated. The way to retain staff on site was to allow them to go home to their family once a month. It is not only a matter of investment in terms of infrastructure, but also the challenge of getting people to work together and face the development of their own lives together and to contribute to their own development. This is the way of sustainability.

In the beginning, when we were launching these “incentive actions”, some of our colleagues in the communes were waiting for project staff to arrive and simply tell them what they wanted. But we changed our strategy to become more proactive. We went to the people and asked them what they wanted. That is one of the specific aspects of this project, which had its base at the geographical centre of the problem. It was very close to the beneficiaries. I don’t like that word. “Partners” is better. That is an example of improving our approach. Just that word. This was a main specification of the project – we considered farmers wiser men and real partners.
There were some weaknesses. We are human after all. For example, we didn’t carry out a very in-depth survey at the beginning of the project, in order to understand the different characteristics of the people. The survey we did took a long time to compile, but we didn’t use enough resources. We had a huge document, but it wasn’t enough in terms of quality or content. We didn’t have a proper monitoring and evaluation system, which is one of the tools that every project should have at the outset.

Another weakness, or at least a difficulty, was working in the area itself. The road network was very bad, so it was extremely difficult to do certain work – like building bridges and dams. According to national and IFAD procedures, we have to choose the lower price when bids are tendered for different work and that procedure can bring its own problems along with it. For example, we had to cancel some contractors during the implementation of the road construction component because of problems with providing cement, gravel and other materials.

During the second phase, we intensified our participatory approach, holding many meetings with men, with women, with youth, with village elders, with project staff – with everyone. By the end of the formulation of the second phase in 2000, we had extended the area to include six more communes. We also extended our activities and our partnerships with other institutions. For example, we had two large protocols with the Ministry of Public Works to rehabilitate about 100 kilometres of road, which helped the project’s efforts to create a market orientation among the local farmers. Another protocol was with a World Bank project, called Intervention Development Fund, which helped us to build schools and health centres in the other five communes.

One interesting aspect of the process was finding a way to enable all the commune development organizations and the like to reach agreement among them about the work plan. Every commune wants 10 dams, 20 vaccination centres, 100 kilometres of roads, etc. But through this highly participatory approach it was up to them, not us, to define their criteria for priority and selection. Once everyone agreed on these criteria, we launched a discussion about
priorities and then consolidated the workplan. The mayors and presidents of the local development committees presented the development plans themselves to the orientation committee. The role of the project staff came afterwards, when the orientation committee agreed on the programme of each commune. Our role was then to present the process and the technical way to implement and achieve the activities. In essence, we placed the farmers between the committees and us. The farmers are the decision makers of their own needs. We certainly acted as advisors in the project. But they were the main decision makers, and we provided technical advice and guidance. Beneficiaries also contributed 20 per cent. It was quite a learning experience in terms of capacity and capacity-building, and a very interesting time, this preparing and discussing.

Nothing is perfect. However, we hope that our project is already a tree that will be able to now take care of itself, and to continue growing and expanding of its own. As they say in a French proverb: “As long as there is life, there is hope!” We always have to be optimistic!

October 2008
The Honourable Harifidy Janset Alin Ramilison,
former Deputy Minister of Agriculture, the Government of Madagascar, and First PHBM Project Director
This book is about poverty. But it is also about incredible wealth – wealth of spirit, of generosity, of humanity. The many residents of the Upper Mandrare River Basin – who welcomed me, fed me, fêted me, shared their lives with me and relinquished so much of their precious time to diminish my ignorance and feed my curiosity – are about such wealth. They deserve far more than a simple thank you, as they are inspired and inspiring.

I would like to thank all of the project staff, who spent many hours with me in the field and at the project base explaining in simple and honest terms the different aspects of the project and providing me with volumes of technical documentation, which they also helped me navigate in order to find the life within the statistics. In particular, to Andrianiainaosa Rakotondratsima, Isetramaherizo Ravoavy Ramiakatravo, Alain Razafindratsima and Assefa Woldeyes, who painstakingly organized every visit to each village and every interview with project beneficiaries and partners, and who unflinchingly translated every conversation from Malagasy into French. But most important were the endless hours they spent and the indefatigable effort they made to help me feel the lives of others almost as much as I feel my own. They were my bridge between “my world” and this “other world”.

Finally, I would like to thank Benoît Thierry, IFAD’s Country Programme Manager for Madagascar, for setting me loose, and virtually untethered, to write this book, with one simple and steadfast edict: capture it!

Yes, humanity abounds.

October 2008
Brett Shapiro
CHAPTER 1

THE RED ISLAND, ITS PEOPLE
AND ITS ECONOMY

In an ocean of distress, the Red Island also sometimes provides hope...

This is the story of a 13-year experiment in rural development to resurrect a former agricultural breadbasket in the deep, dry south of Madagascar.

This story is a journey into the heart of rural development: beyond the 1991 drought and food aid that followed, how the Malagasy Government and the Commissariat au Développement Intégré du Grand Sud (CGDIS) were able to find long term solutions and partnerships and operations necessary for the development of the Mandrare River basin.

The PHBM is an oasis in the desert ... The Mandrare flows through a vast caldera partially collapsed. Its basin is surrounded by mountains to the north (leading to the highlands of Madagascar), bordered to the west by the desert areas of the Androy whose populations have been supplied with food aid for 30 years and to the south, we find the dry endemic forest, so typical, that leaves room for industrial plantations of sisal before the mouth of the River Mandrare. Finally to the extreme south-east, on the Indian Ocean beaches, there is the new mine of ilmenite (titanium oxide used in industry) of Fort Dauphin...

The Red Island – history in a nutshell

Between 120 and 165 million years ago, a massive chunk of red clay soil earth broke away from the super-continent Gondwana, forming a Great Red Island between Africa and Asia. Here there were damp rainforests, semi-arid and spiny deserts and bleak highlands.
A unique blend of African and Asian landscapes and cultures is usually one of the first things that the visitor recognizes. In the zebu cattle-raising regions of the south and west, for example, the savannas resemble those of East Africa. In the central highlands, however, irrigated and terraced rice fields evoke images of South-east Asia. These contrasting images and unique combination of African and Asian civilizations lie at the heart of the debate over the origins of the Malagasy people.

According to one theory, about 2,000 years ago peoples from the Indonesian archipelago migrated along the coast of south Asia, across the Arabian Peninsula into the east coast of Africa and, finally, across the Mozambique Channel into present-day Madagascar. This movement occurred over several generations and, because of the gradual interaction between Asian and African populations, created a distinct Malagasy people and culture. A second theory argues that the Malagasy resulted from a series of migrations by different peoples over time. According to this theory, migrants from the Indonesian archipelago arrived first and eventually settled in the central highlands, followed by the arrival of African peoples as a result of normal migratory trends and the rise of the slave trade.

1. **Milestones in Madagascar’s history**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>500–600</strong></td>
<td>First (presumed) settlement of Madagascar</td>
</tr>
<tr>
<td><strong>1500</strong></td>
<td>Diego Dias “discovers” Madagascar</td>
</tr>
<tr>
<td><strong>1650s</strong></td>
<td>Formation of the Sakalava kingdoms</td>
</tr>
<tr>
<td><strong>1700s</strong></td>
<td>The coasts become a prominent European pirate base</td>
</tr>
<tr>
<td><strong>1716</strong></td>
<td>Confederation of the Betsimisaraka people on the east coast</td>
</tr>
<tr>
<td><strong>1777</strong></td>
<td>Mayeur, a French slave trader, is the first European who penetrates the mysterious interior highland and delivers a report on the isolated Imerina kingdom</td>
</tr>
<tr>
<td><strong>1780</strong></td>
<td>Andrianampoinimerina unifies the Merina people and starts the extension of the kingdom</td>
</tr>
<tr>
<td><strong>1795</strong></td>
<td>Antananarivo designated as the Malagasy capital</td>
</tr>
<tr>
<td><strong>1810</strong></td>
<td>Radama I designated Merina king and rules until 1828, modernising the country</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
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</tr>
<tr>
<td>1828-61</td>
<td>Rule of the “pagan Queen” Ranavalona I. By the 1830s the Merina are in a position to dominate over most of Madagascar</td>
</tr>
<tr>
<td>1835</td>
<td>Christianity outlawed in Madagascar and most Europeans leave Madagascar</td>
</tr>
<tr>
<td>1861</td>
<td>Radama II becomes Merina king. Freedom of religion proclaimed and missionaries are re-admitted into Madagascar</td>
</tr>
<tr>
<td>1883</td>
<td>Ranavalona III becomes queen. The Franco-Hova War starts and ends in 1896. Madagascar becomes French colony</td>
</tr>
<tr>
<td>1896</td>
<td>First stage of the Malagasy Nationalist Movement, the Menalamba, started</td>
</tr>
<tr>
<td>1897</td>
<td>Abolition of the Merina monarchy by the French. Queen Ranavalona III is exiled</td>
</tr>
<tr>
<td>1942</td>
<td>British troops occupy Madagascar</td>
</tr>
<tr>
<td>1947</td>
<td>Malagasy nationalist rebellion suppressed in blood</td>
</tr>
<tr>
<td>1960</td>
<td>Madagascar achieves full independence (26 June). Philibert Tsiranana becomes the President of the First Republic</td>
</tr>
<tr>
<td>1973</td>
<td>End of the first Republic and Revolution of Didier Ratsiraka in 1976 (AREMA)</td>
</tr>
<tr>
<td>1993</td>
<td>End of 2nd Republic. Popular Movement, election of Albert Zafy and re-election of Didier Ratsiraka in 1997</td>
</tr>
<tr>
<td>2002</td>
<td>Marc Ravalomanana (parti TIM) elected, and re-elected in 2006</td>
</tr>
</tbody>
</table>

**Ethnic patchwork**

Scholars have traditionally described Madagascar as being divided into 18 or 20 ethnic groups, each with its own distinct territory. However, unlike most African countries, the population is united by one local language: Malagasy. Moreover, despite significant variations, important cultural elements unify the Malagasy people and give them a “pan-islandic” identity. These include a system of kinship in which descent can be traced through either the paternal or the maternal line. The same kinship terms are used by all Malagasy people. A second important element is the centrality of respect for the dead (*razana*) to the social, moral and
religious life of the people. Tombs and the ceremonies related to them are prominent features of both the Malagasy landscape and the way of life of the people. A third important feature is the division of Malagasy societies into three strata: nobles, commoners and descendants of slaves. Other common elements include the circumcision of children, the practice of astrology and divination, and certain concepts associated with authority, such as **hasina** (sacred, or life-giving, power), which legitimate the position of political and familial authorities. Most important is the **Fihavanana** (which means Family Parenting) which regulates family support in order to achieve harmonious relationships and solidarity.

The Merina, whose name means “those from the country where one can see far” (an eloquent yet important reference to their control of the central highlands) are the most numerous of the Malagasy peoples, representing more than one quarter of the total population (26.2 per cent). Merina territory originally consisted only of the lands encircling the current capital of Antananarivo, but as they expanded, in the 18th and 19th centuries, the Merina almost succeeded in unifying the entire island under a centralized administration. During the 20th century, many Merina have settled in other parts of the island as government officials, professionals and traders, and all the major cities have sizable Merina populations.

The Betsimisaraka, “numerous and inseparable”, constitute the second largest (14.9 per cent) group of Madagascar’s population and clearly are the most numerous on the east coast. Their territory extends along the coast in a narrow band from the Bemarivo River in the north to the Mananjary River in the south, a distance of some 640 kilometres. The Betsimisaraka have traditionally been traders, seafarers and fishers, as well as cultivators of the tropical lowland areas.

The Betsileo, who constitute 12.1 per cent of the population and live in the central highlands south of the Merina in a region of about 40,000 square kilometres, have a culture similar to that of the Merina. They are reputedly the best farmers in Madagascar, building rice terraces on the slopes of steep hills similar to those of Indonesia or the Philippines. They were united in the late 18th century by King Andriamanalimbetany of Isandra, one of the four Betsileo royal principalities, but were incorporated into the Merina
kingdom in 1830. The Betsileo share something of the privileged position of the Merina, constituting a significant portion of Madagascar’s official, professional, and skilled artisan classes.

The Tsimihety constitute 7.3 per cent of the population, and their lands are located north of Imerina. Their name, “those who do not cut their hair”, refers to the refusal of their forebears in the early 18th century to submit to the Sakalava custom of cutting their hair when the king died; rather, they migrated to the unsettled north-central region of the island. They are described as the individualists of the island.

The peoples of the west coast, known as the Sakalava (“people of the long valley”), constitute 6.2 per cent of the population. Their former kingdom is a large territory of some 128,000 square kilometres and extends in a broad band up the coast from the Onilahy River in the south to Nosy-Be in the north. Several elements in Sakalava culture bear a strong resemblance to those of Africa. The Sakalava are also a pastoral people, and those who live in the hinterland keep large herds of zebu cattle that outnumber the human population. The Sakalava are perhaps best known for their seafaring skills.

In the south and north-east are ethnic groups who trace their origins to Islamic traders of Arab origin who settled on the coasts from the 11th century, and are known as Antalaotra (“people of the sea”) and the Antaimoro (“people of the shore”). They introduced the first system of writing, based on Arabic script in the royal court. These books, the sorabe (from the Arabic sura, meaning “writing”, and the Malagasy be, meaning “big” or “great”), which were inscribed in ink on special paper made from beaten wood bark, dealt with astrology, divination, medicine and historical chronicles.

Other less populous ethnic groups ranging from 1 to 5 per cent of the population include: the Antaisaka, the Mahafaly, the Antaifasy (“people of the sands”), the Antakarana, the Antambahoaka, the Tanala (“people of the forest”), the Sihanaka (“people of the lake”), and the Bezanozano (“many little braids”).

In the Upper Mandrare River Basin, where the project was implemented, there are three primary ethnic groups. The Antandroy make up 5.4 per cent of the population, and their territory lies to the east, a desert area full of cacti and thorn bushes. The terrain makes their name, translated as “people of the thorns”, especially apt. The
Antandroy depend upon cattle-raising for their livelihood. Limited cultivation is also practised. The Antandroy region is especially poor, causing workers to migrate to other parts of the island to make a living. Along with cattle, the prickly pear cactus is vital to the people’s livelihood. Its spiny growths have served as a source of water and nourishment and as a means of defence against outside invaders. North of Androy live the Bara (3.3 per cent of the population), who are divided into five clans in the dry regions at the southern end of the central highlands. They keep large herds of zebu cattle and are the most pastoral people in Madagascar. They also have a reputation for being valiant warriors. The third ethnic group is the Antanosy (“people of the island”), who live in the extreme south-eastern part of the island (Anosy region) and make up 2.3 per cent of the population. In addition there is a steady influx of immigrants from outlying areas, attracted by the newfound productivity of the Mandrare area.

Geography, the agricultural sector and the economy

The island of Madagascar has a total area of 587,841 square kilometres. Its population rose from 6.7 million in 1970 to about 20 million in 2008, thus growing by about 3 per cent a year, or doubling every 25 years. Population density varies greatly from region to region, with half the population living in a third of the country’s land area in the central and eastern regions, where the density exceeds 50 inhabitants per square kilometre, while the density is lower in the south and north, and less than 10 in the rest of the country.

With a view to halving poverty by 2015, the Government set itself the goal of an annual growth of 6 per cent in gross domestic product (GDP) through the Madagascar Action Plan. Although lower than the Government’s expectations, growth was 4.6 per cent in 2005 and 6.2 per cent in 2007, which is quite a performance, given the high cost of petroleum, the droughts of the

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1 IFAD Rural Poverty Portal www.ruralpovertyportal.org
past two years and the damage inflicted on infrastructure, public services and economic activity by the cyclones that repeatedly struck the island for centuries.

Agriculture is the basis of the Malagasy economy, contributing 26 per cent of gross national product (GNP). On the other hand, the mining of such elements as ilmenite, alumina, nickel and cobalt, and precious and semi-precious stones, started in 2006 and is expanding fast, as are the tourist industry and textile free-trade zones.

Rice is the Malagasy staple food and accounts for nearly half the country’s agricultural production. Although it is cultivated throughout the country under both rainfed and irrigated systems, the recent shortage (2005) highlighted the recurrent shortfall in the country’s production and the complexity of the rice market. However, the rise in prices resulting from this shortage on the local market immediately led to an increase in the area’s own, indicating farmers’ ability to react quickly. Every year, the Government announces that it is importing between 50,000 and 100,000 tonnes of rice to cover the country’s needs. The country also produces several export crops, particularly vanilla, coffee, pepper, tobacco, groundnut, sisal, clove and ylang-ylang.

Madagascar has seen its inhabitants’ standard of living decline dramatically over the past 25 years. Between 1970 and 1995, per capita income fell by 40 per cent, while the population doubled, reaching more than 18 million. Despite the marked economic recovery that followed the opening up of the regime in 1991 and then the boost provided by the new regime after 2002, the Malagasy population is still extremely poor: according to the most recent data, published in June 2008 by the Government, 66.3 per cent of the island’s inhabitants live below the poverty threshold. In 2006, the per capita gross national product was a mere US$280.

In 2007, the country was ranked 143 out of the 177 countries classified according to the human development index of the United Nations Development Programme (UNDP). Malagasy life expectancy is only just over 55 years, and 84 out of every 1,000 children die before the age of five. The lack of hygiene, chronic malnutrition and the lack of access to drinking water encourage the
development of such infectious diseases as respiratory ailments, tuberculosis and hepatitis.

2. National statistics

<table>
<thead>
<tr>
<th>Statistical Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population (million), 2003</td>
<td>16.9</td>
</tr>
<tr>
<td>Population density (people per km²), 2003</td>
<td>29.1</td>
</tr>
<tr>
<td>Number of rural poor (million)</td>
<td>8.2</td>
</tr>
<tr>
<td>Poor as % of total rural population, 1999</td>
<td>76.7</td>
</tr>
<tr>
<td>GNI per capita (US$), 2003</td>
<td>290.0</td>
</tr>
<tr>
<td>Population living below US$1 a day (%), 2001</td>
<td>61.0</td>
</tr>
<tr>
<td>Population living below US$2 a day (%), 1999-2001</td>
<td>85.1</td>
</tr>
<tr>
<td>Population living below national poverty line (%), 1999</td>
<td>71.3</td>
</tr>
<tr>
<td>Share of income or consumption lowest 20%</td>
<td>4.9</td>
</tr>
</tbody>
</table>

*Source: World Bank, via IFAD Rural Poverty Portal*

Poor people in Madagascar are basically members of farming families in rural areas. Almost 80 per cent of the country’s inhabitants live in the countryside, where living conditions have been steadily declining in recent years, particularly in terms of transport, health, education and market access. Poverty is also more prevalent in these areas compared to urban centres.

Malagasy farmers practice subsistence agriculture, producing barely enough to feed their families. The average size of a family plot is 0.8 hectares and is shrinking. With the growth in the island’s population, this situation has only worsened, so that half of Malagasy children now show signs of chronic malnutrition. The isolation of rural inhabitants also helps to make living conditions particularly hard. Roads are generally in a poor state and are unevenly distributed over the country.
The government’s commitments to eradicate rural poverty

The Government of Madagascar published its Poverty Reduction Strategy Document in 2003, the fruit of a participatory process involving many actors from Malagasy society – the administration, elected officials, political parties, the business sector, civil society, non-governmental organizations (NGOs) and professional and religious groups. The poverty reduction strategy was updated in 2005, with the aim of incorporating the objectives of the document entitled “Vision Madagascar Naturellement”, which proposed transforming the subsistence economy into a market economy by developing industries and services linked to the agriculture sector, and also by boosting exports and developing commodity chains.

In 2007, the Poverty Reduction Strategy Document was replaced by the Madagascar Action Plan for the period 2007-2012. This document presents the government’s new strategy for stimulating economic growth, reducing poverty and achieving the Millennium Development Goals (MDGs). This strategy was adopted by donors and is now being implemented.

Between now and 2012, the government has undertaken to establish responsible governance, strengthen the transport and communication infrastructure network, transform education, develop rural zones, invest in health, family planning and combating HIV and AIDS, stimulate economic growth, establish environmental protection plans and boost national solidarity. Each of these commitments is subdivided into challenges that must be met by 2012.

The government also updated its National Action Plan for Rural Development (PNDR) in 2005 in order to speed up the growth of the rural economy. The government’s priorities include integrating rural production – especially that of disadvantaged regions – into the market economy, developing poles of growth based on comparative regional advantages and promoting commodity chains with an eye to export possibilities. In 2008, the PNDR was entirely revised to give birth to the Agricultural Sector
Programme (PSA), adopted during the roundtable of 8 and 9 June 2008 between Madagascar and its technical and financial partners.

The Madagascar Action Plan (MAP)

The Government of Madagascar created the Madagascar Action Plan (MAP), a bold five-year plan that establishes direction and priorities for the nation from 2007-2012. The MAP is divided into a number of commitments, with each commitment presenting several challenges to be addressed by 2012.

Commitment Four is entitled Rural Development and a Green Revolution and is comprised of the following six challenges:

- Secure land tenure
- Improve access to affordable rural financing
- Launch a sustainable green revolution
- Promote market-oriented activities
- Diversify rural activities
- Increase the agricultural value added and promote agribusiness.

Each challenge includes a description of the current reality followed by the goals and strategies to be achieved. Priority projects and activities are also listed, along with indicators to measure their success.

A full copy of the MAP can be obtained at: www.map.gov.mg and www.madagascar-presidency.gov.mg

IFAD’s support in Madagascar

The International Fund for Agricultural Development (IFAD) is an international financial institution and a specialized United Nations agency dedicated to eradicating poverty and hunger in rural areas of developing countries. Through low-interest loans and grants, IFAD develops and finances programmes and projects
that fit within national systems and respond to the needs, priorities and constraints identified by poor rural people themselves.

IFAD has funded 12 rural development projects in Madagascar since 1979 for a total of US$140 million. Its strategy for 2007-2012 aims at promoting pro-poor regional development using inclusive approaches so that more vulnerable households can benefit from rural economic growth and achieve better livelihoods and has the following three main thrusts:

- Establishment of management mechanisms for risks associated with agricultural production (climate change, land tenure …) by improving the access of poor rural people to resources and services (extension, credit …).
- Improvement of poor farmers’ income through diversification of agricultural activities, development of rural microenterprises and improved market access.
- Professionalization of poor producers and their organizations so as to include them in economic development and policy dialogue.

In 2008, four of IFAD’s projects are running:

- **PPRR: Rural Income Promotion Programme** ([www.pprr.mg](http://www.pprr.mg)). This programme, located on the east coast, has the aims of improving small producers’ access to markets by strengthening commodity chains, and helping them to capitalize on their produce through partnership contracts and market access centres.
- **Ad2M: Project to Support Development in the Menabe and Melaky Regions** ([www.ad2m.mg](http://www.ad2m.mg)). This project is located on the west coast and locally implements the government’s reform of the land-use rights and titling system, combining such action with interventions to optimize watershed production.
- **PROSPERER: The Programme of Support for Rural Microenterprise Poles and Regional Economies** ([www.prosperer.mg](http://www.prosperer.mg)). This programme provides business development services to overcome enterprise bottlenecks and is
transforming traditional clusters into modern value chains with the aim of strengthening professional business organizations.

• **PHBM II: Upper Mandrare River Basin Development Project Phase II** ([www.phbm.mg](http://www.phbm.mg)). This project (Phases I and II), to which this book dedicates itself, aims to boost food production in part of the dry region of the far south and to help strengthen the food security of rural inhabitants and improve their living conditions.

In the coming years, two other operations are currently being prepared: AROPA, the Support Project for Farmers’ Organizations and Agricultural Service Centres and a future sector-wide approach to agriculture to support PSA.
“TSY MITOLIKE” AND THE BIRTH OF A PROJECT

Within an hour’s drive from Madagascar’s seaside city of Fort Dauphin, any sense of an island kept in check by majestic crashing waves dissipates. Humidity shifts to aridity, lush greens lose their lustre, fading to duller shades on flatter terrain as the mountains recede. Fewer people, a slower pace, harsher light and landscape, more extreme. But less life? Hardly! Villages composed of one-room wooden or mud structures topped by thatched roofs are clustered regularly on the red dusty earth, and set back from the road, camouflaged among clusters of dense cacti. Children are out and about, spinning fantasies and games from the most insignificant object – a twig, a pebble, a water bottle cap – as only children can do. The residents of these villages are anything but camouflaged: their clothes are brilliant colours, the flowers in this seeming desert. But a desert it is not. A bend in the road leads to a surprise rivulet, emptying into a modest pool. Men are bathing in it, women are washing clothes in it, children are splashing in it, and goats are drinking from it. Yes, there is life. Teeming around this small trove of water. But it is not enough. The eye gazes beyond the pool to the virtually endless plain of the Upper Mandrare River Basin, a six-hour, 220-kilometre rough drive from Fort Dauphin. The land is thirsty. The people are thirsty. And they are hungry.

Or they were. The Upper Mandrare River Basin Development Project (Projet de mise en valeur du Haut Bassin du Mandrare, or PHBM) was initiated in 1996 as a response to the severe food crisis that hit all of southern Madagascar in 1991 and 1992. Recurrent famine, or “kere”, is no stranger to the area, which has experienced it for centuries. In this particular episode, the areas hardest hit were the coastal areas of the Androy region and the
Amboasary District in the Anosy region. The famine was called “tsy mitolike” (literally, “one eats without looking around”), which so succinctly captures the individual struggle for survival. Isolation, the deterioration of anything resembling a productive infrastructure and consecutive years of drought had all but destroyed the productive capacity of the area, which had been known as the “grenier à riz” (breadbasket or rice bowl) of the Anosy and Androy areas. It was in this bleak context that the PHBM was established in five communes of the Upper Mandrare River Basin (Tsivory, Elonty, Mahaly, Marotsiraka and Tomboarivo) in 1995. The objective of the five-year project was to reduce rural poverty and to ensure food security of the population. The results achieved and the important potential of the area resulted in the launching of a second phase in 2001, which extended the area of intervention from five to 11 communes and had a very strong focus on local development implemented through decentralized territorial entities, namely communes and villages. Because of the dramatic increase in production, particularly of rice, onions and garlic, the second phase also concentrated on creating market linkages. In both phases, the “institutional” arrangements were the same. IFAD, as a donor, provided funds to the government, which was responsible for implementing the project as articulated in the loan agreement and the project document. A third independent entity (UNOPS, the United Nations Office for Project Services) supervises the project’s activities and administers the loan.

When the project began in the first five communes in 1996, and then in another six communes in 2001, the level of degradation of the social infrastructure was daunting: fewer than 8 per cent of the 96,000 inhabitants of the area had access to safe drinking water, the commune of Tsivory was the only one that had a health centre, the illiteracy rate ranged between 70 and 95 per cent, and primary school attendance was less than 30 per cent. In such conditions, it was inconceivable to undertake any restoration of the productive capacity of the area without first assuring access by the local population to basic equipment and social services. Therefore, in addition to IFAD funding dedicated to agriculture and transport, the PHBM worked with partners (e.g. Fonds d’Intervention pour le Développement (FID), UNICEF, the Ministries of Heath, Education, Energy) to improve access to basic social services: water
points were set up, existing water conduits were rehabilitated, and schools and health centres were built. By 2002, 34 per cent of the local population had access to safe drinking water; nine of the 11 communes had a basic health centre; and 13 public schools had been built (by 2006, primary school enrolment had risen to 47 per cent).

In tandem with the construction or rehabilitation of these infrastructures, the project spearheaded a sensitization campaign throughout the communes to encourage the local population to make use of these social services. This extensive campaign achieved impressive results: the use of contraception increased by about 27 per cent; more than 70 per cent of pregnant women had prenatal doctor visits; and young people were taught about sexually transmitted diseases. In addition, functional literacy training gave more than 8,000 adults the opportunity to learn how to read, write and make mathematical calculations and use this knowledge in their associations.

Once these basic social services had improved, one of the main objectives of the project was to contribute to the increase in income of the local population. Many efforts were undertaken to increase the surface area used for rice cultivation and to optimize the use of water that was available. The areas devoted to rice cultivation increased almost five times, with almost 5,200 hectares now being used for cultivation. One of the important effects of this increase was access to land by the poorest inhabitants: 30 per cent of those who did not own irrigated land in 2002 became rice producers. Efforts were also made to improve productivity (better agricultural techniques to intensify production, and the use of agricultural materials). The results were indeed significant: from 1.5 tonnes per hectare in 2002 to 4.36 tonnes per hectare in 2006. The PHBM also attempted to diversify the income potential of the local population by increasing the production of onions and garlic, for which there are currently 7,000 producers, of whom more than 4,000 are women. The improved access to the area with 270 kilometres of rehabilitated roads meant that people and products could circulate more easily. The weekly markets are better furnished and prices have decreased because of greater competition. Competition between collectors has also resulted in better profits for the producers.
The development of microfinance services, which began in 2004, has paved the way for new income-generating activities, offering a variety of financial products and services to meet the diverse needs of the local population, including special loan products for women.

Taken together, the project activities have led to significantly increased incomes: between 2002 and 2005, the average income of the inhabitants increased by 74 per cent. The economic development of the Upper Mandrare River Basin was not possible without a guarantee of food security for the local population. With 22,000 tonnes of rice produced in a normal year, food security has been achieved for most of the people. Still, some elements of food insecurity remain. There are two communes – Tranomaro and Ranobe – whose food security remains fragile because of their low potential with respect to irrigated agriculture, especially during dry seasons. And drought is still a threat, although a lesser one. Despite the heavy drought of 2006, 13,000 tonnes of rice were produced, which was sufficient for the area’s 130,000 inhabitants. Overall, the Upper Mandrare River Basin is once again becoming the “grenier à riz” of the Anosy and Androy regions thanks to the efforts made by the PHBM over the past 12 years.

There were challenges, successes, failures, lessons learned. The chapters that follow will explore the evolution of the project in more detail, taking a look at some of the main activities that were introduced to – and ultimately “owned” by – the villages and communes. It is hoped that these chapters will give resonance to the terms “enabling” and “empowering” of people, which are the key to sustainable development.

All Roads Lead to…

The drive from Fort Dauphin to the project area of Tsivory is about 220 kilometres and takes six hours (before 2002, it used to take 14 hours). There is little traffic at all times – a rare truck loaded with merchandise or passengers, an occasional ox-drawn cart and, more frequently, bicycles. The primary users of the roads are pedestrians.

The first stretch of road is the “new” road, extending from Fort Dauphin inland for about one hour. At that point, the asphalt disappears in the middle of the vast commercial sisal plantations,
and the road has the appearance of what was once an asphalt road but whose asphalt surface was simply peeled off. The interesting thing is that the asphalt road is the most difficult to negotiate. Not having been maintained, it takes on the aspect of an unending obstacle course of potholes and crevices. In fact, most drivers seek out the un-asphalted sections on the sides to drive on.

Driving on the un-asphalted roads is, ironically, much smoother, whether they are gravel roads or red earth roads. It’s as if these surfaces accommodate the elements more gracefully, eroding with mild dips and waves in the surface, rather than pits and canyons.

Before the PHBM could begin to work, it had to be able to get to the project area. From the outset, rehabilitation of the roads was a must, if Tsivory was to develop sustainably and be connected to the rest of the country.

Within the project area, the PHBM rehabilitated 51 kilometres of feeder roads through community work, 140 kilometres of provincial road (Route d’intérêt provincial – RIP) in collaboration with the Sectorial Transport Programme, and 79 kilometres of commune roads (Piste d’intérêt communal – PIC). (The World Bank, through the Sectorial Transport Programme, rehabilitated 100 kilometres of road between Amboasary and the project area.) The project also put in place a users’ association for RIP 107 and eight users’ associations for the feeder roads with the assistance of a specialized NGO, Lalaina. The associations were trained on site in road construction and maintenance and are responsible for managing the roads to the extent that their modest means allow them: setting up rain barriers, assigning management responsibilities for different sections of the road to different fokontany, etc.

The project area was opened up in two directions: southward toward the regional capital of Fort Dauphin, and westward toward the traditional commercial and trading centres (e.g. major livestock markets) and approaching the national Route 7.

The new roads have made quite a difference. Travel time to Fort Dauphin has been cut in half. Travel time in the western direction has also been cut in half. Only 20 kilometres of road need
to be built along RIP 107 in order for the project area to be accessible to National Route 13, and 8 kilometres along Route 13 need to be rehabilitated (the stretch of road is virtually unusable for six months of the year). Unfortunately, further construction has been suspended due to exhaustion of funds, and the willingness of the residents to support continued construction are not being met with the funds required to do the work, which will probably need to come from the regional level if the work is to continue.

### Improving Accessibility: making rural development efforts profitable

To accompany the realization of its development activities, the PHBM allocated a significant sum to increasing access to and from the project area. One result is that farmers are increasingly more motivated to increase production since traders can now reach them to collect their agricultural products.

