



# SECURING ENOUGH FOOD FOR ALL



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**Project conception and management**

Liliane Ortega (SDC)

**Authors**

Sabine Brüscheiler (CDE\*), Ernst Gabathuler (CDE), Liliane Ortega (SDC)

\* Centre for Development and Environment, University of Bern, Switzerland

**Co-authors**

Gil Ducommun (Swiss College of Agriculture) for the chapter "Policies that neglect farmers' potential for production"

Udo Hoeggel (CDE) for the chapter "Livestock production – a key piece in the puzzle of food security"

Martin Sommer (SDC) for the concluding chapter

**Compilation of photos**

Felicitas Bachmann (CDE)

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**Translation**

Anne Zimmermann, Marlène Thibault, Theodore Wachs (CDE)

**Proof-reading**

Stefan Zach (z.a.ch gmbh)

**Layout**

Simone Kummer (CDE)

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## TABLE OF CONTENTS

Preface .....	<b>3</b>
Hunger and food insecurity today: who? how? why? .....	<b>4</b>
Ensuring food security through sustainable, multifunctional agriculture .....	<b>10</b>
Organisation is the key to survival in times of precarious food security! .....	<b>12</b>
Food aid – from emergency aid to sustainable development .....	<b>14</b>
The stewards of global agricultural biodiversity .....	<b>16</b>
The potato: daily bread for the peoples of the Andes .....	<b>18</b>
A rice-growing revolution in the Mekong Basin .....	<b>20</b>
Food security in Switzerland’s development cooperation programme in Nepal.....	<b>22</b>
Beans: a crop of many resources .....	<b>26</b>
The metal silo: a savings account for the small producer .....	<b>28</b>
Livestock production – a key piece in the puzzle of food security .....	<b>30</b>
Value chains for agricultural production – the key to food supply .....	<b>32</b>
Training – a key pillar in a new rural economy .....	<b>34</b>
Policies that neglect farmers’ potential for production .....	<b>36</b>
Multilateral cooperation approaches and instruments for combating hunger .....	<b>38</b>
Food security: the challenges for tomorrow .....	<b>40</b>

Food keeps us alive; it is a primordial human need and a basic human right acknowledged by the Charter of the United Nations. Even if human beings do not live on bread, rice, maize and manioc alone, the fact remains that nutrition allows them to make a start in life as well as to stay alive. Food therefore has a special status. Lack of food causes pain, suffering, illness and death; it is the principal cause of fatal diseases in the world; it thrusts parents who have no power to relieve the agony of their children into a deep state of anguish. What perception of the future can a young person have when he or she does not have enough to eat?

While famine is a phenomenon that makes headlines, hunger and endemic food insecurity – the fate of millions of people, with one person out of seven affected worldwide – rarely attract media attention because they are nothing new. Like wars, hunger and undernourishment are part of the human adventure, so that undernourishment seems to be a fact of life accepted as a structural element of humanity.

During the 1996 World Food Summit (WFS) in Rome, Switzerland was among the 186 countries which expressed their commitment to reducing by half the number of people suffering from hunger by 2015. The seven commitments made in the Plan of Action adopted in Rome define the relevant dimensions and the fields of action that require measures and concrete activities. In 1999, the Swiss Agency for Development and Cooperation (SDC) and the Swiss Federal Office for Agriculture (FOAG) published a brief entitled “Eradicating hunger in the world”, which describes Switzerland’s obligations in combating hunger.

In the ten years since the WFS, the SDC has contributed as much as possible to achieving the objective set for 2015. Its commitment has concretized in the form of support for a large number of public and private partners, as well as initiatives and projects in favour of agricultural research and production. In particular, the SDC has made a major contribution to international agricultural research, as well as to management of natural resources and rural development in those areas where food security is critical. The SDC established the strategic basis for its operations in these domains, as exemplified by the formulation, in 2000, of a sectoral agricultural policy that underlines the multifunctional nature of agriculture. Moreover, together with the FOAG, the SDC actively took part in the international process of adopting voluntary guidelines for the implementation of the Right to Food. The SDC has acted swiftly and efficiently in food and humanitarian crisis situations. It has also contributed actively to trying to make the WTO’s commercial rules more appropriate for poverty alleviation and food security. Finally, the SDC equipped itself with the resources and approaches to do useful work in the field of governance, as this is the best way of guaranteeing a favourable political, social and economic environment for combating poverty and hunger.

While the problem of undernourishment and malnutrition is connected with increasingly complex – not to mention unclear – causalities, the FAO quite rightly emphasises that current knowledge and the means to reduce hunger are not lacking; what is missing is political will. The first of the Millennium Development Goals has integrated the objective of the 1996 Summit. Alas, we are forced to conclude that despite the renewal of this international commitment, success is far from assured. Compared with the 1990 to 1992 period, to this day the proportion of undernourished persons in developing countries has decreased by only 3% (from 20% to 17%) – truly meagre progress.

At the beginning of this 21st century, while certain space agencies are investing billions to find signs of life on other planets, it seems that the protection of human life is too... difficult a task or too complex a matter or too expensive to finance – and therefore impossible. So let us be bold: let us undertake the impossible!



Walter Fust  
Director-General, Swiss Agency for  
Development and Cooperation (SDC)



Bolivian citizens queuing up for bread.

### Hunger and food insecurity today: who? how? why?

Eneida is a Guatemalan farmer. She and her family belong to one of the numerous Mayan communities who live on the high plateaus in the western part of the country. She is the mother of 6 children. Cultivation of a small maize field covers the family's basic food and income needs, as is the case for the other families in the community. In addition, Eneida's husband works as a seasonal labourer in the banana plantations in the western valleys; an additional, irregular source of income is the selling of woven products and baskets.

This morning, it is very cold: it is December. Three of the young children have been coughing for weeks; the youngest child seems to be very ill. Eneida gets up before dawn to bake the maize tortillas that her family will eat during the day: approximately 6 or 7 tortillas per person – 4 for each of the younger ones. The two eldest children will go to school with their day's ration, i.e. approximately 300 grams of food that has to last until the evening. To strengthen the health of her younger ones, Eneida would like to buy milk, but she has no money. Her husband has found no work for months and has sent nothing. As she herself has had to take care of the maize harvest, she has had no time to produce a single object for sale or barter. This morning, her neighbour offered her two duck eggs. She will keep them for the evening meal. They will go with the broth made of a few onions and a little salt. To take care of the baby, she has at last resorted to buying a little honey. This costs her the 7 quetzales (less than US\$ 1.00) that she was keeping to buy fish for Sunday's meal. Tonight, Eneida and her children will go to bed early on a half-empty stomach. Tomorrow, they will face another cold day with hardly anything more to eat. Several small children have already died in the village this winter...

According to the conclusions of the Task Force dealing with the first of the Millennium Objectives (MDG1)<sup>1</sup>, hunger is an essentially rural phenomenon that affects groups or individuals who live in a precarious political or geographical situation. The majority of these people are smallholders and landless farmers who have limited access to productive resources or do not have the necessary knowledge and means to use available resources. While natural and human-induced disasters can jeopardize the production and distribution of food, limited access to food, chronic hunger and malnutrition result from discrimination and marginalisation related to the means of production and the possibility of generating income.

According to current FAO estimates, undernourishment affects 854 million people worldwide, of whom 820 million live in developing countries<sup>2</sup>. The FAO also estimates that three-quarters of these people (i.e. 615 million) depend on rural livelihoods and are extremely poor farmers. Most of them are under-equipped, live in unfavourable areas, have little or no land, are underemployed and poorly

<sup>1</sup> UN Millennium Project 2005. *Halving Hunger: It Can Be Done.* Task Force on Hunger. [www.unmillenniumproject.org](http://www.unmillenniumproject.org)

<sup>2</sup> FAO (2006). *The State of Food Insecurity in the World. Eradicating world hunger – taking stock ten years after the World Food Summit.*



1. Nicaragua: the whole family helps to husk the maize harvest.
2. Inhabitants of a slum in Peru.



paid agricultural labourers, or people with a trade or small business related to rural livelihoods – and therefore not much better off than the farmers they provide services for. As for the 25% who are non-rural undernourished people (i.e. approximately 205 million), a large number are members of poor rural families who have recently migrated to urban environments and have not yet been able to earn enough money for a living. Within this group, single women with children, as well as elderly and handicapped persons, are particularly affected.

As this reservoir of rural poverty and undernourishment remains more or less constant although it is forever moving in one direction through outmigration, there must be a compensating influx of new poor and undernourished from another direction. We therefore have to conclude (and this has been confirmed by thousands of field studies) that the world's stock of poor and undernourished is not simply a legacy from the past that is diminishing too slowly, but rather the result of an ongoing process of extreme impoverishment, and even undernourishment, of a continually renewing class of under-equipped, poorly located, land-deprived and relatively unproductive rural inhabitants and smallholders<sup>3</sup>.

The agricultural revolution and the green revolution, which triumphed in developed countries and the more favourable agricultural areas in developing countries, led to an increase in productivity and production so considerable that a very marked decline in real agricultural prices has ensued in these countries. Increased production has also enabled certain countries to generate significant surpluses. These low-priced surpluses stimulate international trade, which has been greatly facilitated by continuously decreasing transport and communication costs and by a growing liberalisation of trade. This dual agricultural and commercial performance has largely contributed to improving food security in the world. Even if the international market for agricultural produce is not a global market in the full sense of the term but rather a residual market – as only 10% of grain harvested in the world (21% for wheat) crosses national borders – this market determines prices paid for similar products. Consequently, in poor countries, prices paid to farmers are adjusted to international prices for products that come from countries with surpluses. These prices are advantageous only for a small minority of farmers such as large-scale South American and South African agro-exporters (*latifundia*), who have access to vast estates and a workforce that is among the cheapest in the world. They can therefore continuously invest, make progress and gain market share. But the same prices are insufficient and disadvantageous for the majority of the world's farmers: they are generally too low to allow them to

<sup>3</sup> Mazoyer, M. (2001). *Protecting Small Farmers and the Rural Poor in the Context of Globalization*. [www.fao.org/worldfoodsummit](http://www.fao.org/worldfoodsummit)



Processing of a harvested crop: rice is cooked to make husking easier. Bangladesh.

invest and progress; often too low for them to live on their work with dignity, renew their means of production (including buying quality seeds for the next sowing season) and maintain their market share; and too low for them to even properly feed themselves. Indeed, half of the world's farmers – i.e. those who are the least equipped, least adapted and have the least access to suitable land – do not have enough to eat. The survival of a rural household whose income falls below the level of renewal is only possible at the price of converting capital goods to cash (i.e. by selling livestock, reducing or not maintaining farm implements, etc.), under-consumption (farmers in rags, unkempt children who do not attend school, etc.) and finally undernourishment. If sending the younger generation to work in town does not ensure the survival of rural families, farm abandonment and exodus usually follow. In certain cases, illegal crops such as coca, poppy and hemp are the last resort. Thus, in the past 60 years, over 80 poor countries have become major importers of staple foods (wheat, rice, maize, etc.). *"In those countries where agriculture is still the dominant source of food and livelihoods, dumped imports under-*

*mine food security. They destroy local employment in agriculture and undermine the necessary incentives for producers. The UN Special Rapporteur on the Right to Food, Jean Ziegler, has commented on the contradictions between the drive to structure food distribution through free trade and investment agreements and governments' obligation to protect and promote the human right to food".*<sup>4</sup>

Apart from being severely affected by this aspect of the global context, farmers in poor countries often have to face difficult natural conditions (arid land, recurring drought or floods, poor soils, desertification, salinization, multiple pests, etc.) which sometimes dramatically diminish their productivity. Even where agricultural research has produced good solutions, poor farmers often simply do not have the means to access them. Rudimentary storage facilities for harvests are an additional aggravating circumstance: on average, a small maize producer who does not have access to modern means of stocking grain will lose 15% of the harvest (i.e. at least 150 kg) – which is already a serious problem. But apart from the loss of many kilograms of food, a 15% loss of grain also means a 15% loss of land, water, labour, seed and agro-chemical products: this constitutes a severe economic setback that really jeopardizes a household's standard of living and food security. Pests, as well as lack of rain, land and improved technology, followed by defective storage: this leads farmers to clear forestland that still harbours great biodiversity, affecting the food security of households even more radically, as families also often need to harvest the roots, fruit and edible leaves of wild plants to cover their nutritional needs. Regarding the issue of improved technologies and access to these technologies, it is necessary to point out that intellectual property rights can also have a very negative impact on poor farmers' production activities. Indeed, 65% of the world's market for maize seed and 40% of the soy seed market are in the hands of only two multinationals, each dominating one of these markets: this new concentration of power at the higher end of the production chain is hardly destined to improve the fate of small producers.

Food security is a situation in which 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 international community has identified three pillars of food security: supply, distribution and access. Supply refers to food production, while distribution refers to all market aspects (retailers; information and infrastructure for transport and storage; investments, etc.) and access refers essentially to purchasing power – the most important factor influencing an individual's food security today, in a world increasingly oriented towards monetary values.

<sup>4</sup> Murphy, S. (2005) *Securing Enough to Eat*. IISD.



1. A young boy in the Chinese province of Shanxi appreciates a bowl of buckwheat noodles. Buckwheat is a gluten-poor cereal rich in amino-acids and vitamin E.
2. Manila, Philippines: arrival of rice from Vietnam.



Currently, 1.36 billion people live on less than US\$ 1 a day.<sup>5</sup> Moreover, global food availability amounts to 2700 kcal per person and per day<sup>6</sup>; hunger therefore seems to be due to massive under-consumption. Day after day, hunger occurs where food is readily available – except when circumstances are special, for example in times of war or during serious climatic setbacks and other natural disasters, all of which lead to serious food crises. Sometimes undernourished families live in villages and neighbourhoods where markets overflow with victuals; but they do not have the means to buy the necessary food. Their purchasing power is simply too insignificant.

This form of hunger has a pauperising effect, as the insolvency of one part of the population who cannot buy the food that they need leads to the deprivation of other actors such as small-scale farmers, fishers and even retailers who already sell their wares at very low prices. In poor towns, vegetable and meat markets closing shop with their stalls still full of unsold items are not a rare sight.

Often, hunger is distributed irregularly within the same family. Small children, girls, young women and even working women and elderly persons receive a minimal ration to eat, while the men in the family are relatively well served. The hunger phenomenon has an obvious gender dimension.

