FEEDING KNOWLEDGE

A NEW WAY OF CULTIVATING RICE

NOURISHING THE LAND, NOURISHING THE PEOPLE

INTERNATIONAL CALL FOR **BEST SUSTAINABLE DEVELOPMENT PRACTICES**

COUNTRY:
Madagascar

DURATION:
From January 1997 to January 2008

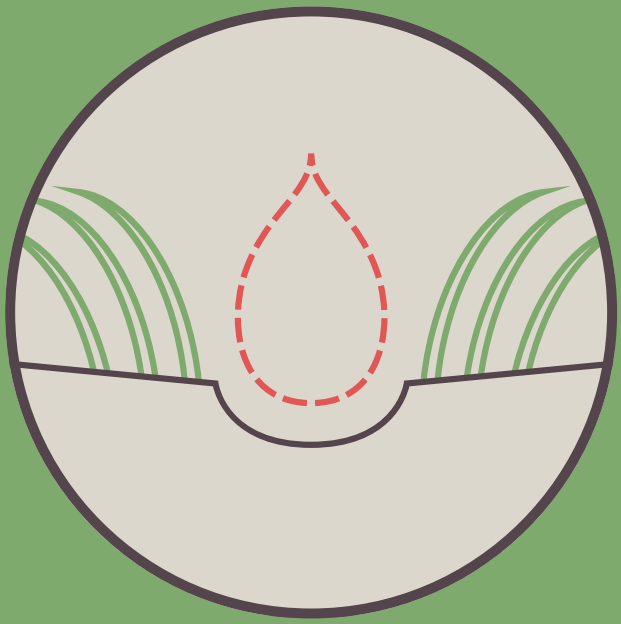
THEME:
Quantitative & qualitative enhancement of crop products

A NEW WAY OF CULTIVATING RICE

Achieving More with Less: A New Way of Rice Cultivation. Rice is life. It is the staple food for more than half of the world's population. Moreover, almost a billion households in Asia, Africa and the Americas depend on rice systems for their main source of employment and livelihood. About four-fifths of the world's rice is produced by small-scale farmers and consumed locally. That is why increasing rice production is one of the most powerful pathways to improving household food security and reducing rural poverty. The System of Rice Intensification (SRI) allows smallholder farmers to embrace a new way of farming rice by using less seed, land and water, and have significant increase in yields. It is a set of 'good practices' easy enough to be taught to farmers. SRI was initiated in Madagascar in the early 80s and is spreading in Asia and Africa reaching millions of farmers. In 1997, after the food crisis in Madagascar, the IFAD-funded Upper Mandraré Basin Development Project (PHBM) introduced SRI to the Malagasy smallholder farmers.

PARTNERS: The International Fund for Agricultural Development (IFAD) – Italy, Ministry of agriculture livestock and fisheries of Madagascar – Madagascar, Cornell University - United States.

NEEDS



"Rice was, and still is, the staple
for Madagascar's 20 million people,
and the average annual consumption
is about 102 kg per person"

Background

In Madagascar, a country that had experienced 40 years' of agricultural productivity stagnation and affected by a political crisis since 2009, IFAD's investment to support SRI has been highly effective. Before the SRI project was implemented, Madagascar had two consecutive dry years caused by drought in 1991. The Upper Mandraré River Basin, once known as the food basket of southern Madagascar, was at the time an isolated and deteriorated land by years of drought and famine that brought the local population to its knees. It was a struggle to survive. The **objective of the project** was **to ensure food security** for the population and **to reduce rural poverty**. Rice was, and still is, the staple for Madagascar's 20 million people, and the average annual consumption is about 102kg per person. Many efforts were undertaken to increase the surface area used for rice cultivation, reduce the cultivation time to reach 2 crops per year and to optimize the use of water that was available.