In the early hours of the morning, merchants take their place in the market of Ebelo, 60 kilometres to the south of Tsivory. They spread out their merchandise, evenly on the ground: stable products, medicines and tablets, medicinal plants, various kitchen utensils and second-hand clothing. Along the market, clothes and vibrantly coloured fabrics are hanging on stalls. All sorts of products now can be found in the Upper Mandrare River Basin. “The rehabilitation of minor roads and tracks carried out by the project has allowed all sorts of merchandise to be brought to the local market,” said Jeanine Ravelonjanahary, President of the women’s association of the rural district of Mahaly, 45 kilometres to the east of Tsivory.

A total of 29 per cent of the Phase II budget of the PHBM was allotted to improving the accessibility of the region – approximately 8 billion ariary\(^2\) to rehabilitate the 140 kilometres of provincial road, 79 kilometres of district road and 51 kilometres of

\(^2\) US$1 equals approximately 1,800 ariary.
feeder roads. Local people take part in the reconstruction and rehabilitation. They were well aware that their isolation was a major obstacle and in order not to have to repeat a similar situation, users’ associations have been established to ensure that these communication routes are maintained.

Improving accessibility to and from the region has allowed a free flow of the harvest into and out of the Upper Mandrare Region. Following the rehabilitation of the commercial and feeder roads, the population and potential customers can sell and buy at commune markets across the Mandrare. Provincial roads permit the export of products to other markets. “I take rice to sell at different markets, most often to Amboasary, Ambovombe, Taolagnaro (Fort Dauphin) and sometimes to Toliara (Tuléar),” said Simbola Janvier, a resident of Tsivory. This situation could not have been possible in the past, “Not only was the road in a bad state, but the harvest was also insufficient,” added Mamihery Ravelojaona, Manager of the project’s Commercial Unit.

Improving accessibility also promotes a greater circulation of lorries and brush-taxis (taxi-brousse) in the Mandrare. As a result, the Upper Mandrare River Basin is regaining its former reputation as the “rice silo” for the regions of Anosy and Androy. Even the vegetables consumed in these two regions come from the Mandrare: Razafindravorina, a woman farmer from Tsivory, is the exclusive supplier of vegetables to a large mining company that has been operating in Fort Dauphin since 2004 and which will remain for the next 30 years.

The existence of the roads that create new channels to and from the market also motivates the farmers to increase their production. One way of accomplishing this is by extending the agricultural area of cultivation. According to Isetramaherizo Ravoavny Ramiakatravo, the Deputy Director of the PHBM, “A wave of new requests has come out of the most isolated areas for agricultural development.” Many farmers are increasing the land surface on which cultivation can take place each year. “Previously a farmer grew onions on a small strip of 5 square metres. Now 30 square metres are being planted with the same crop,” said
Noeliarisoa, a member of the “market garden cultivation” association in the rural district of Tranomaro. Between 2002 and 2003, the cultivated surface area increased by more than 2,000 hectares. During the same period, the cultivated surface area planted with manioc increased from 7,000 hectares to 10,000 hectares. The same is true for the annual production of rice, which increased by 60 per cent between 2003 and 2007. For manioc, the production of 20,000 tonnes was almost doubled between 2001 and 2003, while maize production shot up by almost 8,000 tonnes between 2001 and 2003. Nevertheless, recurrent droughts are causing problems, which is why the project reintroduced sorghum cultivation, which is resistant to shortfalls in rain (in 2007, 1,000 hectares were cultivated).
CHAPTER 3

USING AND MANAGING IRRIGATION,
A COMPLEX PROCESS

In November, the sun begins to appear shortly before 5 a.m. It is the beginning of the hot and, hopefully, rainy season. One wishes for just one more hour of darkness, enough to allow the cooler air to penetrate one layer further into still-heated surfaces. But the roosters and goats sound their pre-dawn wake-up calls: Get to work, before the punishing heat intensifies your labours! The most strenuous labour is performed at this time of day, when the pinkish sky still holds the promise of an occasional breeze of slightly cooler air. Such promise will have evaporated by 7.30 a.m., when the temperature has already climbed beyond 34 degrees and the baking of the red earth begins anew. The arched branches of the acacias and “flamboyants” offer umbrellas of shade during the hottest hours. But any respite is brief. There is far too much to be done: the fields, the animals, the house, the children ... the stuff and staff of life. However, with so little in the way of technology, even simple tasks consume inordinate amounts of precious time and energy, energy that is not easily replenished when food and water are scarce. Slowly, then, when so much of the world is still asleep, the villagers in the Upper Mandrare River Basin have already begun their day, gathering firewood, fetching water, tending their fields and herds, and praying for rain.

Irrigation

The irrigation potential of the Upper Mandrare River Basin has been known for a long time. The area, a former volcano that is one of the largest calderas in the world, divides into six sub-basins that feed into the Mandrare River and benefits from good rainfall
(normally between 800 and 1,100 millimetres per year) when compared to other areas of southern Madagascar. Water flows from several rivers into the Mandrare River and down to the sea, about 150 kilometres away. The valley soils are fertile and well suited to irrigated rice cultivation, which is practiced by 60 per cent of the inhabitants of the area. Some of the irrigation systems date from colonial times. In the 1980s and 1990s, a number of projects tried to rehabilitate the dams (*Opération Microhydraulique* and *Opération Androy*) financed by the European Development Fund). However, the irrigation potential of five of the sub-basins (Andratina in the west, Tsivory in the centre, Manambolo in the east, and Vorokatsa and Tamotano in the centre-east) were not fully exploited. The majority of constructions (1,500 hectares) were degraded, and the traditional dams did not allow for optimal use of all of the available water. Sadly, the Upper Mandrare River Basin saw its productive potential fall dramatically over the years. The infrastructures had not been maintained, the isolation of the area prevented inputs and exchange, and consecutive years of drought that led to the food crisis of 1991-1992 had almost destroyed all the productive potential of the area. Even Tsivory, which used to be a sub-prefecture and had a telephone line, lost its administrative status and fell into poverty and deep isolation.

When the project arrived, the irrigation networks were managed in two ways. The larger networks were managed by a network head who was an official from the Administration, which was responsible for the control of water flows in the main canals and from the main water capture points, and for the mobilization of water users to maintain the networks. The water users were responsible for distributing water through the secondary hydrants. Maintenance was carried out by the water users after the network head had mobilized them. The smaller networks were managed directly by the users. The traditional dams, made of rock, clay and branches, were not very effective. The users were regrouped into an informal association headed by a traditional leader who was the owner of the dam. The members of the association were responsible for the distribution of water and the mobilization of members for maintenance work. Both management methods had problems. The users often found themselves incapable of accumulating funds to assure lasting repairs of the works, and there were problems with
water distribution. In fact, the virtual absence of water users’ associations did not allow for good management of the schemes.

The PHBM began in 1996 by rehabilitating the old schemes in five communes – Tsivory, Elonty, Mahaly, Marotsiraka and Tomboarivo – in an effort to restore the productive capacity of the area. In the second phase, this was expanded to another six communes, where new water systems were constructed to optimize the use of available water. All of the rehabilitation work had to be undertaken by creating a structure of network users to assure effective management of the schemes rehabilitated or newly constructed. The activities focused on optimizing the irrigation schemes and available water, along with introducing improvements in agricultural practices.

Rehabilitation of irrigation schemes

Construction of irrigated fields

The strategy was marked by construction that was simple and inexpensive, easy to manage technically, and compatible with the social environment to guarantee durable irrigation systems. The majority of interventions combined the rehabilitation of old systems and some new constructions, sometimes of very small surface areas to respond to the needs of the marginalized communities – small schemes of 100 hectares or more, and micro schemes of 10 hectares or more. The rehabilitation work consisted of repairing leaks and exit channels in the dams, removing sand deposits, and clearing the irrigation canals so that the water could flow evenly and without obstruction.

The rehabilitation work began by identifying and selecting the sites where the work would be undertaken. The communities themselves formulated the requests for those schemes to be rehabilitated. They determined their needs, prioritized them, and incorporated them into the Commune Development Plans. The PHBM then selected the schemes that would be included in its annual work programme. Before the selection, the project’s
Technical Unit carried out a diagnostic of the schemes to be rehabilitated. The diagnostic, which identified the technical and financial feasibility of the work to be undertaken, was followed by an evaluation to determine the validity of the rehabilitation. At that point, the work could begin. Private enterprises were contracted to perform the work.

The beneficiaries had to participate as well, making a contribution equivalent to 20 per cent of the total cost. Their contribution generally consisted of labour, such as cleaning of and caring for the canals using hand tools such as spades, shovels and pitchforks, and providing raw materials such as rocks and sand.

The costs of rehabilitating the irrigation schemes were estimated at 640,000 ariary per hectare during the first phase of the project, and 1.2 million ariary per hectare during the project’s second phase, when the project was reaching more inaccessible and difficult areas.

**Increase in irrigated area**

The construction carried out enabled the Upper Mandrare River Basin to add 4,169 hectares of irrigable area through a gravity-fed system, the only irrigation method practiced in the area. Irrigated areas went from 1,107 hectares to 5,260 hectares, an almost five-fold increase. A total of 71 of these schemes were newly constructed: 16 small schemes, 26 micro schemes and 39 family micro schemes.

Areas rehabilitated during the project’s first phase consisted of 2,529 hectares on 32 schemes. Construction also resulted in an increase of cultivable area of 1,501 hectares. During the second phase, 2,691 hectares were rehabilitated, and cultivable area increased to 2,612 hectares on 39 schemes. Five of the six new communes (Ebelo, Maromby, Esira, Imanombo, Tranomaro) and all of the communes from the first phase benefited from the new construction. (The commune of Ranobe was separated from Ebelo in 2003 and was not able to benefit from the construction due to its weak potential and access difficulties. The commune remains very isolated.)
3. Surface area rehabilitated by commune

![Pie chart showing surface area rehabilitated by commune]

4. Annual growth of irrigated areas

![Bar chart showing annual growth of irrigated areas]

The majority of the rehabilitated areas are small and classified as independent schemes at the family or village level. The smallest schemes rehabilitated are 4 hectares and located in the commune of Mahaly. The largest are 464 hectares and are located in the commune of Marotsiraka. One fourth of the schemes are found in the commune of Tsivory, followed by Marotsiraka, Imanombo and Elonty, all of which have great potential for rice
cultivation in the project area. These four communes now have 3,651 irrigable hectares, representing 70 per cent of the irrigable area of the Upper Mandrare River Basin.

The establishment of irrigated areas enabled new rice producers to access land. Thirty per cent of the poorest farmers (those who do not possess land or zebus as of 2002) were able to have access to irrigated plots.

**Water users’ associations**

_The creation of water users’ associations_

Beneficiaries of the irrigation works undertaken by the project must form water users’ associations (WUAs). The formation of WUAs was a condition from the outset of the rehabilitation process. Throughout the studies that led to the rehabilitation or construction of the schemes, discussions and cooperation took place between the users, the PHBM Infrastructure Unit and private enterprises engaged in the construction. The users actively participated in developing the rehabilitation project. The launching of the offer for tender for the work is conditional on the establishment of a formal agreement among the corresponding water users. The work does not begin until a WUA has been created.

At first, an inventory of users is taken during the initial diagnostic. The statutes of the association are discussed, and representatives are elected. The general assembly is presided over by the mayor of the commune. The assembly allows the statutes to be adopted, the elections to be held and the WUA to become official.

A total of 74 WUAs have been established to manage the large irrigation schemes (schemes of over 35 hectares). Small informal associations at the village or family level also exist to manage the very small schemes. These associations have 10 to 300 members each.
Maka Fiengena, Betahontsako Water Users’ Association
President explains…

There was already a dam in our area, but it was made of earth and highly degraded. When the project came during the second phase, we hoped that it would rehabilitate the dam. Our request reached the project through the Commune Development Plan, and the project agreed, on one condition: the community itself had to participate in the construction of the dam. From this participatory approach, the idea of an association was born, in order to involve the community in both the construction and maintenance of the dam, as well as the management of the water. People who were already using the traditional dam formed the association, with a president, secretary and a representative from each village. There were 147 people who chose the leaders.

In order to understand what an association is and what it is supposed to do, a technical team from the project sensitized us to the need for an association in order to better organize the work – for example, to determine the monthly fee to manage the dam, the maintenance of the canals, etc. The technicians also made a round of the area, visiting different sites, but when the process of building the associations took root, the technicians remained on site to provide training and guidance in terms of what the association should and should not do before the project closes in 2008.

The WUA has been in existence for three years now and is very effective. We hold two meetings a year to mobilize the community for the work that needs to be done. The difference is that before the project, each individual took his or her own water, but now there is an organization in which each member must have sufficient water for the member’s plot of land. There is no longer a problem of some people having water while others do not. If there is problem, a visit is made to resolve it.

I have been the President since 2004, and I have not found any problems in the working of the association. All fees are paid, the work is evenly distributed. The only difficulties we have are certain technical ones – for example, insufficient canals to bring the water to the fields due to irregularities in the terrain and during droughts some fields cannot access water anymore. But in terms of
the organization of the association, there are no problems. The term of my mandate as President is five years. After that, there will be a meeting of the association to renew membership and select new leaders. I could be a candidate again, however.

Missions and roles of a water users’ association

The water users’ association (WUA) has two missions: maintaining sound operations of the water networks; and assuring an appropriate use of land and water in the interest and for the sole purpose of the members of the association.

The WUA has multiple roles

Operations:
- Establish and approve the annual budget for managing and maintaining the water networks as well as the budget for the WUA operations;
- Establish the annual provisional workplan;
- Collect users’ fees and manage the funds.

Water management:
- Manage the water in the canal from its primary source to the plots;
- Decide when a new water outlet or work is needed for primary, secondary and tertiary canals.

Surveillance:
- Put in place agents to guard the water;
- Assure that the internal rules of the WUA (*Dina*) are adhered to.

Maintenance:
- Take loans when necessary to carry out any work required for the smooth operation of the water network;
Take all measures necessary to maintain the water infrastructure to assure sound operation of the schemes;
Monitor the maintenance of the network.

**Coordination:**
The WUA becomes the prime interface between the Administration and the different decentralized groups in all matters pertaining to the management, maintenance and surveillance of the network, and works with the State to assure that the schemes under its authority are conserved.

The PHBM has supported the WUAs in order for them to be able to respond to their mission and roles. All members of the WUAs received thematic and technical training to assure the independence and smooth operations of each WUA.

**PHBM support to the water users’ associations**

*Organizational and operational support.* The PHBM has supported WUAs at the organizational and operational levels. Each WUA receives training to help its members understand and master management procedures: the adoption of simplified procedures and norms for general management, accounting, financial management, methods for establishing payments and fees, budget creation and report preparation.

*Technical support for managing the water networks.* The PHBM has helped water users to understand and master all of the water distribution and network supervision and maintenance processes. This includes planning and implementing the distribution of irrigation water and the periodic care of the network (network distribution and maintenance techniques, irrigation and management practices, techniques for protecting the river and canal banks, repairs and improvements of the networks, organization of the maintenance work).

*Support toward formal recognition.* The PHBM has trained each WUA in order for it to become independent with respect to
managing its irrigation scheme and fulfilling its contractual obligations with the Administration, particularly with respect to official documents.

Specialists trained by the PHBM to manage irrigation schemes

In each WUA, several specialists were trained to assure sound management of the irrigation water:

- **Delegates from the village** are responsible for training the users when the work needs to be conducted in the water networks. They organize irrigation planning and maintenance, and supervise and monitor the irrigation and the work carried out. In addition, they serve as the spokespersons for the farmers and keep the WUA offices informed of all activities carried out.

- **63 dam guards** were trained to ensure the surveillance of the dams, the opening and closing of the valves and the removal of debris accumulated along the dams and sand build-up along the waterways. Their role is essential during the period of heavy rains, when they must prevent overflowing or sand build-up along the main canals.

- **68 network police** are responsible for controlling and surveying the networks. They verify the sound operation of the works and check the water level in the canals. If rules are not respected, they are responsible for enforcing the *Dina* of the association and reporting infractions. They are also responsible for organizing the users in the event of urgent repairs and serve as the spokespersons for the farmers with respect to sharing of the water.

- **36 agricultural facilitators** are responsible for organizing the water users to manage the schemes. They sensitize the users to the possible problems that can arise and the corresponding solutions. They also provide advice on water management and agricultural techniques and supervision of the work of the networks. In addition, they are charged with technical inspections of the networks and notify the WUA office of any problems that have arisen, as well as possible solutions.

The dam guards often work on a voluntary basis. The network police receive rice during each harvest, as well as a percentage of the fines applied when water users do not adhere to
the Dina. The facilitators received a fixed fee from the money deposited annually by the WUA. The village delegates are volunteers but they may receive a portion of the fines that are collected. These specialists make use of a practical manual created by the Project.

**Fampionona Joastin, local illustrator of training material**

I am self-taught. When I was seven years old I started to draw, and I really loved it. I used to make drawings every day. And each day I was able to improve my drawings. In 1989, I left school and went to work in a fashion boutique, where I painted designs on fabric. This was in Tamatave, a port city on the east coast. I am from Ambovombe, which is extremely far from Tamatave. I was 24 when I found this work. Before, I used to do portraits of people. This is how I made my living after high school. In 1992 I created my own studio in Tamatave. When I was young and made my designs, I used only pencil, paper and an eraser. I didn’t have any other instruments. But the fashion boutique owner wanted someone who could paint. After a few weeks, I learned to use paints, and the boutique owner was very satisfied with my work. I worked at the boutique for two years. Then I decided to open my own studio, where I painted design on fabrics, and then turned the fabric into clothing, which I then sold.

In 2001 the project was looking for someone to make posters. I knew someone who was working in the project and he introduced me to the other project staff. I started doing piecemeal work. The project staff liked the quality of my work and I was hired as a permanent staff member. Right now I work exclusively for the project, and I learned how to do a lot of my graphic work on the computer. Again, I learned by doing and by asking. Last year, in 2006, I took a course in graphic design software. My posters are disseminated all over the project area and on the walls of public buildings, helping to sensitize the population: agriculture, roads, hygiene, rural credit. When the project ends, I hope to do similar work with other IFAD projects in Madagascar.
### Agricultural Calendar in the Mandrare River Basin

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WUA operations

Planning maintenance activities

The members of the WUA office begin by holding a meeting to develop an annual activity plan during the rainy season, when the users are still cultivating the tsipala rice (rice of the main season) in the fields.

In April, they diagnose the condition of the networks and estimate the work that will need to be done during the year. They take inventory of the cultivated plots of the schemes during the main cultivation season as well as of the members who are cultivating the plots. Once the work is estimated and the members inventoried, the corresponding fees for each member are calculated. The fees are based on the size of the cultivated area and the amount of work that needs to be performed. The fee collection period is also set. It is only after the month of July that the maintenance work is undertaken, once the members have agreed upon the work calendar.

Implementing the maintenance activities

The canal banks are fortified during the rainy season. The dredging of the canals is generally performed in November. If there is sufficient water, the rice from the first season (vary aloha) can be cultivated starting in mid-July. The work is therefore done along with the preparation of the soil. The removal of sand from the dam is performed in July as well. The work of protecting the systems begins in October. The water users apply what they have learned in their training sessions, and refer to the illustrated manual created by the project, in order to carry out their activities. Periodic maintenance also takes place, such as the replacement of water gates and the maintenance of concrete structures.

Only the major repairs are not the responsibility of the users. These are undertaken by specialized outsourced contractors, and under the responsibility of the project’s Infrastructure Unit.

To support irrigation operation and maintenance, WUAs are involved in identifying priority areas and in collecting the irrigation
service fee from WUA members. The introduction of the fee was accompanied by internal rules that give greater accountability and “voice” to farmers in managing the irrigation schemes. The service fee constitutes only a small percentage of the value of irrigated rice production, and farmers are willing to pay the fee, as long as they believe that it is being used for genuine services. At the same time, the fees or collection rates will need to be increased if the irrigations systems are to be properly operated and maintained well into the future.

**Monitoring the activities**

The maintenance work is facilitated and monitored by the village delegates for those schemes whose area exceeds 75 hectares. It is also supervised by an agricultural facilitator, who keeps the president of the WUA informed. Once the work is completed, the WUA office members come to verify it. Those who are late receive a warning. If the work has still not been completed after a second inspection, fines may be imposed. Delays in the work could result in delays in water distribution.

In general, monitoring is focused on showing any changes in irrigation performance. A number of indicators are used, including: physical and financial progress of construction; fulfilment of formal requirements for WUA registration; collection rates; equity in water delivery; changes in crop yields; and status of WUAs (developed, developing or inactive).

**Transferring management of the larger schemes to the WUA**

The management of the schemes must be transferred to the recognized WUA by the Ministry of Agriculture, Livestock and Fisheries. The idea is to legitimize local management institutions and give them greater authority. It is also intended to reduce demands on government resources, which can then be reallocated toward larger irrigation schemes. Equally important, the transfer is meant to create a better partnership and division of responsibility between the government and farmers. The transfer is made only after the smooth operation of the rehabilitated network has been
verified. Therefore, the project makes every effort to develop a sense of independence of the WUA throughout the implementation of the project. Technicians provide follow-up training to reinforce skills acquired when necessary. Transferring management will assure that the irrigation investments made by the project over its 12-year life span are sustainable. Moreover, local and national budgets are in the process of creating an Irrigation Network Maintenance Fund to allow for joint inspection of irrigation systems that have been turned over to WUAs, to provide technical advice, and to promote preventive maintenance to avoid potentially expensive and dangerous problems from arising.

In order for the transfer of management to take place, the WUAs must be capable of demonstrating their ability to take responsibility for the following activities: distribution of water, maintenance, financing, adherence to rules and coordination.

All of the larger irrigation systems have been transferred to WUAs, or are about to be, pending the completion of administrative formalities and before the project completion in September 2008. However, there is a lack of irrigation advisory services for the WUAs, many of which need enhanced knowledge of water management. One obstacle is that separate departments within one ministry deal separately with water resources and agriculture, which hampers some efforts to provide training or advisory services.

### 6. Areas rehabilitated and WUAs

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(*Small supplementary schemes are in the course of being rehabilitated)

The Betahontsako Water Users’ Association

In the PHBM implementation zone, nearly 74 WUAs with 4,000 members have been put in place. Their principal vocation is to assure the management and maintenance of the infrastructures of the 72 existing irrigated perimeters. The WUA of Betahontsako, situated 70 kilometres from Tsivory, is one of the best-structured, thanks to good organization and the involvement of its members.

The discussion gets lively at the meeting of members of the WUA of Betahontsako, which recently took on the management of the canals that supply the 120 hectares of rice paddy to the area. It will take nearly 5 million ariary from the treasury of the WUA over three years to enlarge the network by more than 4,000 metres from the three secondary canals. The initiative will involve each one of WUA’s 176 members, all owners of irrigated rice fields.

The transfer of management to WUAs upholds the project’s aim to achieve the best conditions for the use of this hydraulic network for its beneficiaries. “To ensure the future of these irrigation structures, the transfer of management is inevitable,” explains Andrianainaosa Rakotondratsima, the Director of the PHBM. “Beneficiaries are trained from the first day on how to use materials so that they can manage everything themselves.” This process of transferring management includes training in various subjects, including methods of establishing WUAs themselves,
recruiting members, and the establishment of internal rules of the WUA that will regulate the whole community of beneficiaries.

The Betahontsako WUA has existed since 2003 and has been exemplary in its management of microhydraulic infrastructures. Its very active members have reached 21 per cent of their goal of construction and development of the irrigated area. The association has prime responsibility for the infrastructure and it carries this responsibility out very well due to its strict basic principles: an obligatory annual fee, democratically elected officials, pecuniary sanctions, and rigorous inspections by water-guards. (The latter often leads to highly animated discussion amongst the association at its regular meetings.) These principles were adopted at the outset of the association’s creation, and the transfer of management has not changed the operation of the WUA. “The transition happened all by itself,” says Maka Fihengena, President of the WUA, “since we were already ready.” Each member has found advantages in the existence of the irrigation schemes. With control over water, annual production of a rice paddy can double, as it did for Relanjaha, a counsellor in the WUA office, whose hectare of rice paddy produced ten cartloads instead of the six it yielded before the irrigation scheme.

At the same time, the transfer of management is not going entirely as desired. Small communities of water users often encounter obstacles and the least determined crumble while waiting in a line that can last years. Numerous irrigated schemes have been redeveloped, but only good management can guarantee the future of their effectiveness. According to Totofeno Toris, a microhydraulic project worker from Ebelo, “The success of the Betahontsako WUA can be explained by the strong involvement of its members, who impose rigorous discipline on themselves, but, at the same time, a consciousness of the benefits that are coming from this infrastructure. Even the fact that they organize meetings without the project technicians was a huge step.”

This strong sense of the benefits encourages this small community to maintain the hydraulic network. “If we do not maintain the canals,” said Fihengena, “it’s as if we were refusing to eat. These are the structures that ensure our daily bread.” And the PHBM is no less aware of the results of its efforts and actions: thanks to the development of the irrigation schemes and the success
of the transfer of management to the WUAs, the target of 5,400 hectares of irrigated land is set to be achieved by the end of the second phase of PHBM. But the Betahontsako WUA doesn’t intend to cease its activities then. The WUA President pledges, “Nothing could replace the WUA in how it maintains the canals, even if all 176 members each had to pay a bull.”

Keeping the water flowing

Irrigation of the fields is traditionally done on a continual basis throughout the Upper Mandrare River Basin. Small dykes surrounding the small plots maintain an even distribution of water during the entire period when irrigation is necessary. It is only during the dry season, when the first-season rice (vary aloha) is cultivated, that the WUAs organize themselves to share the water. Because of the cyclical nature of dry years (on average every four years), training is provided to the WUA members, village delegates and guards on measures to take when water is scarce, particularly on setting up rotation schedules for the distribution of water.

Depending on the availability of water, a variety of distribution methods are provided to users. These include:

- **On demand**: water is available to farmers as soon as they make a request;
- **On “semi-demand”**: water is available several days (generally two to seven) after the request is made;
- **Canal rotation and free demand**: once the secondary canals receive water, farmers can use the water freely;
- **Rotation system**: once the secondary canals receive water, farmers use a quantity of water that was agreed upon in advance;
- **Steady stream**: farmers receive water on a rotation basis and in fixed amounts during the entire irrigation system. This method is the main approach in a normal year. When there is a water shortage, rotation between different plots is applied.
There are some challenges that need to be overcome to assure a more efficient use of water. All of the plots are flooded when the amount of available water is sufficient. However, not all of the plots are necessarily being cultivated each year. Thus, precious water is being used in areas that are not being cultivated. In addition, when water is being channelled from a single source, a very precise irrigation calendar needs to be established and respected if the irrigation system is to operate at maximum efficiency. Often, this is not the case because of:

(i) technical limits due to the initial choice by the PHBM, where facilities are relatively sparse;
(ii) implementation of irrigation generating water waste;
(iii) competition for water from one river basin, limiting the extent of irrigated area during a given year;
(iv) rate of recovery of subscription insufficient to ensure maintenance of facilities;
(v) almost complete absence of protection of watersheds;
(vi) current functions of the WUA which remain confined to production and maintenance while the functions of supply of inputs, storage, processing, marketing of agricultural products and access to credit still remain not integrated;
(vii) land issue still unsolved despite the implementation of development plans and land office.

And of course, the rules and regulations are sometimes not respected. Therefore, there are margins for improvement in the irrigation. Such improvements may prove decisive in the years to come, as less rainfall becomes more frequent.

**WUA members in Marotsiraka speak out**

“Before the project, the dam was almost completely in ruins. The project rehabilitated it, and at the same time the people were taught how to cultivate with new techniques and material to make cultivation easier. Before the project, the dam was managed
by the Ministry of Agriculture and there were enormous problems of water distribution. When the project came, it helped us form an association of water users to organize ourselves to use the water correctly. Now, every user gives an amount of money for the management of the association and the canals, as well as the work that needs to be done to maintain the canals and the dam. We have our own money to organize all of our activities. We elected a president and he holds a general assembly to put together an annual plan with all the members. It is then that they decide the amount of money they need.

“There are permanent members who manage specific parts of the dam and schemes, and there is someone who manages the flow of the water. Then there are guards who check for any problems anywhere in the irrigation scheme. So each member has a particular responsibility.

“We received theoretical training in a classroom, and then on-site training with technicians on the schemes. We also received manuals on water management and distribution plus an administrative component of the manual on how organize the WUA. The training took about a day, but it was repeated two years later so that we wouldn’t forget what we had learned.

“Our biggest challenge is in obtaining enough materials to maximize our cultivation. If we had more equipment, we could produce additional reserves – equipment such as carts, tractors, etc. The presence of the Fivoy bank enables us to access credit to lease certain equipment, but even then the equipment arrives too late, if we can even find it. You must keep in mind that the bank often requests that we go out and find the equipment. We needed a tractor and finally located one, but it was all the way in Antananarivo.”

Protecting the irrigation schemes

Protecting the irrigation schemes from erosion and siltation was taken up by the PHBM’s Environment Unit, which made use of vetiver and sisal, whose anti-erosion capacities are quite strong. Unit staff, along with WUA members and technical specialists,
planted vetiver along the fragile canal banks, while the dam embankments were protected with sisal. Erosion and sand deposits along the sides of the schemes were minimized by planting sisal and eucalyptus. The vetiver and young eucalyptus were provided by the local nursery, and the sisal was collected locally. The WUAs are equipped with small vetiver nurseries near the schemes in order to renew or expand planting when necessary.

A total of 21 sites have been protected since 2002, which is quite a modest amount. However, it is difficult to mobilize the water users to plant these protective plants and trees, especially in areas that are inaccessible during the rainy season. One solution could be to increase the number of vetiver plantations located near the schemes as soon as they are being rehabilitated.

**From the project’s Irrigation Unit**

“I have been working with the project since the very beginning – I was asked to join in February 1995. We arrived in Tsivory in 1996 with the provisional staff and met with the elected officials of the commune and requested to be able to stay. In the beginning we focused on irrigation. We informed the four communes where we were going to be working and asked them if they wanted to be involved in the project. We then gathered all of the requests that had been prepared through the commune development plans.

“The requests for the construction of dams had to pass first through the local authorities, especially to assure that the land in question really belonged to the group. This was done through a meeting between the project staff and the local officials. Once this was established, we then began to conduct technical feasibility studies of the different areas – water sources, costs, etc. Certain conditions were imposed: active participation of the communities in all phases of the activities – the studies, the construction, and the management of the work; they had to organize themselves into an association of some kind. Those who agreed signed a convention between the parties to formalize the arrangements.
“In 1996 and 1997 we conducted studies of three schemes right away to demonstrate that we were not going to disappear. We then constructed some modest works – small dams and canals. Then we began expanding to other areas, particularly those that had been classified and managed by the local administration and had functionaries working with the communities. In 1998, we recruited two producers to begin the detailed studies, one for the western part and one for the eastern part of the project area. We were able to survey and observe their work. Thus the work and studies were initially carried out by the producers, which we were able to supervise. During the studies we organized the local populations to participate. They also had to provide certain materials, like sand and the bricks being used. We knew that this would take some time.

“During the studies is when we began to organize the WUAs. They had documents to complete in order to become official. One copy was deposited with the commune, and another was deposited with the district, and then from the district to the province and the province to the Ministry of the Interior. This was the process for making the WUAs official. At the same time, the project began a campaign for managing water. We created a lot of materials that were geared toward those who were illiterate as well. The main material was a Water Management Manual, which covered all aspects of managing the water infrastructure as well as managing the association.

“We learned a number of participatory methodologies, which we applied in the field to ensure a participatory approach. We used the Water Management Manual and worked with the participants to help them identify problems and to seek solutions. We had already begun to think about our exit strategy. For this, we had a voluntary facilitator from one of the WUAs, whose job was to consolidate the assets and to re-dynamize the members of the WUAs. But fortunately, the project had a second phase, which was not foreseen.

“Every year, in January, February and March, the WUA members had to prepare their annual workplan. In April and May, the results were observed in the field. After the rainy season, the fields were observed to see what had happened. Based on the results, the plan would be modified. A general assembly would be called in June, right after the harvest, for the WUA members to
validate the work programme. At the same time, the financial aspects would be worked out. After the validation, towards the end of July, the larger scale work would begin for those who wanted to exploit their fields during the dry season. In November, right before the main cultivation season, other work would take place – cleaning of dams, cleaning of the canals, and then the period of planting.

“The national law says that the management of the schemes must be transferred to the WUAs. We sent the dossiers of the WUAs to the Ministry of Agriculture to have the WUAs officially recognized. Every year, we have to do this transfer of management. We did 12 transfers in 2006, for example. In 2007, we will do about 15 or 16 transfers. In 2008, the closing year for the PHBM, there will be 5 or 6.