Today, countries in which an important part of the population suffers from hunger<sup>7</sup> are countries with considerable mineral resources (oil, gas, mineral deposits), the extraction of which hardly provides them with economic benefits; and if benefits remain in the country, they are hardly redistributed among the people – and certainly very seldom in favour of rural development (Democratic Republic of Congo, Central African Republic, etc.; and until recently, also Venezuela and Bolivia). Or they are rural countries where the best land is used for exportable crops organised as plantations (bananas, pineapple, sugarcane, flowers, etc.) that are often in the hands of large landowners or multinational companies<sup>8</sup> (Honduras, Guatemala, Nicaragua). In some of these countries – for example in Honduras – a large part of the population suffers from chronic undernourishment. But instead of supporting peasant and family farmer-driven agriculture, public authorities promote conversion of land throughout the country into market gardens and orchards that produce foodstuffs for already well-fed rich countries<sup>9</sup>. The only alternative that exists to take advantage of this kind of orientation is to penetrate these value chains and enable organised small producers to participate in them and make a decent living.

<sup>5</sup> UNDP. *Human Development Report 2006*.

<sup>6</sup> IFPRI. (2003). *Ending Hunger in Our Lifetime*.

<sup>7</sup> Elements taken from the graphs presented in: FAO (2006). *The State of Food Insecurity in the World. Eradicating world hunger – taking stock ten years after the World Food Summit*.

<sup>8</sup> Robbins, P. (2003). *The stolen fruit. The tropical commodities disaster*.

<sup>9</sup> Madeley, J. (2001). *Hungry for Trade: How the Poor Pay for Free Trade*. Zed Books.



There are 854 million undernourished people around the world; for many mothers, finding enough food for their family is a daily struggle.

Hunger also affects countries that have recently known war (Liberia, Sierra Leone, Somalia, Burundi, etc.), are slowly recovering from violence directed against society (Cambodia) or have experienced the dismantling of a planned economy (Uzbekistan, Kazakhstan, Tajikistan, Armenia, Mongolia). A high prevalence of undernourishment (over 35%) can also be found in countries with a high water deficiency (Yemen), severe economic problems (North Korea) and countries where governance of public affairs is particularly poor (Haiti).

Numerous lessons have been drawn from combating undernourishment ten years after the Rome Plan of Action was launched. As was pointed out at the WFS<sup>10</sup> + 10 in 2006, growth of the agricultural sector plays a principal role in reducing hunger. Technological progress is indispensable if conditions are favourable, just as trade relations can alleviate hunger if conditions are adapted (reforms, measures) in such a way that they benefit the poor. Unfortunately, infrastructure, research, agricultural extension and training – all of which are absolutely necessary in combating hunger – have often been affected most of all by budget cuts in poor countries. Moreover, international cooperation had already clearly diminished its presence in these sectors by the 1990s.

However, the most indispensable conditions for reducing hunger and food security are peace and good governance. Indeed, as shown by Jean Drèze and Amartya Sen<sup>11</sup>, a modern democracy will never allow famine to occur. Drèze and Sen have documented the fact that if a country's political elite has to bear the consequences of allowing famine to happen, the elite will act to prevent famine, or at least to mitigate its worst effects. Chronic undernourishment may, however, exist and persist in a functioning democracy. The question is to know to what degree hunger exists. Underemployment, inflation and insufficient social security are the sources of undernourishment.

As no single element in itself is the sole key to food security, the current debate is characterised by a clash of approaches:

- **food self-sufficiency**, which is mostly considered today to be counter-productive and even irrational;
- **liberalisation of agriculture**, which has numerous negative impacts that are increasingly well understood<sup>12</sup>;

<sup>10</sup> World Food Summit

<sup>11</sup> Drèze, J. and Sen, A. (1989). *Hunger and Public Action*.

<sup>12</sup> See the excellent article by Murphy S. (2005), *Securing enough to eat*. IISD.



1. Hunger is an essentially rural phenomenon that affects smallholders and landless farmers in politically or geographically precarious areas, whose access to productive resources is limited or who do not have the necessary knowledge and means to use available resources.
2. Smallholders depend on additional income for the survival of their family. Shea fruit (karite) sales on the roadside in Mali.

– **food sovereignty**, a proposal that emerged from the international peasant movement Via Campesina<sup>13</sup>, as a reaction to international institutions' calls for increasingly more market deregulation in bilateral, regional and multilateral agreements, in the name of food security. For those who defend this approach – among whom there are also governments today – food security has become a concept that is too far away from the appropriate political level where it could be achieved, and too easily manipulated by multinational agribusiness companies and their spokespersons. By contrast, food sovereignty gives states the right to determine their own agricultural and food policies. Without excluding the possibility that multilateral mechanisms may be necessary, food sovereignty proscribes that national priorities be dictated by multilateral rules.

Today, governments face the dual impact of population growth and reaching the limits of maximum productivity in many agricultural areas around the world; the only really adequate option they have to fulfil their obligations in relation to food security is to move towards sustainable production systems. Indeed, agricultural production should no longer overuse natural resources and threaten the quality of the environment. In light of these facts, **multifunctional agriculture** stands out as a fourth approach to achieve certain objectives, among which are food security and environmental protection.

The Plan of Action adopted in Rome in 1996 to reduce hunger contains 7 commitments:

1. Ensure an enabling political, social and economic environment;
2. Combat poverty and ensure access to food production factors for all;
3. Foster rural development and sustainable agricultural production;
4. Orient trade policy towards a global system that is equitable and centred around a market that serves food security;
5. Prevent crisis situations and provide the necessary emergency aid;
6. Promote investments devoted to rural development;
7. Concretize the Plan of Action and make sure that the Right to Food is respected.

The examples of initiatives and programmes supported by the SDC presented in the following chapters are articulated according to these commitments.

<sup>13</sup> [www.viacampesina.org](http://www.viacampesina.org)



## Ensuring food security through sustainable, multifunctional agriculture

The facts brought to light by the 1996 World Food Summit, Switzerland's commitment within the framework of Agenda 21 and key experience garnered in the agricultural sector led the SDC to develop an Agricultural Sector Policy in 1999. This policy is based on promoting sustainable multifunctional agriculture capable of combining food, economic, social, environmental and cultural benefits.

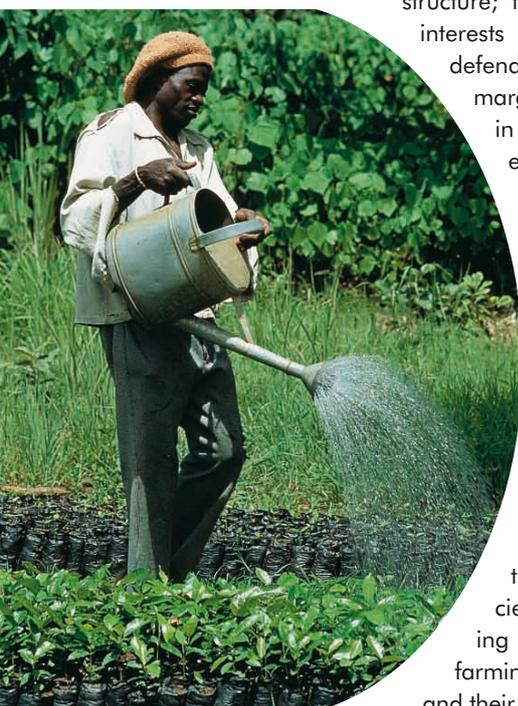
Food self-sufficiency is one of the objectives of the Swiss federal law on development cooperation. However, given the current new context of globalisation and market liberalisation – and in particular the determining influence of purchasing power – the SDC's agricultural policy emphasises food security.

As was agreed at the World Food Summit, a favourable political and economic environment is the most important element for improving food security. The poor classes in the rural population, i.e. 70% of the world's poor, most of whom live on agriculture or livestock production, have very little political power. Inhabitants of rural areas are dispersed, not well informed and lack infrastructure; they have difficulties defending their interests in political processes. As no-one defends their interests, they remain on the margins of development, which takes place in urban areas and in a few prosperous economic sectors. Although small-scale farming occupies an important part of the population, it is ignored by political elites, who often only see it as a sector of concern to social aid. However, there is strong evidence that the contribution of poor agro-pastoral populations to food production and conservation of natural resources is not negligible; it helps, for example, to maintain biodiversity and water resources. This is why the SDC has committed to helping establish appropriate policies in its priority countries and supporting representative actors of small-scale farming such as producers' organisations and their national and sub-regional networks.

As a result of the remarkable progress achieved worldwide in the second half of the 20th century in the food production sector, interest in the issue of food security and investments in the agricultural sector decreased, even in poor and mainly rural countries. Moreover, in numerous countries in the South, structural adjustment programmes worked against agriculture by considerably weakening public services designed to support farmers. It took the debates and commitments of the Plan of Action in Rome to generate awareness that hunger is still too important a phenomenon and that combating hunger requires proper support for agriculture, i.e. making the necessary investments and providing enough space in development policies. The SDC is of the opinion that agricultural production ensured by a large number of small-scale family farms can help eliminate poverty by generating jobs and income as well as providing foodstuffs at low prices. This is why a major part of the SDC's investment goes to public and private institutions such as national and international research and training centres capable of responding to farmers' needs.

By increasing its support for agriculture, the SDC is engaged in combating the two main causes of hunger – poverty and lack of available food – at the same time. Thus, Swiss development cooperation continues to pursue the objective of increased food production in least developed countries with a food crop deficit. In view of the importance of staple foods for poor countries and long-standing and fruitful partnerships to date, the SDC continues to prioritise food crops, without, however, excluding non-food crops such as coffee and cotton, which are part of a strategy adopted by small-scale producers who believe that they can bring good revenue. Moreover,

Guaranteeing food security by supporting multifunctional agriculture. Here, a farmer in Mali waters tree seedlings to be used for mixed cropping; this will help develop agro-silvo-pastoral value chains.



## **“Agricultural production that provides income for small-scale farmers and respects local conditions can guarantee food security and environmental conservation.”**

food crops such as fruit and vegetables destined for urban and even export markets are also supported by the SDC if they are part of a production chain that helps improve income and alleviate poverty. This is actually in accordance with the importance of the role of trade and functioning markets, which constitute a fundamental element of food security, i.e. distribution.

Moreover, women play an essential role in agricultural production; to a large extent, they are the ones who meet their families' food requirements. However, they are often excluded from land tenure and access to credit. In addition, they rarely receive the attention they deserve from agricultural extension and research. In its support for increasing the purchasing power of poor farmers, the SDC makes sure that the position of women is strengthened through technical competence, the possibility of making choices, their activities and the salaries they are paid. Such help is often channelled through support for women's organisations.

The SDC has chosen to focus on a certain number of priority areas: politics, society, natural resources, economy, science and technology. Within these fields a whole series of issues, types of approaches, tools and methodologies are considered or privileged.



Thus, capacity strengthening is a key component of all agricultural programmes. Research, as well as agricultural extension systems and training, are given special attention in the SDC's investment decisions.

Conservation of agro-biodiversity and sustainable soil and water management are at the heart of sustainable agriculture as promoted by the SDC, both in the livestock production and plant production sub-sectors.

Information is a central factor for farmers. The SDC helps make information accessible for and usable by poor farmers.

To efficiently combat scourges such as pests and plant diseases that menace food production and ruin resources as well as farmers' efforts, the SDC gives special attention to integrated pest management, promotion of post-harvest technologies and valorisation of the potentials of biotechnology.

Finally, as agriculture needs to be considered within the larger context of rural development, the SDC has adopted a global perspective that includes decentralisation, empowerment, fiscal systems, infrastructure and agricultural development. Access to resources (knowledge and genetic resources), inputs and credit, as well as development of trade are important levers for which the SDC offers support based on long-standing experience.

In 2006, the SDC invested over US\$ 170 million in favour of rural development and agricultural development.

SDC (1999). *Agricultural Sector Policy*

SDC (2005). *Green Biotechnology – An Orientation for SDC (draft)*

See also [www.sdc.admin.ch](http://www.sdc.admin.ch) under “Themes”

1. Crop diversification – here in Mali – improves families' diets. Surplus is sold on local markets, offering additional income that allows farmers to make new investments in education, health and new technologies.



## Organisation is the key to survival in times of precarious food security!

Food security depends mainly on efficient organisation and close collaboration between local communities, civil society, decentralised administrative units and governmental services. Strengthening and structuring organisation in rural areas is of vital importance in the nutritional sector, especially for particularly vulnerable local communities.



Children are a country's future!  
They are the most vulnerable group  
with regard to nutrition.

According to one socio-economic study, the families who live in the village of Ankarefo, located in the central highlands of Madagascar, are among a group of very vulnerable households. Behind such a seemingly banal observation is a situation that is complex and dramatic for those concerned.

Households in Ankarefo have small rice fields disseminated in the narrow valley bottoms and grow manioc and beans on the hillslopes. Low soil fertility leads to meagre harvests that only partially cover their food requirements. The families have no livestock, except for a few chickens. Small home gardens with a few fruit trees provide households with fruit and vegetables. Although the people in this region have been cropping the land for three generations, they have no security of land tenure whatsoever.

Already in September, three months after the harvest, rice granaries are empty, vegetables and fruit become scarce, and families rely on manioc tubers accompanied by romazava, an edible leaf. Once or twice a month, if the household's budget allows it, the sauce is improved by adding a few pieces of meat. This is when malnutrition among children is the worst. By the time of the next harvest, the price of rice will double or even triple, and cash income will hardly suffice to feed everyone. Trapped in this situation, families have no other option but to ask food sellers for credit on the security of their next harvest. To escape the spiral of debt, some adults are often forced to leave and seek paid employment elsewhere.

For decades, these families have been trying to break out of the dismal poverty trap on their own, but more often than not their efforts are doomed to fail owing to circumstances beyond their control, such as inflation, price fluctuations, climatic disasters, or socio-political turmoil. With no access to the necessary information about or knowledge of the dynamics that impact on their lives, farmers and communities act in an isolated way, often with the sole aim of ensuring that immediate needs are met. Most of the time, they are thus excluded from decision-making processes regarding strategic issues of immediate concern to them.