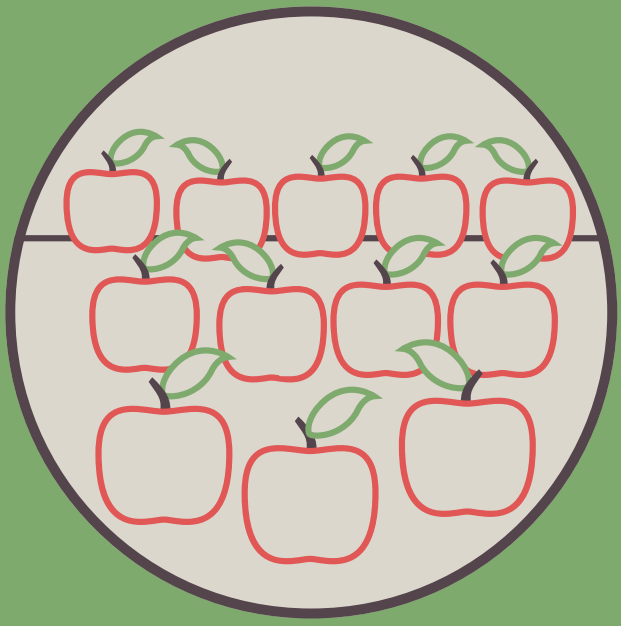
Needs

The aim of the PHBM has been to increase the on-farm and off-farm income of rural inhabitants of the target area in order to improve their living conditions and help to increase food security. More than **109,000 Malagasies have benefited from the project**, especially the smallholder farmers living in rural area. The project also made a special effort to help the most marginalized groups such as landless farmers, women and young people to benefit directly from the project's investments and to enable communities, farmers' organizations and locally elected officials to play a greater role in planning, decision-making and development activities. The successes of PHBM were then scaled up by the IFAD country programme in several other projects: PPRR on the east coast (2004-2013), Ad2M on the west coast (2005-2015) and PARECAM (2009-2011) all other the country.

Difficulties

In Madagascar political turmoil and farmers tradition have been the main obstacle. Farmers initially resisted changed and did not want to give up traditional farming methods. The resistance is also due to the importance of rice in the local culture and tradition. A Malagasy proverb says, **"Rice and water are inseparable from the field to the village"** and farmers often do not want to be taught how to cultivate a crop that they have grown forr generations. To overcome resistance, constraints and raise awareness about SRI, IFAD adopted a number of measures (education, extension service, inputs provision, trust building) that have proven successful among farmers. **IFAD supported these pioneers who today are leader-farmers** and several of them won national awards thanks to their high production.

RESULTS



"The System of Rice Intensification technique produced impressive results in Madagascar, enabling a region suffering from chronicdrought and famine to become the breadbasket of the south."

Results

The SRI technique produced impressive results in Madagascar, enabling a region suffering from chronic drought and famine to become the breadbasket of the south. Rice production in the project area increased from 1700 tonnes in 1998 to 9000 tonnes in 2000 to 23,000 tonnes in 2007. This **remarkable increase** was due to expansion in the cultivated area as well as the intensification of cultivation. The cultivated area increased by 5,100 hectares with yields going from 1.5 tonnes per hectares to 4.3 tonnes. Globally, the project area has achieved rice self-sufficiency and become a rice exporter throughout the southern region. Thanks to SRI, rice is no longer a subsistence crop but an income-generating one. Household income increased by 75 per cent on average, bringing **dramatic improvements in the quality of life**, improved dwellings, schooling and health benefits for children. Traders and new farmers have increased by 7.5% per year, making Mandraré a real economic development pole.

Innovation

SRI is both an innovative concept and a philosophy based on solid rice plant, soil and water management. It emphasizes the revival of the natural production potential of rice and values the full potential of rice tillering. SRI is based on 6 basic practices: transplanting, spacing, keeping soil moist, weeding and using compact. With this new system, fields are not flooded as before. Soil is kept alternately dry or wet, plants' roots take oxygen from the ground thereby reducing weeds. Less water and fewer seeds are needed to produce a higher quantity of rice. 'Producing more with fewer inputs' is the main characteristic of SRI. This flexibility makes SRI **affordable to poor smallholder farmers**, and its successes enhances its **potential for replication**. Farmers who adopt SRI are very satisfied with the outcomes, as their rice yield per hectare doubles and even increases fourfold as demonstrated on large scale by PHBM and other IFAD projects.

Environmental impact

• **Global warming:** Worldwide rice production can be quite polluting. Indeed the anaerobic conditions created by excessive flooding of rice, produce huge quantities of methane, a greenhouse gas contributing to global warming. By using far less water than traditional techniques, accordingly to FAO evaluations, SRI has significantly reduced methane production.

• **Water management:** SRI uses much less water than other rice production techniques allowing to save water in difficult environment and allowing rice cultivation to be expanded in drier areas. This is significant in a context of worldwide shortage of water.

• **Biodiversity:** by unleashing the potential of each seed traditional or modern (hybrid), SRI contributes to the conservation of biodiversity by demonstrating that even old varieties can be much more productive than expected.

• Finally, the agronomic technics promoted by **SRI, helps farmers to protect and enrich the soil**, reducing the risk of erosion and maintaining agricultural land.