“Then there is the land tenure and security challenge, which the project has taken up in its second phase. There were problems with titles. In 2005, we thought about putting in place a guichet foncier (land administration desk), since the land situation is very complex. Historically, there is a vast mix of immigrants in the project area, which makes appropriation difficult and complicated. There is one law that states that the land belongs to the person who first came. But a second law states that any land that is reached by your irrigation is also your land. There is the added complexity of the influx of people coming in here to buy land. Unfortunately, the idea of a guichet foncier was implemented only in Tsivory in 2007. Current law states that you cannot have a guichet foncier without having an organization that manages it – a public intercommunal cooperation. We are establishing this with the first four communes of the project, and we were able to begin distributing the first certificates in December 2007. The main challenge is to certify the boundaries of the land and establish precisely how much land a person has. The National Land Commission will then enter all of this into a database.

“I am confident that the irrigation component will continue well once the project leaves. We have been working very closely with the WUAs and they are working very well and are self-sufficient, active and dynamic.”

Rakotofiringa Dieudonne,
Head of Irrigation Unit
CHAPTER 4

MORE WATER, MORE RICE:  
A GREEN REVOLUTION

Stillness. Bare landscape, no wind. A solitary figure, silhouetted by the sun, stands on a small platform above the river holding a small metal lever, which he carefully inserts into a metal frame. The silence is broken by a faint creaking sound as he turns the lever clockwise, accompanied almost immediately by another louder groaning of a panel below his feet that slowly rises as the lever turns. Suddenly the soft symphony of metal is drowned out by the rush of water escaping from under the raised panel and cascading into the canal flanking the river. The current is strong as the water starts its journey along the canal, but gradually tapers off as it continues along its way, and the stillness is restored. On and on the water courses, through reddened earth and dry landscapes that cry out for at least a drop. Yet it yields nothing until it turns a bend and arrives at its master work: an endless blanket of brilliant green. Here, the water disperses, threading its way along each and every row and column of this fabric of life, and of livelihoods – rice paddy – in the Upper Mandrare River Basin.

The rehabilitation and construction of 5,620 hectares of irrigation systems was the key to re-launching rice cultivation in the Upper Mandrare River Basin. The 22,000 tonnes of rice produced in 2005 attest to the productive potential of the area. Rice production increased by 11,000 tonnes in three years. The increase was not only due to the increase in the irrigable land surface but also to the improved cultivation practices (Système de Riziculture Améliorée – SRA) that the project introduced. The introduction of SRA was a major factor. The farmers who practiced this improved rice cultivation saw their yields (in two seasons) reach 6 or 7 tonnes per year. In some communes, SRA was taken up by 70 per cent of the farmers, while the overall uptake for the area was 35 per cent.
Thus, there is still a significant margin for rice yields to increase even further.

With more than 20,000 tonnes of rice cultivated in a year, “rice self-sufficiency” seems to be assured, and the project area has regained its reputation as the “grenier alimentaire” of southern Madagascar. In addition, rice has become an income-generating crop for the project beneficiaries, and not merely a subsistence crop. The increase has also led to additional employment: for example, there are more collectors (15 against 2 in 1996), 21 rice husking machines have been installed in the area (of which 19 are private), agricultural equipment and hardware suppliers have appeared as well as sales points for agriculture inputs.

A word about “collectors,” which are typical in Madagascar. The country has very few roads, and the lack of communication has led the traders to organize networks of collectors, who are sub-traders with trucks and who spend their time travelling the rough tracks to collect the agricultural commodities in the production area and bring them to the main cities. The collectors work according to the season and the main production of the moment. They are usually the only link between the farmer and market, which sometimes limits the negotiation capacity of the farmers. At the same time, collectors also help the country by getting the staple food out of very remote areas. In the Mandrare region in the 1990s, collectors were totally absent because of the lack of roads and low production levels. They started appearing when the first substantial rice production took place around 2000, and their numbers have increased ever since, as have the number of husking machines, which were installed by private owners and traders and slowly spread through the communes.

The notoriety of Mandrare’s production has spread very far, and since 2000 the population of the area has been increasing at a higher rate (5 per cent) than the birth rate (3 per cent). New families arrive every year from the densely populated high plateaus, with the hope of acquiring some irrigated land or setting up a shop. The main issue of concern when looking ahead is assuring sound management of water. The dry years arrive cyclically, and that, combined with the competition that exists between users of water coming from the same fluvial basin, could exacerbate tensions and lead farmers to over-exploit irrigated land. Potential conflicts over
water could be minimized by sound irrigation counselling and a continual improvement in agricultural practices and techniques.


8. Rainfall in Tsivory and recurrence of dry years
Increasing rice production – from A to Z

“Increasing rice production had already been included in the project appraisal report. Still, during the first phase of the project, there was no Agriculture Unit. The first phase consisted primarily of infrastructure rehabilitation. The formulation of the second phase of the project included the objective of increasing rice production by a certain percentage. There was also a national objective to increase rice production by at least 13 per cent in all territories. All projects of the ministry were to contribute to the achievement of this goal. It was in this context that priority was given to rice production.

“The project put in place an Agriculture Unit, but also contracted the services of an NGO in Fort Dauphin (FAFAFI) that specializes in agricultural development and extension services. One agent from the NGO was responsible for extension in each of the communes. Farmer Field Schools were created on certain irrigation schemes, where new technologies were used and demonstrated. Producers came to visit the field school to see the difference. There were four or five field schools per commune, and they were in operation from 2000 to 2003. The goal of these schools is to promote farmers’ direct and active participation in programme decision-making, with a view to giving them full responsibility for developing the programme.

“Starting in 2003, the mini-projects began. A group of farmers that had learned the new techniques formulated a mini-project proposal for approval and financing by the project. Within the mini-projects, the project provided training, equipment and seeds, and the farmers applied the technology throughout their entire field. In 2001, one large scheme was hit by a fly-transmitting disease (pyriculariase) and the plants yielded virtually no rice. The Centre de Recherche Nationale was contracted to conduct research to explore varieties that were resistant. These new varieties were then recommended and distributed to the farmers, who tested them to select the few that are still under cultivation. In 2005, the project also collaborated with the Rural Development Support Project
PSDR – a World Bank project with the Ministry of Agriculture. PSDR provided fertilizer and equipment.

“The farmers who used the new technology were very enthusiastic. Soon, word spread among the villages through informal discussions. Villagers started to form groups of 10-20 people to learn the new technology. At that point project technicians and facilitators held meetings with the groups to confirm their motivation as well as to provide supplementary information on advantages, procedure, etc. If the groups decided to continue, they would prepare a formal request by completing standard forms, which were explained to them by a facilitator, or by a villager who could read. Generally about ten days go by before the form is completed, since the members of the groups want to reflect.

“Once the request is submitted, the project team goes to the different fields of the group members to conduct feasibility studies – how many seeds, how much equipment, the size of the holding, etc. The group designates a group leader, who becomes the interface between the group and the project. Then the dossier including social financial and technical aspects is finalized. Members of the project staff form a committee that approves or rejects the dossier. If it is accepted, it goes for financial approval. The contract that is drawn up stipulates that the group must make a minimum contribution of 20 per cent. The contribution can take many forms – in cash or in kind. The entire process only takes about two months, since the facilitator and a FAFAFI agent remain in the village to expedite the process.

“All mini-project proposals for rice cultivation are formulated at the same time. In this way, a global distribution is determined (e.g. 20 ploughs to this commune for five groups, 15 ploughs to that commune for three groups). The mini-project submission process takes place twice a year.”

Isetramaherizo Ravoavy Ramiakatravo
Deputy Director of PHBM
**Improved rice cultivation**

A system of improved rice cultivation (SRA) was introduced by the PHBM to be able to maximize the potential of the rehabilitated or newly created irrigation schemes. The system is a cultivation method that is destined to increase productivity of irrigated rice by improving the management of the plants, soil, water and nutrients. The system is a variation of the System of Rice Intensification (*Système de Riziculture Intensif* – SRI), with the main difference being that SRA is based largely on organic farming principles rather than using chemical fertilizers. Improved rice cultivation is an impressive innovation. It is ecologically sound and is beneficial to those who have little means at their disposal as well as those who are better off. The basic principles of SRA are as follows (additional information can be found at www.tefysaina.org):

- Rice seedlings should be transplanted early. They should remain in the nursery for 10-15 days, rather than the usual 20-30 days. Once they are removed from the seedbed, they should be transplanted within half an hour.
- The seedlings should be planted one by one rather than in bunches, in order for them to grow stronger roots. They should also be spaced wide apart (at least 25 cm). Although there will be fewer plants, the yields will be much greater.
- The seedlings should be slipped sideways into the soil, very gently and close to the surface, so that the root is horizontal in the moist soil. In this way, it is easier for the tip of the root to grow downward and start spreading.
- Rice is not an aquatic plant and does not thrive in conditions in which its roots are continuously submerged under water. The soil should therefore be kept moist but not submerged. And the rice plants’ growth will benefit if the soil is permitted to dry out, at least on the surface, once a week.
- The paddy should be hoed frequently and organic manure and compost used.
The main challenges to SRA are the additional requirements for timing the transplanting, spacing the seedlings, scheduling irrigation and weeding. SRA demonstrations started taking place in 2002. The dissemination of the system to all of the established WUAs was undertaken by a specialized local NGO – *Fanantanana Fambolena Fiompiana* (FAFAFI) – along with the introduction of improved rice varieties. Seed multiplication groups were formed to ensure a steady supply of seeds and to distribute them as widely as possible. Improved rice cultivation has been implemented on more than half the surface area available for rice cultivation. The results across the whole intervention area: the average yield is 4.3 tonnes per hectare for crops cultivated using the new techniques, against less than 2 tonnes per hectare for traditionally cultivated crops. “These results bear witness to the effectiveness of the integrated development methodology initiated by the PHBM,” said Janvier Embola, a small collector/trader who buys at the market in Tsivory and transports the produce for sale at Taolagnaro (Fort Dauphin).

The PHBM approved 220 rice cultivation micro-projects, from which 3,348 members (1,155 women) benefited. The mini-project received material support from the project as well as technical advice on improved rice cultivation. A total of 107 of the micro-projects received support from the *Projet de Soutien au Développement Rural* (PSDR: Rural Development Support Project), which distributed 40 mini-tractors, 217 tonnes of fertilizers, 329 harrows, 300 sprayers, 716 weeders and other small equipment. The farmers received training on how to most effectively use these inputs and equipment. Almost 5,600 small tools, from ploughs to watering cans, hoes and pedal-pumps, are constructed at low prices and used in the Mandrare River Basin. “We are here because the demand for small equipment is constant,” said Roger, head of the workshop. The six ironsmiths produce more than four implements per day, and the threshing machine, whose prototype arrived in December 2006, is beginning to see much success.
9. Agricultural equipment

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Rice production in the project area increased: from 1,700 tonnes in 1998, to 9,000 tonnes in 2000, to 23,000 tonnes in 2007. This remarkable increase was due to both the increase in the area being cultivated as well as the intensification of cultivation. In the same period, the area cultivated increased by 4,600 hectares and the yields went from 1.5 tonnes per hectare to 4.3 tonnes per hectare. Annual yields using the new system range from 6 to 7 tonnes per hectare. Each year, farmers from the area win awards during the regional and national agricultural competitions. Globally, the project area has achieved rice self-sufficiency and become a rice exporter. It is no longer a subsistence crop but an income-generating one. In 2006, the project area experienced a very dry year, with only 346 millimetres of rain recorded. Despite the extremely weak rainfall, 13,000 tonnes of rice were produced, which was enough to maintain the food security and self-sufficiency of the inhabitants of the Upper Mandrare River Basin.

Loans made possible by Mandrare Mutual Fivoy have allowed the uptake on a greater scale of improved rice-growing techniques as well as the mixing of rice and other types of cultivation, two innovations that have significantly contributed to the overall improvement in agriculture in the Mandrare region. “The extraordinary thing is that all of this has been achieved through agriculture in a region where we are used to living with dry seasons and periodic famine,” said Manoa Andriantsilavo, Head of the Agricultural Unit of the PHBM.

**Ndohany d’Ankily, prize winner for rice production**

*Ndohany d’Ankily was the winner of the 2006 national contest for the best rice producer from the Androy region, with a yield of nearly 9 tonnes per hectare. He shares some of his insights:*

I was among the first from my village to apply the new rice-growing techniques, notably the SRA initiated by the project. I had observed that my rice yield was diminishing year after year and I decided to jump into a new experience. For me, it wasn’t a question of adopting new techniques in all of my rice paddies; I took the least productive parts. The whole time I followed the technician’s
directions to the letter: picking out young growth to keep it in line, using cow manure, relying on working on the soil and using pesticides. Above all, I knew how to keep a close eye on and manage the level of water. I made the little water that there was pass from one plot of land to another. The results were remarkable: I obtained a yield of nearly 9 tonnes per hectare. It was then that I became convinced that the new techniques are truly effective, once you’ve mastered them.

With the winnings, I bought my own farm tools. I am no longer forced to rent or borrow my materials. What’s more, the contest gave me the chance to prove to my friends and neighbours that the spirit of initiative gives a positive result in the end. I encourage everyone to adopt these new techniques to improve their yields, so that each household can provide for its own nutritional needs. I have the habit of saying to my neighbours that the contest was only a catalyst but that the best prize is the improvement in production.

I am now experimenting with the PHBM technicians, trying out new techniques for the cultivation of manioc and maize. I voluntarily lent part of my land to put in place an “integrated site”, that is to say a plot of land for demonstrating and for following the day to day evolution of new techniques. I man the demonstration site myself when my neighbours come to see. Some are starting to apply the new techniques themselves. After all these experiences, I maintain firmly that the increase in yield is due to innovative techniques.

I myself had the experience that a small scrap of land well looked-after is much more profitable than a large estate badly put to use. For sure, you must put in more effort and pay more attention to watching the land, but the costs are reduced, especially in the medium term. The canals that have been rehabilitated have made sterile soils more productive. Now you can find 15 tubers in each manioc root, and with the improved seeds we have reduced the costs. Don’t forget that it was with only 15 kilograms of seeds per hectare that I obtained the yield of 9 tonnes.

I am a member of the Mutuelle du Mandrare and I am going to try to take advantage of the possibilities it offers. The zebu will be my next object of speculation. I will sell them for profit, since long-term pastoral livestock-raising no longer has a place. We
must think of all economic activities in terms of returns. I have also planted some moringa saplings, the tree of many virtues. I have hopes of finding customers soon, since I’ve heard that the seeds of this plant are used to make cosmetic products.

Ndohany d’Ankily

At a glance: before and during the project

Before:
- Consecutive dry years caused drought, which hit the south in 1991. The Upper Mandrare River Basin was not spared.
- The socio-economic and productive infrastructures were in an advanced state of degradation. For example, only 900 hectares of irrigation schemes (from an existing 1,500 hectares) were being used for rice cultivation.
- The area was isolated because of the lack of roads, the degradation of the few existing roads, and virtually no means of communication.
- Agricultural products were sold at a low price, since periods of drought result in people selling off their assets at low prices in order to survive.
- Agricultural practices were simple and largely traditional and extensive.
- A number of constraints weighed heavily on agricultural activity and resulted in low income, among them the proliferation of disease and insufficient use of resources.
- Livestock theft was epidemic.
- The population produced little and only for subsistence. Household income was weak, food security precarious and poverty levels high.

During:
- A total of 71 irrigation schemes were set up to serve about 4,600 hectares of land, and farmers were able to harvest twice a year, as long as the rainfall was sufficient.
• Water users’ associations were established to manage and maintain the systems; members received training in managing associations and in operating and maintaining the systems.
  • Irrigation management transfer processes were almost fully completed to give accountability and responsibility to the project beneficiaries through their WUAs.
  • Research was conducted to identify adapted and high-performing varieties of rice, manioc and maize, and improved agricultural practices and techniques that would be suitable for the population. An improved rice cultivation system was introduced, which included improved and more resistant seeds, the use of young plants, planning in rows, proper hoeing and weeding, use of manure, and control of the irrigation system.
  • The rehabilitation of roads resulted in: reduced travel time, thus creating more time for productive work; increased efficiency with which loads are transported and significantly reduced the hand-carrying of goods; connecting the project area to a wider regional transport network; and an increased number of private operators coming to the zone.
  • The price of rice increased from 60-70 ariary per kapoaka (a local tin container, about the size of a 300g cup) to 300 ariary per kapoaka.
  • Collectors came directly to the villages to purchase the rice but also to the weekly local markets. Some also came to the husking points.
  • A microfinance institution with nine branches was set up in the project area so that producers could have access to various credit and savings schemes.
  • Training was provided on commercialization.

**Major results:**
• Producers increased their yields from less than 2 tonnes per hectare to 4.5 tonnes per hectare; the project area produces at least 23,000 tonnes of paddy per year. Even when rainfall is insufficient, farmers are able to produce enough rice for their household.
• Food security has improved dramatically beyond the 11 communes, and farmers know which varieties of maize, manioc and sorghum to adopt when they have to face a dry season cycle.
• Household income has increased by 74 per cent on average, and with it an improvement in the quality of life. For example:
  • Houses are being enlarged, and bricks and sheet metal are being used instead of earth and thatch.
  • More children are attending school because school expenses can be met. Some children are even attending school outside of the project area (in Amboasary, Fort Dauphin, Tuléar, Antananarivo).
  • Health centres are being visited more frequently because of additional income and improved roads.
  • The number of bicycles and ox-drawn carts has increased as well as domestic electronics (radios, TVs, DVD players …).
  • Rice surpluses are being exported throughout the southern region (Amboasary, Fort Dauphin and Ambovombe).

Sustaining achievements: the agricultural unit

Two zebus, driven by their owner, go back and forth across a rice paddy and they will stop only when all of the cultivated surface area has been trampled. This method of working the earth represents the old-fashioned image of agriculture in the Upper Mandrare River Basin: an activity practiced on poor soils, with rudimentary equipment and resulting in only a meagre harvest, in terms of quality and quantity.

In this context the PHBM established the Agricultural Unit, in order to orient farmers towards more effective and more profitable techniques and to train them in these new methodologies.

Research on better varieties of cereal was also undertaken, on the basis of yield and resistance to drought and disease. Five varieties of rice, five varieties of maize, nine varieties of manioc
and two varieties of sorghum were identified from this study and then cultivated. The varieties included X265, 2798 and 2787 (off-season rice), Pool 18 and Bakoly (maize); H43 (manioc); and Kyuma and IRAT204 (sorghum).

An understanding with farmers was reached in order to determine the solutions that would meet their needs but that would also be easy for use. “Consultation with the population allowed us to identify the constraints weighing on production and the solutions that should be adopted,” explained Ralipo, a member of the Commune Development Committee in Maromby, 93 kilometres south-east of Tsivory. Then, those involved were asked to come together in an association to design micro-projects. Leaders were chosen in each association and given training through a field school. “I am among the first to adopt the system of improved rice cultivation,” Ndohany, from Ankily, said.

Observing the success of their peers, other farmers are eager to follow their example. The fields of the leaders act as demonstration plots. Donald, a member of the market gardening group from Mahaly, said, “We want, above all, to be sure of the effectiveness of these techniques and to see what they bring before making up our minds.” And to further reassure farmers, the technicians from the Agricultural Council were present on-site to answer questions posed by farmers, and to give them advice.

The Agricultural Council has also helped farmers to sell their produce at rewarding prices and to find viable markets. “We manage to sell off our entire harvest,” said Christolline, a member of the market gardening group in Mahaly.

The system is not limited to the arable agriculture sector, but also extends to other components of the project, such as livestock-raising and the environment. And for the latecomers, these leaders are dedicated activists and on-site technicians whose aim is to serve as a relay of local support, to ensure the lasting outcomes of the project.

In order to encourage widespread adoption of new agricultural practices, an intense information campaign is part of the project’s strategy, through testimonials broadcast on the radio or published in the newspaper, technical posters and information sheets.
2. Typical Mandrare landscape –
dry areas and mountains to the north leading to the high plateaus.

3. One of the tributaries of the Mandrare River, a shallow and humid area used to cultivate rice after the area was developed.
4. Aerial view of agricultural land in the Mandrare, rice paddies and gardens along the water source.

5. Traditional villages are comprised of wooden huts and thatched roofs.
6. Historically, the Mandrare basin has always been a livestock-raising area.

7. An Antandroy family. Many ethnic groups co-habit, including Antanosy and Bara, and more recently Betsileo and Merina.
8. The absence of infrastructure impedes transport. Here the Mandrare River is being crossed in a traditional cart.

9. The PHBM immediately addressed the issue of roads in order to link the project area to the rest of the country and to facilitate the transport of people and goods.
10. Road construction is handled by local enterprises. Here, the clearing and laying out phase for a new inter-commune road.

11. The project also used high-intensity labour. Here the construction of carrying lanes out of the river.
12. A completed inter-commune road. It was managed by the Road Users’ Association.

13. The project laid more than 150 km of inter-commune roads and desert routes, the latter used largely by local residents and transporters.
14. The hydraulic infrastructure was a priority of the PHBM. Here a discharge dam after a flood. More than 5,000 hectares are irrigated from 74 dams.

15. Meeting of a commune Water Users’ Association. In the foreground the President and Vice President.
16. Floodgate operators are responsible for distributing the water equally among the plots.

17. Annual maintenance of the canals by the Water Users’ Association. After responsibility was transferred by the state, the associations must ensure proper management of the irrigated areas.
18. Rice requires about 200 workdays per hectare. Here the transplanting phase of young plants.

19. The PHBM promoted intensive rice cultivation techniques. They resulted in a tripling of yields – more than 20,000 tonnes per year in 11 communes.
20. Returning from the field after a day of hoeing.

21. Harvest time. SRI and SRA produce higher yields (from 1.7 in 1996 to 4.3 tonnes per hectare per year in 2008) with techniques adapted to the means of the farmers.
22. Separating the rice after the harvest …

23. …then the sifting, before the hulling in one of the 21 new mills in the area.
24. Transport of the harvest to the village.

25. Weighing the rise in sales for collectors, who increased from two to 15 in the region following the increase in production.
26. Posters produced by the PHBM’s Communication Unit: maintenance of dams, waterways and irrigation canals.
27. PHBM posters for users of the roads: maintenance and operation of the rain barriers.
Achievements 2004: rural infrastructures
“So many changes have taken place. All of this is thanks to the collaboration between the project and the commune, which kicked off through sensitivity training and the project’s insistence that many local actors be put in place. Otherwise, little would have happened. Eighty-five per cent of the people were illiterate before the project. Now the illiteracy rate is at 30 per cent. I have great hope that this will significantly enhance local capacity and ability. The key is in sensitizing the people, working with the people, and eventually letting the people take over. It is all a process, and progressive. But all in its own time. Development isn’t accomplished in a day.”

Edouard Randrianasolo, Mayor of Tranomaro

The full involvement of the local populations in local planning responded to three important needs: making use of the local knowledge, skills and resources that already existed; getting maximum support from the communities in terms of identifying problems and solutions; and encouraging ownership of all initiatives through local management to ensure that activities would continue once the project had disengaged. The operating philosophy behind the PHBM was that the local populations had to be involved to the greatest extent possible in each phase of an activity in order to stimulate motivation, trust and a greater likelihood of sustainability. In addition, involvement had to be as broad and as representative as possible in order to reflect the diverse interests, resources and needs of these highly heterogeneous populations.

Participation had a number of different levels:

- Information and communication, in which participants were mostly passive
Consultation, in which participants proposed actions, giving their ideas and opinions

Conceptualization, in which participants provided content

Responsibility, in which participants decided how and why the projects should be executed and monitored, and who would be responsible for what

Financing and management, in which participants determined their financial contribution and management responsibility for the activities proposed.

Involving the local population: three phases

- Sensitization, information and motivation: this initial phase consisted of public meetings and consultations in villages and communes, calls for partnership, or setting up local management structures for different project activities.

- Diagnostics: this phase consisted of working with villages to identify constraints and opportunities, and establishing priorities, modes of action and roles and responsibilities. For many villages in the project area, the idea of “integrated development” was new, and the involvement of the local populations at the very outset provided the essential link for strategies and corresponding activities to be developed that genuinely responded to local needs.

- Implementation: this phase consisted of working with local groups and individuals who could provide the specialized or technical services required for the activities that were being undertaken.

A total of 24 facilitators (socio-organisateurs) recruited from a local NGO (Consortium AHM/Kiomba, specialized in community development) had the main task of working with the communities to understand their needs and potential, and to help them formulate effective projects. They were also responsible for providing training and capacity-building to ensure that the
community members could take on the tasks and responsibilities that would be required of them, and that some of them could eventually take on the role of facilitators themselves within their villages or communes. These facilitators were invaluable, as they had already gained the trust of the communities and established key local contacts from their previous work in the project area. Based on their knowledge of the area, they were also able to set up meetings and sensitization sessions around topics of genuine interest and relevance to the communities, rather than simply holding general meetings. In addition, they were able to select the most suitable places and times to hold the meetings and training sessions, taking into account the most isolated and dispersed populations. Finally, the facilitators were structured in working couples (a man and a woman), which has considerably balanced their interventions and promoted the gender approach in the Mandrare area.

Formulating a participatory and inclusive development plan

The initial meetings that the facilitators organized served to understand local needs, assets and possible action – a kind of village audit or local inventory that covered the social, economic and environmental domains. During the meetings, questionnaires were also distributed to gain a fuller understanding of daily life. The idea was to pave the way for identifying and prioritizing actions to be included in the formal village-level commune development plan (Plan de Développement Communautaire Villageois – PDCV). A number of steps were involved:

- **Putting in place local structures – Commune Development Committees:**
  Community members who played active roles in the local interest groups and demonstrated willingness to participate were regrouped into a Commune Development Committee (Comité Communal de Développement – CCD) at the commune level, which was the main vehicle for piloting the elaboration of the Commune Development Plan (Plan Communal de Développement – PCD).
Each CCD is composed of the mayor of the commune, members of the commune council, leaders of the commune’s *fokontany* (villages), representatives of different technical and administrative services, and representatives of churches, local NGOs, public services and farmer organizations. The CCDs serve as the hub for consultation where the entire planning process was organized: planning, organization of diagnostics, analyses, debates, discussions, proposals, arbitration, validation, modification of the plan and implementation support and monitoring. The CCD is supported by a voluntary development facilitator trained by the project. The facilitator serves as a moderator for the committee as well as an interface between the CCD and the commune.

- **Communication plan:**
  CCDs were encouraged to develop a communication strategy through a number of channels: the general assemblies held to launch the elaboration of the PCD and local meetings. Information was broadly disseminated throughout the communes in order to encourage participation.

- **Preparation:**
  The initiative of the project to develop the PCDs was approved and supported by the commune councils. Exchanges took place between the project and the commune authorities, which were focused on involving different community members and groups in the entire process.

- **Participatory diagnostic:**
  The diagnostic phase was undoubtedly the most propitious phase for mobilizing the population in an effort to evaluate the local situation before any development initiatives were formulated. The diagnostic consisted of understanding the state of the different social, economic and environmental sectors, and to identify the internal and external factors that had a positive or negative impact on the development efforts of the commune. A number of participatory tools were used to assure the broadest possible participation of the local populations in the various stages of the diagnostic, despite the cost and time implications. Workshops were also held to take stock of the results of the various analyses and set
out strategic orientations that were agreed upon by all, along with collective and individual projects and actions to support the strategy. This phase was particularly important, since the concept of “integrated development” was new to the project area.

- **Vision and strategy formulation:**
  To take stock of the results of the different diagnostics, workshops were held in order to agree on the main development issues and prioritize them, agree upon a vision, and create a logical framework to address them. The workshops were the “nuts and bolts” arenas for discussing concrete issues and levels of responsibility for addressing them. All those participating had the opportunity to describe what they considered to be the long-term needs of their territory, and what would be possible to achieve realistically, as well as the ways to achieve it. Throughout this phase, a global dynamic grew through the various exchanges and viewpoints of the different participants, creating synergies and bridges between various sectors and geographical areas. The level and breadth of participation were very high.

- **Programming:**
  Based on the vision, strategic orientation and “logical framework” developed during the workshops, specific objectives and corresponding concrete actions were then agreed upon, along with cost estimates and a financing strategy.

- **Negotiation:**
  Cost estimates generally exceeded the financial resources that would be available from the project as well as the communes. Therefore, it was necessary to rigorously revisit the PCDs in an effort to reduce costs. Sometimes this meant scaling down certain activities or, in some cases, eliminating them altogether. Needless to say, this negotiation stage was very difficult. At this point, the PCDs were a contract of objectives and detailed information on the programmes and individual and collective projects to be undertaken in a five-year period, as well as a collection of practical and technical arrangements that would enable the commune to achieve its development objectives. It represented a concerted and highly participatory reflection on the development needs of the commune.
• **Adoption and approval:**
  
  At this stage, the PCDs were submitted to the respective general assemblies for ratification, after which they were presented to the commune councils for approval and to the mayor for the official seal. To date, all PCDs have been approved and received the official seal.

  The massive effort at mobilizing and involving the communities resulted in the finalization of PDCVs:

  • PDCVs in 135 out of 138 *fokotany*.
  • PCD, based on community needs and priorities at municipal level as well as priorities and needs identified by PDCV in all municipalities (11) covered by the project.

  To embed a sense of collective responsibility, the PHBM helped create structures that enable the participation of every commune development group. Let’s take a look at how this worked in Tranomaro, a town situated not far from Tsivory, and often cited as an example of collective dynamism.

  The boring of a well, the laying of the foundation of a basic health centre, the rehabilitation of schools ... all this work is the fruit of consultations and collaboration between inhabitants of the rural commune of Tranomaro. According to the vice-president of the local commune development group, progress begins with the consultation of all members of the community. “Decisions are taken in a consensual way during consultation meetings. Everyone describes the problems they are facing, defines her own priorities and proposes solutions: Not enough schools? Illnesses related to clean water problems? Animal diseases? What are solutions for the long term? How can we preserve our achievements?” With the support of the PHBM, development plans were formulated and funds made available to finance work for shared interests.

  In 2001, nine communes established a CCD. Another two towns, Tomboarivo and Ranobe, followed suit in 2003. CCDs are basic structures of local planning. The inhabitants of these towns, who are mostly illiterate adults, had to overcome several hurdles to
master the meetings of consensus and to define together their priorities.

Maximin Andrianantoandro, Coordinator of the Farmers’ Organization Group of the PHBM and who was seconded from AHM/Kiomba, underlines that consultation was not among the habits of the population of the region. He said, “At that time, the villagers completely lacked the concept of dialogue and consultation. We taught them the basic proceedings of how to hold meetings.” Faneva, an onion farmer from Tranomaro, is of the same opinion, adding, “Traditionally, we have a culture that is very individualistic.”

Since then, the mentality has changed. Exchanges and discussions are free and rich. “The project technicians helped us understand that it is in our interest to express ourselves freely, without constraint. It’s a question of our development and we are the main people concerned,” emphasized Tlig, an inhabitant of Tranomaro. Even the names of the associations that have been created reflect the idea of doing things together: “Miraihina” (solidarity), “Miraisoa” (union), “Miraihevitra” (consensus). The objective is to adopt a decision that belongs to the majority without harming the minority.

The spirit of mutual assistance and solidarity has changed the course of events. Women have found a more powerful role in discussions. Previously, they were excluded from all decision-making, and now their participation has become active. Noeliarisoa, a market garden farmer in Tranomaro, reports that in the consultation and dialogue processes “women are equal to men; the men no longer have the monopoly on discussion and decision-making. Women have their place and take part in all activities.”

The PHBM supported local people in the formation of CCDs. Awareness-raising campaigns were conducted by the project in communal towns, then in fokontany. The coordinator of the Farmers’ Organization group explains that “putting CCDs in place wasn’t easy. It’s the result of a long process. We had to explain to the population many times the roles of a consultation group, its structure, the roles of each member of the office.”

Putting in place a community development structure takes, on average, three months. “It was necessary to adapt the structure of each CCD to be representative of the population,” explained the
coordinator. In communities where most people raise livestock, many committee members are shepherds; in crop-growing agricultural communities, representatives are farmers. Each district proposes a community development worker, who is given basic training in communication and how to conduct a meeting.

The local community has progressively taken on more responsibility in all the activities being undertaken. At the beginning, PHBM agents alone directed discussions during meetings and general assemblies. Then, meetings were directed jointly by project agents and the directors of the local development entities, notably the heads of local groups and development workers. Today, these structures are all independent: “Now many CCDs are autonomous. If they need it, they can get help from PHBM agents, who are still present at meetings, but just as observers,” said PHBM’s coordinator of Farmers’ Organizations.

One CCD member described some of the positive results of the project and the creation of CCDs. “If we take rice cultivation before the project, in 2001-2002, the yields were 2 tonnes per hectare, but that has increased to 6 tonnes per hectare since the project. This was achieved because the farmers adopted improved techniques. Planting in lines has been adopted, even for sorghum. Some people have tried with manioc and maize and have seen notable results. Yes, this is development.” With respect to livestock, he added, “There has been a great reduction in disease. Before, 60-70 per cent of the cows were infected with some disease, and that is now about 10-20 per cent. Every village and fokontany has vaccinators that were trained by PHBM.”