This is where SAHA – an SDC-financed programme initiated in Madagascar in 1999 by Intercooperation – intervenes. In 2006, approximately 250 communes (the smallest administrative units) and about 20,000 households, of which 70% are in particularly vulnerable areas with regard to food security, benefited from the programme. SAHA's approach has led to promising results. To cite only a few examples, in 2005, 13 hydro-agricultural dams were built, feeding approximately 14 km of irrigation canals, and 932 small activities as well as 28 agricultural value chains were implemented. Moreover, about 700 fountains and wells, and 200 sanitary facilities (with showers and latrines) were constructed or renovated, and 300 primary school classrooms were built.

In eastern Mali, the Gourmands, Sourou, Sénop and Mondoro plains have been inhabited for centuries by Dogon farmers and Peul pastoralists. The main source of income is cultivation of cereals (millet, sorghum, fonio) and leguminous plants (niebe or cowpea, bambara groundnut), followed by livestock production (sheep, cows and

goats). Harvests have become very uncertain as a result of great pressure on land resources, soils with much lower fertility, little surface water and, in particular, capricious rains and occasional cricket invasions. Food insecurity has become so frequent that farmers, traditionally not very organised, have decided to coordinate their efforts. This has led to the creation of the AOPP (Association of Farming Professionals' Organisations; French: Association des Organisations Professionnelles Paysannes) in Mopti. The SDC started collaborating with the AOPP several years ago to manage conflicts over natural resources.



In 2004, crickets devastated the entire area. The SDC offered funds to buy 800 tonnes of cereals. The AOPP then began to reflect on food security and established a corresponding programme. Its 7850 members decided on urgent actions to strengthen and secure cereal production, diversify products and incomes, and build grain stocks. To reach these objectives, members started implementing anti-erosion measures, using dung more efficiently to fertilise the soil, disseminating early varieties, granting women small credits to fatten lambs, conducting market analyses, seeking new buyers and establishing grain banks to help families survive when they experience a food shortage. These grain banks also

make it possible to distribute seed if a harvest is meagre or lost. The AOPP's initiatives are of crucial importance to the population, which receives no support whatsoever from the state. It is interesting to note in this respect that grain banks used to be constituted in the past with support from international aid; management of these granaries was in the hands of the administration, with virtually no efficiency and no sustainability.

**Indicators of a household's social vulnerability**  
(compiled by villagers, highlands of Madagascar)

Households are particularly vulnerable when they:  
 ...have less than 0.2 ha of cropland per person,  
 ...have only limited access to irrigation water,  
 ...have rice self-sufficiency for less than 4 months per year,  
 ...have less than US\$ 160 cash income per year,  
 ...permanently lack a labour force,  
 ...are socially marginalised,  
 ...are regularly in debt,  
 ...have no livestock,  
 ...lack secure tenure or guaranteed long-term rights of land use,  
 ...consist of elderly people, widows, divorced women or young couples.

Risks that threaten food security:  
 ...droughts / floods  
 ...epidemics  
 ...political and social unrest / armed conflicts  
 ...lack of diversity in production  
 ...fluctuating market prices and loss of currency value

1. Good organisation of households, communities and space plays a key role in ensuring food security.
2. The right information at the right time is a priceless advantage. Well-organised information flow – here a community radio studio – is a vital necessity for vulnerable groups.

The SDC in Madagascar: [www.sdc.admin.ch](http://www.sdc.admin.ch)  
 under "Countries"  
[www.smbmada.net](http://www.smbmada.net) under "Documents" (mostly in French)  
[www.intercooperation.ch](http://www.intercooperation.ch)  
 AOPP Mali: [www.ddc-mali.org.ml](http://www.ddc-mali.org.ml) under "Programmes"

**“Farmers’ organisation capacity and the involvement of all actors create a new development dynamics and strengthen food security.”**



## Food aid – from emergency aid to sustainable development

In particularly bad years Niger is rapidly confronted with an acute food crisis, as was the case in 2004. During that critical year, crops were doubly affected – first by prolonged drought and then by a cricket invasion – leading to a famine that threatened a large part of the country’s population.



Niger: distribution of a meal in a school.

Three-quarters of the surface of Niger – a country 30 times as large as Switzerland – consists of arid land and the nation’s 12 million inhabitants live mainly in the south, where the climate is slightly milder. In Niger, “milder” means one single rainy season per year that lasts 1 to 4 months, interrupted by dry spells of one to several weeks’ duration. During the rest of the year, frequent winds sweep across the parched land.

Farming and livestock production are very difficult and risky under such adverse conditions. Nevertheless, 90% of the Nigerien population work in the agricultural sector and a majority have no other option but to live on subsistence farming and livestock production. Food security depends entirely on the few months of precipitation between June and September, making the country very vulnerable and leading to severe problems. Two-thirds of the population live below the poverty line and the number of undernourished people in the country is on the increase. There are huge fluctuations in food production from one year to the next. Production can vary by a factor of two, especially for rainfed crops such as millet and sorghum. National agricultural production is suffering from a severe lack of extension services and training; it survives only by expanding cropland into previously uncultivated

land. Niger is an extremely vulnerable country that is always on a knife’s edge between subsistence and famine.

During the 2004/2005 food crisis, the deficit in cereals reached 11%, and the fodder deficit was as high as 35%. Over 10,000 households lost their herds, and 2.5 million people, amongst whom were 800,000 children, suffered from food shortages (FAO).

The SDC has been working in Niger for approximately 40 years and has established a sound network for collaboration in the country. This enabled the agency to react rapidly during the 2004/2005 food crisis by buying cereals and other staple foods in Niger, neighbouring countries and Europe, and redistributing them to people threatened by starvation. In a second phase, the initial emergency aid was followed by activities to help the population overcome the worst of the crisis: grain was sold at reduced prices, manioc cuttings and seed for millet, sorghum and niebe (cowpea) were distributed, livestock fodder was supplied and major labour-intensive land terracing efforts were organised.

Seeking to draw lessons from this crisis and maintain support for the country, the SDC has underlined the importance of establishing a continuum between emergency food aid and development cooperation. Thus, in Niger, emergency humanitarian aid teams and actors locally involved in development cooperation on a long-term basis have pooled their knowledge and experience in order to develop a strategy to improve the country’s preparedness for future crises.

Since the beginning of the SDC’s involvement in humanitarian aid, its strategy has shifted from

bringing in all food supplies from industrialised countries (in the early 1970s, Switzerland actually built large production units for tinned tuna that was intended exclusively for humanitarian aid) to actions that give preference, first of all, to food supplies from local sources, i.e. either from within the country suffering a food crisis or from a neighbouring country. While the current strategy is certainly more equitable for developing countries, it must be accompa-

**“The role of humanitarian aid is not only to react when there is an acute crisis, but also to collaborate with development cooperation in order to address the structural causes of hunger and prevent crisis situations.”**



While the public at large perceives food aid first and foremost as food supplies provided during a famine, food aid can also serve the purpose of reconstructing the production sector after armed conflict. In Liberia, for example, the WFP is providing “food for work” to refugees who have returned to their country and are trying to help reconstruct the agricultural sector and rehabilitate fields destroyed by 14 years of a civil war that raged in the country until 2003.

1. A village in Niger warmly welcomes the arrival of food aid.
2. Liberia: community work to rehabilitate agricultural land abandoned and destroyed by 14 years of civil war.



*The SDC in Niger (in French):*  
[www.ddc-niger.ch](http://www.ddc-niger.ch)  
*The SDC in Liberia:*  
[www.sdc.admin.ch](http://www.sdc.admin.ch) under “Countries”  
*The SDC is a member of the WFP’s Executive Board:*  
[www.wfp.org](http://www.wfp.org)

*In all its activities, the SDC respects the Cartagena Protocol on Biosafety, which aims to prevent biotechnological risks. Cereals that contain genetically modified organisms (GMOs) are brought to recipient countries solely in the form of flour:*  
[www.biodiv.org/biosafety/protocol.shtml](http://www.biodiv.org/biosafety/protocol.shtml)

*The SDC implements a risk prevention strategy both in its humanitarian aid activities and in development cooperation.*

nied by efforts to ensure that buying food locally does not cause local prices to skyrocket, thus increasing the vulnerability of other parts of the population who directly depend on this market – a difficult task to fulfil when operating under emergency conditions.

Switzerland allocates an annual cereal equivalent of US\$ 11.4 million to the SDC (Humanitarian Aid). These funds are either managed autonomously by projects or they transit via the World Food Programme (WFP). As for milk products, another traditional form of Swiss food aid, the annual budget of US\$ 15.5 million is still being used to buy and transport foodstuffs produced solely in Switzerland.



## The stewards of global agricultural biodiversity

Sorghum, also known as “the camel of crops” because of its resistance to drought, is an important staple food in semi-arid zones. Humans greatly appreciate it – but so do birds, which cause serious damage to this crop. African farmers draw on knowledge and experience acquired over several generations to remedy the problem: they breed and cultivate only bitter varieties with high tannin content, left untouched by birds. The bitterness disappears once the sorghum is cooked or fermented and is replaced by a very pleasant taste.



Broad beans are one of the main sources of protein in Moroccan diets. The study of broad bean varieties bred and cultivated by the local population has revealed the existence of plants that are highly resistant to the chocolate spot disease, a downright scourge capable of causing total loss of crops. Local knowledge in combination with scientific research has made it possible to develop varieties that are resistant to this pathogenic fungus and to abolish the use of fungicides, thereby considerably improving farmers' living conditions.

All around the world, farmers rely on traditional knowledge to benefit from existing biodiversity and its capacity to adapt to changing conditions. For the most vulnerable groups, many of whom practice subsistence agriculture under difficult ecological and climatic conditions, using genetic diversity and relying on knowledge of plant selection are key factors in survival.

Currently, this traditional knowledge is in rapid decline. Modern agriculture, focusing mainly on highly productive varieties, has led to an increasing uniformity of crops. Agricultural genetic diversity in today's world has shrunk to as little as a quarter of what it used to be 100 years ago.

The SDC is involved in several interdependent types of activity in the field of conservation and promotion of agricultural genetic diversity: (1) encouraging the maintenance of diversified agriculture (in situ); (2) preserving the multitude of varieties developed around the world in gene banks and making them available (ex situ); (3) promoting sustainable agricultural production systems based on collaboration between researchers and rural communities; and (4) creating a legal and institutional framework to increase the security of access to high-quality seeds.

International agricultural research centres are making major efforts to take stock of local uses and knowledge of agricultural biodiversity management. In Nepal, for example, the establishment of a “Community Biodiversity Register” has allowed villagers to become aware of the genetic wealth existing at the local level and how important it is to enhance conservation efforts. Indeed, a study covering the different varieties of rice, barley, buckwheat, millet, taro, pulses, squash and cucumbers has shown that today, many of these varieties are being cultivated by no more than one or two families and are thus severely threatened with extinction within the next few years. With support from the Nepalese Ministry of Agriculture, the different communities have created their own local gene banks, not only for seed conservation but also to increase the availability of seeds in order to re-introduce varieties on their land. This enables them to safeguard what is both a heritage from the past and the promise of food security for the future.

With regard to the development of new varieties, current plant genetic research has evolved from a discipline that used to focus mainly on increasing productivity to an activity that tries to respond to very different local needs. Today, biodiversity conservation, improvement of the nutritional quality of varieties and of phytosanitary aspects, environmental conservation and minimisation of risks are considered inherent elements of sustainable agricultural production. Thus, among other activities, the International Rice Research Institute (IRRI, a member of CGIAR<sup>1</sup>) conducts research on flood-resistant rice varieties, as floods are the cause of increas-

ingly substantial annual production losses throughout Southeast Asia. While classical rice varieties survive for a maximum of 4 days under water, the new varieties developed by IRRI can resist immersion for up to 3 weeks.

## “Gene banks collect and conserve plant material in the form of seeds, seedlings, tissues or reproductive cells.”

Agricultural biodiversity is part of humanity’s heritage. This is why 5.4 million samples of wild agricultural varieties, either cultivated traditionally or recently developed, are being conserved in 1470 gene banks around the world. Every year, the 15 international agricultural research centres that form the CGIAR network distribute



port for maintenance and regulation of these gene banks varies a great deal, as does the quality of the collections. This is why, on the initiative of FAO and CGIAR, and with strong initial support from the SDC, the international community decided in 2004 to create the Global Crop Diversity Trust, a foundation that relies on public and private donations to harmonise management and the efficiency of gene banks around the world.

Switzerland has been contributing to the Global Crop Diversity Trust since it was first established:  
[www.croptrust.org](http://www.croptrust.org)

The Global Crop Diversity Trust is an essential element in the funding strategy of the International Treaty on Plant Genetic Resources for Food and Agriculture:  
[www.fao.org/AG/cgrfa/itpgr.htm](http://www.fao.org/AG/cgrfa/itpgr.htm)

The SDC is one of CGIAR’s principal donors:  
[www.cgiar.org](http://www.cgiar.org)

The SADC<sup>3</sup> Seed Security Network (SSSN) aims to improve small-scale producers’ access to markets and choice of seeds, to harmonise the legal framework and to facilitate distribution among countries:  
[www.sadc.int](http://www.sadc.int),  
[www.sadc.int/english/fanr/seed\\_security/seed\\_goal.php](http://www.sadc.int/english/fanr/seed_security/seed_goal.php)



over 50,000 samples to national programmes in developing countries. After a period of validation, these varieties are handed on to local farmers to improve the nutritional value of their crops (e.g. protein-rich QPM maize, developed by CIMMYT<sup>2</sup>), to respond to farmers’ food preferences and to increase resistance to various external factors (decreasing soil fertility, plant diseases, pests, climatic risks).

Gene banks also play an important role when disaster strikes, as they make it possible for farmers to restore destroyed seed reserves with the help of improved local varieties. Financial sup-

Biodiversity International:  
[www.biodiversityinternational.org](http://www.biodiversityinternational.org)

New Seed Initiative for Maize in Southern Africa (NSIMA):  
[www.sdc.admin.ch](http://www.sdc.admin.ch) under “Projects”

Support until 2004 for the West and Central African Millet Research Network (ROCAFREMI):  
[www.aramis-research.ch](http://www.aramis-research.ch)

International Rice Research Institute (IRRI):  
[www.irri.org](http://www.irri.org)

1. Gene banks collect and conserve plant material in the form of seeds, seedlings, tissues or reproductive cells.
2. Professional training in establishing a national gene bank: collecting and conserving samples, making collections available.