PICTURES IN THIS PAGE:
1. Rice fields - **2.** A man replants rice seedlings - **3.** Women sift rice in Tsivory Village

PICTURES IN THIS PAGE:
4. Village residents gather for a meeting in the Amboasary District - **5.** A horizontal view of the rice plantations in Tsivory Village - **6.** Young farmer

TRANSFERABILITY

"System of Rice Intensification is flexible, easily adaptable to different needs and contexts and farmers can learn it quickly"

Human resources

In the case of IFAD-funded projects, project management unit staff played a key role. A special acknowledgement to the IFAD Rome teams (Perin Saint Ange, former ESA Director, Haingo Rakotondratsima, Country Presence Officer and Benoit Thierry, country programme manager), Rudolph Cleveringa (former technical advisor, Water & Rural development, IFAD), the PHBM team (Harifidy Ramilison (project manager) and Andrianaina Rakotondratsima (Ad2M project manager) and the CAPFIDA team in Antananarivo (Sesy Soja and Lucien Ranarivelo). Merit also to smallholder farmers that have contributed throughout the pilot phase in the following IFAD funded projects: PHBM, Padane, Ad2M, PPRR and PARECAM. Finally, supporting networks at the international level facilitated the dissemination of SRI: Norman Uphoff and his team at Cornell University, Declan Mc Cormack who did some of the videos on SRI dissemination.

Sustainability, transferability and duplicability

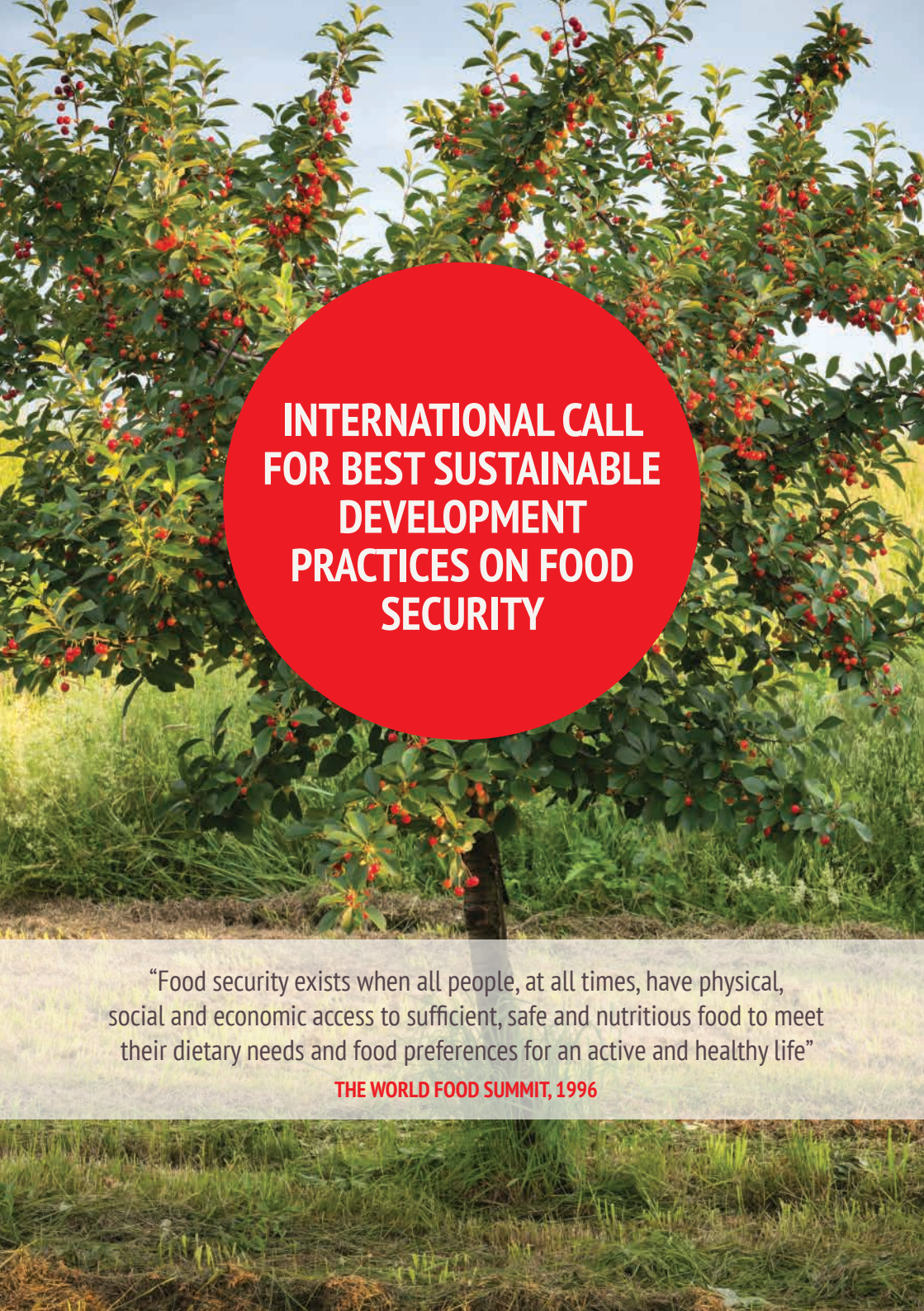
The SRI technique applied to the PHBM's has had a **remarkable success** and offers good **opportunities for replication**. SRI is flexible, easily adaptable to different needs and contexts and farmers can learn it quickly. Despite country and landscape constraints, SRI reported good results and smallholder farmers who adopted it are happier and satisfied. This led IFAD to promote the new system in other investment programmes and projects. Since 1997, IFAD has successfully facilitated the spread of SRI knowledge to several countries throughout East and Southern Africa. From Madagascar, **SRI was brought to Rwanda and then Burundi**. All across Asia, people are implementing/improving SRI techniques. It has gone beyond the rice itself and the system is also implemented on other crops, unveiling the potential of wheat, maize, etc…