Another CCD member spoke about the irrigation schemes and market gardening. “The eastern part of the commune had investments made in irrigation schemes. This year, production was good since before the approach of Christmas the price of rice was exorbitant, reaching as high as 2,500 ariary per cup (300g). But now the price is stable at 1,500 ariary thanks to the schemes that the project put in place. This has changed the life of the people. And then there is the market gardening. Those of us who had never eaten a lot of onions now have the possibility to do so. The nearby market has a lot of it. The income from this activity can cover daily needs and more, since each person produces at least 1 tonne of onions. There are other products as well, such as cabbage and cauliflower.
Normally, during the dry season there isn’t much to eat, but market gardening has stabilized the food security of the people. Vitamin A is assured.”

He then went on to explain sensitization of villages. “The commune collaborates with the project for local development, with the mayor, advisors and above all the president of the CCD to sensitize the population everywhere. The mayor participates as much as possible and the people of Tranomaro are very responsive. They respect the advice they are given. But it takes time, especially since the number of illiterate people was very high and they had to depend on those with a slightly higher level of knowledge. But through the project, adult illiteracy decreased from 80 per cent to 30 per cent. These newly literate people are slowly becoming able to learn through the written aspects of training. As far as school attendance, in 1996 there were only 60 school children, but thanks to the project there are now 1,500 school children in Tranomaro. In addition, a new secondary school for general education was opened.”

All of the CCD members were confident that the positive results would continue after the project reached completion. They believed that the capacities of the local communities had been strengthened enough to keep the momentum going. Development isn’t accomplished in a day.

**From local development planning to local development financing**

The second phase of the PHBM was created in order to continue building the productive base and infrastructure of the population as the principle means of addressing poverty. However, there was a shift in gear: much greater attention was paid to responding to the need for local investment in order to create collective projects that the project beneficiaries deemed to be priority activities. The main thrust of the second phase was on supporting local initiatives, and one of the primary means of doing so was through the creation of Local Initiative Funds (*Fonds pour*...
The idea behind the FIL was threefold: to support local initiatives that would increase income and food security; to promote the development of an agricultural production system that focused on sustainable management of natural resources; and to maximize production by contributing to the reduction in commercial transaction costs, enhanced access to markets and the commercialization of products.

The FIL is the budgetary line under the local initiatives component, and is reserved for co-financing the projects and micro-projects that were deemed priorities through the processes of the various local participatory development plans. The mobilization of funds was the subject of a procedure manual specifically created for the FIL.

Potential projects were reviewed based on two sets of criteria for financing: eligibility criteria, including the nature of the projects, the participants and their contributions, the cost and economic and social quality of the project, as well as its sustainability; and prioritization criteria, which established a ranking of the project vis-à-vis other projects being proposed.

Projects and micro-projects could be categorized in five distinct rural development domains:

- Development of productive or social infrastructure or communication
- Development of agriculture
- Development of livestock-raising
- Environmental activities
- Non-agriculture micro-projects.

FIL played a central role in the financing of projects and micro-projects in these domains. For example:

- The creation or rehabilitation of 74 irrigation networks covering 4,310 hectares of irrigated rice fields, of which 3,042 hectares were extended or newly irrigated areas in 10 of the 11 communes in the project area
- The creation of several rural roads and two de-ticking facilities for livestock
The development of rice and other crop cultivation through 764 micro-projects involving 15,426 beneficiaries, 49 per cent of whom were women.

Through its financing of initiatives related to different aspects of rice production, the FIL was a key factor contributing to transforming the Upper Mandrare River Basin from a rice-deficit area at the outset of the project to a rice-surplus area. Many of the significant results accomplished by the project, and described in these pages, were a direct result of the innovative financing mechanism offered by the FIL, in conjunction with the highly participatory processes of local development that the PHBM developed.

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**Edouard Randrianasolo, the Mayor of Tranomaro**

“Our rice production has increased. So has our manioc and sorghum. So many of our cattle used to be sick and that has diminished considerably. Every village is now vaccinating. The eastern part of the commune has irrigation schemes, and production has been exceptional. And just as important, it seems to be stable.

“Now is the moment to strengthen our capacity. Our commune was involved in the second phase of the project, which means we have just started benefiting. We will need to make sure that we can manage all of these benefits once the project is over. But the people have changed, and I have great hope. One must visit all the fokontany to hear the testimonies and capture the spirit.

“The leaders must present themselves as models for the others, showing the people, demonstrating, letting them see. It is up to the leaders to pass confidence on to the rest of community. The leaders like us and the CCD must serve as models for the others, and we must provide concrete cases. Demonstrations are given – for example planting techniques. When others watch the demonstration, they too begin to express their need for the same. Verbal sensitization rarely works. Leaders have to mobilize among themselves as well to push for sensitization of the population. Information needs to be communicated on the ground. This is the key to sensitization. And sensitization needs to take place at two
levels: in practice and in transmitting messages; through example and through advice; through training and through supporting something that is concrete. This will create a domino effect for development, in which the commune is able to take over development and push it further.”

A strong sense of ownership

The PCD process strove not only to strengthen the skills of the community members involved, but also to create among them a strong sense of ownership – responsibility for the results of the process, a desire to be engaged in the concrete activities, and a financial investment in the activities themselves. The local planning initiatives enriched the “social capital” of the communes on many fronts. The local authorities and leaders understand the importance and usefulness of transversal coordination and cooperation for managing resources. They were also reassured in terms of their central organizational and planning role. They became confident and skilled in planning, initiating and carrying out activities, in allocating local resources and in mobilizing external assistance. Moreover, the training and recruitment of citizens to fulfil administrative, managerial and other roles have increased the level of know-how and operational capacity within the communes. The explicit recognition and support of the commune-level authorities has strengthened the legitimacy of this innovative way of local-level organization, planning and management.

“We are very pleased to have made this choice. Now we know that we can manage things on our own. We have learned to focus on our strong points and to use them to the best advantage. We know how to use our human capital as well as our own financial resource.”

CCD Member
The Mayor of Ebelo, another town in the project area, stated, “The project freed us from tradition and steered us toward modernization. It gave us technical training to increase our production, and this training will be inherited by our children.”

At the same time, he pointed out that in Ebelo, bilharzia is one of the main diseases, and the rate of infection is still high, even though the number of cases has decreased in the four fokontany that have water pumps and potable water. He added that potable water is a huge problem. Certain villages have benefited from wells, but others have not.

The facilitator for Ebelo added that in his village, Ankaramangotroka, the main disease is bilharzia, and a request for wells in the village is already in the Commune Development Plan, but funding has not yet been found. However, many childhood diseases such as polio, whooping cough and tuberculosis have decreased considerably because of the sensitivity training that was conducted in each fokontany.

He went on to explain that two facilitators worked to sensitize mothers on vaccinating their children in order to fight disease, as well as on family planning. These are the two major themes of the training, which is conducted in the households and in meetings that are held twice a month in each village.

The Mayor of Ebelo, emphasized, “The project has given us things that will benefit our children. If the parents don’t have the wisdom and knowledge in their souls, then their children will remain in poverty.”
11. PCD projects created with the support of PHBM

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<th>Micro-projects (MP)</th>
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<td>Water reservoirs (market gardens)</td>
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Village specialists

Village specialists play an important role in providing a variety of social and economic services to the local communities. They are non-professional community agents who have received training by specialized NGOs that the PHBM recruited specifically for this purpose. The NGOs established training programmes to create a cadre of village specialists that could respond to the particular needs of the local communities. The idea was to provide highly cost-effective services to the local communities, to strengthen existing structures and thus promote the sustainability of local activities.
Through the PHBM, the following village specialists were recruited and trained:

- 11 community development facilitators – responsible for sensitivity training, managing community meetings related to the development of PCDs, and working with the communes in defining development strategies
- 36 agriculture facilitators – responsible for organizing WUAs, providing agricultural training and support, and inspecting any work being conducted in the irrigation networks
- 135 village vaccinators – responsible for vaccinations and parasite removal treatment, as well as for supplying veterinary products
- 14 women village vaccinators – similar responsibilities as their male counterparts, but for poultry
- 11 commune-level vaccinators (1 per commune) – responsible for organizing livestock vaccination campaigns, supervising the vaccinations, ensuring that veterinary products are available
- 139 nutrition facilitators (49 men, 90 women) – responsible for sensitizing villages on nutrition, providing nutrition advice to women, weighing children, establishing relationships with the Health Centres
- 133 community health agents (45 men, 88 women) – responsible for sensitization and advice on family planning and contraceptives, and for establishing relationships with the Health Centres
- 120 health and reproduction education teams (60 men, 60 women) – responsible for sensitivity training and advice on sexually transmitted diseases, and for the sale of condoms
- 88 traditional obstetricians – responsible for sensitization on maternal and child care
- 173 village literacy trainers – responsible for assuring the smooth operation of the 251 literacy centres put in place through the project
- 68 water network police – responsible for organizing irrigation water users with respect to managing the irrigation systems
• 63 waterway guards – responsible for the opening and closing of the waterways, and inspecting them for sand build-up and other potential problems
• 30 facilitators (women) for improved stoves – responsible for promoting the use of the stoves, and for training in constructing and using them
• 638 village fire committees – responsible for sensitization on managing and controlling brushfires, and on adhering to relevant rules and regulations concerning them, investigating illegal brushfires
• 22 private nursery operators – responsible for providing young trees to reforestation groups supported by the project
• 43 environmental education teachers (9 women) – responsible for providing environmental education in 22 schools in the project.

The majority of village specialists receive some sort of compensation or remuneration for the services they provide. For example, they may be paid a fixed salary by one of the existing structures (e.g. a health centre) or by the commune in which they operate; they may receive compensation directly from associations they support (e.g. WUA); they may receive a commission on the number of veterinary products they sell or the number of livestock they vaccinate; or, in the case of the village fire committees, they may receive commission for each report of a violation that they submit.

The introduction of the village specialists has made a significant difference in the villages. The fact that so many important services are now provided within the villages themselves and through local residents who have been trained means that the level of self-sufficiency of many villages has increased, particularly those that are isolated.

At the same time, the links and distinctions between the village specialists and public services could be improved, especially in terms of better demarcating the areas of expertise and scope of work of the village specialists. It is important to clarify the distinction between a village specialist and a professional agent,
especially with respect to human and animal health services. As well trained as a village specialist might be, he or she does not replace the professional agents, but should be considered more as an “auxiliary” agent.

In Ebelo, for example, Andriantompoisoa, the community vaccination specialist, brings together zebu owners to inform them of the need to periodically vaccinate their animals to immunize them against diseases. “We trust him completely,” explains Raymond Laha, Head of the Livestock Association, adding, “the project technicians only need to oversee his work now. In these villages, the vaccination specialist follows up, monitoring the animals and keeping checks on vaccination records.”

Andriantompoisoa is one of some 1,900 village specialists trained by the PHBM and who now have the necessary competencies in some of the most important development areas: maternal and infant health, livestock breeding, popularizing new agricultural techniques and protecting the environment, to name but a few.

This is a key strategy of the PHBM to ensure social and economic services for local communities at low cost. The village specialist forms a relay between what he learns from PHBM technicians and the members of the community. In short: he’s a “farmer-pilot” who serves as a model for the community, chosen for his dynamism and his competence.

Accompanying the farmers towards the path of modernization is the primary role of these village specialists. The agriculture relay-technicians, for example, are the first to apply on their own land the techniques popularized by the project. Neighbours witness first-hand the validity of these innovations and generally don’t hesitate to follow suit. Tomboarivo, a new town of 2,900 inhabitants, boasts many new village specialists – midwives – who have undergone training from representatives of the Ministry of Health. “If a woman doesn’t have time to come to the closest maternity clinic,” explained a young mother, “we know that the midwives will be able to ensure a correct delivery.”

Putting the process in place took some time. It was necessary, first of all, to identify people who could be leaders in the villages then to ensure the correct technical training was provided in the areas that they were most familiar with. In this way, village vaccination specialists are cattle owners, midwives are trained to
provide increasingly comprehensive obstetric care, nurserymen are committed protectors of the environment, project liaison agents are model farmers. They are first of all educated about the advantages that they will bring to their community, then they are trained in techniques for conducting meetings and transmitting knowledge before being taught about the evolution of the techniques themselves.

The ABCs of involvement

Striving to involve an overwhelmingly illiterate population can prove to be a daunting task. For this reason the PHBM decided to integrate functional literacy into the second phase of its intervention in the Upper Mandrare River Basin: an initiative that has taken off among the population of the project area. The project also intensified its training in managing economic activities, marketing production, managing associations and other subjects that are essential for building “internal” capacity.

George Rasabotsy springs to his feet in front of everyone to talk about his new life since he learned to read and write. This inhabitant of Tomboarivo, a town situated 35 kilometres to the west of Tsivory, the capital of the region, is newly literate, having successfully passed levels A and B of functional literacy. “Learning has liberated me completely from my inferiority complex. I’ve been participating more actively in group meetings and I can develop my arguments more clearly,” he said. The pride of this man is a good reflection of the state of mind of the majority of the 6,600 newly literate people of the Upper Mandrare River Basin. “Before, I had to rely on the help of my neighbours to write my correspondence,” he said. “Now, I keep my affairs private as I write my letters myself.”

“The illiteracy of the population acts as a brake on development,” explained Jean Maximin Andrionantoandro, Coordinator of the PHBM’s Farmers’ Organization Unit.
During the first phase of the project, it was noted that the illiteracy of adults constituted a block against their dynamic participation in the different development activities. Consequently, functional literacy-building was integrated into the second phase of the PHBM, in the context of local capacity-building.

The objective of promoting functional literacy is the responsibility of the NGO “Action Pour un Environnement Lettré” (APEL – “Action for a Literate Environment”), through a partnership agreement signed with the PHBM. APEL is a technical operator specialized in functional literacy-building for adults. In 2004, an awareness-raising campaign began. Functional literacy-building adopts a programme that gives learners concrete skills that can be applied in everyday life. A total of 6,600 people have finished the first two levels: A and B. After these levels, students are considered “newly literate”. The training takes place during the low agricultural season (between May and October) and takes the form of five two-hour sessions per week, for a total of 200 hours per course. The ultimate aim is to bring literacy to 8,000 adults.

12. Evolution of literacy centres

![Graph showing the evolution of literacy centres from 2002 to 2006. The number of centres increases steadily over the years.]

- Number of centres
In 2005, a third level was created for those who want to go even further. That first year, more than 700 learners took part in level D. After the project, they will be called upon to ensure the teaching of their peers. For these future literacy-builders, the programme is more elaborate, covering agricultural techniques, basic management, maintenance of common infrastructures and the fight against HIV/AIDS. The perpetuation of literacy depends, above all, on these literacy-builders but also on the will of new learners, who must assure the would-be teachers of some benefit.

13. Advanced literacy training

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
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<td>No. of literacy training centres</td>
<td>22</td>
<td>10</td>
<td>34</td>
<td>83</td>
<td>51</td>
</tr>
<tr>
<td>Level D graduates</td>
<td></td>
<td></td>
<td></td>
<td>40</td>
<td>636</td>
</tr>
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</table>

Literacy- and numeracy-building have a real impact on the lives of those who learn to read, write and count. For Donnal, a 60-year-old farmer from Befihamy, a man who can read, write and count is no longer a target for exploitation and swindlers. Talking about his life before the literacy and numeracy programme, he said, “I knew neither the weight of goods nor the exact value of money.” Soragnavy, a cattle breeder from the town of Marotsiraka, also recognizes the importance of the learning programme. “I write my own notes about the zebu after their vaccinations,” he said proudly. The literacy- and numeracy-building programme was begun above all for members of farmers’ organizations, but it later spread to reach the whole population. Andrianantoandro explained, “The aim is to facilitate the adoption of different techniques being introduced by the project.” Kazy, a rice grower from the town of Ebelo, added, “All the lessons have something to do with everyday issues and responsibilities.”

To encourage the population to sign up for literacy/numeracy, the local radio “Feon’i Mandrare” (Voice of Mandrare) broadcasts a programme to discuss the outcomes of the
literacy/numeracy programme. Erizo Andriamifidy, in charge of the project’s Communication Unit, explained that radio spots are a very effective tool in encouraging people to write. The project strongly promotes a culture of written communication, as Andriamifidy emphasizes: “We envisage putting in place a village library in towns that have literacy centres; here, inhabitants will be able to consult technical materials on cultivation and livestock breeding.” The final aim is to give the population the means to take care of itself and ensure a bright future.

Beyond the direct impact of having literate leaders in the communities, this activity has undoubtedly encouraged families to send their children to school, which explains the high increase in school attendance in recent years.

A “newly-literate” speaks out

Maka Philippe – or Ralipo to his neighbours – is in his forties and a father of four. He learned to read and write only three years ago. A smallholder farmer from Sakahala, a village in the rural commune of Maromby, Ralipo has become a pillar of development in his village: leader of farmers, and himself a literacy-builder.

“It was my sworn intention to learn to read and write for ages, but the dream was only realized when the Upper Mandrare River Basin Project actually arrived in our area. I depended too often on my neighbours when I needed someone to interpret a text or carry out a transaction. More than once, I got swindled: customers showed me their calculator screens with figures that meant nothing to me. So I had to go along with it.

“For a long time, I wanted to participate actively in the development activities of my village but my inability to read or write really handicapped me. I couldn’t do many things: writing reports, counting, estimating expenses, participating in different PHBM training sessions. It was difficult to remember things without being able to take notes on paper. What I learned went up in smoke as soon as the training was over. For all these reasons, I decided to take a functional literacy-building course through the project, during the 2004, 2005 and 2006 sessions. In my opinion, to become a community leader, reading and writing are imperative.
“Since the training, I no longer ask for help any more when I am writing personal mail, or when I calculate my expenses. I can make notes to refresh my memory. And one thing: learning to read really gave me a push in everything. I have become a leader in the community: President of the market garden farmers’ organization “Volasoo”, President of the Village Development Committee, seller of vegetables, a member of Credit with Education, second Vice-President of the Savings and Credit Mutual, FIVOY, Vice-President of the management committee, a health activist, and a member of the onion-selling committee.

“All in all, I must recognize the support and assistance of the project, which doesn’t skimp on the means and advice that it gives. PHBM is with me on all the activities I am undertaking. From my side, I never hesitate to ask them for help. Thanks to the project, which freed me from the prison of illiteracy, my horizons are constantly broadening. Recently I was able to take part in regional and national economic fairs, where I discovered other cultivation techniques that will be useful in my farming.

“As leader of farmers, I have also become a literacy trainer for the surrounding areas. In fact, I took the courses for public school teachers in Maromby to improve my knowledge. My ambition was to obtain a diploma. And I have achieved that. The diploma of Certificat d’Etude Primaire Elémentaire (Certificate of Elementary Primary Studies) is in my pocket. And I hope to get my Brevet d’Etudes du Premier Cycle (High School Equivalency Diploma). At the moment, I am in charge of 35 people. Each one pays 200 ariary per month. Each learner brings a notebook and pen. My family members aren’t idle either. My two sons and my two daughters are enrolled in literacy courses, while my three grandchildren faithfully attend school.

“As a newly literate person, I must actively maintain the skills I have acquired. I regularly practice intellectual activities: getting involved in groups, taking part in discussions, writing reports, keeping budgetary accounts. At the same time, I mobilize those around me, encouraging them to take on responsibilities in development activities, to join associations, to come by offices like that of the project. But above all, it is important to convince them to send their children to school.”
CHAPTER 6

THE POWER OF ONIONS AND GARLIC

Something that resonates success or prosperity is evident here. There is a sense of order and tidiness that neatly corresponds to a sense of pride and well-being. The village looks as if it had been built from a master plan, rather than through random evolution. Homes are in clusters, with lots of right-angle positioning and wooden fences demarcating one land function from another. The homes themselves are of earthen brick, entirely regular and smooth and topped by new thatch or even wood. The red earth is everywhere, of course, but those areas used for vehicles and as footpaths are clearly distinguishable: they are level, free of any vegetation and are swept regularly. Flame trees – flamboyants – are in great abundance, as if heralding a special moment, a special place. Something else is in even greater abundance here. Everywhere the eye looks there are piles of purple onions. They are heaped precariously outside the entrances to houses and shops, they litter yards like children’s playthings, and inside the homes they spill out from under beds and tables. Despite such a profusion of onions, there are no tears, only smiles that come from knowing that the quality of life has improved dramatically, and that it is probably here to stay.

In addition to the main rice production activity, the PHBM looked for other economic opportunities that could flourish from the investments in productive infrastructure. The Upper Mandrare River Basin has agroclimatic conditions that are favourable for the development of “cultures maraîchères” – market gardening. In addition, market gardening has high income potential. Therefore, the PHBM decided to support market gardening, in particular non-perishable products such as garlic and onions. The irrigation potential of the project area is sufficient, and cultivation does not
interfere with the *tsipala* (the rice season) since onions and garlic are cultivated from April to June and harvested from July to September, whereas *tsipala* is cultivated from December to March and harvested from May to June.

Before the project, the main market gardening products were “*brèdes*” (leaf of a local vegetable), tomatoes, cucumbers, garlic and traditional onions. The gardens were comprised of small plots that were managed by the women during the dry season. Traditional irrigation methods were used: buckets and watering cans. The area cultivated ranged from 50 to 200 square metres, depending on the family. Farmers rarely purchased seeds. Instead they used the seeds from their production or exchanged seeds with neighbours or friends from other regions.

Following the midterm review of the project in 2005, a stronger emphasis was placed on developing “subsector” strategies geared more toward the market. Onions and garlic were identified because of their income-generating potential owing to a strong demand locally, nationally and regionally.

At the time, the project area did not have a reputation as an onion-producing area, and the collectors purchased onions from nearby areas, particularly the commune of Mananovy in the District of Betroka (an eight-hour drive from Tsivory and 18 hours from Fort Dauphin). The promotion and commercialization of onions and garlic in the project area began in 2006 with the aim of establishing the project areas as a main producer – and competitor – of market products.

The project undertook a study to understand the feasibility of cultivating onions and garlic in the project area, as well as to develop a system for teaching potential producers how to cultivate and manage their fields. The study did not reveal any particular difficulties with respect to cultivation. In fact, it indicated that cultivating onions and garlic could be a highly effective income-generating activity, especially since they were not highly perishable or highly vulnerable to insect attacks. Moreover, the massive mining activity that is to begin in Fort Dauphin in 2008 would provide a vast market for these products. An additional export market would also be possible on the neighbouring islands of Reunion and Mauritius.
The project then installed a field school, followed by demonstration plots for visits and training. Seeds and phytosanitary products and material were provided within the “mini-project” framework. In fact, market gardening on small, irrigated plots accounted for more than half of the requests for financial and technical support within the mini-project framework (401 out of 679 micro-projects).

The project has supported 401 micro-projects taking up market gardening, benefiting 7,650 people, of whom 4,270 are women. Support is provided in four ways:

- Intensifying and strengthening producer groups through training on production techniques, including simple irrigation and low-cost equipment and material
- Supplying quality seeds and manure
- Identifying market niches and analysing constraints and possible adaptations in terms of the agricultural calendar, quality and production schedules for sound commercialization
- Creating commercialization committees to assure research on national, regional and international marketing opportunities. This research was facilitated by the PHBM, which allowed selected producers to participate in the International Rural Economic Fair, which is held each year in Antananarivo.

Ndrivotsy, President of the *cultures maraîchères* association at Maromby, explained how everything started in 2002 when the project technicians arrived to give training on market gardening, an activity that the residents of Marumby had not practiced. The residents were soon convinced and had to form an association in order for the project to support the activity. Two facilitators, a man and a woman, convened a meeting of the whole village, in which they explained the advantages of market gardening. The two facilitators live in the village so they were able to have continual contact with the villagers to convince them. The people started to reflect on it, and after two weeks a group decided to form an association. He added that there are 25 members in his association, of whom 11 are women. This breakdown is rather remarkable, since market gardening is traditionally a woman’s task.
“Some men mocked us for growing onions in an area as dry as ours, but today they are doing it too,” said Noeliarisoa Philbertine, a member of the market gardening cultivation association in Tranomaro. The role of the Marumby association is to meet with the members to establish fees to be used by the members for their needs. Seventy-five per cent of the association’s production is for sale, and the remaining 25 per cent is for consumption. Ndrivotsy added that the products are very easy to sell, since buyers arrive at the nearby market and purchase all of the produce. “I am extremely confident that these activities will be able to continue even after the project is no longer here,” he said.

Watering capacity was one of the most significant constraints, and the project supported the installation of pedal-operated water pumps as well as motor-operated pumps in order to progressively increase the cultivated area and subsequently production. The launching of production on the rice fields was also intensified in 2007 in order to reduce the labour required for watering, to scale up and diversify cultivation. Market gardening producers were identified and provided with material and equipment, as well as technical and commercial advice in order to help them to enter the market chain and have sufficient supply to participate in the market once the project had disengaged. Local trainers were also formed in order to assure continued training at the village level.

In terms of production, tonnage is increasing continually: 189 tonnes of onions in 2004, 300 tonnes in 2005 and 320 tonnes in 2006 (despite a very dry season), and exceeding 800 tonnes in 2007. The number of producers who cultivate more than 1 hectare of onions and garlic has increased as well: from 2,046 in 2006 to 3,800 in 2007.

Many producers affirm that the income from onions and garlic has surpassed that derived from more traditional crops, such as rice and manioc. Moreover, it has contributed substantially to reducing the detrimental effects of the 2005-2006 drought. As Ms Joséphine, a market gardener, testifies, “At this point, I would never give up my market gardening activities. The income I get enables me to raise my five children without difficulty. I take care of organizing the sale of my produce in Amboasary by renting a truck to transport them.” Another market gardener, Ms Soavelo, stated,
“Thanks to market gardening, my young daughter can live. I gave her the name Havotra, which is the name of my association. It means “to save”. From the income I earn, my daughter goes to school and I can afford all the school materials that she needs.”

In view of the opportunity that presents itself in the region, farmers are defining more ambitious objectives: commercializing market garden produce from across the region. “It involves moving from subsistence farming to commercial farming,” said Tlig, a simple farmer. To do this, the surface area allotted to vegetables must be increased: “Before, fields for this produce were rarely greater than 5 square metres. Now, onion and garlic farming is being done in large strips of 30 square metres,” said Faneva, an avid market gardener from Tsivory. Cultivators are forming a union in order to better target the market. “We are creating growers’ unions so that we can penetrate the market together with the hope of securing a stock warehouse so we can store and conserve our produce better.”

To make farming even more profitable, producers are pursuing market gardening and rice-farming together. “Low-season growing, practically unheard-of in the past, is now a habit for farmers. After the rice harvest, rice farmers make space for garlic and onions,” explained Manoa Andriatsilavo, Head of the Agricultural Unit of the PHBM. “Previously, in April and May, between two rice-growing seasons, the fields were not being used. It was a waste,” he added.

This change in behaviour follows the adoption of new techniques: “When the surface increases, it is necessary to use adapted methods,” explained the project technicians. Agents of the project held regular demonstration sessions in how to use simple innovative materials, like a motorized pump. Planting in rows and the use of manure and fertilizer make every square centimetre of the land surface profitable. The project technicians had to fight hard to make the farmers understand that, aiming for the market, they had to grow on a larger scale.
From a family of vegetable farmers in Befihamy Mahaly

“We are agriculturalists, and we are limited to our traditional techniques for cultivating rice, corn and peanuts. Before the project arrived, our production was very low and we were often in difficulty: we could barely buy clothing for the family, and there was not enough money for other basic needs. Our production wasn’t sufficient for our own food needs for the entire year. Our food needs are based on rice, cassava and sweet potatoes but there wasn’t enough.

“When the project arrived, we learned modern agricultural techniques and our standard of living changed. On a 1-hectare rice plot, we were producing at least 6 tonnes because of the new techniques we had adopted. We are now also market gardening, and that is increasing our income because it doesn’t depend so heavily on rainfall. Market gardening used to be women’s work, but now the men are involved as well.

“Before, market gardening of brèdes and vegetables was done to provide only food for the family. But thanks to the training that the project gave us on diversifying income, we decided to enlarge our cultivation. We grow mostly onions and garlic. We can earn 500,000 and sometimes even 1,000,000 ariary. Before the project, a producer earned a maximum of 40,000 ariary per year.

“We have been cultivating market garden produces for three years. People from the project taught us about the profitability of this cultivation. They trained us in the techniques of cultivation and supplied the necessary equipment and seeds. They also convinced us to expand our production. The first year, the project helped us with commercialization of our products. They even helped to organize ways for us to transport our products to neighbouring areas to sell them.”
And the “miracle” of *Moringa*

*Moringa oleifera*, a shrub originally from India, is attracting growing international interest. Its properties and uses are multiple. It is called the “miracle tree” in India, where it is recognized as having many virtues. According to traditional Indian medicine, *Ayurveda*, *Moringa* leaves can prevent 300 diseases. Scientific research supports this idea. It has effectively been proved that *Moringa* leaves are an incomparable source of essential nutrients (vitamins A, B, C and E, calcium, potassium, iron, magnesium, etc.). The leaves and the young seedpods which are also composed of between 5 and 10 per cent protein can be eaten like vegetables or used as animal fodder. Leaves can be picked, crushed, dried and easily conserved and can be used in the preparation of sauces.

*Moringa* seeds are also very precious. Crushed seedpods provide an excellent food oil, while the remaining husks can be used as combustible fuel and fertilizer. The capacity of *Moringa* grains to purify water is one of the properties that have been in use the longest. Impurities present in the water come out as a flocculent precipitate on contact with powdered seeds. The oil can be used in the production of handmade soap. A tree that exhibits very rapid growth and persistent foliage, its leaves can be collected just one month after planting, then every two to three weeks. The yield can reach 65 tonnes of fresh material per hectare per year. Seeds can be collected from only eight months after planting. The tree is resistant to dryness, it only needs water during the first weeks of growth and is subsequently satisfied by Sahelian-type rains.

These properties mean the *Moringa* is particularly adapted to the Upper Mandrare River Basin area. Regional rainfall averages 800 to 1,000 millimetres per year except in very dry years when it is close to the rate of the Sahel. One of the objectives of the PHBM is to promote a system of sustainable agricultural production and management of natural resources. For this, the project is implementing environmental activities such as the promotion of multi-use trees and agro-forestry. It is in this sense that *Moringa* was introduced in the Upper Mandrare River Basin in 2004. The idea was, above all, to support local initiatives protecting the environment while improving food security and sources of income.
The choice of *Moringa* rested therefore on its medicinal, nutritional and ecological uses but also on an interesting commercial opportunity. A company from Amboasary, about 150 kilometres from Tsivory, has been cultivating 220 hectares of *Moringa* for almost ten years. The company extracts oil from the seeds, which is of value in the cosmetic industries and in clock-making. A partnership was established between the PHBM and the company, who would provide the initial seeds. The project subsequently bought seeds directly from local farmers who had had success with the planting of *Moringa*. The production of young plants was ensured by local nurseries. These are managed by communal nursery operators trained by the PHBM intermediary. The young plants are then given to beneficiaries of reforestation micro-projects. Along with the young plants, beneficiaries also receive technical training on the preparation of the soil, how to care for the plants, and how to replant and populate a crop. The yield obtained is around 3 kilograms of seeds per year per plant (3 tonnes per hectare) after two or three years of planting. The Amboasary company buys the seedpods at a price of 900 ariary per kilogram (approximately US$0.50).

Belonging to the family of leguminous plants, *Moringa* contributes to the improved fertility of the soil by producing nitrogen through its roots. What’s more, the pattern of planting imposes a spacing of three metres between the shrubs. These characteristics permit the practice of planting complementary crops. Farmers plant *Moringa* together with rainfed crops (maize, manioc, sweet potato) and even with market garden crops (onions), which can benefit from the nutrients that *Moringa* provide. It is also advised to grow *Moringa* together with chilli peppers, another crop that can bring a rewarding profit to rural farmers. The introduction of *Moringa* is a real innovation in the Upper Mandrare River Basin. Very good results have been observed since the 2005/6 campaign. Around 50 hectares have already been planted in the project area of the PHBM. If the primary object of the introduction of *Moringa* in the region is to increase the income of rural farmers by the selling of seeds, officers of the Environment Unit didn’t neglect to raise awareness amongst beneficiaries of the nutritional richness of this shrub. Mr. Ialy, who planted 6 hectares of *Moringa* in 2006, has become a model for other farmers. “Following the planting method
is not difficult and I see the benefits that the leaves bring to my children. We add them to their food and we see that they are in better health.” Training has also been provided to teach the population to use the seeds to purify water.