<sup>1</sup> Consultative Group on International Agricultural Research. The CGIAR consists of 15 international agricultural research centres that collaborate with national research organisations, the private sector and civil society. The CGIAR takes advantage of agricultural resources to alleviate poverty, stimulate agricultural development and protect the environment.

<sup>2</sup> International Maize and Wheat Improvement Centre ([www.cimmyt.org](http://www.cimmyt.org))

<sup>3</sup> Southern African Development Community: this includes Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe.



# The potato: daily bread for the peoples of the Andes

Originally from the Andean mountains, the potato has revolutionised nutritional habits around the world and contributed to increased food security for all of humanity. Today Andean farmers, who still rank among the poorest communities, face competition from imported potatoes!

Known for 8000 years to the indigenous peoples of the Andes, potatoes are now grown around the world and rank fourth among the most-consumed foods worldwide. More than 5000 different potato varieties native to the Andes have been recorded to date. In addition to their high tolerance of harsh mountain climates, potatoes are a valuable staple food midway on the spectrum between starchy foods and fruit and vegetables. Among other qualities, potatoes are extremely rich in fibres, minerals, vitamins C and E, and organic acids. Moreover, coloured varieties also provide antioxidants.

Varieties cultivated at high altitudes, often by the poorest communities, are rarely commercialised and are used predominantly for household consumption. While they are essential for nutrition, they also have an important cultural function. However, potatoes from large-scale production or imported from abroad (Canada, USA, Colombia and other neighbouring countries) are increasingly present on local markets. Available at a low price, they are inducing increasing numbers of farmers to give up cultivation of native varieties. This in no way improves the living conditions of populations seeking the means to be actors in a regional or national market that is constantly evolving.



Potatoes are usually difficult to store, but when they are prepared as chuño, they can be kept for several years without deteriorating, thus constituting a food reserve for the local population.

Potatoes were the most important source of energy for the Incas as well as their predecessors. To this day they have remained the staple food of the inhabitants of the Altiplano, the majority of whom are small producers who cover at least 60% of their food requirements with potatoes. The livelihoods of these families depend on a few cows, sheep, llamas and alpacas, and on cultivation (on an area of one or two hectares) of quinoa, barley and a great variety of potatoes, some of which are productive up to altitudes of 5000 m. Farmers can draw on a vast store of traditional knowledge about how to grow this tuber and manage seed potatoes for the coming season. A producer will select his or her varieties according to the type of terrain, the microclimate, frost resistance, annual weather forecasts (determined by means of rituals and by reading the natural environment), storage potential and individual preferences, as well as requirements for everyday food, festive dishes and menus for guests.

Launched in 1998 with support from the International Potato Centre and the SDC, the Papa Andina initiative pursues the goal of supporting rural communities in Peru, Bolivia and Ecuador by collaborating with them to develop a marketing network for original niche products based on potatoes from the Andean plateaus. These new products reassert the value of native varieties, at the same time using alternative marketing channels that do not compete with standard products on the market.

Based on this strategy, native potatoes in “gourmet” wrappings, crisps or mash made from coloured varieties, and freeze-dried soups are becoming increasingly successful on urban markets. In recent years, these products have also begun to arouse interest on the export market.

It is important to underline that the supply chain created for these niche products is the outcome of participatory processes where all actors concerned, from producers to traders, determined the course of the different stages jointly with researchers. In this way, farmers are able to posi-

tion themselves on the market, increase their decision-making capacity regarding their own products, and create new income opportunities for themselves.

Paradoxically, even though the potato represents a unique natural heritage in the Andean countries, it is not considered a priority product in the agricultural policies of the three countries participating in the Papa Andina project. But this may change, depending on the directions taken by the new governments in Bolivia and Ecuador. In the meantime, one of the objectives of the Papa Andina initiative is to position the potato within policy dialogue – especially within the framework of the FTAA commercial agreement (Free Trade Area of the Americas).

The SDC also considers it important to preserve and revive the potato’s cultural function in rural communities that have been able to maintain precious agricultural biodiversity and age-old



*Papa Andina* ([papandina.cip.cgiar.org](http://papandina.cip.cgiar.org)) and its national partners:

– Fortipapa, Ecuador ([www.cipotato.org/papandina/fortipapa.htm](http://www.cipotato.org/papandina/fortipapa.htm))

– Incopa, Peru ([www.cipotato.org/papandina/incopa/incopa.htm](http://www.cipotato.org/papandina/incopa/incopa.htm))

– Proinpa, Bolivia ([www.proinpa.org](http://www.proinpa.org))

AGRUCO: University centre of excellence in agroecology and revalorisation of traditional knowledge in Cochabamba, Bolivia. [www.agruco.org](http://www.agruco.org)

BioAndes: A project for revalorising cultural biodiversity in the Andes. [www.cosude.org.ec](http://www.cosude.org.ec)

The PRECODEPA network (1988–2002) supported potato cultivation in Central America and the Caribbean. [www.iicanet.org/foragro/redes/precodpepa.asp](http://www.iicanet.org/foragro/redes/precodpepa.asp)

UN International Year of the Potato 2008. [www.potato2008.org](http://www.potato2008.org)



1. “Chuño” consists of freeze-dried potatoes, dehydrated by exposure to several nights out in the open below the freezing point and several days under the sun. For successful processing, it is essential to be able to determine the best moment to produce chuño, i.e. several very cold nights and sunny days in a row. To this end, farmers observe the winds, the moon and the vegetation.

2. A few of the 5000 varieties of potato native to the Andes found to this day. The “papa de la suegra” – “mother-in-law’s potato” at the centre of the photo – is a scaly variety used to test a woman’s competence as a good wife and mother in Bolivia and Peru. If the daughter-in-law succeeds in peeling this tuber without wasting anything, she has the right to marry her fiancé.

3. Farmers in Suclla – a village located on the Peruvian Altiplano at an altitude of 3700 m – sow potatoes of different varieties and different colours in the same field. The mix is more resistant to pests and climatic factors, the flowering of the plants pleases the eye, and harvesting is like a game, where the surprise offered by each tuber unearthed makes farmers forget the tiring labour.

4. “Buy national products” – a growing trend in Latin American countries. Papa Andina partner institutions such as Incopa in Peru, Proinpa in Bolivia and Fortipapa in Ecuador focus on revalorising products based on indigenous potatoes and promoting technological and institutional innovation to support small-scale producers in the Altiplano.

knowledge, thus preserving a cultural heritage that is essential for sustainable development in these regions.

*International Potato Centre: The IPC invests a great deal of work to ensure conservation and use of potato and sweet potato genetic resources. [www.cipotato.org](http://www.cipotato.org)*

**“A family living in the Altiplano may cultivate up to 120 varieties of potato. This diversification is a cultural treasure that also guarantees food security.”**



## A rice-growing revolution in the Mekong Basin

The Lao word for “eat” is kin khao, which literally means “to eat rice”. This bears witness to the importance of this cereal in a country where the per capita consumption of rice amounts to 160 kilos annually, or 430 g per day, and covers 67% of calorie requirements.



Kay no hom (small aromatic hen), pa siev (small carp) and Leum phua (forget the man): these are only a few examples of the many popular names given in Laos to some of the 3000 wild and cultivated rice varieties registered in the country. At the global level, there are more than 100,000 cultivated and wild rice varieties; these grow in very different ecosystems, from humid tropical forests to arid lands, and from mangroves to the Himalayan plateau at 2600 m.

Rice is the world’s most-eaten cereal. Most of the rice produced worldwide is still produced by small-scale farmers. While certain Asian countries export large quantities of rice, others need to increase their production in order to cover domestic food requirements.

The Mekong Basin is one of the most fertile rice-growing areas in Asia, and the most intensively cultivated in the world. For decades, irrigated rice cultivation in this region has been undergoing a dynamic process. Production has been growing continually, due either to expansion of the cultivated area – which is no longer possible in the most advanced countries, such as Vietnam or Thailand – or to improved productivity. Introduction of new rice cultivars, access to technological innovations and the development of regional and international markets are now enabling this region to produce up to three or even four harvests per year, whereas in earlier times it produced only one or two.

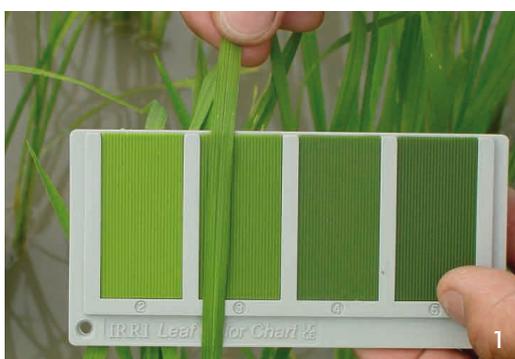
However, the search for greater productivity has not been immune to setbacks. In the beginning, in order to improve the productivity of their crops, farmers applied considerable quantities of fertiliser and pesticides, thereby not only incurring additional costs, but also increasing the risk of exposure to high concentrations of agrochemical products harmful to humans and the environment. The result was pollution of air, water and soils, with a fatal impact on animals that feed on noxious insects (ducks, frogs), as well as a decline in the productivity of fish bred in irrigated cultures. Eventually, rice production itself diminished.

In Vietnam, a study has shown that two-thirds of the farmers incorrectly applied large quantities of fertiliser and pesticides, thus compromising their production and, in the long term, their livelihood. Field tests for appropriate use of fertiliser have yielded highly promising results. By comparing the colour of the leaves of their crops with four samples on a leaf colour chart developed and provided by IRRI (International Rice Research Institute), rice farmers have learned to be more economical. As a result, farmers in northern Vietnam have achieved a 15% increase in production and additional profits of US\$ 150 per hectare. In China, the need for fertiliser has been reduced by one-third, and in southern India, farmers have increased their revenues by 47% using this method.

The leaf colour chart for determining nitrogen requirements (known as “Site-specific Nutrient Management” or “SSNM”) is only one of many technologies developed by an initiative that was born in 1997: the IRRIC (Irrigated Rice Research Consortium), whose mission it is to link research centres and agricultural extension services in order to make simple and low-cost technologies for profitable and sustainable production available to small-scale farmers. With nearly 90% support from the SDC, this consortium is also active in China, Indonesia, India, Bangladesh, Myanmar and the Philippines – i.e. in all the major rice-growing areas of Asia. Achievements have reached national significance in several countries and have become relevant at the political and economic levels. The reduction in fertiliser imports can already be felt in these countries. The Indonesian government has ratified a recommendation propagating the use of SSNM for cropland in the lowlands. In China, this technology is part of a national project focusing on fertilising, and in Bangladesh it has been adopted by the Department of Agricultural Extension.

**“In a poor country where rice is the major staple food, subsistence means security. The international agricultural research community is an important partner in achieving this objective.”**

In Laos, rice production amounted to 1 million tonnes in 1970, with a productivity of around 1.5 tonnes per hectare. In 2004, production exceeded 2.5 million tonnes, with a productivity of around 3.3 tonnes per hectare. The cultivated area has barely expanded, proving that this success is based mainly on technological changes. Indeed, until 1990 improved varieties were



grown on less than 5% of all rice paddies, whereas in 2001 this area extended to 80% of all rice paddies. Formerly almost two-thirds of the farmers cultivating traditional varieties ran deficits and experienced food shortages every year, while today the majority of those who have adopted improved varieties are producing enough for themselves or are even able to harvest a surplus. The technological advances recorded in Laos as a result of the joint Lao and IRRI project are of national significance and can be characterised as an efficient form of poverty reduction.



1. A leaf colour chart to determine a rice crop's need for nitrogen: this is an affordable technology to improve the use of fertilisers.
2. Hau Thanh village, Vietnam: farmers being trained to use a "super bag" and a low-price hygrometer that allows efficient storage of rice and reduction of post-harvest losses.

International Rice Research Institute (IRRI):  
[www.irri.org](http://www.irri.org)

Irrigated Rice Research Consortium (IRRC):  
[www.irri.org/irrc](http://www.irri.org/irrc)

The "Three Reductions, Three Gains" programme:  
[http://162.23.39.120/dezaweb/ressources/resource\\_en\\_24915.pdf](http://162.23.39.120/dezaweb/ressources/resource_en_24915.pdf)

"Genuinely Lao", the story of the project that revolutionised rice in Laos:  
[www.irri.org/donors/SDC/pdfs/GenuinelyLao.pdf](http://www.irri.org/donors/SDC/pdfs/GenuinelyLao.pdf)

The "LEAP" project and organic rice promotion by Helvetas:  
[www.helvetas.org.vn](http://www.helvetas.org.vn)



# Food security in Switzerland's development cooperation programme in Nepal

Both Nepal and Switzerland are resource-poor countries, endowed with few raw materials and limited agricultural resources. From a historical point of view, the road to food security is long and paved with numerous social obstacles as well as ecological and economic risks. Nepal is encountering the same kinds of problems Switzerland encountered in the past. Food security is never definitively attained: it is constantly put to the test by new circumstances.



Food, medicine, construction material and information cross a bridge – often a village's only open door to the outside world.

Switzerland has been supporting development in Nepal through numerous projects for the past 50 years. Annually, about US\$ 16 million are earmarked for the SDC's country programme, which is characterised by great continuity with regard to the areas of intervention and the partners involved. Efforts focus on vulnerable social groups in 4 isolated regions. Particular attention is given to participation by the local population and strengthening of local partners' management capacity. By collaborating with governmental and non-governmental organisations, as well as with other development agencies, the SDC is contributing to exchange of experience and improved synergies between programmes.

### Food security at risk

In Nepal, 60% of the population lives on subsistence agriculture. Despite sufficient dietary energy supply, a significant number of people suffer from undernourishment. The principal causes are the conflicts that have affected rural areas since 1996, as well as population growth and pressure on natural resources – particularly soils and vegetation cover – and the isolation of large regions, which makes them difficult to access for circulation of food. Under such conditions, many young Nepalese migrate to urban centres or other countries. In 2006, the Nepalese diaspora

was estimated at several million persons, especially young people from rural areas. Remittances from these workers are estimated at US\$ 1.2 billion per year, or about 15% of the gross national product.

**Switzerland:** In 1810, Switzerland had a population of 1.5 million, of whom 70% lived from agriculture. Numerous farm households generated additional income by working at home for the young textile industry. The wartime economic blockades involving France and England interrupted the cotton supply, plunging the textile industry into a crisis. Thousands of rural households lost their off-farm jobs. In 1812, clouds of cinders from the eruption of a volcano in Indonesia shrouded Earth and made temperatures drop. Harsh winters led to bad harvests in 1815 and 1816. Thousands of people died of starvation.