Dissemination

SRI is expanding throughout the world and is cherished by smallholder farmers as it fits their requirements very well. Dissemination happens primarily from farmer to farmer and Farmer Field Schools are an efficient way to disseminate knowledge by showing the new system. Other means of dissemination are through booklets and radio programmes. IFAD and the Malagasy non-governmental organization (NGO) Tefy Saina, founded by SRI's pioneer, **promoted the new set of practices among farmers** and facilitated its dissemination through training visits across borders. Once a group starts practising SRI and other farmers observe results, interest within the community grows. A dynamic of risk-sharing was established, where the farmer takes the risk of trying SRI on their plot of land and the investment programme invests money to purchase the agricultural tools that the farmer will need (such as the rotating hoe).

Contacts

r.samii@ifad.org



INTERNATIONAL CALL FOR BEST SUSTAINABLE DEVELOPMENT PRACTICES ON FOOD SECURITY

"Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"

THE WORLD FOOD SUMMIT, 1996

The International Call

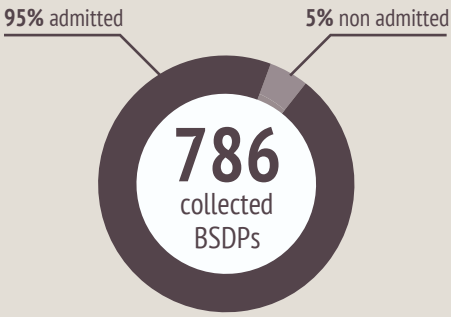
The International Call for Best Sustainable Practices on Food Security (BSDPs) has been addressed to initiatives carried out in different parts of the world, focused on policies, technologies, know-how, services and products related to the theme of Expo Milano 2015 "Feeding the Planet, Energy for Life". The announcement was intended to collect, raise awareness and share experiences that have produced ameliorative effects, compared to the previous conditions, in their specific area. Moreover, BSDPs at Expo Milano 2015 are a window to stimulate a long-term effort to improve food security.
Feeding Knowledge Programme supported EXPO Milano 2015 in collecting the 749 Best Practices.

Charter of Milan

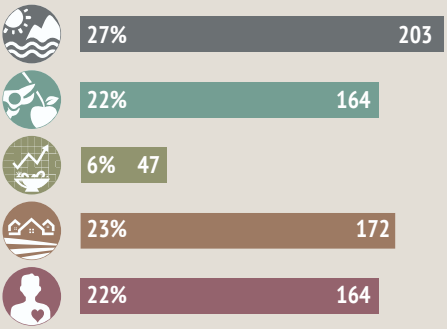
The concept of food security has been further re-affirmed by the Charter of Milan (2015), as follows:

- Everyone has the right to have access to a sufficient quantity of safe, healthy and nutritious food, that satisfies life-long personal nutritional requirements and enables them to lead an active life;
- Food has a strong social and cultural value, and should never be used as an instrument of political or economic pressure;
- The planet's resources should be managed in an equitable, rational and efficient manner, so that they are not excessively exploited or used to benefit some people at the expense of others;
- Access to sources of clean energy is a universal right, for present and future generations;
- Investment in natural resources, particularly in land, should be regulated, so as to ensure and maintain access to these resources for local communities, as well as access to their sustainable use;
- Sound management of water resources, namely management that takes account of the relationship between water, food and energy, is fundamental to ensure the right to food for all;
- Agriculture is fundamental, not just for food production, but also for landscape design, environmental and territorial protection and conserving biodiversity.