The Environment Unit has worked with primary school students to help them discover the principal virtues of the plant. They also planted *Moringa* on little patches of land. The Environment Unit is now going to work with farmers to organize the marketing of the seeds. What’s more, technical officers are going to give training in the production of handmade soap from mature seeds, and they intend to carry out demonstrations for cooking techniques at the homes of rural people, in partnership with the Regional Office of Nutrition for the Anosy Region. In short, it can be expected that the cultivated surface area is going to be further increased between now and the end of the project.

*Moringa* is already very well known in the many African countries where the population use it in the struggle against infant malnutrition or for biological purification of water. The economic value of the seeds and the nutritional quality of the leaves are still little-known in Madagascar despite its wide dissemination in the country. Officers of the PHBM who participated in the International Fair of the Rural Economy of Madagascar in Antananarivo (August 2007) used the opportunity to present *Moringa* seeds at this event. They aroused a real interest on the part of farmers. Volunteers from the Japanese Cooperation in Madagascar plan to start propagating *Moringa* in the Bongolava region, notably at the Seed Propagation Centre in Sakay. Student-researchers are beginning to become interested in the plant’s multiple properties. The National Office of Nutrition, based in Antananarivo, has signalled to the PHBM a will to buy seeds in the region.

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**A family of Moringa growers in Befihamy Mahaly**

“We started cultivating *Moringa* only recently. We gather the pods and remove the seeds. We use the seeds to purify our drinking water. You take a spoonful of the seeds and pour a bit of water on them. You let it form a paste for about five minutes and then you pour the paste into 10 litres of water. This process purifies
the water. We also received information from the project on different ways of using the *Moringa* leaves, and we are now using them to prepare a sauce called Laoka.”

**Power in numbers: farmers’ organizations**

Onion and garlic farmers in Amboangy have learned the concept of power in numbers: they formed an association in order to set up a committee for commercialization. The first market they are aiming for is the development “hot spot” of Taolagnaro (Fort Dauphin), where demand is growing rapidly with the development activities associated with ilmenite exploration – this new regional growth pole is an extremely promising market that has caught the attention of farmers’ organizations from 17 villages of the Mahaly district.

Farmers’ organizations are the fundamental structures of development for the Upper Mandrare River Basin population, especially for women, the landless and young people, who do not own sufficient numbers of livestock. During the two phases of the PHBM, 125 farmers’ organizations have been set up, and they work with local initiatives. In Amboangy, producers, united in farmers’ organizations of 17 villages of the Mahaly District, have grouped together to found an original entity: the “Commercialization Committee,” directed by members chosen at their general assembly. They have benefited from PHBM financing for the building of a local storage facility for onions and garlic next to the Main National Highway. While they wait for work to be completed, they have already decided on the future path of commercialization: the personal stock of each producer will be entrusted to the association, and members of the Commercialization Committee will search for prospective buyers in Taolagnaro and Amboasary. The Committee will absorb the costs of this search.

Every person can deposit their harvest into the storage facility, without paying a fee, to wait for better prices, even if he or she plans to sell them without passing through the Committee. The strategy is to impose a decent price on buyers. In addition, producers no longer have to face buyers alone since it is the Committee that will speak on behalf of the whole community of
producers. Since this system has been put in place, the price of 1 kilogram of onions has risen from 400 to 800 ariary, and buyers no longer dictate the rules.

Farmers’ organizations receive training from PHBM technicians on financial management and planning activities, among many other topics. The idea is to create strong farmers’ organizations that can serve as a foundation for a new strategy for the producers: uniting their common interests to promote and defend themselves more effectively. Multiple tasks are devolved to the farmers’ organizations but the most important concern the integration of new production techniques that farmers are encouraged to adopt – arable farming, livestock-raising and commercialization, among others. One edifying case is the market garden farmers’ organization from Befihamy, in the district of Mahaly, which has 30 members. This organization has seen its onion production mini-project benefit from a grant of 70 simple agricultural materials. Members can borrow these materials for an annual contribution of 400 ariary; that is, the price of 1 kilogram of onions. “We could never have acquired these materials by ourselves,” said one member. Other groups have been able to buy zebras thanks to community funds such as this.

Each district, based on its Commune Development Plan, identified its priorities, and beneficiaries were urged from the outset to form small groups to “manage themselves better and better,” said Maximin Andrianatonadro, Head of the project’s Farmers’ Organization Unit. “It didn’t happen overnight,” he added, “and the material donations weren’t the only advantage perceived by producers. The funds allotted to micro-projects have improved local perceptions of the collective structure.” Not only have local perceptions been improved, but so have livelihoods. In many cases, members of farmers’ organizations are no longer fighting famine and can now focus on further improving household income.

During the last two years, PHBM has put lot of effort into federating all the grass-roots associations at local and regional levels, and some links were established with national apex organizations. This will involve Mandrare organizations in national farmers associations and will help maintain integration and coordination after the project closes.
CHAPTER 7

WHERE THE ZEBU REIGNS

It’s 7 p.m. and night is falling. Each emerging star – and there are many on this moonless night in the village of Antsakoamalangy – seems to be the signal for another invisible creature of the night to begin its song. By the time full darkness sets in, the orchestra is complete, soothing in its nocturnal predictability. Yet here in the village, there is a tension in the air. Not the tension of seeing a distant storm and wondering whether there will be any moisture left for it to give by the time it arrives overhead. Neither is it the tension of seeing a distant brush fire and wondering whether its flames will be extinguished before they lick at the newly reforested area that the villagers planted tree by tree. No, it is not a tension of seeing distant menaces or promises. Rather it is a tension of inevitability: they were warned several nights ago, and it is simply a matter of time.

In the stillness of the night, the time has come, marked by one gunshot and the frantic refrain of a young boy shouting in Malagasy, “Thieves! Thieves! Our zebus!” Over and over he cries. But aside from these shrill punctuations into the stillness, there is no sound, no stirring. The deed has been done and, as they all know, nothing more can be done. By the time the sun has turned off the stars, and the night orchestra has long moved on to the silent enterprises of its individual members, the thieves, who have placed themselves in distinct retrieval points for their escape route, like racers in a relay, will have led the zebus over the mountain, artfully dispersing them along different paths, where they will be sold on the other side to “buyers” who are already waiting and will conduct them to the urban centres. Another predictability in the Upper Mandrare River Basin.

Animal husbandry holds a very important place in the agricultural and social life of the populations of the Upper Mandrare River Basin. The majority of the population are either cultivators or livestock breeders or a combination of the two. Two of the three primary ethnic groups in the project area – the Bara and the Antandroy – are livestock breeders by tradition. Zebu-raising is the most extensive and important, with holdings estimated at
150,000 heads, when the project area has only 120,000 inhabitants. The raising of small ruminants is also quite extensive (about 100,000 heads), especially for those households that do not have the capital to acquire cattle or other livestock. The local breeds of goat are particularly well adapted to the climatic conditions of the area and can resist long dry spells (usually from April to November). Ovines are less resistant, because grazing conditions are less favourable for them. Goats constitute a form of savings but also a source of food and commerce that is exploited more frequently and easily than zebus. More than 70 per cent of households traditionally practice poultry-farming. Pig-raising is less developed: only 8 per cent of households practice it, with an average of two pigs per household. Poultry- and pig-raising are undertaken primarily by women, whereas the men are responsible for zebus and small ruminants.

Cattle owners living in this semi-arid region are able to move their livestock to a wide range of pastures, which is a key strategy for coping with erratic rainfall. Brush fires are used to keep the livestock from straying too far. Grazing land not suited for crop production is the main feed resource, which is supplemented by crop stubble and straw. Land not used for cropping is frequently community-owned, which also facilitates herd mobility. Some cattle owners hand over the daily care of their cattle to children between the ages of five and 15. Small ruminant producers tend to keep their animals close to the homestead under the supervision of younger family members. Zebus also provide the labour for the preparation of the rice fields (either by trampling the ground or by being hooked up to a cart) and for transporting the agricultural products. The idea of integrated crop- and animal-farming is rather limited, although some farmers apply manure from cattle to their vegetable crops.

In order to appreciate the complexity of developing livestock activities in the project area, it is important to fully understand the social and cultural importance of livestock. The value of bovines is primordial for the entire population of the Upper Mandrare River Basin. First and foremost, livestock holdings are a sign of wealth and prestige. The more zebus a family possesses, the more it is respected and heeded by the community. Therefore, the strategy is to accumulate as many heads as possible. As one 22-year-old man from Elonty said, “I don't have any zebus yet and I
feel a little inferior. I have to get some, at all costs.” Bovines constitute the main form of savings and investment. Zebus are the dowry for the family of a future bride; when someone dies, they are offered to the family of the deceased as financial aid, or they are slaughtered and offered to the surviving family members; they are also used to resolve conflicts and disputes. Zebu is eaten very rarely, and usually during special ceremonies such as weddings and funerals. Selling bovines is considered shameful for livestock raisers. In fact, the sale of animals when the financial need does not justify it is viewed very negatively. At the same time, holdings are continually under threat of theft on the one hand, and of periodic drought on the other. In addition, the privatization of veterinary services that was initiated in 1994 caused health coverage of holdings to drop considerably.

It is in this context that the PHBM began its intervention. In the project’s first phase, livestock activities focused on livestock health, which had seriously deteriorated. When the PHBM arrived in 1996, less than 40 per cent of the animals had been vaccinated, and certain diseases – in particular, anthrax – had re-emerged. The project equipped five communes with vaccination corridors and organized the communities to manage livestock vaccination. In its second phase, beginning in 2001, the project continued its livestock health activities, expanding them to the other six communes that were part of the second phase. Activities were also expanded to include small ruminants and poultry that were being raised by the more vulnerable populations. One other particularly challenging objective during the second phase was the attempt to increase income by promoting livestock as a commercial enterprise.

**Ensuring animal health**

A number of infectious and parasitic diseases pose a serious threat to the production and productivity of the livestock. A variety of tick-borne diseases hamper the zebus’ development. In small ruminants, mange and internal parasites are the major diseases. Throughout the region, Newcastle disease is epidemic among
poultry. In pigs, “African pest”, mange and internal parasites predominate. Access to feed is also a constraint to animal production. And access to water is an acute problem, especially in the dry season, when animals have to trek extensively to find water, affecting their weight.

**Vaccination corridors**

To facilitate vaccination campaigns, the project started by building vaccination corridors made of durable material. A total of 23 vaccination corridors were constructed or replaced the 59 traditional corridors in the five communes where the project was being implemented. However, the new corridors were not sufficient to cover all the livestock holdings in the project area because each corridor covered about 7 kilometres. In its second phase, the PHBM expanded the construction to cover a total of 67 corridors. These additional corridors were built with the active participation of the beneficiaries, who supplied local material and helped with the actual construction. The new corridors and tunnels were built with galvanized tubes supported by iron posts anchored in concrete blocks. (The tubes were filled with cement to prevent them from being stolen and used to make distillation units to produce local alcohol!) They replaced the traditional corridors constructed of wood, which were too narrow and dangerous for the animals. The new corridors were also paved with concrete. Construction was entrusted to the livestock raisers with the supervision of project technicians. They were bordered by sisal hedges. The rehabilitation and construction of the corridors also contributed indirectly to the fight against deforestation, since they are durable constructions that don’t require regular replacement with trees.

Tangible results are already visible in the Mandrare region. Out of every 100 cattle, 65 have been vaccinated and bovine mortality is beginning to be brought under control. Raymond Laha, Head of the project’s Livestock Unit and chief veterinarian of the region, said, “There exists practically no more bovine mortality due to diseases.” Andriantompoisoa, the community vaccinator from Ebelo exclaimed, “My herd no longer suffers from symptomatic or bacterial blackleg.”

Vaccines have become obligatory in order to prevent disease. Denis Ralaivao, Vice-President of the *fokontany* of
Tsivory, himself a livestock farmer, recounts one of the benefits of this measure: “With the vaccination certificates this process gives, I can sell my zebus very easily.”

▶ **Baths and tubs for parasite removal**

At the onset of the first phase of the project, almost all of the livestock, including small ruminants and poultry, were subject to external parasites such as ticks and scabies. The mortality rate for newborn calves due to external parasites was 16 per cent. No significant measures had been taken to counter parasites, such as de-ticking baths and powders. In 2001 two baths were constructed and 21 de-ticking tubs were set up for the goats and sheep. Despite the importance of these facilities, they are hardly used because of the cost involved for the livestock owners (due to the high volumes of water required for operation). Moreover, owners are not used to bathing small ruminants. The livestock associations are also at fault, since they do not promote the use of the tubs and baths.

Consequently, parasite removal is done mostly through mobile showers (portable sprinklers), and the livestock owners often make use of the vaccination corridors to better manage their herds through the process. Others are using veterinary products that are injected to assure the removal of both internal and external parasites. In any event, most livestock owners in the project area do not appear to be ready to make an investment in maintaining the health of their animals from the perspective of parasite control.

▶ **Sales points for veterinary products**

The extreme isolation of the project area prevented it from being furnished with a sufficient supply of veterinary medicine. The rehabilitation of the roads enabled a veterinary agent to come on the market days of the main villages to take orders and supply the livestock raisers.

Livestock owners requested that commune or even village veterinary pharmacies be put in place in order to reduce the cost of medicines and treatment. Eight sales points were identified and, to date, five have been constructed. The project financed the construction, and a veterinarian ensures that the sellers are trained in modalities of provision and in the utilization of the products. The products are supplied by the veterinarians who are responsible for a
particular area. Of the five sales points set up, only three are fully functional. Often the cost of the first provision of medicines and other veterinary products poses a problem for the livestock holders. However, each commune has a sales point that is sometimes managed by providers. The private sellers generally do not have the required skills to assure quality products (for example, the products have often gone beyond their expiry date). Unfortunately, in spite of the infrastructure that the project has put in place, the problem of supply remains.


<table>
<thead>
<tr>
<th>Goat/sheep micro-projects</th>
<th>82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goats/sheep distributed</td>
<td>2,419</td>
</tr>
<tr>
<td>Beneficiary groups</td>
<td>82</td>
</tr>
<tr>
<td>Beneficiaries</td>
<td>3,073 (1,071 M, 832 F, 1,170 Y)</td>
</tr>
<tr>
<td>Vaccination corridors</td>
<td>69</td>
</tr>
<tr>
<td>De-ticking tubs</td>
<td>21</td>
</tr>
<tr>
<td>De-ticking baths</td>
<td>2</td>
</tr>
<tr>
<td>Animals vaccinated</td>
<td>78,743</td>
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<tr>
<td>Animals treated for parasite removal</td>
<td>42,271</td>
</tr>
<tr>
<td>Veterinary product sales points</td>
<td>8</td>
</tr>
</tbody>
</table>

Livestock associations

A total of 67 livestock associations were created around the 67 vaccination corridors to manage the infrastructure and provision of supplies, and to facilitate the preparation of animals destined for sale or savings. The vaccination corridors cover 100 per cent of the livestock holdings of the project area. The maximum distance to reach a vaccination corridor is 10 kilometres.

The members of the livestock associations received thematic training in the following areas:
• Operation and management of an association
• Organization of vaccination campaigns
• Provision of veterinary products
• Animal health and parasite removal
• Vaccinations.

Some of the members were able to participate in adult functional literacy sessions that the project organized in order to benefit fully from the associations. The thematic training enables the associations to operate independently. The members pay a membership fee in order to ensure the operation of the association and to buy the veterinary inputs required for the livestock holdings of the area. However, the transfer of knowledge from technicians and veterinarians to the members is quite slow, owing in great part to the distrust that the members have with respect to outside advice and training. In addition, knowledge transfer poses problems when the real decision makers are illiterate.

From Berthol Emmanuel, Secretary of a livestock association in Esira

“There was no association before the project. We had diseases that were killing many of our livestock and we were really desperate. The project technicians arrived and we explained our problem to them and made a request for vaccination corridors. We formed our association in 2003, which was obligatory as part of the acceptance of our request. There are 64 people in the association, and seven people who manage it. The others are members who don’t have any specific responsibilities, although any decisions that need to be made are made by all of the members. There are two vaccinators in the village who are elected by the members of the association. And there has been a dramatic change since the introduction of the vaccination corridors. Symptomatic anthrax no longer exists. Our association also has an account with the Mutuelle de Mandrare, which we opened in 2004. We have 400,000 ariary in the account.”
For well organized animal health care

➢ Village vaccinators

In each livestock association, two members are recruited and trained in animal vaccination. These two village vaccinators (a primary vaccinator and a substitute), who are approved by a veterinarian, are responsible for organizing the vaccination campaigns and for ensuring that the animals are vaccinated. A total of 124 village vaccinators are operating throughout the 11 communes of the project area. Following training, the vaccinators ensure:

- Vaccination of livestock with the commune vaccinator
- Parasite removal
- Emergency treatment
- Identification of illnesses and diseases and relaying the diagnosis to the veterinary services in the event of epizootics
- Inventory of the association’s livestock holdings for the vaccinations
- Prophylactic treatment
- Provision of veterinary products.

The village vaccinators are designated by members of the livestock association and usually receive compensation for their services by the association members.

➢ Commune vaccinators

A total of 11 commune vaccinators were recruited and trained through the PHBM. These vaccinators are delegates of the veterinary health services, and each covers one of the communes of the project area. They are selected from among the village vaccinators after a competency assessment organized by the public veterinary representative. They are then approved by the livestock associations. Their certificate, which is delivered by the Regional Animal Health and Phytosanitary Service, is valid for three years and is renewable.
The commune vaccinators are responsible for vaccinations, parasite removal, the treatment of animals, and the provision and the distribution of basic veterinary products. They are also charged with planning vaccination campaigns in each commune and supervising the village vaccinators. They also act as an interface between the commune and the public veterinary representative, to whom the vaccination reports are given. Commune vaccinators receive compensation by the veterinary representative.

★ Public veterinary representatives

The public veterinary representative is designated by the Ministry of Agriculture, Livestock and Fisheries and is responsible for assuring health and vaccination coverage of all the animals in his pre-defined area of responsibility, as well as the provision of veterinary products to the commune vaccinators. He is compensated through a percentage of profit from the vaccinations, the sales of veterinary products and the veterinary services that he may provide. There are two public veterinary representatives for the 11 communes.

These functions – village vaccinator, commune vaccinator, public veterinary representative – are generally complementary. The project is working to create synergies between them. However, difficulties are sometimes encountered because the veterinary representative has a tendency to corner the market for the provision of certain products that are not part of his mandate. At times, conflict can arise in the relationship between the commune vaccinators and the public veterinary representative, which can hamper the smooth running of activities. Sustainability at the village level seems to be assured. Village vaccinators are able, in theory, to transmit their skills and knowledge to other members of their livestock association. However, they must ensure that products are not purchased from non-secured sources because of issues of quality. This problem does not exist in the case of vaccinations, since it is the public veterinarian who delivers vaccination certificates and verifies the origin of the vaccine.
Results of the animal health coverage

⇒ Vaccination coverage

During the first phase, about 140,000 livestock were vaccinated. Since the end of the project’s first phase, incidents of anthrax have almost disappeared in the five communes. As a direct consequence, the mortality rate fell from 10 per cent in 1996 to 5 per cent in 1999. During the project’s second phase, almost 80 per cent of the livestock of the expanded project area were vaccinated (before the second phase, only 40 per cent had been vaccinated). The mortality rate is currently less than 3 per cent.

15. Number of cows vaccinated and treated for parasites

⇒ Parasite removal

Although parasite removal is widely practiced for small ruminants, this is not the case with livestock. Significant efforts still need to be made in this enterprise. Livestock owners remain unaware of the diseases associated with parasites (for example, scabies continues to kill many livestock, although it can be treated through a simple shower). Many livestock holders believe that the cost of the parasite removal products is too high, which is a rather perplexing rationale given the asset worth of their livestock. A number of less costly techniques are used on small ruminants, but these techniques become impracticable when the herds are too large. Whereas vaccination is a legal requirement, there is no law
requiring parasite removal, which could in part explain the disinterest on the part of livestock owners.

**Increased livestock holdings**

From 1993 to 2000, the number of cattle in the five communes of the project area increased by 20 per cent: from 36,810 to 44,367. Between 1999 and 2007, livestock holdings of the 11 communes of the project area increased by 46 per cent: from 105,000 to more than 152,000 heads. This increase is most likely an underestimate since the holders generally give an estimate themselves of the livestock they possess. With respect to small ruminants, the increase is comparable: 69 per cent between 1999 and 2007.

Dairy production increased as well, to the point where dairy products went beyond household use to be sold for additional income.

The increase in holdings is not explained solely by better health coverage, which implies a lower mortality rate, but also by the fact that livestock holders continue to invest their earnings in additional livestock. The outcomes of the PHBM in the Upper Mandrare River Basin contributed to an increase in their earnings because of the restoration of the productive capacity of the project area (especially the rice value chain), and most of them are reinvested in this traditional way.

### 16. Evolution of livestock holdings (heads of cows)

![Bar chart showing the evolution of livestock holdings from 1999 to 2007](chart.png)
17. Evolution of goat and poultry holdings

[Bar graph showing the evolution of goat and poultry holdings from 1999 to 2007]

Initiatives to diversify livestock activities

In its “support to local initiatives” component, the PHBM used a participatory approach, supporting activities that were based on village and commune plans formulated by the local communities. In the plans, the communities prioritized development projects that they wanted the project to support. During the first phase of the PHBM, some livestock holders had already tried to diversify their activities by raising laying hens, pigs, turkeys, ducks and the like. Many livestock holders in the five communes of the first phase also wanted to acquire short-cycle livestock, in particular pigs and poultry, and improved breeds. During the project’s second phase, the requests for micro-projects were focused on diversification of activities or the improvement of traditional activities. The selection of micro-projects for financing was based on certain eligibility criteria, such as the nature of the project and those who would implement it, contributions foreseen by the implementers, and project costs, quality (in terms of economic and social impact) and sustainability. The projects selected were financed by the PHBM through the Local Investment Fund – FIL (see chapter 5).


**Improved bee-keeping**

Bee-keeping is a traditional practice of the project area. Improvements introduced by the project consisted of equipping the bee-keepers with modern and mobile wooden hives (Langstroth type). A total of 29 bee-keeping micro-projects were financed. The project supplied some of the material and engaged local woodsmen to construct the hives. Some of the project beneficiaries participated in the construction as well. The project also supplied beneficiaries with equipment necessary to extract the honey. The beneficiaries, who must contribute 20 per cent of the financing requirements of a mini-project, supplied some of the planks needed to construct the casings and were responsible for placing the hives in shaded areas. They also planted melliferous plants to develop their bee-keeping activities. One of the strong points of bee-keeping is that it does not require extensive follow-up once the hives have been put in place, and it does not disturb the agricultural calendar. In addition, it can generate significant income for the beneficiaries: a one-litre bottle of honey can bring in as much as 5,000 ariary. At the start, this activity did not appear to have the potential to become a legitimate subsector, since there were bee-keeping activities in locations that were closer to the markets. However, the local demand seemed to be sufficient to justify local production. The areas selected by the beneficiaries did not have enough melliferous potential to ensure that the hives would be fully occupied. But in the end, the anti-locust products prevented the development of bee-keeping in the project area. These products kill bee colonies. Therefore, support to bee-keeping was suspended.

**Poultry-farming**

Poultry-rearing is very important in the project area, constituting a significant source of income for women and taken up by the majority of households. The Livestock Unit focused on improving local breeds and introducing a new breed of rooster. A total of 27 micro-projects were supported by the project, benefiting 650 villagers, 472 (73 per cent) of whom are women. The
beneficiaries received training that focused on improving traditional poultry-rearing practices: improved poultry coops, prophylaxis and better nutrition. The project provided technical support on the appropriate prophylaxis to administer and provided material and supervision support in the construction of the improved poultry coops. Once again, beneficiaries contributed 20 per cent of the financing by supplying animals, food and labour.

In addition, 14 women vaccinators were trained. However, resistance to vaccinating poultry remains high, despite periodic outbreaks of disease that ravage their holdings. The problem of vaccinations seriously compromises the sustainability of these micro-projects. In addition, poultry-rearing for the purpose of sale rather than consumption is constrained by a lack of markets and the competition from peri-urban poultry-rearing.

**Pack donkeys**

The PHBM financed one mini-project introducing pack donkeys, with 25 beneficiaries in the commune of Elonty. The objective of introducing donkeys in the project area was to substitute zebus with donkeys for transport activities, since donkeys are more resistant. The substitution would keep the zebus in good health for expanded fieldwork. Despite the potential of such an initiative, only one group expressed interest, and soon the interest waned to a point where the initiative was terminated. The populations of the project area have not seen the need to introduce donkeys for transport, especially given the vast number of bovines that are available to perform the same work.

**Improved animal feed through the promotion of fodder**

Adequate feed for animals is lacking in the Upper Mandrare River Basin. Bovines and goats find their food in natural pastures, which becomes problematic when the dry season arrives. The animals are unable to find enough green pasture vegetation and their intake of extremely dry vegetation is minimal. Therefore, they
become weak and more vulnerable. The introduction of fodder began in 2004. The objective was not to cover all of the needs of the project area by distributing seedlings or young plants to the beneficiaries, but to install pasture fodder in strategic locations known as Centres for Agricultural Demonstration and Intensification (Centres de Démonstration et d’Intensification Agricole – CDIA) in order to facilitate distribution near to the livestock holders.

Technicians from the project’s Livestock Unit distributed local species of grass, cactus and pea that had proved suitable in other regions where they had been tested. They included: *Braccharia*, *Stylosanthes*, *Pennisetum* and *Leucaena*. To date, the initiative has been modest: 5 hectares of *Pennisetum* and 3 hectares of *Braccharia* have been planted for the beneficiaries of the livestock-fattening mini-project. It is still too early to know the results.

When natural pastureland is insufficient, livestock holders often burn the cactus to remove the thorns. These water-filled plants are the food base for bovines and small ruminants during the dry season. The project introduced a spineless cactus recently tested in nearby Ambovombe, and livestock holders can retrieve the cacti directly from the CDIA. Unfortunately, few holders have taken advantage of this opportunity: to date only 2 hectares of this cactus have been planted, but the cactus will survive under this climate and will spread as did its ancestor “rakety”.

The PHBM also foresees providing some beneficiaries of the livestock-fattening micro-projects with animal traction reapers. This equipment will enable large tracts of pasture to be reaped when it is available, after which it can be stocked as hay of high nutritive value and used during the dry season.
The ultimate challenge: shifting the mindset towards a commercial perspective

Livestock marketing, a system anchored in a long history

The marketing of livestock, in particular cattle and small ruminants, dates back to the 19th century. Livestock flowed freely from the surplus regions of the south up to the north, and they currently move on foot or by truck after veterinary inspection and issuance of permits. The animals are inspected again on arrival at their destinations in the northern markets. Livestock traders may be wholesalers and/or retailers depending on their capital for trading activities and the number of animals they are able to purchase per trip. More recently, many farmers have become livestock traders during the dry season when farming activity is low. Farmers/producers buy livestock from farmers in surrounding villages and sell for profit at the nearby local markets during market days, constituting another vital link in the livestock marketing chain. Weekly markets for livestock and small ruminants, consisting of a few square metres of open space, are more common across the region in the county of each commune. The lack of adequate facilities limits their efficient operation, as does the lack of market information, weight and measurement standards in the livestock trade, holding yards, and cattle corrals. Livestock farmer associations are beginning to play an important role in the marketing of livestock and a cattle market was installed in Tsivory.

In 2005 the project focused on cattle and goats in its attempt to promote diversification of livestock activities.

Goats are in constant demand in the local markets, and producers are interested in goats as an income-generating activity that is particularly suitable for the poorest people. Many people who do not have sufficient resources to purchase cows turn to goats as an alternative. Moreover, goats are highly adaptable to dry areas, especially in terms of their food needs.

Commercial opportunities for cattle are superior to goats. Given the size of the livestock holdings in the project area (more
than 150,000 heads of cattle), a commercial direction could be particularly remunerative. The great majority of livestock sold in the local markets are then exported.

The development of these two commercial channels was undertaken by the FIL.

**Micro-projects with goats**

For the most part, goats are herded together and feed on crop residues. This traditional method of goat-rearing does not maximize their productive potential. In fact, the mortality rate is high, and the reproduction rate is low, as are overall weight and milk-producing capacity. Such results should not be surprising, considering that the goat sector was never the object of development action before the project, despite its important socio-economic role.

The development actions foreseen were comprised of a package of “technical themes”: (i) provision of local breeds (26-30 animals per micro-project); (ii) improvement of habitats using local material (the project provided construction plans and supervised the work, which was undertaken by the beneficiaries and respected the space, ventilation and circulation requirements of the animals as well as the proper troughs and other feeding equipment); (iii) organization of the goat holders to assure the provision of veterinary products and treatment against disease, especially respiratory disease and external and internal parasite infestations; (iv) improved feed through the introduction of forage (1-2 hectares per holder), provision of vitamin and mineral supplements, dissemination of hay-drying methods to allow for the stocking of forage and better nutrition of young goats during the dry season; (v) formation of homogenous groups to reduce competition between young and adult goats at the troughs, establishing appropriate quantities of food based on the growth needs and ages of the animal, and eliminating from the fattening process those animals whose growth is insufficient, who are too old, etc.; (vi) replenishment of the herd by breeding the appropriate number of young goats; and (vii) commercialization.
As with all micro-projects, participants contributed 20 per cent through local material for construction and through their own labour. A total of 82 groups benefited from PHBM support for these micro-projects: 1,071 men, 832 women and 1,170 youth. A total of 2,419 goats were distributed between 2004 and 2006, the period of time when these micro-projects were implemented.

Preliminary findings show that initial holdings decreased from 2,419 to 2,157 heads. The decrease was primarily among the females, and was caused by sales, death and theft.

- 115 animals were sold, representing 5 per cent of total holdings, which is very weak. The total amount received was 2,766,500 ariary, averaging 24,057 ariary per goat, which is also weak. Many reasons were given for the sales: difficulties encountered because of the drought, daily needs, the cost of veterinary products, and compliance with the rules of the savings and loan network.

- 578 animals had died, representing a mortality rate of 18.4 per cent; 346 were female and 232 male. The high mortality rate was seen as the consequence of the inability of the holders to procure veterinary goods, either because of lack of money or lack of availability. Poor nutrition of the animals also aggravated the situation.

- 248 animals were stolen in 38 micro-projects. Animal theft, especially zebus, is endemic in the project area because of social conflicts or the need for food during dry seasons; theft is also rooted in the tradition that for a young boy to become a man he has to prove that he can steal livestock.

The diminution in the number of animals, regardless of the reason, could have perhaps been minimized through more attention and supervision of the micro-projects on the part of the staff of the Livestock Unit. To remedy the situation, targeted training of the most dynamic groups (about 60) was organized.
Mini-project: Angora breeds

The PHBM introduced the high-performing Angora breed in the commune of Ebelo. The objective was to cross-breed the Angora males with the local females, and to then breed the next generation with Angora in order to produce wool, as it was done in the south-west close to Tulear. The goal is to obtain a pure line of Angora in the project area. It is still too early to see results, but the mini-project is progressing in a very satisfactory manner. The half-breeds obtained can be shorn. And the cross-breeding will also produce animals of superior weight.

Fatter herds, fatter sales

Cattle fattening did not figure in the community initiatives presented in the commune and village development plans. However, given the size of the livestock holdings in the project area, this initiative could prove to be a successful income-generating activity. Project staff made great efforts to sensitize livestock holders on the benefits of selling healthy, well-fed cattle on the market. In the end, they selected 11 holders to launch pilot micro-projects. Staff from the Livestock Unit then worked with the 11 holders to choose those animals most suitable for sale on the market, separating them from the rest of the herd, and then provided them with complementary food from agricultural by-products and forage plants, treated them against disease and improved their habitat.

The initiative was launched in 2006. To date there are 21 micro-projects. The project provides the parasite and tick removal products, and the holders use the nearest vaccination corridor. Contrary to traditional livestock holders, these “pilot” holders are convinced that these products are effective. In fact, the holders were able to sell their animals at higher prices (about US$50 per head, representing a 50 per cent higher profit) simply by vaccinating them and correctly applying the parasite removal products. Improved feeding has not yet been met with the same success. Holders
received seedlings and young forage plants, which have not yet been introduced to the cattle selected for fattening. A first sale was organized in June 2007 in the western part of the project area. A total of 18 cattle were sold, five of them from the micro-projects. The idea of raising livestock for commercial ends is very slowly beginning to take hold.

Before project completion, a livestock market was installed in the commune of Tsivory. The hope is that it will set off a certain dynamism with respect to commercial livestock activities in several communes located in the west and centre of the project area. The market will have several functions, including: (i) creating direct transactions between buyers and sellers; (ii) providing better price information; (iii) providing a supplementary source of revenue for the communes; (iv) promoting the establishment of shops (for livestock feed and veterinary products); (v) promoting support services for livestock; (vi) enabling better control of certificates of livestock ownership, thus reducing the risk of theft; and (vii) providing a single and accessible meeting ground for all concerned actors (holders, buyers, transporters, butchers, veterinarians).