In 1845, mildew destroyed potato crops, which had become the staple food. The textile industry was still in crisis. Beggars roamed the streets throughout the country.

In desperation, about 100,000 people emigrated across the ocean between 1817 and 1880. To support departing poor families, communes overexploited forests to cover the families' travel costs. Entire valleys were thus cleared.

### Sustainable management of natural resources and strengthening of food production

Socially disadvantaged families in Nepal are forced to fall back on barely productive and ecologically fragile marginal zones. This is a vicious circle: population pressure leads to even more rapid degradation of these zones, thus endangering the food security of a population that is already very vulnerable.

The Sustainable Soil Management Programme launches competitions in which participants suggest agricultural techniques and methods that improve the soil fertility of rainfed cultivation. The best suggestions are tested and assessed by experts and a group of pilot farmers, who then validate the most promising techniques and methods for broad dissemination and also make sure to adapt them to the conditions of future users. Approximately 350 tests have been run with 3000 pilot farmers, who in turn transmitted their knowledge to approximately 34,000 other farmers.

The Home Garden Project is intended for households whose access to land is limited. Home



gardens created thanks to this project not only provide families with high-value food; they also generate cash income. The project also contributes to intensification and increased production by establishing producers' organisations and providing links with research activities.

The Vegetable Seed Project works with over 3000 farmers, who produce about 120 tonnes of vegetable crop seeds on 240 hectares. This is a particularly interesting form of produce for people who live in isolated areas, as the weight and volume of seeds make them easily transportable, and if roads and trails are closed the seeds can be stored without trouble.

The Nepal–Swiss Community Forestry Project supports forest user groups' efforts to manage their resources sustainably and create jobs based on processing forest products (timber, fruit, medicinal plants, etc.).

The additional income allows families to cover school fees and medical expenses, as well as obtain credits and buy additional arable land.

**Switzerland:** Overexploitation of forests in Switzerland was the cause of repeated floods and serious damage. In 1876, to remedy this problem, the Swiss parliament adopted a law for sustainable management of forest resources. In 1878, the first agronomical research station opened its doors. Cultivation techniques were developed, especially for more sustainable soil management. In 1928, the first extension service was created.

These different measures led to a continual increase in agricultural production, which remained insufficient, however, in the face of population growth. In 1939, just before the beginning of World War II, agriculture covered only 50% of the country's food requirements and Switzerland was threatened by a new food crisis.

1. Wood is the main source of fuel for preparing meals and heating houses. Sustainable management of vegetation cover is now a matter of survival.

### **A road network: indispensable prerequisite for food security**

Nepal has a road network of approximately 15,000 kilometres, i.e. 0.1 km/km<sup>2</sup>, of which only about 5000 km are sealed (the road density in Switzerland is 2 km/km<sup>2</sup>). Only trails – sometimes dangerously steep – lead from drivable roads up into the valleys. For these areas, often struck by food deficits, such access routes are vital. During times when the food gap needs to be bridged, they allow people to access the food they need.

Since 1961, the Trail Bridges Programme has built over 3000 suspended bridges and helped to regularly maintain them.

The District Road Support Programme is devoted to building and maintaining road infrastructure at district level in 6 districts. Work is planned and

**“Increasing agricultural productivity, promoting off-farm income, improving infrastructure and basic services, and managing social tension are all necessary to achieve food security.”**



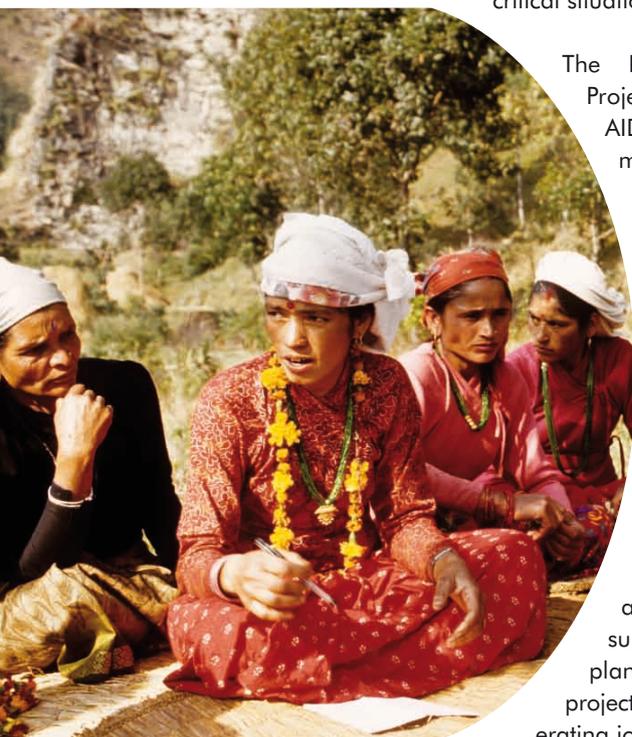
conducted in close collaboration with local committees and uses labour-intensive construction methods. Small local enterprises are associated with this construction work.

**Switzerland:** For a long time, one of the main concerns of the Swiss government was to slow down rural exodus and link the country to the continental road network, which was rapidly developing at the end of the 19th century. This made it possible, among other things, to create new job opportunities in mountain regions in the industrial and tourism sectors. But opening up to the European market did not take place without some negative impacts. Thus, for example, the arrival on the market of low-priced cereals from eastern countries discouraged local production and forced farmers, especially in the lowlands, to reorient their agricultural activity towards livestock production. This became the basis of the country's future agro-food industry.

### Rural infrastructure development and improvement of sanitary conditions increase food security

Lack of rural infrastructure in Nepal limits room for manoeuvre in terms of production, processing and marketing of agricultural products and constitutes a major obstacle to improvement of household food security. Moreover, the temporary or permanent loss of workforce due to illness or an accident rapidly puts families in critical situations.

When men leave the village in search of a job, women become the main communication partners and actors for developing solutions to the multiplicity of problems.



The Rural Health Promotion Project offers information on AIDS prevention, improvement of health education and access to medical services by facilitating group discussions and exchange of experience. This work focuses mainly on supporting women's organisations.

The Decentralised Rural Infrastructure and Livelihood Project intervenes in 18 districts. By improving infrastructure such as irrigation canals, water supply, small hydro-electric plants and medical centres, the project helps create income-generating jobs.

### Vocational training and industrial and service development: the key to improved food security

The Nepalese Ministry of Education foresees the entry on the job market of about 400,000 young people per year. The creation of off-farm jobs is therefore an urgent priority. The industrial, craftsmanship and service sectors currently employ 20% of the working population, whose contribution to the GNP has greatly increased (currently up to 60%). However, to improve the quality of work and increase competitiveness, great efforts still need to be made in vocational training.

**Switzerland:** To this date, improving social and physical infrastructure has remained a national development priority. As a result of investment funds fed by the country's economically advantaged regions, schools, water supply development, road construction, etc. have helped improve the security and quality of life of the population.

The objective of the Training for Employment Project is to adapt the curricula of vocational training in various professions (solderer, garage mechanic, crop and livestock consultant, etc.) to the needs of the job market. The project collaborates with training centres, private enterprises and public services. It offers training modules as well as further training courses for trainers. It also facilitates exchange of experience and access to information about the job market.

The Franchising SKILL Project offers practical training in sewing, shoemaking, carpentry, electrician skills, electronics, etc. to young villagers who request it. This training qualifies beneficiaries – both women and men – to develop their own business or find a job in an enterprise in the country or abroad. 2300 young people have been trained to date.

**Switzerland:** In 1855, the country's first Agricultural College opened its doors, followed by the Swiss Federal Institute of Technology in Zurich, with its agriculture and industrial engineering departments. The number of persons employed in the agricultural sector decreased dramatically by the mid-20th century, while the machine, chemical and watchmaking industries were prospering and employed more and more people. Towards the end of the 19th century, banks were founded to finance major infrastructure and national development projects, thus establishing a new economic sector.

### Governance and promotion of peace: crucial conditions for food security

Vulnerable rural households have only limited food autonomy and depend greatly on being able to sell their products, on having an off-farm job or – in crisis situations – on access to humanitarian aid. In times of conflict, such households are deprived of these options and therefore become the first victims. Their exclusion from decision-making regarding issues of vital concern to them makes their plight even worse. It is worth noting that Nepal acknowledged the Right to Food by ratifying the International Covenant on Economic, Social and Cultural Rights in 1991.

The Good Governance Programme offers advice to SDC-financed projects on how to better integrate disadvantaged groups at the level of the project team and with regard to internal decision-making processes. Moreover, the programme conducts training in human rights issues and supports the efforts of socially fragile groups to express their needs.

The Local Governance and Decentralisation Project helps strengthen the decentralisation process by initiating debates at the local level about elaborating the new constitution. The project is also devoted to establishing a framework for discussion at the national level. These activities make the roles and responsibilities of elected members more transparent and show disadvantaged groups how to better integrate themselves into decision-making processes.

The SDC's involvement has made it possible to establish relationships built on trust throughout all social classes, with governmental organisations and civil society. Building on this achievement, the SDC has helped to mediate between the different parties involved in the ongoing conflict in recent years.

**Switzerland:** The years between 1820 and 1848 were characterised by social unrest and impoverishment. Liberal thinking gained ground and conservative politicians had to accept a liberal constitution that contained civil rights such as equality before the law, freedom to choose where to live, freedom of association and protection of minority rights. In 1874, under strong social pressure, the liberal constitution was replaced by a democratic constitution that gave the people the right to vote and elect representatives. Economic and social development

led to an individualisation of society. The traditional family, consisting of several generations under the same roof, was gradually replaced by the nuclear family. These changes led to new forms of poverty and dependence. In 1947, Switzerland established a social insurance scheme based on the principle of solidarity and covering the basic needs of elderly people, widows and widowers, orphans and handicapped people.

**The new challenges:** Economic prosperity, social justice and food security are achievements continuously put to the test by social and economic development choices. Today, Switzerland is confronted with significant immigration, the emergence of new forms of poverty such as unemployment of persons without vocational training, the ageing of the population, a growing dependence on the international market and strongly diverging visions of the country's future.

The SDC's programme in Nepal: [www.sdc.org.np](http://www.sdc.org.np)

Nepal in figures	
Area	147,181 km <sup>2</sup>
Population and density	27.1 million, i.e. 190/km <sup>2</sup>
Percentage of urban population	16%
Population growth	approx. 2.2% / year
Child mortality (under 5)	74‰
Life expectancy (women and men)	63 years
Male illiteracy	37%
Female illiteracy	65%
Gross national product (GNP)	US\$ 7.3 billion
GNP per person	US\$ 270

Source: World Bank 2007

Food situation in Nepal		
<b>Undernourished people</b>	1990	3.9 million
	2003	20% of the population 4.1 million 17% of the population
<b>Dietary energy supply per person</b>	1993	2340 kg/cal
	2003	2450 kg/cal

Source: FAO 2006



## Beans: a crop of many resources

“Had we not had the leaves of your new bean variety, we would have starved to death!” Mrs Mukabuyika, mother of a family in Karama, exclaimed in 1991. Karama is a small town in southern Rwanda. People in this region were living under very precarious conditions. Heavy demographic and land pressure, repeated droughts and lack of integration in marketing networks were responsible for severe impoverishment and also exposed the region’s inhabitants to severe food shortages. The majority of the families were only able to eat once or twice a day, and in periods when they had exhausted their food reserves, some were so ashamed of their hunger that they lit fires to make their neighbours believe they were cooking. But their pots remained empty all day long.



In desperation, Mrs Mukabuyika gathered and cooked the leaves of a bean variety introduced from Mexico by researchers, and was thus able to save the lives of those in her family. It turned out that the leaves of this climbing bean are highly nutritious. Moreover, even though its leaves had been gathered, this variety still produced a satisfying yield of bean pods at the end of the season.

This anecdote marks the beginning of a success story for bean crop improvement in Africa and its positive impact on food security and income generation for small farms. Continuity of international support and the persistence of researchers despite crisis situations were key factors on the way to achieving this success.

The common bean, originally from South America, is a legume widely cultivated in Africa. Food and cash crop in one, it feeds over 100 million people both in rural areas and in cities. West Africa, with an average consumption of 60 kg per person per year, holds the world record in consumption of beans.

Beans, a staple food in Rwanda, are planted at the beginning of the two rainy seasons that extend from September to December and March to June. Reaching maturity after three months, they constitute a staple food until the next harvest. The month of May is the most critical period of the year, when reserves are exhausted and the next crop has not yet ripened. At this time, families are exposed to particularly dramatic famine situations, as in 1990, a very dry year when granaries were empty long before the next harvest.

Since 1996 a group of female farmers in southern Rwanda have been testing the cultivation of climbing beans, an agricultural practice that was already common in the northern part of the country. Until then, farmers in the south of Rwanda had grown only dwarf beans that yielded 3 times less than climbing varieties, which have the additional advantage of occupying less surface area and being more resistant to pests.

For over 20 years, the Pan-African Bean Research Alliance (PABRA), encouraged by the International Center for Tropical Agriculture (CIAT) and sup-

## “Umubano<sup>1</sup>, the bean of good cooperation, continues to climb and bear fruit.”

ported by several agencies, including the SDC, has continuously promoted exchange of knowledge about bean cultivation in Africa, particularly East Africa. Women are the first to benefit, owing to the fact that they are the main actors in bean cultivation – a tendency that is reinforced by the effects of HIV/AIDS and the outmigration of men to the cities.

In 2006 estimates indicated that together with its partners in national research and extension, the PABRA had already reached nearly 3 million rural families and probably over 9 million consumers. Improved bean varieties play an important role in networks in Uganda, Kenya, Tanzania and South Africa.

Local seed production is particularly impressive. It enables several thousand women to generate considerable revenue by selling high-quality seed. This has had a beneficial effect on their standards of living and their savings. In the eastern part of the Democratic Republic of Congo, for example, the revenue generated from beans (food and seed) has increased by a factor of 5.

It is not known what has become of Karama’s female farmers: this is a region that has been strongly affected by war in the meantime. However, it is certain that beans adapt perfectly to the variable conditions faced by small-scale farmers. Beans in the form of grains or pods fetch a good price on the market, and the marketing of seed offers a very attractive additional income opportunity. In times of crisis, in order to feed their families, women fall back on Mrs Mukabuyika’s strategy and eat everything in the bean crop, including the leaves.