Collected and admitted BSDPs



Admitted BSDPs for priority



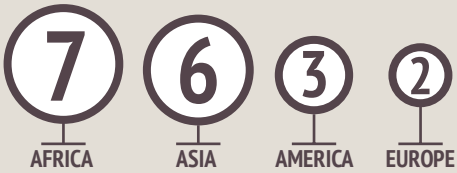
Number of awarded BSDPs

18
Total number of BSDPs on food security awarded

5
Number of BSDPs awarded with a movie

13
Number of BSDPs awarded with a photo story

Number of awarded BSDPs by continent



Thematic priorities

Initiatives recognized as BSDP on food security were in line with one of the following five thematic priorities:

- Sustainable management of natural resources
- Quantitative & qualitative enhancement of agricultural products
- Socio-economic dynamics and global markets
- Sustainable development of small rural communities
- Food consumption patterns: diet, environment, society, economy and health

Evaluation process

Proposals submitted by eligible candidates had first undergo an Admission check, according to the following criteria:

1. Completeness of the Application
2. Coherence
3. Collaboration

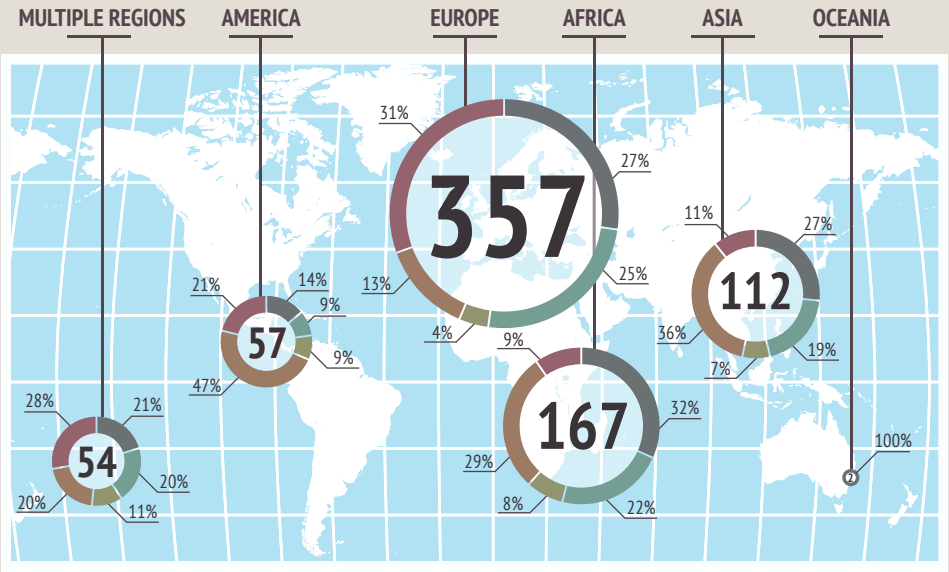
The pre-evaluation of the initiatives was based on a score between 0 and 5 for each of the following evaluation criteria:

1. Innovation
2. Social impact
3. Environmental impact
4. Concreteness
5. Transferability and replicability
6. Openness
7. Attractiveness
8. Sustainability
9. Dissemination

The International Selection Committee, chaired by H.S.H. Prince Albert II of Monaco, identified the 18 winning initiatives.
The result of the final evalution is as follows: 786 proposals submitted; 749 proposals eligible for the evaluation;. 18 winning proposals selected by the International Selection Committee.

The 18 selected initiatives are now presented in Pavilion Zero, within Expo site. All the 749 BSDPs are an intangible heritage of EXPO Milano 2015 and are available on the Best Practices database on the Feeding Knowledge Platform.

BSDPs from each continent and percentage for each thematic priority



+

FEEDING KNOWLEDGE PROGRAMME

Feeding Knowledge is a strategic initiative of Expo Milano 2015 on cooperation in research and innovation for Food Security, jointly developed and implemented by the Mediterranean Agronomic Institute of Bari (CIHEAM/IAMB/) and Politecnico di Milano. The Programme contributes building up the legacy of the Universal Exposition. It is grounded on the idea that knowledge development and sharing are the main tools to find concrete solutions for fighting food insecurity.

Since 2012, the Programme has achieved significant results: an international network of more than 2000 experts, 10 local offices in Euro-Mediterranean countries, a database of around 800 research works and 3000 research organizations; 5 white papers on research priorities for food security, 749 Best Practices identified through an International Call, 1 policy paper. Feeding knowledge is the backbone for the setting up of a Mediterranean Centre of Knowledge for Food Security.

https://www.feedingknowledge.net/