**From livestock holdings to cash savings**

Several communication initiatives have been undertaken to sensitize livestock holders to the benefits of transforming some of their holdings into monetary savings through *Fivoy*. However, the initiatives were not particularly strong or reiterative at a large scale to have a significant impact. The project’s Livestock and Communication Units, together with the *Mutuelle du Mandrare*, are currently launching a communication strategy to spur livestock associations and independent holders to transform part of their herds into monetary savings (the monthly interest rate on savings at the *Mutuelle* is 6 per cent). This mass communication strategy is arriving somewhat late. Nevertheless, initial discussions with livestock holders have been promising. Radio spots, posters and community events are some of the communication devices that will continue to be used intensively. The *Mutuelle du Mandrare* even foresees opening a Productive Agricultural Credit facility dedicated
to livestock activities. Given the risks inherent in livestock-raising in the project area, in particular theft and high mortality during dry years, credit will be authorized to those holders who have a letter of recommendation from the technicians of the Livestock Unit.

**Cattle-raising: Savings trickle from the stable to the bank**

“Twenty or so men have gone to follow the tracks of the zebus that were stolen yesterday,” related Famantara, a 70-year-old cattle breeder from the village of Sirania. “They are going to keep looking until those bandits are identified and the zebus are given back, but nothing is for sure,” he added. The elderly Famantara is one of the six last able-bodied men who stayed to guard the village. Sometimes, the thieves don’t hesitate in killing owners in order to commit the crime. To help minimize these thefts, which are virtually epidemic, the PHBM has introduced a new practice: the monetizing of herds. The idea is to convince local people that wealth does not necessarily need to be embodied in the possession of heads of livestock, even in this region of southern Madagascar where owners of large herds of zebu have always been considered the greatest of men.

Change is coming very slowly: since PHBM arrived in the region, owners have learned to count their assets not only in terms of the number of cattle, but also in monetary terms. Ralaivao Denis, the 70-year-old Vice-President of one of the fokontany of Tsivory district, sold half of his livestock (six of twelve zebus) in order to build a new house. “Despite my age, I have understood that it’s better to sell a part of my herd to be able to build, rather than worry myself waiting for the thieves to come,” he said proudly. And he doesn’t hesitate to convey this message during meetings and even on radio programmes.

The principal aim is to push for monetary assets, which are available throughout the year. These assets would not be affected by the fluctuating price of zebus, the only goods available for trade in times of difficulty. In this regard, there is the Fivy. This savings and loan institution has become a convenient local structure and source of awareness-raising for the whole project, notably for
livestock farmers. Since opening its 11 branches, emphasis has been placed on the level of security and the interest offered to savers at the *Fivoy*. “The fact that the children of the country work in the *Fivoy* has certainly helped its credibility and has allowed livestock farmers to gain an understanding of how savings and loans work,” said Mahaliny Jean-Claude, a 23-year-old clerk at the Elonty branch.

Maharongatsy, from Ankily, has been able to take advantage of these innovations to improve his income, not limiting himself to the cowshed, but combining it with other sectors in which the project is actively intervening. During the harvest season, he sells a small number of zebus at a high price, depositing this sum in the *Fivoy* so that he can take loans and buy rice at a low price that he will sell at a higher price during the low season. Speculation like this has allowed him to increase the size of his herd. “Imitation is also a great catalyst,” says Ralaivao Denis, with a great smile on his lips. This Vice-President of a *fokontany* explained that since he built his house, he has seen several cattle owners become owners of their own homes too.

Jean-Marcel, 40, is committed to “making every possible effort” to buy back the two zebus that he lost in the 1991 famine. But he still keeps it secret: he conveys the information in a low voice since he lost his dignity when he lost his herd. Despite the widespread phenomenon of livestock theft, keeping savings and assets of value at home hasn’t disappeared from the habits of the region. Buying zebus remains the greatest pride of each person, and even the best speculators and the young bank clerk can’t escape this tradition.

“Even if it is on the right track, the project will take still some time,” said Andriamaherison Ramboanilaina, Engineer of the Livestock Unit of the PHBM.

Adapted from an article by Henintsoa Randriamampianina
Livestock: the long and short of it

Project successes in the livestock sector have been mixed. Besides the vaccination campaign, no other initiatives have met with resounding success. The problem of the provision of veterinary products has not been resolved. A good number of micro-projects established to diversify livestock activities have proven to not be pertinent: improved bee-keeping could not be developed because the project area is subject to locusts, and anti-locust campaigns were conducted with phytochemicals that eradicated all insects, including bees; poultry-farming micro-projects have not found sufficient market opportunities.

Too few steps have been taken to improve livestock feeding so that herds are not without food during the dry season. And it wasn’t until the midterm review of 2005 pointed out economic transformation and value chains that attention was given to the need to transform traditional livestock-raising into a commercial activity. Cattle and goats were targeted because of the strong potential. However, one important point cannot be underestimated: traditionally, it is considered shameful to sell a zebu for financial reasons. This tradition is engrained in local society, and it will take a lot of time and great effort to change it.

At the same time, it is regrettable that the project did not identify livestock activities as a key point of entry at the outset, particularly since livestock outnumber people in the project area. Although animal health initiatives were undertaken from the outset, the concept of improving and expanding livestock activities came much further along. Nevertheless, a change in mentality is slowly taking place. Livestock holders are slowly becoming aware of the economic potential of their herds, as well as the risks of holding onto them.

Some are selling heads to invest in agricultural equipment; and a few have invested heads in savings. It will be up to the next generation to genuinely transform livestock-raising into a remunerative activity on the level of rice cultivation in the Upper Mandrare River Basin.
“Livestock is valued above everything else. When someone sells one in order to purchase food during the dry season, it is shameful and a sign of desperation. People think of zebus as gold, but at the same time they leave them in the pasture without any sense of caring for them. The change in mentality is extremely slow. We are doing intensive training to try to instil a sense of caring for animals, to try to help them understand that as living things they need care as well. With respect to their animals, they really hold fast to their tradition. The focus of the villagers is more on treating an illness than on taking care of the animals so that they don’t fall ill. I would say that the livestock component is the most difficult of the project.”

- Rambozlasna Andrinmaliension, Head of the Livestock Unit
CHAPTER 8

MONEY MATTERS – SAVINGS AND LOANS

The building is a small and simple square concrete structure with a wooden door and two wooden window panels, both of which are open to allow for the possibility of air to circulate. Seven people, men and women, are waiting outside, some chatting with each other, others content with their own thoughts. All of them are holding papers in their hand, along with purchases they have made in the small local market laid out in the square in front of this new and seemingly out-of-place building. The smell of freshly slaughtered meat from the nearby stand is strong, and will undoubtedly become more pungent as the heat of the sun intensifies. There is activity, but the pace is several notches below the hubbub of many town centres, perhaps to accommodate the heat and the fact that most people have already been labouring in their fields for several hours. Peering in through the opening of the window well, a single room can be seen with two tables, two folding chairs, a bookcase filled with paper files, and a metal safe deposit box sealed to the floor in the corner. Two young men are inside, dressed in white button-down shirts and flip-flops. One is paging through a dog-eared ledger, the other standing over his shoulder. They are reviewing yesterday’s transactions and preparing themselves for the day’s transactions. Those waiting outside will soon enter. They will leave money, or they will take money. Whatever the choice, it is about securing their present, securing their future. The door to this new structure slowly swings outward. The bank is about to open.

Historical context

Without any type of banking system in the project area, the presence of finance institutions was limited to the Madagascar Savings Bank (Caisse d’Epargne de Madagascar – CEM), which is a state institution. CEM used the post offices to house its facilities,
and following major reforms of the institution, the CEM in Tsivory closed in 2000, thus eliminating financial services in the immediate project area. Client accounts were transferred to the CEM branch in Fort Dauphin, 200 kilometres away, and as a consequence the project area found itself economically isolated, since banks and other financial institutions were located in the distant urban centres (the closest one was located in Amboasary, about 150 kilometres away) and in the hands of traditional lenders.

The most common and traditional form of savings is in the form of livestock. The majority of families sell their production immediately after the harvest. After paying off debts and taking care of necessary expenses, whatever money is left is devoted to buying livestock. Because livestock are the ultimate symbol of prestige and social standing, they are only sold in situations of dire need. At the same time, the project area has the reputation of being a prime zone for livestock theft, carried out by *malaso*, groups of bandits (often armed) who comb the rural areas with the aim of stealing livestock. Nevertheless, many households do manage to put aside very modest savings for emergencies.

Despite the difficulty in accessing formal banking services, the population of the project area has frequent access to informal credit – through other family members, friends and moneylenders. The terms of such credit are, unsurprisingly, very unfavourable: small amounts, short duration and high interest. As such, they don’t lend themselves to developing or undertaking remunerative activities, even though many opportunities exist.

The geographic area of the PHBM demonstrated a significant increase in production during the project’s first phase, and farmers soon wanted to intensify and further increase their production. In order to achieve this, they would need capital to purchase the necessary equipment and materials. Clearly, local financial services would be an appropriate response. Therefore, the “support to financial services” component of the project was given emphasis during the project’s second phase.

The objective of this component is to facilitate sustainable access to financial services by rural people who have no access, particularly women, youth and landless people. The goal is to support local agricultural development by creating local and
individual initiatives that can diversify and improve household income.

The main strategic principle was to promote the establishment of a local financial institution based on the principle of mutual insurance. In this regard, the project linked with a technical operator specialized in microfinance. In addition, the component sought to assure viability and sustainability of the services offered by expanding the network throughout the project area and supporting the emergence of a regional institution.

The work begins

The call for tender was made in December 2003 after substantial preparatory work, which included four feasibility studies conducted by a range of national and international consultants. The International Association of Agricultural and Rural Credit (Association Internationale de Crédit Agricole et Rural – ICAR) was chosen. In 2004 the sum of 956 million ariary (US$753,000) was provided in trust to ICAR. The contract was for five years, with a first phase of two years (18 months for technical assistance) and a second phase for the remaining three years (including 12 months of assistance).

Activities on the ground began in April 2004. ICAR was responsible for validating the implementation plan, promoting the local branches, developing training modules and putting in place the various services and products to be provided, as well as management and monitoring tools. ICAR also collaborated with relevant project units to provide training to those who became salaried workers of the system.

In 2003, the project’s Rural Finance Unit had begun a sensitivity campaign to inform the population about the idea of forming a mutual savings and loan facility (Mutuelle du Mandrare). Information sessions were conducted in all of the communes of the project area, and men and women from all socio-economic levels and professions participated, including farmers and livestock holders, local political leaders, representatives of farmer organizations and project staff. The sessions gave the participants
an opportunity to ask questions about their rights and obligations with respect to a microfinance institution as well as the various services that such an institution could offer. The strong interest shown by the local authorities and the farmer organizations was a good sign for the realization of this concept.

In addition to the information sessions, radio programmes were aired on the project’s radio station “Feon’i Mandrare” (Voice of Mandrare) that explained the rural finance sector. These programmes also aimed to sensitize the population in order to encourage them to participate in the establishment of village branches.

The network of nine branches that were set up in the project area go by the name “FIVOY” – *Fitohirizana VOla Ifampisamborana* (literally “Plan for securing money to borrow”). A *Mutuelle* (cooperative society) was established in 2005. As of the end of 2006, the network had over 4,800 members with a penetration rate of 14 per cent. A total of 35 per cent of the members are women. Savings amount to 36,900 million ariary for 459 depositors, and loans total 191,700 million ariary for 1,315 clients. The 90-day repayment rate stands at 97.66 per cent, which is excellent.

### 18. FIVOY savings and credit indicators

<table>
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<th>Indicators</th>
<th>2004</th>
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<th>2006</th>
<th>2007</th>
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<tr>
<td>Number of branches</td>
<td>9</td>
<td>9</td>
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<td>9</td>
</tr>
<tr>
<td>Number of subscribers</td>
<td>1,809</td>
<td>2,997</td>
<td>4,857</td>
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<tr>
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<td>527</td>
<td>1,688</td>
<td>1,722</td>
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<td>% women members</td>
<td>16%</td>
<td>27%</td>
<td>35%</td>
<td>41%</td>
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<tr>
<td>Penetration rate</td>
<td>5%</td>
<td>9%</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>Growth rate</td>
<td>76%</td>
<td>52%</td>
<td>?</td>
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</table>

After specialized technicians (*opérateur technique spécialisé*) were installed in April 2004, information visits for the local authorities (mayor, communal advisor, Communal Development Committee) took place through a tour of the nine communes concerned (Tsivory, Elonty, Mahaly, Marotsiraka,
Ebelo, Imanombo, Tranomaro, Maromby, Esira). These visits enabled staff to establish contacts with the local authorities to inform them of the objectives of the initiative and how it was expected to be implemented. The approach developed by the specialized technicians promoted the greatest possible participation in order to quickly achieve sufficient membership among the populations of the different communes and villages. The mayors and advisors, clan heads and other local authorities were mobilized for additional meetings, with the aim of gaining their support in the mobilization efforts.

The information sessions were followed by a three-day follow-up campaign of intensive explanation and practical activities in administrative centres of the nine communes, as well as in the villages themselves. Once again, the sessions included a wide range of citizens, including farmers and livestock holders, local authorities and representatives from different public sectors (education, health, safety) and merchants. These sessions focused on the establishment of the village-level branches, their operations and the governing principles, such as solidarity, cooperation and self-help. More than 30 people from each commune participated in the sessions.

Establishing the local branches – membership and personnel

Parallel to the sensitivity sessions, temporary local branches – the Fivoy – were opened in order to begin soliciting and building a membership. Membership fees amounted to 12,000 ariary. Two membership categories were created:

- **Individual members**: open to individuals over 18 years of age and with the possibility of more than one member per family.
- **Group members**: open to different farmer organizations (e.g. WUAs, livestock associations) as well as the joint surety associations that were being set up for the most
vulnerable people (youth, women, landless people) in order to help them access funds.

Once paid membership had reached 100, the members met to form a local assembly. The assembly formed two temporary committees and elected the committee members: a Management Committee (KMP or Komity MPitantana) made up of nine members; and an Oversight Committee (KMM or Komity Mpanaramaso) made up of five members. In turn, each committee elected a president, vice-president and secretary. Their mission was to ensure the immediate launching of activities and the quick creation of an appropriate workforce. Each branch also has two tellers (a head teller and an assistant) to handle the accounts and bookkeeping. A general advisor is also in place to provide general information to the public, give advice to members, create loan portfolios, formulate repayment schedules based on cash flow projections, and monitor loan dossiers.

**Construction and equipment**

The PHBM created a building construction component to serve the branches of the *Mutuelle*. The component also included the construction of storage facilities (GCV – *Grenier Commun Villageois*) and the “Warehouse Receipt System” (WRS), a system that IFAD introduced to Madagascar in 1989 (ODR and PDMO projects). The WRS not only allows farmers to obtain higher prices for their agricultural produce, but also provides them with the opportunity to access affordable financial services at the appropriate time. The lack or inadequacy of storage facilities often forces farmers to sell their produce when the market prices are low. Essentially, the WRS provides farmers with a facility to store their produce until the market prices are more favourable. When a farmer deposits his produce in the warehouse, he is given a receipt, which can be used to obtain a loan of up to 75 per cent of the value of the stock deposited in the warehouse. When the prices are high, he then “withdraws” his produce from the warehouse, sells it and repays the loan, making a good profit.
Project staff were aware of the lack of storage facilities for cultivated products and the risk that such a lack could compromise the achievement of the objectives of this financial component. Therefore, the project undertook to create GCVs by rehabilitating old administrative buildings to serve as temporary storage facilities for loan beneficiaries. To this end, the specialized technicians identified 15 buildings, which were subsequently rehabilitated to hold a total storage capacity of 300 tonnes.

In order to reassure savers, the project supplied a professional safe to each branch, as well as a metal vertical cabinet and metal file cabinet, along with other traditional furniture (desk, meeting table, chairs, shelves, etc.). In addition, the branch advisors were given bicycles in order to be able to travel in their area of responsibility.

With a view to supporting the launching of the warehouse credit campaign, the project purchased 10,000 sacks as well as weighing machines. To protect the products stored in the warehouses against harmful insects and rodents, the project also supplied each branch with conservation products and a hand sprayer.

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**The Village Community Grain Bank: security net for producers**

*Since the advent of the Warehouse Receipt System / Grenier Communautaire Villageois (GCV) in the Upper Mandrare River Basin, the condition of savings vis-à-vis agricultural products has improved considerably: for a minimal interest rate, farmers are assured business with a simple and honest structure.*

Profit, a rice cultivator, just withdraws five sacks of paddy from the community grain-store of the village of Amboangy. He carries out this operation at the beginning of October, the period in which rice begins to become scarce. This rice farmer is proud “to still have five more sacks that, in former times, would already have been sold off.” And he is not the only one in the village who brings out his stock of rice at the beginning of the rice-growing season. All in all, Amboangy had in stock almost 3,100 tonnes of paddy stored.
for the 2005-2006 season. In short: as much paddy as will be sold during the most difficult season of the year at a price that is very advantageous for the producers.

**GCV: a beacon of Fivoy’s innovation**

The farmers follow the process meticulously: at the moment that they deposit their rice stock in the community grain-store, the *Mutuelle Fivoy* gives the equivalent of 75 per cent of the value of the stock to its producer. This sum will generally be invested in off-season crops and will be reimbursed when the stock is taken back, when the rice is generally sold at a high price. In this way, the producer earns a profit by storing his goods and doubling production with supplementary investments.

The GCV is one of the flagship products of *Fivoy*. The *Mutuelle du Mandrare* and the employees of *Fivoy* aren’t shy about sharing advice on better lives and livelihoods for the population of the region. Monja Ravelson, himself a farmer and President of the Administrative Council of the *Mutuelle Fivoy*, explained, “We do not confiscate the goods of the producers. With the borrowed sum, they have something in hand to invest, all the while being sure that they can recover their stock when they want it.” The mechanism has been understood and several producers have been convinced by the results. If before, they were forced to live through the off-season with difficulty, now they have in their hands a double harvest: the low-season products, and the stock contained in the community grain-store.

What is more, producers no longer have to worry about thieves. The security of the GCV is entirely taken care of by the *Mutuelle*, which is itself fully insured. As Profit recognized, “More than simply storing your harvest production at home, ensuring its safekeeping is another issue.” In short, these farmers now have the assurance of stock available at any time, and the ability to access it at any moment.

**Rice in abundance creating better incomes**

“The GCV is incontestably one of the elements that has improved the region’s economy,” said Georges Rabemoramanana, head of one of the *Fivoys*. It was put in place after successive seasons in which losses were incurred by producers, when
producers had to sell their products at a loss to creditors during the harvest season. The GCV has proved to be effective, and it precisely monitors each member’s case, especially since the Mutuelle hired members of the community themselves as employees. In addition to insurance against shortages in the growing season, the GCV has allowed the concept of speculation to take hold. In Amboangy, the price of rice generally doubles every five months. “Since we’ve had the GCV,” explains Profit, “we have understood that we can turn the fluctuations in the price of rice to our advantage.”

Another advantage not to be ignored is the decline in exploitative lending and borrowing. “The fact of having a sum of money available throughout the entire year has driven back the loan-sharks who gave us loans at interest rates of 50 per cent,” explained Monique Ravaositera, member of the supervision committee of the Tranomaro GCV. Indeed, the GCV has resulted in benefits beyond its primary goal of stabilizing the price of the rice harvest.

And even beyond the borders of the Mandrare region: the success of the Fivoy has served as an example to new microfinance structures in the Anosy region, where the Institution Financière Régionale d’Anosy (IFRA), comprised of a wide variety of local entrepreneurs, has started to replicate a similar operation prompted by a similar reality: repetitive losses incurred by the producers at the hands of creditors.

Credit fund

The development plan of the Mutuelle du Mandrare foresaw a rapid progression in the volume of loans accumulated with respect to its own internal resources coming from the members of the Mutuelle through social capital and deposits. As a consequence, external resources would be needed to satisfy the loan portfolio projected by the Mutuelle. The PHBM had taken into account this need and provided a credit fund in the amount of 94.6 million ariary (about US$50,000). An agreement was also signed in June 2004 between the PHBM and ICAR. This fund allowed the loan activities to begin, particularly the financing of the GCV.
Strengthening the skills of Mutuelle staff

In order to strengthen their capacity, agents of the Promotion Unit attended courses and workshops organized by the World Bank (*Agence d'exécution du projet microfinance – AGEPMF*) and by the *Association Professionnelle des Institutions Financières Mutualistes* (APIFM). In March 2005 and November 2006, the supervisor (currently the director of the Mutuelle) and a staff accountant took a course on loan portfolio development. Other staff participated in a variety of training courses, whose topics included control and inspection, accounting and loan procedures, microcredit portfolio analysis, and the use of Loan Performer (the software acquired by the Mutuelle to administer its management and information systems). To develop services geared toward more vulnerable clients, three women facilitators attended a seminar on Credit with Education.

The members of the KMP and KMM received extensive training on different savings and loan products, general organization and roles and responsibilities, loan and performance analyses, among others. The various training modules were delivered at each branch during the course of the monthly meetings and were illustrated with practical exercises.

Managers of the Mutuelle also received specialized training during their tri-monthly meetings. Topics included, among others: development, management and control of budget and treasury; analysis of savings and loan activity; legal obligations and adherence; and relationships with auditors.

Members and non-members of the Mutuelle and its branches benefit from regular training and information sessions that are held before or after branch meetings for members. The branch advisors are responsible for these services, with the support of other branch staff and facilitators. The information disseminated concerns branch operations, the mutual insurance system, co-ownership and responsibility, and rules and regulations. Following this general information, discussions turn to the different products and services offered, procedures and criteria for making a loan request, and loan repayment options.
In addition, each year arrangements are made for selected committee members and Mutuelle staff to visit other microfinance institutions in order to acquire knowledge and experience of other systems. Between 35 and 45 committee members participate in these visits each year.

Mr. Mara, a technician at the Mutuelle in Tsvivory

All of the communes asked the project to create their own Mutuelle. The people from here do not trust establishments like this, so it is important to hire local people to diminish this mistrust. The Mutuelle is made up of members who deposit their money for credit. The project financed the creation of the Mutuelle federation (FIVOY).

Currently there are 5,043 members, and of these, there are about 500 people who have taken credit. The others have opened savings accounts. One must wait two months to establish credit. There are conditions and procedures for the deposits. And there are many many different kinds of savings schemes and loans possible, depending on the person’s needs.

In each caisse there are at least two local employees: a credit officer and a consultant. There are also accountants, inspectors, directors, etc. In total, there are five employees in the Mutuelle in Tsvivory, where I have been working since its creation. Before this, I was the mayor of the commune. In my opinion, it is going very well and will be able to continue.

It is a new system and takes a very long time for the farmers to understand it and to get used to it. We hold regular awareness-building training sessions to help inform the people, as well as radio programmes that talk about it so that people can understand and begin to reflect on it. It is growing and our hope is that the entire region will be serviced by the Mutuelle.
Savings options offered to members

 Fitzgerald, contrary to many microfinance institutions, has considerably diversified its offering of financial products and adapted them to the rural area and the predominant economic activity: agriculture.

- **On sight deposit: “Safe money”**
  This formula allows members to have a reserve of cash at their immediate disposal. There are no restrictions on the amount to be deposited, and withdrawals can be made at any time (withdrawals exceeding 40,000 ariary require eight days’ notice). No interest is accumulated, but an interest-bearing system may be introduced in the future in order to promote longer-term savings.

- **Term deposit: “Suitable for large and small holdings”**
  This interest-bearing account is suitable for all types of holders, including farmers, salaried workers, merchants and farmer organizations. Interest is based on the duration of the deposit and ranges from 6 to 16.5 per cent. Early withdrawals are not permitted, but loan requests are possible.

- **Project savings plan: “A push toward investment”**
  Through a monthly savings plan that lasts from one to three years, this formula results in an important investment: in addition to the capital acquired to finance part of a medium-term project, the formula facilitates access to credit. The annual interest rate is 9 per cent and also offers discounts on interest rates for loans taken out for agricultural equipment.

- **Automatic monthly deposit**
  This three- to 18-month plan is geared toward large depositors and allows for substantial supplementary income with monthly interest as well as access to financing for professional activities. Annual interest rates range from 6 to 15 per cent.

Loan options offered to members

- **Consumption and school fee loans**
  These loans are for social and scholastic investments: school expenses, wedding, funeral and other traditional events. The
limit is 60,000 ariary with a duration of four months and weekly or bimonthly repayment options.

- **Emergency and repair loans**
  These loans are for urgent needs: medical and health expenses, urgent repairs, etc. The limit is 60,000 ariary with a duration of four months. Weekly and bimonthly repayment options.

- **Agricultural production loans**
  These loans are for those who need partial financing for expenses tied to animal or crop production (e.g. field workers, pesticides, equipment, manure). The length of the loan is based on the production cycle, with a maximum of nine months. Repayment plans are also based on the harvesting and livestock-raising calendars.

- **Storage loans (GCV)**
  (See previous pages.) During the harvest period, instead of selling products when the market price is low, farmers can receive an advance of up to 75 per cent of the value of their products. The products are then stored in the GCV until the market prices are higher. During the storage period, the stock serves as a guarantee until the loan is repaid (five to eight months later).

- **Lease–purchase loans**
  These loans provide lease–purchase opportunities to members who have no collateral, for production equipment or material. The payment schedule is based on the agricultural cycle (lower payments during the work season, higher payments at harvest) and the first payment ranges from 20-40 per cent of the value of the equipment or material. Once the total payments equal the initial value of the equipment or material (plus interest), the goods become the property of the borrower. Maximum loan duration is 36 months.

- **Rolling loans**
  These loans are provided to small-scale businesses or services. Beginning with an analysis of the previous two years of activity and a projection for the next six months, a rolling loan plan is devised. These loans are also offered to producer groups and can be adapted to the different types of groups and their respective income-generating activities.
**Credit with Education**

Inspired by the Freedom from Hunger model, Credit with Education was launched in order to facilitate access to financial services by vulnerable people, in particular women. Loans, accompanied by training sessions on various themes, are provided for small income-generating activities, such as restaurants, small businesses, poultry-rearing, tailoring, etc. The loan cycle is four months, after which a new cycle can begin with up to a 50 per cent increase in the amount borrowed. (For more information on Credit with Education, see chapter 9.)

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**Mandrare Mutual: Credit adapted to local needs**

For the “monetization” of the economy of the Upper Mandrare River Basin, PHBM established the Fivoy Mutual. Several types of credit have been created to respond to the needs of the local population. And the success of this farmers’ bank has been clearly proven.

“Rabeno was earning money, but he didn’t know how to manage it. He kept it in the old way – under his mattress. Little by little, he had amassed 300,000 ariary. In the end, the notes began to waste away under the mattress, and they became unusable.”

This was a common experience before the PHBM opened in the Mandrare region, as Mara tells us; she is a consultant at the Fivoy, created in 2007. Since the arrival of the PHBM, the behaviour of the population when it comes to money has changed. This is also true for the management of livestock herds, which have always been considered the supreme sign of wealth in the region: more and more, people are selling their zebus to avoid losing everything due to thieves or droughts.

It’s in this way that Pierre Andriambelso, from the rural district of Ebelo, 62 kilometres from Tsivory, sold half his zebu herd so that he could deposit the money in a savings account. “Now, I can sleep soundly, as my money is completely safe,” he said, reassured.

The inhabitants now enjoy a convenient local service, since “the closest bank is in Tolagnaro, and doesn’t offer adequate loans
that can meet the needs of farmers,” said Mamihery Ravelojaona, Head of the PHBM’s Commercialization Unit.

In 2003, branches were opened in 9 of the 11 towns in the region. Then, in 2004, these branches formed a confederation that would become *Fivoy*, which has caused a revolution in the everyday life of the inhabitants of the Upper Mandrare River Basin. Tsizafy, from the rural town of Tranomaro, 96 kilometres from Tsivory, recounted, “For us, bartering was a common practice. Manioc, like goats, was like currency. The concept of money only came little by little with the installation of the PHBM.” Now, monetization is common, as the value of merchandise is now quantifiable.

“The mutual can even grant credit to small businesses,” said Mananohatsy, the Mayor of Ebelo. In effect, it is able to offer credit to collectives of businesspeople without requiring a guarantee: a hugely important element of its engagement in the improvement of the quality of life of the most vulnerable among the population. The external signs of wealth are changing, from larger livestock herds to solidly built homes or electronic equipment, bicycles, etc. Jacques Nicolas Razafimandimby is very proud to welcome visitors into the living room of his new home. “The inhabitants think more and more about their material comfort,” comments *Fivoy*’s coordinator.

*Fivoy* branches are among the most frequented offices of the region. The different forms of credit available give real satisfaction for the beneficiaries. The numbers prove it: in March 2004, the accounts totalled more than 1,600 members, of which almost 400 are women, 68 farmers’ organizations and 34 joint-guarantee credit associations. What encourages producers to come to *Fivoy* is its community ethos: bank representatives are people whom the customers know.

To give a wider reach to *Fivoy* and to perpetuate its work, the Mandrare Mutual is creating links with another, even more solid organization. Becoming affiliated with the *Institution Financière Régionale de l’Anosy* is the next step to come. To achieve this, the PHBM expects to liquidate 60 million ariary as *Fivoy*’s contribution to the underwriting of this institution.

*Adapted from an article by Herimalala Ratsimbazafy, local journalist*
ACKNOWLEDGING THE ROLE OF WOMEN IN DEVELOPMENT

Some unspoken cardinal rules for women:

- Thou shalt not be consulted in decision-making
- Thou shalt not participate in community meetings
- Thou shalt not speak in front of a public audience, lest thou dishonor thy husband and family
- Thou shalt inherit little, if anything
- Thou shalt resist being literate.

(Note: degrees of severity may vary)

When the PHBM began operations in the Upper Mandrare River Basin, one thing was clear: as in other areas of southern Madagascar, the role of women was not sufficiently recognized or considered in society. The significant isolation of the project area has prevented a “pro-woman” attitude from entering and evolving. This is also due in great part to the level of illiteracy in the project area, which ranged from 70 to 95 per cent.

Women were not a specific target group of the project activities until 2001, when greater emphasis was placed on the rehabilitation of productive infrastructure and an opening up of the project area. The representation of women in the various farmer and community organizations that had been created was too weak.

The participatory diagnostic that was conducted in 2000 to formulate the second phase of the project gave a much greater emphasis to the role of women and highlighted the need for them to be more actively involved. With the enlargement of the project area from four to 11 communes, a specific approach was adopted to ensure that women were included in project activities. The methodology consisted of sensitization trainings for the olo-be
(traditional village authorities), the *ray aman-dreny* (family relatives) and the husbands. It was important to gain their understanding and acceptance about the more active role of women in order to avoid possible conflict. Following the sensitization training, women were then targeted, first by holding meetings in the villages to inform the women of the role that they could play in community development. The meetings were followed by information messages that were created and disseminated on posters and radio spots produced by the project’s Communication Unit – all with the intention of integrating women into the activities of the farmer and other local development organizations.

With respect to the local development entities that the PHBM had put in place – most notably the commune and village development committees – women were encouraged to participate and to speak out when the commune and village development plans were being formulated. In addition, certain structures were created within the commune and village organizations that were reserved specifically for women in order for them to be able to identify problems and propose solutions.

With respect to farmer organizations, women who owned rice paddies or zebus were promoted for inclusion as members in WUAs and livestock associations. Moreover, initiatives by women were supported through the Local Initiatives Fund, a funding mechanism that the project had established to provide support to micro-projects for those who possessed neither land nor livestock. In this way, women and children became the main beneficiaries of many micro-projects addressing agriculture, livestock and the environment. The micro-projects were conceived to generate income and improve the lives and livelihoods of their beneficiaries. One of the major successes was the cultivation of onions and garlic, an activity that was conducted predominantly by women but was then taken up by men when the profitability of cultivating onions and garlic was demonstrated. (For more information on the cultivation of onions and garlic, see chapter 6.) The project’s Livestock Unit helped women start up poultry-rearing and small ruminant-rearing activities. The project also supported tailoring activities and provided women with sewing machines.

The PHBM did not overlook some of the more socially oriented activities in which women could take a lead. Training was
given in cooking and nutrition, with an emphasis on encouraging women to prepare foods with some of the new products that were being cultivated in the project area. Health training was also provided, particularly with respect to family planning and infant nutrition. Women were especially enthusiastic about the functional literacy training: they made up 46 per cent of the participants.

At the same time, the Mutuelle du Mandrare established by the project strengthened the financial independence of women by offering them the possibility of creating a savings account. Crédit avec Education (Credit with Education) was created for women only, and enabled them to access credit while benefiting from education sessions devoted to managing their business activities or improving their daily life.