*In Central America, beans are consumed in great quantities, restoring dietary balance to a large population of rural and urban poor. For almost 25 years, the SDC has supported the PROFRIJOL network’s dissemination of improved bean varieties in Central America and the Caribbean: [www.guate.net/profrijol](http://www.guate.net/profrijol) and in Peru: [www.cosude.org.pe](http://www.cosude.org.pe) under “Proyectos”*



1. Micro-nutrient deficiencies are currently recognised as one of the most severe health problems faced by large segments of Africa’s poor population, particularly women and children. The main deficiencies are in iron, zinc and vitamins, as well as proteins. With their high protein, iron and zinc content, beans are a precious source of nutrients that helps reduce these malnutrition problems.
2. The introduction of varieties that are more productive and require less fertilisers and pesticides enables producers not only to meet their families’ needs, but also to export more food to urban centres, where the increase in regional supplies benefits the poor urban population by making beans available to them at a better price.

Pan-African Bean Research Alliance (PABRA):  
[www.ciat.cgiar.org/africa/pabra.htm](http://www.ciat.cgiar.org/africa/pabra.htm)

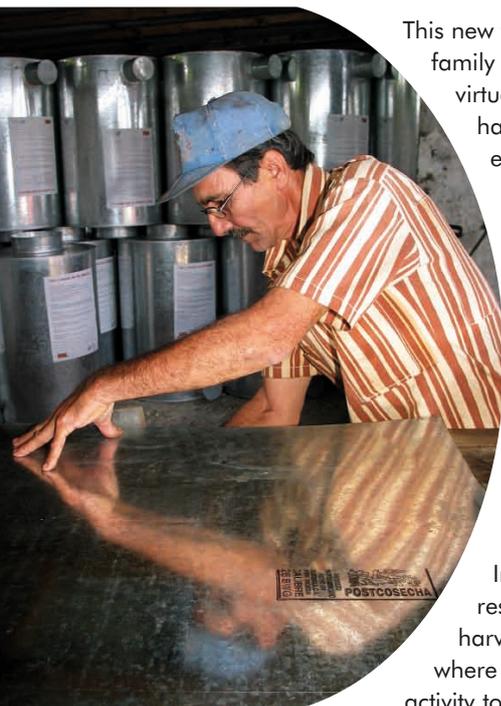
International Center for Tropical Agriculture (CIAT):  
[www.ciat.cgiar.org](http://www.ciat.cgiar.org)

<sup>1</sup> Umubano literally means “good cooperation” in Kinyarwanda.



## The metal silo: a savings account for the small producer

In El Salvador, the Benítez family grow maize, beans and sorghum; they also raise a dozen or so chickens and three pigs. The cereal and bean harvest is stored in barrels, boxes or wooden barns. Every year, the Benítez family lose 10 to 20% of its cereal and bean harvest to small rodents, birds, insects and mould; what remains is barely sufficient to cover the family's subsistence needs. One day, however, they managed to buy a sealed metal silo to store their grain.



This new technology has made it possible for the family to reduce their post-harvest losses to virtually nothing. The Benítez family now have a surplus of over 200 kg of maize every year that they choose to sell when prices are the most profitable. This additional income has enabled them to invest in their children's education and made it easier for them to face health-care costs. Moreover, they have bought a fourth pig, which they call their "spare tire" because they can sell it if they face hardship.

At the global level, post-harvest losses are one of the factors that undermine the rural economy in poor areas. In 1975, the United Nations adopted a resolution that envisioned reducing post-harvest losses by half. Yet in rural areas where subsistence agriculture is still the main activity today, most farmers store their harvest in traditional ways – in bags, boxes, barrels or wooden racks, jars, straw huts or earthen silos. Sometimes, these containers have very impressive features – for example, the barns of the Dogon with their magnificently sculpted wooden doors – but they are not capable of warding off rodents and preventing mould. Depending on the type of food stored, the climate, the drying method and the storage technique, the losses incurred when storing the harvest can range from 10 to 50% – an amount substantial enough to jeopardize a household's economy and food security until the time of the next harvest. To avoid such losses, smallholders usually sell a large part of their crops just after harvesting, i.e.

at a time when the market is flooded with produce that is being sold at the lowest prices of the year. Later, when household supplies are exhausted, families are forced to buy food at higher prices. This strategy, often followed by the poorest communities, enables rural families just barely to survive, but leaves them with no option at all for development or sustainable improvement of their living conditions.

At the beginning of the 1980s, the SDC initiated a programme in Central America to optimise post-harvest methods for storing maize – the staple food for rural households, used among other things to produce tortillas. The Postcosecha programme ("post-harvest" in Spanish) initially focused on improving existing storage structures (e.g. wooden racks and crates, unsealed metal silos); later, it focused on developing and promoting a new, entirely airtight metal silo which, if used properly, reduces post-harvest losses to nothing.

To ensure efficient adoption of this technology, the Postcosecha programme insists on the importance of rigorous observance of the various steps in the programme – to begin with, by ensuring that the population accepts this innovation. Indeed, although farmers complain about high post-harvest losses, they are clearly resigned to them and accept them with a certain fatalism. Farmers therefore need to be encouraged to refuse to accept this situation and motivated to do something about it. The best method is still word-of-mouth, but other methods such as theatre, testimony and other attractive forms of public presentation make the introduction of the new technology easier. A key condition for success and

The silo is made of a special galvanized iron sheet. Container sizes available: 70 to 1350 kg; price: US\$ 12 to 63, depending on the size. For efficient storage, the silo must be completely sealed and the harvest treated with an insecticide in tablet form.

## “By reducing post-harvest losses, farmers increase their room to manoeuvre, thus gaining greater food security and improving their living conditions.”

sustainability is local production of the silo by people from the community who have had sound training and become experts in this technology as well as trusted consultants. The Postcosecha programme also offers training in management skills to support the small enterprises that are becoming involved in the manufacture of silos and other metal objects for everyday use.

In Central America, about 400,000 families now use silos, thanks to which their living conditions have significantly improved. Today, about 30% of grain producers possess such a silo. The highest rate has been attained in Honduras, where 45% of farmers now own a silo. At the regional

other countries. Thus, farmers have adopted the silo in Cuba, the Dominican Republic, Haiti and Paraguay. Recently, the first steps in introducing the technology in southern Africa were made, with a view to assessing its potential to contribute to greater food security throughout the grain belt where maize is produced, i.e. from Kenya to South Africa.



1. Nicaragua: improved traditional storage structure (stones placed on the piles) for preserving maize.
2. Farmers often use slow times in the agricultural production cycle to increase their income by building a few silos. When they train as apprentice tinsmiths, they also learn to produce other objects such as chimneys, watering cans, spades, bins and funnels.
3. Women play an important role in quality and quantity control of stored grain. The number of women participating in training to become silo builders is also rapidly increasing.
4. Promotion campaign for the metal silo in the Dominican Republic.



level, an estimated 32,000 tonnes of grain are saved from losses, which corresponds to a mean annual value of US\$ 8 million.

In the wake of the damage caused by hurricane Mitch, the grain stored in Postcosecha silos easily allowed Central American farmers to have access to enough seed for the following year.

The replication of this technology at an international scale remains one of the SDC's objectives. Indeed, it is sensible to make the Postcosecha technology available in areas where similar problems exist, and it has already spread to several

Postcosecha programme in Central America:  
[www.inta.gob.ni/informacion\\_postcosecha](http://www.inta.gob.ni/informacion_postcosecha)

Helvetas Postcosecha programme in the Dominican Republic:  
[www.helvetas.org.do/postcosecha.html](http://www.helvetas.org.do/postcosecha.html)

Postcosecha programme in Cuba:  
[www.cosude.cu](http://www.cosude.cu)



# Livestock production – a key piece in the puzzle of food security

Worldwide, 600 million sedentary and nomad livestock keepers produce high-quality nutritious foodstuffs. Difficult access to services and markets, commercial competition, climatic constraints, degradation of grazing land and legal obstacles hamper their activities.

## Mongolia: pastureland management for reaping “green gold”

Food security in Mongolia is threatened by inappropriate natural resource management. This problem is intensified by decreasing rains and increasing temperatures. Overgrazing, deforestation and uncontrolled extraction of mineral resources contribute to destruction of vegetation cover, leading to soil degradation and desertification.

In the 1990s, there was an important urban exodus in Mongolia. Following the demise of the communist regime and the closing of numerous state enterprises, a large number of families were forced to leave the city and earn an income elsewhere, for example as nomad herders, who now had the chance to own their herds.

Nomadic life in Mongolia: the modern way of life calls into question sustainable management and use of pastureland. Finding forms of social organisation that are compatible with nomadic life constitutes a major challenge for political actors.

Thus, between 1986 and 2006, the number of herders tripled, while the number of animals increased by only a third. The size of herds, consisting of sheep (43%), goats (44%), horses (6%), cattle (6%) and camels (1%), therefore diminished considerably. Pasture rotation according to traditional rules, which used to guarantee a distribution of herds according to the carrying capacity of pastures, is hardly applied anymore today. Livestock keepers with small herds often establish their camps close to settlements and waterholes. They thus have better access to markets and

services such as schools and health centres, and can take advantage of other income-generating opportunities. These “semi-sedentarised” families move only rarely and only within a limited range; this leads to overuse and degradation of pastures close to settlements, while grazing lands that are farther away remain underutilised and often become abandoned land.

To ensure a minimum income, an average household needs a herd of about 100 animals. To enable the same household to achieve a standard of living in accordance with the Millennium Development Goals (food, education and health), 200 head per herd would be necessary – a number that only 20% of livestock-producing families have. A study conducted among Mongolian herders clearly shows that they wish to enlarge their herds; but larger herds also increase the risk of overgrazing and land degradation.

The Green Gold programme, financed and implemented by the SDC, aims to improve pastureland management. It offers advice to the government about land tenure issues and supports herders’ efforts to restore pastureland and manage it in a sustainable manner.

## Sikkim, India: dairy production – the hinge between cultivation and livestock production

The combination of livestock production and cultivation offers rural households multiple advantages. Diversification of activities in farming households allows a distribution of risks and offers households additional food security. Moreover, the combination of cultivation and animal husbandry closes the biomass and nutrient cycles within farms and thus helps to maintain soil fertility. Animal proteins and fats complement people’s diets and the sale of livestock produce guarantees regular cash income.



**“If the only motivation for livestock production is financial profit, it will destroy communities and their environment. If it is done with passion and sensitivity, it can provide high-quality food and contribute to maintaining the balance of nature.”**

The average size of farms in Sikkim, an Indian state situated in the Himalayas between Nepal and Bhutan, is hardly more than 2 hectares. Rice, maize, vegetables and fruit are the principal subsistence crops, in addition to which ginger and cardamom are cultivated as cash crops.

These agricultural activities are intimately linked to livestock production. Most households have 2 to 3 cows that graze near villages and on harvested fields. Crop residues such as straw, rice bran and corn stalks are fodder complements. Animals are kept in stables during the night to collect manure, which is then spread on the fields, in the gardens and in orchards.

A cow produces an average of 600 litres of milk during the lactation period (about 240 days). The establishment of dairy cooperatives by the Indian government encouraged farmers to buy additional head of cattle. But numerous cooperatives did not succeed in keeping their promise of selling all the milk produced because they lacked organisation and technical support; moreover, as producers lived far away from the larger markets and did not master milk processing and conservation techniques, a large part of dairy production was regularly lost.

With the aim of valorising this overproduction, the Indo-Swiss Project Sikkim (1995–2003), funded by the SDC and implemented by Intercooperation, supported producers’ efforts to establish and manage a cheese factory. The major challenges of the project were improving hygiene conditions at the farm level, organising milk collection, establishing six cooperatives with a total of approximately 600 milk producers, setting up the cheese factory, training staff and marketing products in large urban centres.

On average, the income from milk sales amounts to US\$16–25 per month and family. This represents a substantial part of a household’s budget. The cheese factory has a production capacity of 400 kg of cheese per day. It has a partnership with the largest dairy cooperative in India, which offers technical backstopping and professional management, and ensures reliable access to markets in large cities. The project has helped to strengthen the production system, making cash income from milk sales more secure and improving supplies of high-quality food products for urban consumers.



The SDC in Mongolia: [www.sdc.mn](http://www.sdc.mn)

Indo-Swiss Project Sikkim: [www.intercooperation.ch/offers/download/ic-india](http://www.intercooperation.ch/offers/download/ic-india)



1. After large mining companies have left a site, individuals flow into the area in the hope of extracting something that will help round off the month’s income.
2. Valorisation of dairy products reinforces the combination of cultivation and livestock production, strengthens the livelihood strategies of rural households, and provides a more varied and balanced diet.



## Value chains for agricultural production – the key to food supply

Market incentives are motivating producers, traders, carriers, and service and processing enterprises to organise effective value chains. Besides generating profit for producers and intermediaries, these value chains also ensure sufficient supplies for urban consumers in terms of both quantity and quality.



Proper post-harvest storage is indispensable for obtaining a quality product. Drying of corn ears before they are processed for flour. Cao Son village, Vietnam.

Vietnam covers an area of 3,312,114 km<sup>2</sup> and has 84 million inhabitants, one-quarter of whom live in urban agglomerations. Since the late 1980s, collectivism has been abolished, and the country has gradually found its way out of political and economic isolation. Currently Vietnam is experiencing rapid economic growth: the per capita GDP exceeds US\$ 2700, and the urban population's purchasing power is greatly increasing. This in turn is boosting the demand for food on the markets.

Following several severe food crises in the 1980s, the government adopted a policy of gearing agricultural production to market demand. The Small-scale Agro-enterprise Development in Uplands (SADU) programme, which is supported by the SDC, has set itself the goal of enabling agricultural producers to benefit from this new dynamics. Implemented by the CIAT<sup>1</sup> and the Ministry of Agriculture and Rural Development, the programme elaborates approaches and trains specialised agents in developing value chains and agricultural enterprises. These agents support communities in analysing the availability of natural, human and financial resources, as well as market opportunities. On this basis, the communities choose potentially interesting products and assess options for developing value chains that will enable them to generate additional income by transforming primary products into semi-processed or processed products. All actors involved in production, processing and marketing are invited to participate in this process of reflection. Options that are found most promising are then validated by means of market surveys.