In 2001, the objective was to have 30 per cent women’s representation in the farmer organizations and the community and village development committees. The objective has been more than achieved: the figure stands at over 40 per cent. However, the impact goes beyond the participation of women in organizations and committees, although it is an impact that is difficult to quantify: women have acquired indisputable decision-making powers in the project area. They voice their opinion, assume responsibilities at the community level, and spearhead initiatives. Some women have gone on to become leaders in the community and village development committees. One example is Ms. Fara, who has led the community development committee in Tsivory for three years. She is the first leader to have succeeded in mobilizing residents to contribute 1,000 ariary each in order to set up funds to build a school. In addition, the income generated by women has a direct impact on the quality of life of their family. Women tend to invest their income in improved nutrition and clothing and other daily household needs, while the men tend to use their income to purchase zebus.

Some women have even bought their own zebus. Recently, during a meeting of farmer organizations from the entire project area, the commune of Tranomaro selected a woman to represent the livestock and small ruminant associations. Events such as these are more and more frequent. The emancipation of women in the project area is real and spreading.
“Crédit avec Education”: for women only

Since 2006, the women of the Upper Mandrare River Basin have had a financial service dedicated to them: Credit with Education (Crédit avec Education – CAE), an innovation made famous by the NGO Freedom from Hunger. CAE enables women to have access to credit while benefiting from frequent counselling and close monitoring. Provision of credit is accompanied by weekly education sessions given by a specialized counsellor. CAE currently operates in more than 20 countries in Asia, Africa and Latin America.

CAE was introduced by the Mutuelle du Mandrare in 2006 and functions as a joint credit, a methodology based on traditional “tontines” and that was formalized by the Grameen Bank in Bangladesh. To compensate for the absence of collateral or guarantees, women borrowers form solidarity groups and have joint surety: if one of the members of the group does not pay back the loan, it is up to the others to pay the loan back. This system enables the more vulnerable women to access financial services.

CAE finances short-term income-generating activities – for example, storage and resale of rice or peanuts, raising of small livestock, sale of carbon and dead wood, vegetable cultivation, small shops. Each loan cycle lasts four months. Interest is set at 5 per cent per month, totalling 20 per cent per cycle. Loan amounts change each cycle, with the initial loan set at 60,000 ariary (US$33). Each successive loan can increase up to one half, if necessary. Borrowers are asked to put aside a small saving each week; in general 600 to 1,000 ariary are put aside, although some borrowers manage to save 10,000 ariary (about US$5) per week. The savings enable the women to build a reserve for emergencies and are rarely used to pay back the loan. Loan repayments are made collectively each week. During the first two cycles, a counsellor meets with the women every week. Afterward, the meetings become bimonthly and then monthly. The meetings and monitoring enable the women to acquire the habit of reimbursement and of fully understanding the value of saving. It must be remembered that this is first time these women have had access to credit.
The entire process begins with training sessions held for those women who are interested in using CAE. Ms. Hanitra, a former facilitator and private school teacher in Fort Dauphin, is the supervisor of the facilitators who work in the communes. She explained, “The Mutuelle recruited one person especially for the CAE. She went to all of the communes and held meetings with all the villagers to inform everyone of the existence of this new type of credit. The first step was to contact the local authorities to explain the CAE and to request a meeting with all the villagers. The meeting is for everyone, including the men. It is important that the men are present so that they understand the system and are not resistant to it.” There are currently eight facilitators who cover eight communes. They live in the communes in which they work and were chosen by the branch of the Mutuelle in the commune. Ms. Hanitra added, “Each facilitator creates a workplan, with goals and objectives. For example, our collective goal is to have 900 members by December 2007.”

After the initial meeting, those women who are interested form solidarity groups, with four to six women per group, and four to six solidarity groups then form an association run by a management committee. The committee trains the members and completes the necessary documents. Each solidarity group elects one person to serve on the management committee. All of the members are formally trained for five weeks. Each week, the members make a savings deposit, and at the sixth week, when the members are registered, the savings are distributed equally to each member. This preliminary phase introduces the concept of credit to the women, who are generally mistrustful of financial services, and also enables those women who can benefit most to be identified.

The originality of this system lies in the training and education sessions that accompany the loan repayments. The sessions are held to respond to three objectives: improve health, improve business skills and develop self-confidence. The first objective is addressed by education on such topics as child vaccinations, family planning, common diseases and illnesses (diarrhoea, malaria, HIV and AIDS, etc.), breastfeeding and child nutrition. These “knowledge saves” sessions are alternated with training in business skills, including financial management and accounting, and market studies to maximize profits. In this way,
throughout the loan cycle and the development of their remunerative activities, the self-confidence of the women is on a continual rise. All of the sessions are based on discussion and the active participation of the group. During the first two loan cycles, 16 sessions are held. During the third and fourth loan cycles, eight sessions are held. And by the fifth cycle, the sessions are held only once a month, since the women are sufficiently independent to manage their loans and activities.

The income-generating activities are usually seasonal. They function well during the harvesting season (May to October). The rest of the year, most of the women are busy planting and tending their fields. Some women have gone on to use other financial services offered by the *Mutuelle du Mandrare*, such as the GCV.

### In the words of a loan recipient…

“It was the facilitator who first made me understand the system, and convinced me to become a member in 2006. I then had to take a six-week training course. After that I obtained credit, which I used to open a small restaurant. Slowly the number of my customers grew. After four months, I was able to pay back the entire loan and take out an additional one that was larger. As a member of the CAE I also received training sessions on family planning and health. With these loans I was able to expand my restaurant quite a bit. Before taking out the loan, I spoke with my husband. He had attended the first village meeting and agreed that I should take out the loan. Then he saw how I was able to expand my business and improve our life. He was very very happy. Now my husband helps me to develop my business activities. He supports me in what I do.”

- Rasoanirina Odette, CAE loan recipient

The CAE was not without its initial difficulties. The women were highly mistrustful and hesitant. It wasn’t until the first association received its first loan that new groups started to form. Mme. Josia, a member of the solidarity group *Mahatoky* (“confidence”) stated that “If the credit is not misused, we can benefit a lot”. Josia and the six other women members of her CAE
group are preparing the training modules that they want to request for this new loan cycle. “Helping people to meet the needs of their family by improving our current activities is our principal goal,” Josia reminds us. In the long term “with Credit with Education, we will be able to aspire to a higher consideration from our husbands since our economic independence is growing,” say the women, proud of themselves.

CAE has become one of the exemplary products of the Mutuelle du Mandrare. A total of 104,905,000 ariary (US$59,000) in loans has been provided since its creation. Membership currently stands at 754. Each of the nine offices of the Mutuelle du Mandrare has a CAE counsellor, and given its success, it is expected that this financial service will be replicated in the other offices of the IFRA network in the Anosy region. Ms. Hanitry said, “I am confident that the initiative will continue after the project, because the systems are in place and they are managed locally.”

A local businesswoman speaks

Alphonsine Sahondranirina, a shopkeeper in Tsivory, has made the most of the services provided by the Mutuelle du Mandrare and encourages others to do the same.

“I’ve owned my boutique for years and I’ve seen the evolution of the town very well. Since the PHBM arrived, I’ve noticed that people want to buy more varied and more modern things. I thought that since I keep the principal shop of the town, I had to find the means to satisfy my customers.

“But I was stuck. I didn’t have enough personal funds and I didn’t want to turn to far-away banking services to borrow money. Then the Mutuelle Fivoy was put in place by the PHBM. The employees are familiar to me – they are neighbours – and the service point is close to my home. I think I made the best choice possible. After they had explained to me the types of credit available, I made my calculations, weighing the difference between the interest rates and the projected benefits, and in 2004 I took out a loan for 1 million ariary. I was assisted by agents from Fivoy, who accompanied me throughout the process. This year, I’m in my
fourth cycle of credit with a loan of 8 million ariary, and during the last inventory of my goods, my turnover was just short of 15 million ariary. That is three times the figure from 2004. Now I realize that I could never have found such a sum to expand my business without Fivy.

“I didn’t even need to hire an accountant, as that is another service offered by Fivy. The clerks help me to carry out periodic inventories of my stock and they are there to guide me with my accounts. I have never missed these regular meetings, which consolidate our relationship. As a woman, I serve as an example to others, demonstrating that the service of the Mutuelle is beneficial, despite the fees, which in any event are not high. Since I set the trend, many women have taken out joint-guarantee loans in order to start a business. I’m even thinking about diversifying my activities: next to the shop, I want to put up a restaurant and, later, a place to make natural drinks.

“I encourage other tradespeople to take advantage of the credit offered by Fivy, as they could never do the same things with their own funds. Since economic change came to the region, there is a very sharp sense of business in Tsivory. I myself brought my sister to help me in these various activities. I am confident that with Fivy, the Upper Mandrare River Basin will become a model of financial services intended for rural people.”
19. Distribution of agricultural micro-projects

CUMA – agricultural tools cooperative

20. Percentage of women micro-project beneficiaries
Making cooking safer, healthier and easier

As in many poor rural areas throughout the world, in the project area most food is prepared over a wood-burning fire. Wood is costly and the majority of poor rural people gather their own wood instead, a task that is usually the responsibility of the women and children. This chore can take several hours a day, using up time that could be used for more valuable activities. The time spent gathering wood slowly increases as the years advance, since the nearby wood has been taken and women and children have to travel greater distances to find it. In addition, wood-gathering is very exhausting. For those children who attend school, their concentration levels are often very low if they manage to get to school at all after having already put in several hours of arduous work. And of course, the implications on the environment and deforestation are significant, particularly in areas like the Upper Mandrare River Basin, where tree cover is critical to mitigate the effects of droughts and floods, and where the quantity of forestry is insufficient at best.

In 2003, the PHBM’s Environmental Unit was created to promote the use of improved wood-burning stoves, in order to reduce the depletion of the forest and to reduce labour on the part of women and children. Although improved stoves have existed in the highlands of Madagascar for decades, the new technology did not exist in the project area. The initiative began with research into the consumption of wood and the indisputable evidence of a permanent reduction in wood reserves. The initiative then took two tracks: developing a sensitization campaign among the women to convince them of the benefits of using the improved stoves; and technical research to determine the best type of stove to promote, making use of materials that could be found on site and that would be free.

The project worked with a partner in Fort Dauphin, Andrew Lee Trust (ALT), which had already been conducting this type of activity in the southern part of the country (Androy region). To make sure the initiative could eventually be carried out with minimal intervention on the part of the project, women who could be organizers were identified in each village. The women had to be able to read and write, make simple calculations and fill out forms.
Once the women were identified, they were formed into women’s groups and trained in building the stoves and in sensitizing and teaching other women in their villages by holding demonstrations. The women were also given information to distribute in their village. A total of 36 organizers came forward.

Ms. Justine, from the village of Andromasy, is an organizer. She explains, “In 2004, a project technician came to our village to give a demonstration, and I offered to be an organizer. I went to Tsivory to be trained and then began to teach the other women in my village how to construct the stoves and why they were so much better. I taught ten women that year. But starting in 2005, the efficiency and economy of the stoves was so dramatic that a huge number of women wanted to have the stoves in their homes as well. By 2007, all 90 families in the village had the improved stoves. But my work is not done. I continue to teach the construction and benefits of the stoves in other nearby villages.” Similar results were achieved in the village of Tsivory. By 2006, 650 stoves had been constructed in households.

The stoves were specially fashioned according to the needs and availability of materials in the region. They are U-shaped and measure 80 centimetres in diameter, just large enough to enclose a typical pot. In this way, it keeps in the heat and reduces the quantity of wood required. The stoves can also be set up inside the home, and there is virtually no risk of being burned, since they are surrounded by a protective wall.

Building a stove is quite easy, and the only equipment the project needed to supply was a sieve. The women collect red earth and sift it in order to separate out the fine earth or clay. The clay is then mixed with water to form a kind of paste. The proper consistency is determined by throwing a bit of the mixture into the air. If it doesn’t fall apart, the consistency is correct. A triangular mould is constructed according to specifications, and the paste is used to fill the mould. All in all, it takes about four hours to build and is ready to be used after three days. Ms. Josephine explained, “All of the material needed to build them can be found here, since it is earth-based.” Sylvia Ravelonjatovo, the Head of the project’s Environment Unit, added, “You don’t need any particular knowledge to make an improved stove. It is quite easy. You can use the remains of an ant hill, ash and water.” The stoves can be fixed
in one place in the kitchen area or remain mobile to allow for outdoor cooking. They last about five years.

The impact has been dramatic. Ms. Justine explained, “We used to use 20 pieces of wood to prepare manioc. With the new stoves, we only use six. It used to take three hours to cook the manioc, and now it takes half the time.” She added, “Because the stove has a small wall around it, there is no danger that the children might burn themselves.” For those who purchase wood, the savings have been significant as well. Ravaositera Monique, one of 60 women in the village of Tranomaro who use the improved stoves, stated, “After using the stoves for only one month, my spending on wood was cut to one fourth. Instead of needing 7,000 ariary per month for wood blocks, I only need 1,750 ariary.” The savings in wood are so impressive that even large consumers of wood, like low-price restaurants, have adopted the new stoves. Georgine Rasoanantenaina, a restaurateur from Tranamaro, uses three improved stoves and explained, “I have reduced my monthly expenses on wood by half. And because the stove is well designed, I don’t spend as much time preparing the food and I don’t have to breathe in the smoke-filled air of an open fireplace.”

The initiative has also created a modest income-generating activity for the women organizers, who earn money for each stove that is constructed in their village and sometimes earn extra money by building the stoves for those women who want them but who do not want to build them themselves. For example, Ms. Justine receives 5,000 ariary for each ten stoves she builds, and 30,000 ariary for training in six villages.

Despite such a visible impact, there are still some women who are resistant to adopting the improved stoves, claiming that they take too much time to warm up, and that it is necessary to build it rather than simply buy a cheaper charcoal stove. Indeed, the local organizers still have work to do.
32. Commune development begins with village consultations…

33. …then local planning meetings, which enable the commune plans to be prepared through a bottom-up participatory process.
34. Each technical sector holds specialized meetings – livestock, rice – with Water Users’ Associations to put in place annual action plans.

35. The moment for squaring accounts has arrived for the association of the irrigated areas, which must verify the balance between contributions and charges.
36. At the beginning of Phase II, the PHBM intensified traditional home gardens to maximize the available water resources.

37. Cutting of tomato supports along the border of the rice paddy.
38. The cultivation of onions and garlic was a dramatic success. With the help of water pedal pumps, irrigation was greatly simplified.

39. The onions and garlic produced in the Mandrare region can be found everywhere in the south. The income earned by the families is quite substantial.
40. Irrigation of dry crops is undertaken by families, primarily for manioc and maize. Sorghum was reintroduced because of its resistance to drought.

41. The dissemination of agricultural activities resulted in the introduction of animal-driven ploughing, which is particularly useful for dry crops. Here the ploughing of a maizefield.
42. Maize and watermelon en route to the market.

43. The blacksmith’s forge in Tsivory was modernized to be able to produce new equipment for the project area.
44. Livestock rearing is one of the most important activities in the Mandrare region, even if it is not financially remunerative.

45. Cattle hold a very important place: as a means of capitalization for the family as well as for traditional ceremonies.
46. The project undertook a number of important animal health initiatives. Here the vaccination of cattle in one of the 67 corridors that the project put in place.

47. Through mini-projects, the PHBM supported poultry farming. Here turkeys and a sizeable group of women, who generally look after them.
48. The establishment of a savings and loan establishment (FIVOV) greatly facilitated financial transactions and family savings. FIVOV was initiated by IFRA, a regional institution.

49. The mutualist approach requires that each saver belongs to the FIVOV before opening an account.
50. Credit is granted after the client’s file is studied. FIVOY offers more than six types of credit, adapted to different needs.

51. The commune grain stores enable producers to stock their wares while waiting for the prices to rise. They receive credit for the products they store.
52. The situation of women in the south is not easy. The PHBM developed a number of activities addressing and promoting women.

53. Improvement in child health resulted from the establishment of health centres and workers. Here a young child being weighed.
54. Women’s group activities: improvement of child nutrition. After health, education is the main concern of families with respect to their children.

55. Women represent 46 per cent of the beneficiaries of PHBM activities. Many of them took positions of responsibility, owing in great part to the functional literacy training.
56. FIVOHY promoted and disseminated the idea of savings/credit mutualism through posters put up throughout the villages.
This PHBM poster promotes improved livestock rearing and grazing activities.
CHAPTER 10

RESTORING THE FORESTS

A giant pegboard. That is the image that an aerial view of this part of Andromasy evokes, a peripheral part of the village, away from the houses and the fields. Endless rows and columns of perfectly spaced and uniformly sized holes. Zoom in: dozens of men are inspecting the holes, perfecting them, while dozens of women stand by with containers of water. A distant rumbling. The trucks begin to arrive, parking in single file along the narrow path that leads to the “pegboard”. The men run over and begin unloading the thousands of young trees that are being delivered, carrying each one and carefully depositing it into one of the holes in the ground, while the women follow shortly after with a dab of water. A forest in the making.

The forest areas of the Upper Mandrare River Basin have been used for a variety of needs, particularly for fuel wood and housing and storage construction, not to mention the centuries-old custom of starting brush fires to provide food for cattle. Unfortunately, no preservation plan was ever considered, and slowly the forest cover is dwindling. The hilly areas used to be green domes; now the green timberline has receded, and many of the hills have been stripped of their cover altogether. The potential ecological tolls are indeed serious. Like much of Madagascar, what used to be green has been replaced by red – the red of the exposed and unprotected soil, which is eroding, and taking with it the means by which the inhabitants can feed themselves and earn a living.

The “de-greening” of the landscape prompted the PHBM to support its beneficiaries in improving vegetative cover, especially the wooded areas. Its support took the form of financing reforestation micro-projects at the commune, village and family levels.

During its first phase, the project had not foreseen an environmental “window”. Nevertheless, in close collaboration with the Environment, Water and Forestry Services in Tsivory, it had
become involved in stimulating peasant forestry by putting in place five local nurseries for the production of young trees to be planted in formerly wooded areas. However, the results were modest: about a dozen hectares of land were reforested primarily with eucalyptus.

The initiative expanded with the second phase of the project. Thirty hectares of reforested land soon grew to 300 hectares. A dozen nurseries were established to provide the tree stock. In addition to several species of eucalyptus and several other suitable species, a number of other varieties were introduced, given their suitability or adaptability to the local climatic conditions. They included *Acacia mangium*, *Grevillea banksii*, *Moringa oleifera* and *Azadirachta indica*.

### 21. PHBM Phase II: agro-forestry

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<td>-</td>
<td>530</td>
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<td>-</td>
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<tr>
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<td>11</td>
<td>11</td>
<td>8</td>
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### Financing of the reforestation micro-projects

The reforestation micro-projects proposed by the communities were financed by the project’s Local Initiatives Fund (*Fond pour les Initiatives Locales* – FIL). Selection was based on criteria laid out in the FIL manual. Basic criteria included:
The initiative takes place in the project area
The initiative is formulated by the community through the local development plan
Technical feasibility has been substantiated
Implementation will not negatively affect social cohesion (for example, land-related conflict)
Land tenure security has been substantiated
The community has demonstrated experience in implementing environmental activities
The degree or risk of local natural resource degradation justifies the initiative.

Unlike other types of micro-projects, environmental initiatives can receive up to 90 per cent in financial allocations, with the remaining 10 per cent usually in the form of labour on the part of the project participants. Since the impacts of reforestation cannot be demonstrated in the short term, and work needs to continue annually, a participating community can receive financing annually through the project.

Producing the plants locally

The first on-the-ground step was to produce the plants. This entailed selecting hearty plants that would respond to the climatic conditions of the project area, and were quickly and readily available in sufficient quantities. During the project’s first phase, a centralized nursery had been set up and managed by nurserymen contracted by the project. They were supervised by the Forestry Office. At the beginning of the second phase, the project began to set up village nurseries to complement the central nursery at Tsivory.

These were followed by the creation of commune-level nurseries run by local nurserymen. With the agreement of the local authorities, suitable land and personnel were identified. The nurserymen were then trained in production techniques. The capacity building was completed with training conducted at a
specialized training centre, as well as an exchange visit outside the project area.

The criteria for choosing the land included:

- The land is not under dispute
- The land is selected by the commune and/or its general assembly
- The land is accessible by car or cart
- The land is not far from the village
- The land is near water resources.

It was also determined that between six and twelve nurseries would need to be operational each year in order to cover the needs of the project area.

The project oversaw the preparation of the land, and provided small equipment, young trees and other inputs. During the first two years, emphasis was placed on producing healthy young trees to provide to the communities taking part in the reforestation micro-projects. The number of young plants produced annually ranges from 12,000 to 40,000. Plant production is spaced out, but it takes place for six months beginning in July.

Aimee from Andromasy explains the greening of her village

“In the areas where we have planted trees – one to the north, the other to the east – there used to be just empty, unused space. Before the trees were here, we had to travel to the mountains about 30 kilometres away to get our wood. A technician from the project came and explained to us that to resolve the problem of the distance it was necessary to plant our own trees here in Andromasy. We were convinced.

“The technician then explained that the project could give us some young plants but only if we formed a group. So we formed a group and requested the financing for reforestation. The request was approved. There are 40 people in the group, and 15 of us are
women. That is about half the village. There was a meeting of all the villagers, and it was decided who would become a member. It was open to everyone except children. All adults were eligible.

“So one day 10,000 young eucalyptus trees arrived. The trees were about one foot high. All of the group members were involved. The men made the holes and planted them. The women came to water them, especially in the first year when there was a drought. A project technician came to teach us about the size and depth of the hole, and the distance between each tree. He also remained on the site during the initial planting to make sure that it was done correctly. It was a lot of work, as you can imagine. And the transport was very cumbersome. The trees were deposited near the site but not at the site. The trees are for use only by the group members.

“The trees from the first site are already being used to build houses. Up until now, the wood has been used only for that. The wood is not mature enough for other uses. We cut the trees in such a fashion that they continue growing after we cut them. We also prune them so that more than one tree eventually grows.

“The second site, which was sloped, started in February 2005. A technician came again to explain that for a sloped terrain, it would be good to plant along with rice, onions and garlic in order to have an integrated site. The second site was to have wood for firewood for cooking. By this time, the group had grown, because other villagers saw the results from the first site and they wanted to belong. Now almost the entire village is member of the group. In the second site there are eucalyptus, acacia, moringa, fir trees and others. They are used for different purposes: making planks for windows and door, for fires, for eating, for purifying the water, and also for beauty.

“All of our wood needs are now satisfied by the wood in our village. We never have to go to the mountains any more for wood. We have already made a request for a third site, which was approved. The site will be another mixed site, but with an emphasis on fruit trees as well as eucalyptus and fir. We intend to use the fruit to eat as well as to sell.”
Planting the young trees in the desired spot

In general, the areas to be reforested are found within the boundaries of the communes and located near or in the villages. They are selected through community deliberations. The work begins by transporting the young plants to the reforestation site. Planting takes place during the rainy season, usually in November and April. Before the actual work begins, members of the community have selected leaders who are trained in planting and organizing the work. During the second phase of the project, six training sessions were held for 179 leaders.

From a technical standpoint, 2,000 trees per hectare are planted in rows and precisely spaced, according to the particular objectives of the reforestation effort, the trees being planted, and the water resources available. At times, the reforestation work is delayed because it overlaps with the agricultural calendar.

In general, the rate of return is about 60 per cent, although this varies from year to year depending on the length and quality of the rainy season, as well as insect and termite infestation.

Reforestation
Offering hope for reducing aridity

“Looking for wood is no longer women’s work. You have to go miles to find what you need to cook with”, says Manahira, a neighbourhood leader from the rural district of Tomboarivo, 35 kilometres to the west of Tsiory. To move away from this growing problem, he is promoting the planting of trees. “In just a few years, the village will easily satisfy its own needs through the village reserve without worrying about rights of use or anything else, since we are the owners and direct managers of the plantation,” he promises.

Reforestation is vital for this very dry region, where rainfall is weak and unreliable. In the 1990s, the Upper Mandrare River Basin was severely affected by drought and famine. In that period, the population, facing food shortages, malnutrition and starvation, was reduced to eating a mixture of earth and tamarind seed in order to survive. “It wasn’t easy to convince the population of the
necessity of reforestation,” comments Sylvia Aimée Ravelonjatoavo, head of the project’s Environment Unit. “At that time, people didn’t have a vision of the future. Between reforestation and a manioc plantation, they opted for the latter without thinking.” A large awareness-raising campaign was implemented, reaching out to women, school-children, cultivators, members of associations of water-users and livestock-farmers. Now, the years of education are beginning to bear fruit. A fraction of the population is convinced of the importance of forest regeneration.

In 2007, amongst the producers’ groups, 46 are specialized in the environment. Now, almost 300 hectares of land have been reforested and the project plans another plantation of 330 hectares more between 2006 and 2008. The PHBM takes on all of the costs relative to reforestation, such as the buying of young plants, and of simple materials such as wheelbarrows, spades and watering apparatus and the training of nursery cultivators. The buying of saplings is carried out by the 22 nursery cultivators trained by the project, which promotes species adapted to the climate of the south, as well as fruit-bearing trees such as *Eucalyptus rostrata*, *Moringa oleifera*, *Acacia mangium*, *Acacia seamea*, white grevillea and papaya.

**Collective regulation against brushfires**

At the outset, village reforestation was used only as a solution to the problem of the scarcity of wood. But recently this vision has changed: the young tree growth excites another feeling in local people, that of admiring pleasant scenery. These community reforestation projects are in the process of changing the look of several villages. This is the case in the village of Ankily, in the rural district of Tsivory, where some rows of *Moringa oleifera* have been planted. In certain places, it seems that these trees are the sole living vegetation. To keep the young plants alive, fire-breaks are in place around the plantations and a collective regulation against brushfires sanctions against all acts that might provoke fire. “Putting out fires is an obligation that involves every citizen; if not, he or she can be punished,” comments Aimée, a young woman from Tsivory. Later, the Upper Mandrare River Basin population can enjoy yet further advantages from the *Moringa oleifera*: its grains can be sold at 800
ariary per kilogram. These materials are used in the production of certain cosmetics.

The project is approaching its end in 2008. The future of reforestation activities depends above all on the will of the groups and nursery operators trained by the project. As does the future of community reforestation. According to the head of Tsivory’s Office for the Environment, Water and Forestry, each commune budget includes an environment element of 250,000 ariary for reforestation. Another project in progress: the right of households to have an individual plot of reforested land. These plots will have land-use rights, a big difference for families who have difficulty finding fuel wood.

Adapted from an article by Sahondra Adriamalala, local journalist

The potential to carry out active natural resource management activities has varied greatly between communities. Some communities are more open to change than others and to examining their situation realistically and looking for solutions. This was the case in communities where firewood was already very limited and people couldn’t help but realize that something had to be done. In other communities, immediate needs were still being met quite easily from the surroundings and people did not think in the long term. Motivated individuals played a key role in mobilizing a community to manage resources and to form local institutional structures. In addition, in communities where there is inherent mistrust between people, there is also a reluctance to introduce resource management initiatives. In localities where the traditional community spirit still survives, it was much easier for the community to introduce measures to manage and control resources. Land ownership remains another issue that will continue to have a major influence on the motivation of the population and their willingness to sustain the assets and benefits of the PHBM.
CHAPTER 11

SPREADING THE WORD

The sun is rising as he makes his way down the path, each brisk footstep leaving a small red cloud in its wake. The surrounding fields are almost empty of people. A day of rest? Hardly! It is market day, and the residents have put on their finest to spend the morning in the village square, making their purchases for the week, catching up on all the news, enjoying a morning away from the isolation and toil in their fields. He avoids the market square, afraid that too many people will stop him to share their thoughts and opinions, make their requests and prevent him from getting where he needs to go. Although he is young, he is a kind of local celebrity here.

Destination reached. As he’d feared, there is already a line at the door to the small, squat square building, in whose courtyard a disproportionately large and tall satellite dish reaches out toward the heavens. He greets those in line politely but cursorily, in order to continue on his way. Unlocking the door, he enters to find the usual pieces of paper with messages on them. They have been deposited through a small hole at the bottom of the door and are scattered on the floor. He gathers them up and makes his way down the corridor to the room at the very end. His fingers switch on the light to reveal what resembles a space command centre – control panels and knobs everywhere, wires and cables in random trajectories like thick cobwebs. He makes his way around the room systematically, flicking and turning switches and knobs as he goes, until he reaches a chair in the middle of a table that houses a small microphone. He sits down and takes a deep breath. In the total isolation of this room, what he is about to say will reach hundreds, perhaps thousands, of people. “Good morning, ladies and gentlemen, and welcome to Feon’i Mandrare...”

From 9 a.m., the time of the first programme, until sunset, in the corridor out into the courtyard, there is a long line of people, from adolescents to the elderly, who wait every Saturday, market-day in Tsivory, in front of the local radio station. They come here to
send messages or dedications to relatives or friends. And it’s not like this only on Saturdays: every day people come for the same reasons.

Created in 1998, the rural radio station *Feon’i Mandrare* (the Voice of Mandrare) sounds out the days in the Upper Mandrare River Basin. Conceived at first as a means of entertainment for the inhabitants of the commune of Tsivory and surrounding area, project managers quickly realized that the radio station could serve as a way of disseminating development information. In 2002, with the establishment of the Communication Unit, the Voice of Mandrare took a turn in the road. The transmitter was replaced by one that could cover 60 per cent of the project area. A journalist was hired to coordinate and manage the radio activities. Three local volunteers were taken on board and trained in broadcast journalism and entertainment, with the objective of developing local talent to keep the radio station going. The station, which used to broadcast for 5.5 hours a day, has now almost doubled its airtime (from 9.30 a.m. to 12.30 p.m., and from 3 p.m. to 10 p.m.). In addition, the local population was invited to participate in the broadcasts. Thus, the *Feon’i Mandrare* has become a platform for exchanging information and experiences between the project and its participants, and among the villagers themselves. The Communication Unit produces shows, reports and publicity spots around the needs of the technical units. Good experiences, practical news, first-hand accounts, sensitization programmes about agriculture, livestock, the environment, microfinance or water resource management are disseminated easily to the people of the Upper Mandrare River Basin. Listeners came to think of *Feon’i Mandrare* as their own, as it performs the dual function of communicating and entertaining. Putting aside the habitual dedicated songs, messages of greater urgency are also transmitted via radio: family messages, news of medical emergencies or obituaries. Farmers’ organizations can even broadcast their meeting schedule for members or express complaints if a broadcast is cut off or if there is bad reception. Furthermore, some members of the community record testimonials about their involvement in PHBM interventions, or make programmes that seek to raise awareness about different units of the project. For example, during one transmission Denis Ralaivao, Vice-President of the *fokontany* of
Tsivory, recounted how he sold six of his 12 zebus for cash to put into a savings account. He urged listeners to do the same. A stimulus for an evolution in mentality, since, according to him, “selling zebus was something inconceivable for the population”.

*Feon’i Mandrare* has also developed valuable partnerships. A collaboration with the ALT Radio project based in Fort Dauphin enabled the station to strengthen its activities. The NGO works with development projects and FM radios in many regions of southern Madagascar and has created an interregional library of broadcast items pertaining to a number of development projects. These taped radio services can be exchanged among different radio stations and aired throughout the country. For example, the shows produced by the project can be heard in Fianarantsoa, more than 500 kilometres away from the Upper Mandrare River Basin. The variety of broadcast items has been significantly broadened as well. In another partnership with the project *Santénet* (Healthnet), financed by USAID, information about family planning and community health is being broadcast.

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**A volunteer broadcaster shares his views**

“I started working at the radio in 2005. I was going to school but couldn’t finish because I had to take care of the goats and help take care of my seven siblings. My mother died, and when my father remarried I needed to help with the farming and livestock. But I saw the project’s advertisement for a radio broadcaster and I applied and was accepted, along with four others.

“I received very good training. The manager of the Communication Unit explained the functioning of the radio and how to operate the various machines. We were then sent to Fort Dauphin for formal training and then to other areas of the country for ten days for study tours. I felt very ready. I arrive at the studio every day at 8.30 a.m. The show starts at 9 a.m. and I need to prepare the equipment and set the music. I then take the microphone, welcome the audience and explain the programme for the day. Certain spots and information have already been recorded...
and prepared. But the songs and things that happen in the studio are elements that I prepare myself. I have the programme for the morning and like to start the day with songs. Then I alternate with spots on health, agriculture, environment, livestock, and other subjects. From 7 p.m. until closing, there are the dedications.

“My work at the radio is voluntary, but I receive small payments for each announcement and dedications that I broadcast. I earn my living primarily through farming and through livestock-raising. After the project, the radio will remain, and the operators who take over the radio will be obliged to hire those of us who have been working here already. This will be a condition for the new operators. I want to continue with the radio, and I hope one day to find similar work for which I receive a salary.”

— Tsimihanboa Jen de Dieu, volunteer radio broadcaster from Tsivory

The project also made sure not to limit itself to providing only information and sensitization. The inclusion of music and dedications has been one of the major factors of the radio’s popularity. Some people will walk 20 kilometres to dedicate a song or a few words of news to their family in another commune. Dedications have become a widespread means of communication for the local population, especially when there are no taxi buses to take them to visit their relatives. Madame Perline, who walked 20 kilometres to leave her message, said, “The radio is indispensible for me and my family. I can give them all the important news. Even though the distance is far, I will continue to come.” According to M. Herizo, the Manager of the Communication Unit, “The dedications broadcast by Feon’i Mandrare help to strengthen family ties, which have taken a back seat in the cities”. The dedications also contribute to sustaining the functional literacy training that many adults have received through the project. In fact, the majority of people who come to leave their hand-written messages learned to read and write through this training.

Peak time for listening is after the workday, at 8 p.m., when everyone is eager for information and entertainment. About 100 listening groups, comprised of between seven and 15 people, have been formed to gather at the different radio posts. Through collective listening, information that may not be understood by one
member can be explained on the spot by another member. The ALT Radio project also has about 80 posts that operate with both solar power and with a crank. Other listeners gather at the daily markets, where radio posts have also become available.

The radio is stimulating a visible change in behaviour and mentality in the people of the Mandrare: previously, the population was reticent, and hesitant to go into offices; now, there is a constant stream of people coming and going at local offices of the radio, planning dedications and announcements. “It’s reached the point where we have to limit entrance to the studios and to filter dedications to listeners, since these have the tendency to overuse the radio even to the point of using the radio to send threats to their enemies,” said Herizo. “Obviously, that cannot be permitted since the radio is intended to educate people.”

Herizo stated, “Even if no formal study has taken place, I can assure you that the radio has contributed significantly to opening up the spirit of the people in the Upper Mandrare River Basin. Despite the isolation of the area, they have access to the latest music, news and development information from the area and beyond. The radio has become essential for them, and the current challenge is to assure that it continues once the project has disengaged in 2008.” The project intends to hand over the radio network to local partners under the name 3R (Réseau Radio Rural – Rural Radio Network), which should encourage some degree of sustainability. However, the project will also need to conduct some advocacy campaigns to encourage public and private investment in local media and in power sources (for example, solar and wind-up radios, and solar panels for radio transmitters).

Rural Communication: Promoting changes in behaviour

To accompany the development of the population of the Mandrare, the Upper Mandrare River Basin Development Project employs several means of communication. The role of communication is fundamental to changing behaviour.

To boost the average quality of life of the population of the Mandrare, the PHBM publicizes its contributions and new
techniques through varied and original modes of communication: dialogue, posters, the print and broadcast media, listeners’ groups, stakeholder testimonies. After some years of uncertainty, these actions are beginning to bear fruit. By the strength of repetition and through the complementary roles played by all these means of communication, certain fringes of the population have been convinced of the necessity of – amongst other things – adopting new techniques of agricultural cultivation, or of the importance of converting a fraction of the livestock herd into monetary assets.

**Comprehensive communication support**

Communication followed many steps before reaching its current state. In the beginning, it took the form of direct dialogue with farmers in organization and awareness-raising meetings in the villages. This dialogue involved question-and-answer sessions between farmers and project officers. Such was the case during the awareness-raising meeting for livestock farmers from the rural town of Ebelo, 51 kilometres to the south of Tsivory, on the advantages of depositing money in the Mutual. This is effectively another way of avoiding the growing phenomenon of zebu theft: livestock farmers are suffering enormous losses as the victims of cattle-thieves and they are risking a lot by hoarding money at home. “The primary role of these dialogues and exchanges with livestock farmers is to win their trust,” affirms a project officer.

Direct communication was then taken over by other means. The tri-monthly newspaper “Akon’i Mandrare” (“Mandrare Echoes”) reports on a greater scale about the different activities being implemented by the project. It overflows with articles on themes such as the management of natural resources, education, the services offered by Fivoy Mutual, health and so on. Testimonials about positive experience are also reported there. But this publication has yet another role: helping newly literate people to retain their newly acquired skills, providing them with reading material. “Reading the bulletin keeps me up to date with the news but it also maintains what I learnt in the literacy-building course,” notes Ralipo, a newly literate man from Maromby. The print media is then relayed by the Feon’i Mandrare or by the mobile video unit, which has an even greater impact through its images. It is used to reach audiences that have not yet had access to literacy-building
initiatives. In certain towns, like Tomboarivo, they have even created listeners’ groups that join together in the village around a radio or TV set. It is also a means of popularizing new techniques, which will be complemented later by the distribution of technical posters and information cards.

**Seeing is believing**

But publications alone are not enough: farmers want to see it to believe it. Therefore, the project has adopted other strategies to convince farmers of the benefits of their new techniques. It trained village specialists who ensure the transfer of technical know-how into the heart of the community. The competition for the best rice farmer works in a similar way: it’s through this that the exploits of Pierre Andriambelo from the rural town of Ebelo and those of Ndohany from Tsivory were publicized, even far beyond the borders of the Mandrare region.

Demonstration plots or field-schools have been created for agricultural techniques. Etienne Tsivaroty explained, “The observation of an improved rice yield encouraged me to adopt these new techniques.” In fact, the project officers only communicate the techniques: their adoption or rejection depends on the community alone. “We have the habit of getting together after each awareness-raising session to discuss amongst ourselves what has just been said, and to convince each other,” explained Rafaralahy, Community Development Organizer from Tomboarivo.

*Adapted from an article by Sahondra Adriamalala, local journalist*

**Showcasing innovation to other farmers**

Ndohany, a model farmer from Mandrare, knows his land perfectly. In front of visitors, with a beaming smile, he presents his work: “Here is the *Moringa* plantation, next is the manioc field, and over there, you can see the rice fields...” Ndohany owns what is effectively a demonstration plot that makes up part of the “Showcase” of the agricultural, livestock and environmental
activities of the PHBM, known as the “site of integrated activity”. He demonstrated the interdependence of his various activities to visitors. “The Moringa is planted close enough to the rice crop that it can protect it from sanding build-up, which could otherwise happen due to soil erosion,” he explains to the other farmers who have come to the plot to learn. Ndohany continues the presentation: “The zebu dung is used as fertilizer. There is also pasture for the animals, by means of foraging.” He then accompanies them to the rice paddies, where they not only observe the maintenance of the irrigation canals, but also how the new improved techniques of rice cultivation work.

Ndohany is one of the pioneers of the system of improved rice cultivation. The experience has enabled him to obtain a harvest of almost 9 tonnes per hectare during the 2005-2006 season. Since then, he has become a respected role model for other farmers. Etienne Tsivaroy, a farmer from Tsivory, said, “Ndohany was the first to try these modern techniques. We have seen the results and now we are trying them too. It was Ndohany who taught us the techniques.”

“Farmers retain knowledge best when it is given by their peers,” explained Herizo Andriamifidy, Head of the PHBM’s Information, Education and Communication Unit. In order for the various techniques taught by the project to be taken up by the population, they needed a place where true-to-life demonstrations could be carried out. Andriamifidy added, “It’s all well and good to verbally explain things in detail to the farmers, but if you don’t actually show them what concrete actions have to be carried out, it will be useless.”

A site for this demonstration methodology was not chosen at random. Sylvia Ravelonjatovo, Head of the project’s Environment Unit, explained, “The site had to have the shape of a basin. After a feasibility study, the PHBM proposed to the owner of the land to transform it into a showcase for other farmers.”

Alain Razafindratsima, Head of the project’s Monitoring and Evaluation Unit, said, “We plan organized trips during which farmers can see in situ the practice and the results of the techniques being used by other farmers. In this way they can decide whether or not to apply the techniques when their time comes.”
Partnership between the PHBM and other organizations has been at the centre of many of its activities, and each partner has a precise role to play. In essence, the project has served as a “hub” for diverse international and government agencies, and non-governmental actors at the national, regional and local levels working on poverty reduction. The purpose of the partnership was to remove any duplication and competition for resources and, perhaps more importantly, to build a cooperative environment that supports local community involvement and facilitate its participation in the development process, contributing solutions and resources to community problem-solving. One of the main strategies behind the partnership was to tap into relatively ill- or under-utilized development resources and energies for the sake of the local communities. Local empowerment – actors working together to solve their own problems and build their own future – was at the heart of the PHBM.

Many areas benefit from this collaboration, notably education, training, adoption of new techniques and technologies, the construction of infrastructures, the economic valuation of goods and activities and environmental protection. The tasks are immense, and capitalizing on the Upper Mandrare River Basin is far from easy. Among PHBM’s collaborators, there have been other projects such as the PSDR; international bodies such as the World Wildlife Fund (WWF), the United Nations Development Programme (UNDP) and Catholic Relief Services (CRS); NGOs such as Action Pour un Environnement Lettré (Action for a Literate Environment - APEL) and FAFAFI; the Madagascar Ministry of Energy; and private enterprise, like Andrew Lees Trust (ALT).

“Certain demands of the population are not eligible under the PHBM and IFAD funding but are absolutely acceptable for
other projects,” explained Alain Razafindratsima, Head of the project’s Monitoring and Evaluation Unit. “So it is important that we partner the project with other entities in order to concretize our activities.” Some partners are specialized in certain areas, like WWF, which is concerned with environmental issues, and the World Bank’s *Fonds d’intervention pour le Développement* (FID), which focuses on the construction of schools and basic health centres. These collaborators have been ideal allies in PHBM’s activities.

In partnership with the World Bank’s *Programme Sectoriel de Transport* (PST), roads were constructed to open up the extremely isolated project area in order for harvests to be exported. According to Razafindratsima, “the rehabilitation of 80 kilometres of provincial road linking the Upper Mandrare River Basin and the town of Amboasary has helped the population to dispatch products toward the consumer regions of Tolagnaro and Ambovombe”. Access to education, health centres and clean water have also improved significantly owing to partnerships. FID has built nine schools and five basic health centres in the region. Furthermore, 29 water-access stations have been put in place with the support of the Department of Water of the Madagascan Ministry of Energy and Mines. The list of examples could go on and on.

Of course, the project beneficiaries are the primary partners. Through the commune and village development plans, the populations of the Upper Mandrare River Basin are called upon to identify and prioritize their needs. And when work begins, the beneficiaries are essential to the execution of the various activities, providing manpower, managing infrastructures and the materials obtained for the project, and making sure that they are gradually “owning” the initiatives. Mbola, a rice farmer from Tsivory, explained, “In all these works, we contribute at least 20 per cent, calculated in manpower.”
22. Households having access to drinking water

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23. Main partners of the PHBM

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<td>Research and development on agricultural innovations</td>
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<td>ALT RADIO – NGO</td>
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<tr>
<td>CRS (Catholic Relief Services)</td>
<td>Strengthening agri-business capacity</td>
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<td>ASOS/JSI/USAID</td>
<td>Environment and health</td>
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<td>World Food Programme</td>
<td>Food for work in road rehabilitation</td>
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<tr>
<td>FAO</td>
<td>Treadle pump promotion</td>
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60. The Communications Unit put in place the “Voice of Mandrare”, which broadcasts daily and is listened to primarily for its technical spots and family messages.

61. To ensure the impact of the technical spots, the PHBM supported the formation of listeners’ groups by distributing radios.
62. In the background, typical dry forest plants that are endemic in the south; in the foreground, “rakety” plants that protect the villages and serve as occasional food during droughts.

63. Aerial view of a forest planted by the PHBM. Environmental and forest protection initiatives began late, but they still covered more than 300 hectares.
64. Reforestation is not only about firewood. Here, a nursery of Moringa, the miracle tree.

65. Moringa farmers use every part of the plant: the seeds for oil and soap, and leaves for both animal and human food.
66. The promotion of improved stoves, in collaboration with Andrew Lee Trust, resulted in an enormous reduction in the use of firewood.

67. The stoves, which can be made very easily, were enormously successful, given the rarity of fuel, and are used by many families.
68. Partnership with other ministries allowed more substantial equipment or facilities (e.g. health centres and schools) to be provided. Here a water point.

69. AIDS campaign led by ASOS. Sensitivity and training session being held in a village.
70. Each commune sent a dance troupe for the inauguration of Phase II of the PHBM in June 2001.

71. The market in Tsvory, which has evolved substantially over the past ten years and now extends outside the city.
72. The entire project team after a supervision mission meeting in 2003.

73. The project buildings in Tsivory will become the headquarters for district services, the CSA and the rural radio.
CHAPTER 13

WHEN THE PROJECT LEAVES…

One day soon, a complex dismantling will begin to take place. Certain people, tools and pieces of equipment will be removed from the scene and used elsewhere, taking with them not only their pragmatic utility but certain flows of knowledge, innovation and energy. The operation will be an extremely delicate one. With so many interlocking pieces, it’s nearly impossible to know which one/s, if any, could cause parts of the structure to come tumbling down once they are excised. Not unlike a house of cards, except that these are real houses, with real people living in them, who have experienced the depths of poverty and have started to gain the skills to lift themselves out of it. No, this is no house of cards, and the famous “exit strategy” cannot be a roll of the dice.

The PHBM has introduced a wide range of activities to respond to an equally wide range of needs in the area, needs that were identified and prioritized by the local residents. The results and impacts of the project’s activities have been many and include, to name only a few: a 75 per cent increase in family incomes, the status of the area as a major exporter of rice, the emergence of a local planning dynamic, the creation of a number of important farmers’ organizations of an economic or social nature, the promotion of a diversified range of village specialists, the literacy training of more than 6,600 adults, the development of 4,000 to 5,000 hectares of irrigation schemes on which yields are exceeding the national average, the introduction of new crop varieties to cultivate and sell, the launching of a dynamic reforestation initiative, the creation of a savings and credit mutual and the outfitting of a mini road network throughout the area, thus opening up the Upper Mandrare River Basin to the world.

The PHBM II raised the issue of disengagement very early on, and informed the project beneficiaries of its eventual disengagement even before the project had reached its midpoint.
The issue of disengagement, or “exit strategy”, is always important, and particularly so when a project like PHBM relies so heavily on local capacities and when the local institutional landscape is not the most favourable. The objective is to enable the benefits resulting from the project to continue and to expand in the medium and long terms, as well as to exploit the comparative advantages of the region in commercialized activities towards the regional hub, Fort Dauphin, or other markets. In other words: sustainability.

There are three main challenges that will need to be met: (i) mobilizing or consolidating those structures that could take on the role and functions of development that are currently being carried out by the project or its service providers; (ii) maintaining or improving efforts to enhance the physical and “intellectual” accessibility of the project area; and (iii) ensuring that the priorities/regional opportunities and the local planning activities are integrated. These challenges are indeed ambitious and innovative.

To help meet these challenges, the project has created a special approach that is being introduced in Madagascar for the first time: PATAS – “Pérennisation des Acquis, Transfert des Avoirs et des Savoirs”, or Sustaining Outcomes, and Transferring Assets and Knowledge. It was also necessary to create a support group at the regional level and to designate a head of the PATAS process to organize the activities that PATAS would undertake.

**PATAS: operational principles**

PATAS has the following four operational principles:

- **Community involvement**
  Local populations will understand their role, and the responsibilities of their organizations, to continue the initiatives.

- **Subsidiarity**
  The principle of subsidiarity will be applied in preparing the hand-over of development functions, at first through farmers’ associations. If these organizations cannot take on these functions, solutions will be sought at a higher level. Failing this, they will be sought at the regional level amongst private, public or administrative institutions according to their mandate and
capacities. Once the hand-over partners for development functions are identified, their capacity to take on tasks will need to be verified, and strengthened as necessary.

- **Prioritization**
  Since it will not be possible to exhaust all possible routes of action for sustaining the project’s outcomes, priority will have to be determined among the most pertinent activities requiring intensive work, those which are less pertinent and those to be abandoned purely and simply for a lack of pertinence or valuable results.

- **Development functions**
  The PATAS process will be organized along classical project component lines, bringing in permanent local, regional and central actors.

**Activities**
The activities that make up the PATAS were recommended by the UNOPS Supervision Missions carried out in 2006 and 2007 and are as follows: Programming Activities, Sustaining Outcomes, Transferring Knowledge, Transferring Assets and Disengagement.

**Programming activities**
Programming activities began with the consultation of farmers’ organizations at the beginning of 2007. The consultations were held to clarify the range of responsibilities that will need to be addressed when completion of the project is imminent, as well as to identify and prioritize any support that may be needed to ensure that the outcomes of the project are not lost after its closure. A wide variety of farmers’ organizations participated in these consultations.

The results of consultations were formulated into a matrix divided by Development Function Group and described and prioritized functions that had already been transferred to local organizations, those that that could easily be transferred, those whose transfer would be difficult, those that could be abandoned, etc. These consultations resulted in a “pre-plan” that was presented, debated and enriched during a regional workshop held at the end of August 2007 in Fort Dauphin. Once validated at the workshop, the
PATAS plan was integrated into the project’s reorganized 2007 Annual Workplan and Budget as well as that of 2008.

Sustaining outcomes

Project activities were classified in three groups:

- **Planning and managing local development**
  The local planning dynamic that was put in place at commune and fokontany levels, as well as the literacy training of adults, were among the most important outcomes of the project. In order to sustain them, relations between the communes and the regional institutions will need to be facilitated in order to ensure that the regional priorities and the local activity plans are integrated. In addition, the capacity of local institutions, such as CCDs, will need to be strengthened through continued support by local facilitators. To prevent a return to illiteracy, one library will be established in each commune.

- **Managing and safeguarding means of production/income generation**
  Agricultural land, water and the mini-network of roads and rural tracks are the most important outcomes of the project. The project initiated a pilot activity in which a locally managed land tenure desk was created, with the setting up of an intercommunal desk in Tsivory (guichet foncier, part of the national land reform) where land certificates will be prepared and issued, and guidance and information will be given. Transferring the management of irrigation channels was pursued in 2007. The WUAs that have already signed their transfer contracts received deeds of the transfer of management; those remaining will undergo an external audit to determine the soundness of their operations. These WUAs will need to understand and enforce existing rules and regulations, as well as ensure the maintenance and protection of the irrigation systems, particularly in places where they are most vulnerable. (These delicate locations were already inventoried and identified.) With respect to the network of roads and rural tracks, a request for complementary financing from the Road Maintenance Fund (Fonds d’Entretien Routier – FER) to complete the 20-kilometre stretch of
road (RIP107) from Vazahalava to Mahazoarivo was made. In addition, the Association for the Management of Provincial Roads (Association pour la Gestion des Routes d’Intérêt Provincial – AGRIP), the structure created to manage this road, has been made operational.

- **Agricultural and non-agricultural services and advice**

  Current levels of performance (especially agricultural performance) that have been attained must be ensured by maintaining services and advice, which must come first and foremost from farmers’ organizations. In this regard, a significant number of farmers’ organizations have been created and strengthened in all sectors supported by the project. Debate and reflections amongst their membership have resulted in the conclusion that their continuity cannot be achieved without their linking to a federative structure. In addition, the range of village specialists must be consolidated and strengthened through additional training in their areas of expertise. Other sustainability issues include: better collaboration between animal health representatives and community organizers; promotion of the private sector in providing products and services (including bulk provisions and sales points); local propagation, storage and conservation of seeds (a programme addressing these issues was initiated in 2007); the privatization of nurseries (two private nurseries in Tranomaro and Esira are being run with the help of local residents who have been trained); commercialization of products, particularly market gardening cultivation (local commercialization committees have been established).

  The young *Mutuelle Fivoy* created by the project is the only local institution providing financial services. Its sustainability will depend on the continued agricultural development of the project area. In addition, its partnering with other institutions like the regional financial structure (IFRA) enables it to benefit from refinancing facilities and cost-sharing mechanisms. The project has allocated funds to enable such a partnership. Training will also need to continue in order to ensure that products and services offered by the *Mutuelle* continually respond to the savings and loan needs of the different socio-economic contexts of the project area.
The agreement of the Ministry of Agriculture to establish an Agricultural Service Centre (*Centre de Service Agricole* – CSA) and Commune Support Centre (*Centre d’Appui aux Communes* – CAC) in Tsivory, as well as to consider giving Tsivory the status of District, which it had lost 30 years ago, represents an extraordinary opportunity that coincides with the disengagement of the project. The CSA will serve as a liaison between producers and providers (both private and public). The PHBM was actively involved in setting up the CSA in 2007, by offering space and equipment for its operations, as well as preparing information for distribution.

**The PHBM’s Deputy Director explains the CSA**

“Each district will have a CSA. Tshivory is not a district, but given the activity that the project has carried out there, the Ministry also decided to launch a CSA in Tshivory. The CSA will be made up of several “colleges”: for example, agriculture, microfinance, technical services, private operators, finance organizations, local authorities and elected officials. These will be the members. In this structure there will be a Pilot Committee. The structure will have the statute of an NGO, and there will be 12 members in all, including five farmers’ organizations.

“There are currently four CSAs that are functioning in Madagascar. After the 12 members are selected, the president of the Pilot Committee will be elected. The CSA is the liaison between the producers and the service providers. There will not be a direct intervention. The CSA receives payment for its services as liaison. If, for example, a farmers’ organization wants to sell their produce but doesn’t know the appropriate buyers, it goes to the CSA, which then finds the appropriate buyers. At that point the seller and buyer negotiate directly and each pays the CSA a certain commission. The Ministry is facilitating the creation of the CSA but its role goes no further.

“The project has supported the creation of the CSA in Tshivory. For example, the CSA will be held in the building where the project’s radio station is located. The project will also supply computers and other equipment. Support will be provided until the
CSA is recognized by the state. There will be two full-time technicians who will be paid by the CSA. They will be key people, since they are full time and on site and have the prime responsibility for mobilizing the various buyers and sellers. Instead of relying on project technicians, people will go to the two CSA technicians.

“The CSA represents a crucial feature of the project’s disengagement strategy.”

**Transferring knowledge**

A number of strategies are in place to ensure that knowledge acquired during the project is transferred to the local population as well as institutions that may provide support and at national and international levels.

- **Project website**
  
  The project created a website (www.phbm.mg) that provides information on the project area, objectives, achievements and impacts, and other information that could be useful for sharing knowledge and experiences, and an electronic library that contains all reports written in the past 12 years. Links with MAEP and IFAD websites may also be set up.

- **Appraisal of projects and micro-projects**
  
  In preparation for the impact and results study which will be carried out in 2008, a “state of affairs” surveying the physical and financial conditions of projects and micro-projects (infrastructure, agriculture, livestock-raising and environmental projects) was carried out in 2007. This survey was conducted to determine, to the extent possible, the agreed investment, the number of beneficiaries, the results and benefits achieved and the degree of maturity and probability of continuity of income-generating activities. The survey will feed into the impact and results study, which will be conducted by those responsible for the project, under the supervision of a highly qualified specialist.


- **Transfer of technical documentation**
  An inventory of technical documents managed by different units of the project will be taken and the documentation may be deposited with the CSAs and will also be preserved on CDs or other appropriate distribution formats.

- **Transfer of audio-visual-script documentation**
  This documentation will be the object of particular attention since it is generally comprised of training support documentation, technical data sheets and files, and awareness-raising materials to be used by village specialists. The creation of the village library will make these resources available to users. The documentation will also be produced in other formats, to be made available to appropriate institutions and the CSA.

**Transferring assets**
Materials, furnishings and buildings acquired or constructed during the execution of the project belong *a priori* to the MAEP and are to be transferred to this entity. In the execution of the present programme, it can be envisaged that the transferring of functions will be accompanied by material or real estate means being made available. The transfer of certain holdings is already planned in the activities of the project, and the transfer will need to be clearly formulated in contractual conditions.

**Disengagement**
The disengagement of the project will also be executed through a gradual reduction in its contracted staff and service providers, in a phased approach to ensure a smooth transition throughout the last 12 months of the project.

“I know what to do to maintain the dam and to modify the flow of water,” said Savoky René, President of the WUA of Andranomahavelona, a rural town in Tsivory. Clearly, he won’t be worried about the continuity of the activities of the dam on the day after the departure of the project. The members of his association are unanimously convinced: “We know very well that sooner or later the project was going to pack its bags; we have prepared ourselves,” they say.
The project has worked hard to make sure that its disengagement doesn’t lead to a return to “things as they were”. Mamihery Ravelojaona, who is in charge of the disengagement of the PHBM explains, “The disengagement process seeks to make the benefits of the project’s activities sustainable. Development activities are useless if there is no continuation. It is crucial that the work that has been undertaken does not die away.”

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Mamihery Ravelojaona, Head of the Project Disengagement Unit

“I have been working with the project for five years. The Exit Strategy function began a year ago, and I was made responsible for this function. First a plan was developed in which we had to identify all of the functions and activities realized by the project. Then, we had to determine what was necessary to make sure that each of these functions could continue, or which functions could be eliminated. This was done with the participation of the beneficiaries, who know best what benefits are most important. Through this process, we developed a pre-programme, and were able to establish the functions and the options for assuring their continuation. The development functions were then evaluated at a regional level, with the participation of regional and community stakeholders. With the validation of this programme, we are now in the process of putting it in place.

“Much of the programme is based on transferring knowledge. For example in agriculture, there is seed multiplication. How will the provision of seeds continue, for rain fed cultivation as well as for market gardening? Then there is livestock. The programme established local vaccinators to assure the health of the livestock. For natural resources management, there are actions programmed such as the privatization of nurseries for reforestation activities. In short, the programme is about “autonomizing” the functions.

“The transfer of management of irrigation schemes is about diagnosing the maturity of the people and seeing if they have the capacity to continue to manage, and to formalize the management
structures. The structures must also conform to the relevant government policies.

“Not much needs to be done with respect to microfinance. The establishment of the local branches has been achieved and they are functioning independently, especially since we had already involved the private sector. There are some weak points – for example, capacity building of the managers.

“The largest sustainability issue is the structure of different farmers’ organizations. Many organizations were created, and now the idea is to somehow consolidate them. If they are left isolated they won’t be effective. The project is supporting the consolidation of these organizations, for example, by seeking to create one or two unions of market garden or water users’ associations that represent the entire project area. Unions have been created at the commune level in many of the communes, but these unions are a mix of the different types of organizations, which isn’t as effective as having them separated by activity. We are putting in place temporary committees for each type of organization. These committees are conducting sensitivity sessions to determine appropriate activities to be introduced.

“Another challenge is determining where the existing buildings and equipment will be allocated. There are really no precedents from which we can draw lessons on this, and it will be a very complicated process. In other projects, buildings and equipment are often left to ruin, so there are no previous experiences to help us.

“I must confess that the creation of my position came a bit late, given the enormity of the investment and scope of the project. The disengagement process should have been underway at the very beginning of the second phase, rather than at the midterm evaluation, which is what triggered it.

“Our hope, our vision, is to link the local structures to the regional structures. The key to sustainability is there. This is what was done with the Mutuelle du Mandrare, in terms of training, management, guarantees, funds, etc. We hope to do a similar thing with the farmers’ organizations. To consolidate them and link them to larger regional structures and even national structures.

“In all of this, as in our project “engagement”, we are very hopeful, we hold our vision.”
Epilogue

Before concluding, a quick economic analysis of the PHBM based on an independent impact study that was conducted in June 2008. The two IFAD loans increased to US$18 million (US$5.3 million for Phase I (1995-2001) and US$12.6 million for Phase II (2001-2008)). Phase I was paid out at 100 per cent and achieved 115 per cent of the expected results. Phase II was paid out at 98 per cent and achieved 120 per cent of the expected results. In addition, the project was able to attract additional funding in the region: US$2 million during Phase I and US$6 million during Phase II.

Food production in the project area experienced rapid growth. Rice production went from 1,600 tonnes in 1996 to about 11,000 tonnes in 2002, and 25,000 tonnes in 2008 (98 kilograms to 195 kilograms per capita). In addition, between 2001 and 2008, manioc production went from 23,000 tonnes to 50,000 tonnes (from 237 kilograms to 541 kilograms per capita). In 2007, three out of four households were engaged in some form of savings, including (in order of importance): purchase of livestock (31 per cent); purchase of jewellery (27 per cent); and cash savings (26 per cent).

The increase in expenditure for education (almost 300 per cent) shows that households place great importance on the education of their children. The same holds true for expenditure on health, which increased almost 100 per cent between 2001 and 2008.

The project’s impact on the living conditions of households can also be appreciated at the level of accumulation of durable goods. Between 2001 (when Phase II started) and 2008, the proportion of households possessing essential items doubled. For example, in 2001 fewer than 40 per cent of households possessed a bed. By 2008, the number had increased to more than 70 per cent. The doubling of the level of ownership of tables, chairs and radio-cassette players attests to the emergence of secondary goods and an enhancement of the quality of life. During the project, other items that households purchased included: foam mattresses (22 per cent); tables and chairs (53 per cent); televisions (3 per cent); radio-cassette players (40 per cent); and CD/DVD players (3 per cent). Total annual household expenditure increased on average to 95,000
ariary, or 13,000 per household, representing 1.1 per cent of annual income. The proportion of households possessing a bicycle went from 6 per cent in 2001 to 35 per cent in 2008; for handcarts, the proportion went from 1 per cent to 31 per cent.

There are those who will insist that money makes development easy, and with the flood of dollars for the Mandrare, such results were inevitable. However, recent experiences throughout the world clearly demonstrate that money can easily be squandered in projects without a future. Above all, in the case of the PHBM the economic analysis showed an extremely rapid return on investment.

In fact, if the average annual production of rice is considered (about 20,000 tonnes), the two IFAD loans to the governments will be paid off in less than three years, which is exceptional. Taking into account recurrent drought (one out of every four years), this result would be achieved in less than five years of production! In effect, the 13,000 tonnes of rice hulled brings an average of US$7 million to the producers of the Upper Mandrare River Basin. In addition, the 800 tonnes of onions produced annually by producers’ groups (primarily women) are a second extremely important source of income. Taken together, there is no doubt as to the internal profitability of the project, whose projection of 15 per cent went beyond 35 per cent!

In 2008 the project conducted an impact survey that confirmed most of the findings of this book. The independent evaluation office of IFAD also confirmed the impressive results of the project. The lessons learned will be used for other IFAD projects, as well as for those of other partners throughout the world.

The success of the project was without a doubt the result of an extraordinarily dedicated and professional team who found the right ways to work with populations in marginal zones by understanding their traditions and showing them how they can be transformed for a modern world. It is also the result of the close partnership between the government, IFAD and local operators in Madagascar in their efforts and vision to make a so-called “development project” a sustainable and life-enhancing initiative for the people, with the people and by the people.

Mistakes were made, to be sure. Humans are fallible, and fortunately the project was resoundingly human. Only the future
will reveal whether the activities launched by PHBM continue to grow and “nourish” those who now have the responsibility for their growth.

The project’s participants put things very clearly: “Now we can feed our children, they have proper clothes, they go to school, and our future is not as dark as before. We have gained confidence and we see a light ahead …” Let there be light.
Authors’ Note: The majority of information came from interviews with project staff and residents of the various communes of the project area, as well as from the extensive archives of the project base in Tsivory (which can be found in the electronic library at www.phbm.mg) and a set of press articles written by local journalists of Syfia/Mediascope. In addition, a number of other sources and published documents were used in the preparation of this book. They are listed below.

2. IFAD. Projet de Mise en Valeur du Haut Bassin du Mandrare (Rapport d’achèvement du programme). January 2004
3. IFAD. Upper Mandrare River Basin Development Project – Phase II (Report and Recommendation of the President), 7 December 2000


12. PHBM website. www.phbm.mg


15. UNOPS. *Projet de Mise en Valeur du Haut Bassin de Mandrare (Phase II). Aide mémoire de la septième mission de supervision*. June/July 2007


Nourishing the Land, Nourishing the People recounts a challenge that humanity must confront every day, and for which Madagascar sends a signal of hope to millions of poor rural people in the world.

The book tells the story of a development initiative in the arid south of the “Red Island”, the Upper Mandrare River Basin Development Project (PHBM), which enabled a region suffering from chronic drought and famine to become the breadbasket of the south.

The book presents the stories and voices of those who took part in this initiative, carried out from 1996 to 2008. They describe how the project helped participants enhance their ability to improve their future in a sustainable way through social organization, a focus on agriculture production, and the participation of everyone, especially women and young people.

Madagascar authorities at commune, regional and national levels took part, supporting PHBM staff and the villagers in their efforts to eradicate poverty. The combination of these three forces was crowned with great success: new irrigation schemes, abundant harvests, the opening of new roads, improved literacy, a higher standard of living and a better life.

PHBM’s success demonstrates that integrated rural development is a viable concept if it is applied with professionalism and a participatory spirit. It is an example worthy of reflection, especially in light of ever-accelerating global challenges such as population growth and food crises and desertification and other environmental crises. This positive experience deserves to be known.

Through this book and the internet (www.phbm.mg), the doors of Mandrare open!

www.capfida.mg  www.agriculture.gov.mg  www.phbm.mg

Space for bar code with ISBN included