On the other hand, disparities between urban and rural populations are increasing. Even though the number of undernourished persons has diminished substantially, dropping from 31% of the population in 1990 to 17% in 2003, rural populations – particularly in mountain regions – continue for the most part to live on subsistence farming. Conditions are difficult: soils are often not very fertile, and the availability of arable land is limited to an average of 500 m<sup>2</sup> per inhabitant. Approximately 17% of the households are considered poor, with incomes of less than US\$ 1.00 a day. Rice, maize and peanuts are the main crops grown in these areas. In addition to crop cultivation, farmers breed livestock, mainly cattle and pigs, and collect non-timber forest products.

After having defined common quality standards, each of the different parties works in its area to adapt its activities to the new requirements. A management committee is entrusted with monitoring and steering the process to keep it in tune with market developments.

In this way, value chains are established for livestock products, persimmons, manioc and maize. The maize chain, for example, is considered particularly promising as it could replace imports, which currently amount to 3 million tonnes of grain annually. Stimulated by growing demand and attractive prices, producers invest in new technologies, which, in turn, help to increase

production and raise income by up to 30%. Moreover, new jobs are beginning to emerge in crafts, veterinary services and agricultural extension. The establishment of value chains thus contributes not only to the food security of participating households; it also guarantees more reliable supplies for urban populations in terms of both quantity and quality.

**“The need to feed a growing population while the number of farms is decreasing makes it necessary to develop value chains for production and marketing.”**



1. Women peeling manioc tubers and cutting them into fine slices. After the slices have been sun-dried (in the background), they are processed as chips. Cu Kty village, Vietnam.

2. New machine for cutting manioc examined with satisfaction by a workman, agricultural extensionists and retailers. The machine cuts fine and regular slices; this accelerates the drying process. Work thus progresses more rapidly, the danger of an accident is reduced, and the product is of higher quality. Luoi town, Vietnam.



3. Persimmons (or khaki) are picked and delivered to retailers, who take care of accelerating the ripening process by polishing and pricking the fruit before placing it on their fruit stands.

4. Harvesting and preparing of gherkins for transport. AGROPYME, Honduras.

In Honduras, a country with abundant natural resources, Swisscontact is implementing a project called AGROPYME. Launched in 2001, this project focuses on the development of value chains for vegetables and fruit. One of the objectives pursued by AGROPYME is to replace imports supplying supermarkets in the country’s capital. Moreover, the project also supports production of goods that arouse interest on foreign markets – such as melons and watermelons, which are produced for the United States and Europe. Two exporters and thirty producers have joined forces in a new association to organise their value chain. In Danli, women’s groups have also benefited from support for processing and distribution of banana chips. This has secured new income, while at the same time satisfying a considerable local demand.

The SADU programme is currently working in 6 districts in Vietnam and 5 districts in the Lao PDR:

[www.saduproject.org](http://www.saduproject.org)

[www.ciat.cgiar.org/asia/agroenterprises.htm#sadu](http://www.ciat.cgiar.org/asia/agroenterprises.htm#sadu)

AGROPYME:

[www.cosude.org.ni](http://www.cosude.org.ni) (navigate to “Sector” and then “Fomento empresarial”)

[www.swisscontact.org.sv/agropyme.htm](http://www.swisscontact.org.sv/agropyme.htm)

<sup>1</sup> International Center for Tropical Agriculture



# Training – a key pillar in a new rural economy

On a global scale, competition and interdependencies between economic actors are continuously increasing. Confronted with this reality, rural families – who are generally not very well informed and trained – are on the losing side, also with regard to food security. In Senegal, the SDC is helping to implement a national agricultural and rural training strategy (SN-FAR) oriented towards a new vision of agriculture based on modernising family farms.

The change of government that occurred in 2000 – the first in Senegal since Independence – seemed to be the start of a very favourable era for civil society, and particularly for rural society. Reduction of the national debt and resumption of official development assistance encouraged the state to engage in more dynamic and audacious policy-making beyond the strict framework of structural adjustment. Thus, the government progressively resumed subsidies for agriculture and greatly increased the availability of credits for agricultural equipment and inputs. Moreover, all the major projects concerned with the rural world that were designed before the changeover were implemented: PSAOP<sup>1</sup>, PNIR<sup>2</sup>, AFDS<sup>3</sup>, PDEF<sup>4</sup>, etc. An important programme for the creation of multifunctional training centres for producers was implemented in each of the 33 administrative departments.

has stagnated or even dwindled. The gap between production and needs is widening even more rapidly as the annual population growth rate is 2.7%, along with a 45% urbanisation rate. Despite the key role played by the primary sector in terms of jobs (77% of the working population), the primary sector contributes only modestly to the GDP (18.5% in 2000, 17% in 2002) because of the low productivity of agricultural systems subject to climatic difficulties (uncertain rainfall, soil degradation). Indeed, agricultural production barely covers 50% of basic food needs.

Despite such poor performance, the agricultural sector has a high potential to boost the local economy and remains a strategic sector that employs more than half of Senegal's population. The country's Poverty Reduction Strategy Paper defines this as a priority. From this perspective, it is very important to support the development of human capital capable of overcoming the various constraints that hamper the stimulation of the agricultural and rural economic sector.

Since the end of the 1970s, the SDC has had a significant involvement in the field of rural training. For many years, the agency supported Senegalese training colleges for agricultural and forest technicians. In 1998, realising how inadequate this system was in view of the real needs of farmers and how difficult it was for the state to maintain the system sustainably, the SDC supported a major process of reflection and consultation that resulted in the elaboration of a new national agricultural and rural training strategy (Stratégie Nationale de Formation Agricole et Rurale, SN-FAR). This strategy proposes a vision of agriculture in Senegal based on

"... the direct link between the level of literacy of young people and food security is obvious!..." (Minister of Agriculture in Senegal)

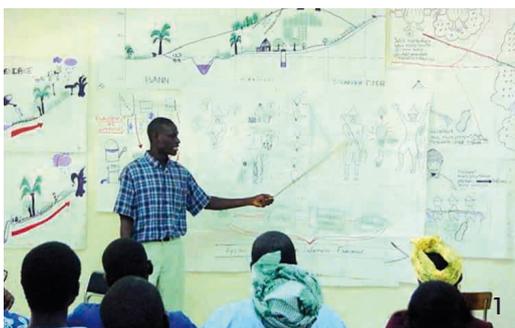


Unfortunately, these encouraging signs are overshadowed by an unfavourable macro-economic context, the absence of a global, coherent and comprehensible agricultural policy, and the fact that agricultural production is faced with persistent climatic constraints. With regard to agricultural production, the performance of certain value chains, e.g. peanut production,

modernisation of family farms and promotion of an emerging new rural economy.

Since 1999, the “Pro-gramme d’appui au renforcement des capacités des acteurs du monde rural” (programme to support the strengthening of rural actors’ capacities), funded by the SDC and implemented with the help of governmental and non-governmental organisations, as well as private services, has been aiming to improve farmers’ literacy, basic education and vocational training. Moreover, the programme is helping to promote basic training at the secondary and tertiary educational levels and standardising agricultural and rural training institutions.

This programme backs up the endeavours of the Senegalese government which, by recently creating an office for vocational agricultural training (Bureau de la Formation Professionnelle Agricole), has shown its will to move forward. It also supports professional and farmers’ organisations at the local and national levels, helping them to become recognized and pro-active representatives of institutions. Since 2005, increased attention has been given to local and regional communities.



## “Give me rice and this will fill my stomach today; give me education and this will fill my plate all my life.”

(Found in a school in Mali)

The SDC’s programme is positioned at the heart of the challenges that the rural world needs to face: (1) promotion and modernisation of family farms, (2) development of off-farm activities, (3) natural resource management, (4) improvement of local economies’ competitiveness and (5) improvement of people’s economic and social conditions. As such, this programme also helps future leaders to develop the skills required for formulating clear positions and proposals for negotiations with the state.

*“In the evening, after working in the fields, I attended a basic literacy course. We learned to read, write and calculate. Now I know how to use scales and a calculator, and I can answer messages sent to us by the local authorities or by brothers and sisters who live elsewhere. We created a rice production association with 20 other women from the village. With part of the proceeds, we established a small savings account.... I was elected as the secretary and cashier of this association”.*

*24-year-old woman farmer, Dabo, Senegal*

Réseau Formation Fleuve (RESOF) (training network for the Senegal River valley):

[www.senswiss-far.org/part.html](http://www.senswiss-far.org/part.html)

Modernisation du monde rural: adapter la formation aux nouvelles exigences agricoles. (Modernising the rural sector and adapting training accordingly):

[www.cncr.org/IMG/pdf/189.pdf](http://www.cncr.org/IMG/pdf/189.pdf)

Formation agricole et rurale, quelques exemples d’appui (examples of support for agricultural and rural training):

[www.agropolis.fr/formation/pdf/atelier\\_ouagadougou/mbaye\\_a.pdf](http://www.agropolis.fr/formation/pdf/atelier_ouagadougou/mbaye_a.pdf)

La Formation Agricole et Rurale (FAR) au Sénégal (Senegalese-Swiss support for agricultural and rural training):

[www.senswiss-far.org/index.html](http://www.senswiss-far.org/index.html)

1. “... without professional training for farmers and trainers, the intensification of family farms and organisation of rural society are bound to fail.” (Minister of Agriculture in Senegal)

2. Moving from subsistence agriculture to market-oriented production requires not only that individuals gain new knowledge: it usually also implies radical change within society as a whole.

<sup>1</sup> Agricultural Services and Producer Organisations’ Programme. The SDC is interested in this programme, as it was involved in designing it and implementing a test phase through support for the CNCR and CLCOP (Cadres Locaux de Concertation des Organisations de Producteurs).

<sup>2</sup> Programme National d’Infrastructures Rurales

<sup>3</sup> Agence du Fonds de Développement Social

<sup>4</sup> Programme Décennal de l’Education et de la Formation



## Policies that neglect farmers' potential for production

Food security has not yet been attained in Burkina Faso. The country remains one of the poorest on the planet and currently imports US\$ 78 million worth of cereals each year, amounting to a total of approximately 250,000 tonnes of rice, wheat and maize. However, the government and international funding institutions are focusing exclusively on cotton and its price on the international market; cotton is the only product for which the state has a national policy and instruments to support production. While cotton is the main source of state revenue, sales of food products account for 80% of farmers' income.



A women's group runs the village cereal mill.

This is one of the findings of a broad study carried out in the vicinity of 540 farms over a period of 4 years by Swiss and Burkinabe researchers. The study was part of a research project entitled TASIM-AO (Transition from self-subsistence to commercial agriculture in West Africa; French: *Transition de l'auto-subsistance vers l'agriculture marchande en Afrique de l'Ouest*). This project tried to determine whether farmers were sensitive to market signals, whether they had the capacity to produce and market

more food, and whether agro-industrial policies and food markets were favourable to such an increase in production.

Ouagadougou's market for food represents purchasing power of around US\$ 390 million per year. If this sum were earmarked for paying farmers in the country, it would truly improve living conditions among the rural population. Moreover, a majority of Burkinabe farmers mar-

ket their cereal surplus. The TASIM-AO project analysed sales of cereals (millet, sorghum), legumes (niebe or cowpea) and oleaginous plants (sesame, soybean) on 180 family farms (FFs) in each of the 3 regions of Dédougou, Fada N'Gourma and Kaya (see graph next page). The analysis revealed pronounced differences between farms. The 25% of FFs who sell the least (Q1) market an average of around 200 kilograms of grain per year for a sum of US\$ 46. These FFs often run deficits, causing the families to suffer from hunger unless they have access to additional income. On the other hand, the 25% of FFs who sell the most (Q4) market between 3.5 and 5.5 tonnes (US\$ 1090 to 1915) – which is 20 to 40 times more than FFs in the first group. The 10% of FFs who sell the most grain (D10) market 4.8 to 8 tonnes on average, accounting for 40% of total sales. In between these two extremes are two groups who sell grain for US\$ 131 to 170 and US\$ 370 to 525 per year. This has led to the conclusion that while 50% of FFs are still producing for self-subsistence, the others have already moved on to self-sufficiency through marketing, i.e. they depend on the market for food products for a significant part of their cash income.

### Great potential still untapped

Lack of oxen and animal traction equipment imposes the greatest limits on production. However, those FFs who do possess the necessary draught animals and equipment are limited most by poor prices on a market that is too easily sat-

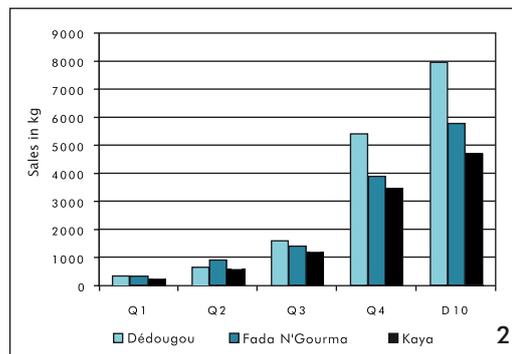
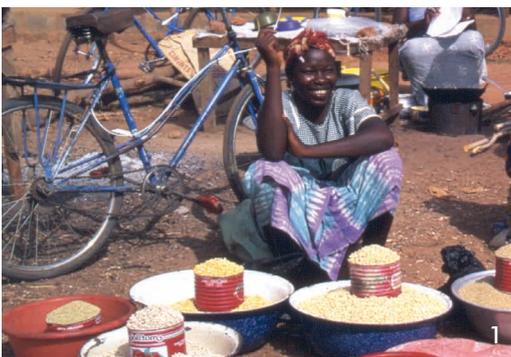
## “If national policies were more encouraging, family farms in the Soudan-Sahelian zone could produce and commercialise far more food.”

urated. In the first case, the constraints could be overcome through an investment credit system for agricultural equipment. In the cotton-growing area of Dédougou, a great majority of FFs are equipped because they have been able to benefit from investment credits from the cotton network, which determines prices and has an organised market. For this reason, cotton farmers from Dédougou are simultaneously the greatest suppliers of cereals! In the second case, organising marketing networks and guaranteeing minimum prices for producers would stimulate production. Indeed, observations have shown that in good years, cereal prices drop to less than US\$ 8.5 per 100 kilograms – a fact that discourages production efforts by farmers in all groups. It has been concluded that organising food production networks would make it possible to grant equipment credits to 80% of FFs, thereby tremendously boosting food production. However, something else will be needed at this point: sales of local cereals will have to be ensured.

Some farmers already have the capacity to produce more: they have savings in the form of large livestock that they could invest, at least in part. But they do not do so because they fear that they will not be able to sell their products, as they would have to compete with imported cereals. In 2001 and 2002, record cereal yields

any effort to raise the demand for millet or sorghum and thus dooms even the slightest attempts to transform the food market to an industrial scale (which would also be able to absorb part of the urban unemployed!). It also guarantees very comfortable revenues for a class of (rich!) urban traders living on imports. And, finally, this habit prevents urban purchasing power from being mobilised to reduce poverty – three-quarters of which occurs in rural areas. This is a real pity!

However, there are solutions – for example, the introduction of variable taxes on imports of cereals and cereal derivatives. This moderate protection of domestic agricultural production against a subsidised global market would not cost the state or consumers anything, but it would reduce the bill for imports. The only people affected would be cereal, flour and pasta importers, whose revenues would decrease. It seems that their plight counts more than that of the farmers.



1. Grain vendors on the Dédougou market.
2. Analysis of cereal, legume and oleaginous plant sales on 180 family farms in the 3 regions of Dédougou, Fada N'Gourma and Kaya.

could not prevent maize and rice imports from reaching historic proportions. Farmers' granaries were overflowing, while food from the EU, Asia and the USA poured into Ouagadougou. At an identical price, imported rice sold better than local rice – because it was whiter, but above all because traders were able to make more profit from it. In the city, consumption of white bread, white rice and pasta has become a habit among all social classes. This habit directly counteracts

TASIM-AO existed from 2001 to 2005. The project was run by the Swiss College of Agriculture (SHL) and the Centre d'Etudes de Documentation et de Recherches Economiques et Sociales (CEDRES) of the University of Ouagadougou, with 55% of funds provided by the SDC.

[www.shl.bfh.ch](http://www.shl.bfh.ch): enter "tasim-ao" in the search mask.

See also the article in "La Revue Durable" no. 20 (available in French only): [www.larevuedurable.com](http://www.larevuedurable.com)



# Multilateral cooperation approaches and instruments for combating hunger



During the fifty-fifth session of the United Nations General Assembly in September 2000, the world's political leaders defined the Millennium Development Goals (MDGs) – a set of objectives to combat poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women. The first of these objectives concerns reducing extreme poverty and hunger. The Millennium Declaration itself also foresees a vast array of commitments in areas such as human rights, good governance and democracy. As of the Monterrey International Conference on Financing for Development (Mexico, 2002), the leaders of developed and developing countries began to allocate resources and take concrete measures to foster sustained reform of political and economic systems in developing countries, with the aim of fulfilling the different commitments formulated in the Millennium Declaration for development.

To identify pathways and solutions, in 2002 the Secretary General of the United Nations mandated a special task force on hunger within the framework of the Millennium Project, with the aim of developing a global strategy for reducing hunger by half by 2015. The seven recommendations of this task force's report<sup>1</sup> concern increasing production, nutrition, income generation for the poor and better use of natural resources. They also focus on the need for reforming policies and creating an enabling environment for reducing hunger, calling for a complete liberalisation of agricultural markets. This approach is espoused by the World Bank and the International Food Policy Research Institute (IFPRI)<sup>2</sup>, which published its 2020 Vision and projections for 2050. IFPRI, founded in 1975 with the aim of identifying and analysing what policies are appropriate for meeting the food needs of developing countries, focuses its research activities on economic growth and poverty reduction in countries with a low income,

with a view to fostering improvement of poor people's living conditions and sustainable management of the natural resources that constitute the basis of agriculture.

During the 2002 World Food Summit – Five Years After conference, the delegations recognized "the urgent need to reinforce efforts of all concerned partners as an international alliance against hunger, for the fulfilment of the 1996 Summit"<sup>3</sup> and launched the idea of creating an International Alliance Against Hunger (IAAH). In the spirit of the Millennium Declaration, the FAO now focuses on poverty reduction and alleviation of hunger by acting "on two fronts": on the one hand to improve agricultural productivity and promote better nutritional practices at all levels; on the other by promoting programmes improving direct and immediate access to food for the poorest. Moreover, in its annual report on the status of food insecurity in the world, the FAO stresses various dimensions related to food and the lack of international action in this field. The report for 2004 puts its finger on the costs engendered by lack of immediate and vigorous intervention to reduce hunger. The price is far too high in relation to the cost of interventions that could markedly reduce hunger. As for the 2005 report, it focuses on the critical importance of reducing hunger to achieve all the MDGs.

The declaration of the World Food Summit – Five Years After reaffirmed the importance of strengthening respect for all human rights and fundamental freedoms and invited "the FAO Council to establish an Intergovernmental Working Group to develop a set of Voluntary Guidelines to support Member States' efforts to achieve the progressive realization of the right to adequate food in the context of national food security".

The right to adequate food was formally recognized by the United Nations as a universal human right in its 1948 Universal Declaration of Human Rights. Nearly twenty years later, the International Covenant on Economic, Social and Cultural Rights, ratified by 152 member states, made the right to food legally binding for the

In November 2004, the member states of the Food and Agriculture Organisation of the United Nations adopted the "Voluntary Guidelines to support the progressive realisation of the right to adequate food in the context of national food security".

<sup>1</sup> Halving hunger: it can be done: [www.unmillenniumproject.org/reports/reports2.htm](http://www.unmillenniumproject.org/reports/reports2.htm)

<sup>2</sup> [www.ifpri.org](http://www.ifpri.org)

<sup>3</sup> Committee on World Food Security. International Alliance Against Hunger. FAO, thirty-first session, 23 - 26 May 2005, Rome, Italy.

signatory countries. The United Nations Special Rapporteur, Jean Ziegler<sup>4</sup>, uses the following helpful definition: “the right to food is the right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear”. The 19 voluntary guidelines adopted in 2004 refer to preponderant political and economic aspects; but they also concern access to resources for production, food safety, nutrition, education, natural and human-made disasters, and support for vulnerable individuals who cannot fend for themselves<sup>5</sup>.

The Convention on Biological Diversity, which resulted from the 1992 World Summit on Sustainable Development (WSSD), refers to genes, species and ecosystems, and is the first international agreement that covers all the aspects of biological diversity. The link between this convention and food security is incarnated by the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR)<sup>6</sup>, that was adopted in 2001 and came into force on 29 June 2004. This legally binding treaty applies to all plant genetic resources for food and agriculture, by defining them as “any genetic material of plant origin of actual or potential value for food and agriculture”. The purpose of the treaty is to ensure that plant genetic resources needed by states to feed their populations will remain available (see also the chapter on “The stewards of global agricultural biodiversity”, pages 16-17).

On the front of the fight against poverty, the International Monetary Fund and the World Bank urged indebted poor countries to elaborate Poverty Reduction Strategy Papers (PRSPs). It has been noticed that efforts to reduce undernourishment in the poorest sectors are not explicitly mentioned in these strategy papers. At best, PRSPs mention the need to increase national competitiveness in liberalised international markets, also with a view to increasing food imports. This is a coherent position indeed: on the one hand rich countries wish to maintain agricultural

## **“In the struggle between the weak and the strong, liberty is a force for oppression and the law a force for liberation”.**

**(Inspired by Jean-Jacques Rousseau, *The Social Contract*, 1762)**

subsidies and on the other, there is a call for a multiplication of humanitarian aid mechanisms to feed the world’s hungry.

Criticism of the efficiency of current instruments and processes aiming to eradicate poverty and hunger in the world is voiced abundantly. In a series of press releases, the NGO Oxfam has persistently denounced and openly criticised the “hypocrisy” of the international aid system to the detriment of the poorest. For several years, NGOs in the North and the South have been mobilising attention to the consequences of agricultural negotiations on poverty and food security taking place within the framework of the WTO. In the Introduction, we mention the Via Campesina group and its alternative food sovereignty approach. A number of recommendations resulting from this protest front were recently relayed by a group of 33 developing countries (G-33), which proposed a set of 12 indicators that allow countries to determine “special products”: any agricultural product which – if imported in great quantities – constitutes a threat to the nation’s agricultural economy, and therefore to local producers’ income, can be defined as a “special product” for which countries can determine temporary tariff barriers. This innovation acknowledges the fact that a completely liberalised commercial system which includes agriculture will have different implications for food security, depending on whether the most vulnerable parts of the population consist of food consumers or food producers.

<sup>4</sup> The SDC has been funding the work of the Special Rapporteur since November 2000.

<sup>5</sup> [www.fao.org/righttofood](http://www.fao.org/righttofood)

<sup>6</sup> [www.fao.org/AG/cgrfa/itpgr.htm](http://www.fao.org/AG/cgrfa/itpgr.htm)



## Food security: the challenges for tomorrow



A farmer from the Philippines who has just discovered aphids on the stalks of his rice plants uses his mobile phone to call the agricultural extension service in his province. New communication technologies are playing an increasingly important role in enabling access to the kind of technical knowledge farmers need to improve production. They are also a valuable tool for large-scale prevention of risks to plant health, and they provide access to information about conditions for commercialising harvests, which can help farmers to improve their economic performance.

Food security is characterised by rather uneven levels at the global scale: it has not improved significantly in recent decades, although economic growth has propelled development of the modern sector in numerous economies worldwide. This rather discouraging trend, in general terms, is the result of a number of converging factors such as the previously mentioned inadequate priority given to agricultural policy, protracted poverty, population growth and insecure land tenure. In future, other factors will be preponderant, such as changing food habits that require

increasingly area-intensive agricultural products (such as meat), and will lead to unsustainable use of the natural resource base, resulting in declining productivity and degradation of ecosystem services such as fertile soils, drinking water, wildlife and biodiversity. These developments are compounded by the impact of global warming, which has already resulted in water stress that affects people, food production and nature. Although innovation in agriculture and food science has succeeded in doing more than just coping with the growing global demand for food during the second half of the 20th century, progress has meanwhile levelled out and average global staple grain stocks have decreased from around 115 days in 2000 to 57 days in 2005, the lowest level in 34 years (IFPRI, 2006).

On the brighter side, due to astounding economic growth and technological progress in recent years, countries such as China, India and South Africa have been able to substantially improve their national food availability and therefore contribute to global food security (IFPRI, 2005). Rapid changes in the structure of these predominantly agrarian, industrial and service-

oriented economies have led to significant increases in food productivity on less land. Large numbers of small rural households have made the transition to agricultural wage labour and off-farm employment, partly as a result of migration to centres and marketplaces. Nevertheless, industrial farming has only partially made up for these changes, and more marginal rainfed systems requiring special farming skills are no longer in use.

Meanwhile, major funding agencies, development foundations and agricultural research-for-development organisations such as the CGIAR network have recognized that attention to the rural sector is diminishing and have managed to re-position agriculture as a policy priority. The research focus is gradually shifting to enhancing productivity and managing natural resources in a more sustainable way in still poorly understood rainfed agroecosystems, which are home to a large majority of the world's hungry people. But the necessity of increasing productivity does not mean that all solutions are welcome: in many countries, public resistance has been expressed against food science that crosses the research frontier to genetic modification of plants and animals as a strategy to further enhance agricultural productivity. Many of the least developed countries (LDCs) have announced their commitment to strengthening and investing in the rural sector. Although changes in systems will take time to become effective, they have already paved the way to taking advantage of the innovation and extension capacities required to meet future food security challenges.

The latest developments in the energy sector, leading to increasing global demand for bio-fuels, have added to the LDCs' burden of having to ensure both food and livelihood security. Even highly productive rice and orchard cropping systems in poor regions of Asia and Latin America are now being licensed and transformed by multinational investors to produce mono-cropped cane, maize or soy for bio-ethanol production at massive scales. The US market alone saw demand for bio-ethanol grow by 136 million tonnes of grain in 2007, while the average annual growth rate for the world's grain



harvest was only 20 million tonnes. This trend, actively supported by the OECD countries for reasons relating to mitigation of climate change impacts, has already driven up prices and alarmed major grain importers such as Mexico and Egypt. The emerging trend of direct competition with the world's wealthy, who seek to maintain unsustainable mobility levels at the cost of the world's 2 billion poorest people, who simply want to survive, may disrupt all other efforts to achieve global economic progress and market integration.

Long-term trends in population growth and urbanisation and growing purchasing power worldwide indicate that food production will have to multiply within the next generation to meet demand. However, even if productivity goals are met, this will not substantially improve food security for LDCs and the poor unless fair price levels and better access to available products are ensured. Such access for the poor will not be achieved solely through market participation. Parts of rural Rwanda and Bangladesh, with high population densities and very few alternatives to agricultural income, are now facing such shortage of land that the young, productive generation is left with no prospects for the future, and social cohesion is being threatened. Only the most talented and fortunate rural actors can reap the benefits of market integration on their own initiative. The large majority of the population in rural India, Niger and Bolivia, who are increasingly disconnected from food self-sufficiency, will continue to depend on protective government policies for many years before they can eventually be equal competitors on the open market.

Faced with these challenges, and after reflecting on the issue, the SDC reaffirmed the importance of food security by defining several related issues such as water, rural development, agriculture and sustainable management of ecosystems as priorities. Moreover, the SDC envisages strengthening its support for adaptation to climate change in agro-pastoral systems in vulnerable regions such as arid and mountain areas. In line with its support for technological innovation, the SDC will make sure that the question of biofuels is dealt with from the perspective of a decentralised alternative source of energy and with the aim of strengthening local economies. At the political level, the SDC will continue to support the implementation of the Right to Food by facilitating the dissemination of voluntary guidelines. The SDC considers ensuring enough food for all as one of the most important objectives to pursue in order to achieve the Millennium Development Goals. Indeed, having enough to eat is a fundamental human need and a prerequisite for all other forms of human development and well-being. Hence, the SDC will continue to give food security highest priority in the long term.

1. Food security will continue to be an important aspect of the SDC's involvement in future. Among the challenges to be confronted are urbanisation, population growth, constantly changing consumption habits, global climate change and increasing demand for biofuels.

## Photos

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**“Mother, is there anything to eat today?”**

Swiss Agency for Development  
and Cooperation (SDC)  
Freiburgstrasse 130  
3003 Bern, Switzerland  
E-mail: [info@deza.admin.ch](mailto:info@deza.admin.ch)

[www.sdc.admin.ch](http://www.sdc.admin.ch)