DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

AGRICULTURAL REHABILITATION AND RECOVERY PROGRAMME 2009

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Special Emergency Programmes Service
Emergency Operations and Rehabilitation Division
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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INTRODUCTION

This document is the third of a series of publications associated with the launch of the annual rehabilitation and recovery programme for the Democratic People's Republic of Korea by the Special Emergency Programmes Service (TCES) of the Food and Agriculture Organization of the United Nations (FAO). Each year, FAO assesses the needs in the country, in consultation with the relevant ministries, develops a number of project profiles in the most critical areas where interventions are needed and presents them to donors for potential funding.

This year's launch is planned to start in Pyongyang on 20 October 2008, followed by Beijing on 22 October and Seoul on 24 October, when briefing meetings will be held with donors' representatives. The launch is arranged by TCES, in conjunction with the FAO Representative in China.

The purpose of this publication is to: (1) present a brief overview of the current agricultural situation in the Democratic People's Republic of Korea; (2) provide an update on FAO's emergency and rehabilitation programme in the country in 2008; and (3) present the rehabilitation and recovery programme for 2009 as 'concepts' developed in conjunction with FAO's line ministry partners in the Democratic People's Republic of Korea: Agriculture, Lands and Environmental Protection and Fisheries.

An Annex is also included which presents a summary of ongoing and recently completed FAO projects.

BACKGROUND AND AGRICULTURAL REVIEW

Effect of the 2007 Floods

Prospects during the early stages of the main agricultural season in the Democratic People's Republic of Korea had indicated a good harvest, which would have maintained the steady increase in annual yields since 2001. However, the heavy flooding in August and September 2007 caused serious and widespread losses to standing crops. The subsequent national food deficit was calculated by the Food and Agriculture Organization of the United Nations (FAO) earlier this year at 1.66 million tonnes.

Perennial crop production is extremely precarious. The major cereal-producing areas are all located in the plains of the four 'cereal bowl' provinces of the south and west: North and South Hwanghae and North and South Pyongan. These low-lying areas are highly prone to flooding – a threat which is likely to recur more frequently.

As a result of the 2007 floods, farm infrastructure suffered heavy damage, with reservoirs, embankments, diversion dams and irrigation systems seriously affected. The Government of the Democratic People's Republic of Korea responded through mass mobilization of the civilian population from nearby towns. The army also assisted farmers in essential repairs. However, work teams often lacked essential materials to ensure permanent repairs. On many farms, much of the repairs were temporary at best. Furthermore, canals and nearby streams and rivers remain heavily silted and are prone to overflowing in the event of future downpours.

An interagency contingency planning workshop was organized in Pyongyang in May 2008. The participant agencies jointly reviewed lessons learned from the 2007 flood emergency response, assessed major disaster risks for the Democratic People's Republic of Korea, agreed on the contingency planning scenario and identified the responsibilities for the respective agencies. FAO's plans include safeguarding areas at risk from rising floodwaters through distributing basic tools and materials, and emergency inputs to farms once floodwaters have subsided.

Efforts will focus on strengthening agricultural infrastructure to withstand future natural calamities. FAO will encourage the integration of disaster preparedness and mitigation within agricultural development in accordance with the 2005 Hyogo Framework. Preparedness is a core feature of the proposed 2009 programme and likely to be further developed as a theme in future annual appeals.

Food Relief

The serious harvest losses caused by flooding have increased the level of food insecurity. In May 2008, a protocol was concluded between the Government of the Democratic People's Republic of Korea and the World Food Programme (WFP) allowing for the distribution of up to 500 000 tonnes of food assistance. The subsequent Letter of Understanding between the Government and WFP provided for improved operating conditions and expanded humanitarian access, including a prospective combined FAO/WFP Crop and Food Supply Assessment Mission

and a WFP/United Nations Children's Fund (UNICEF) Nutrition Survey. These exercises were last undertaken in 2004. For the first time ever, WFP has obtained a full list of beneficiary institutions and their numbers. Thus far, there is greater access to household and cooperative farms and an increased range of information available. The number of accessible counties is greater than before. These developments have had a positive global effect for other resident humanitarian agencies, some of which have already regained access to former operational areas that had been closed during the past few years. There is a more positive atmosphere for engagement, with encouraging indications for closer collaboration between the different agencies involved in the food and agriculture sectors. With the increased provision of emergency food relief, there is also a growing perception among donors that proportionate efforts need to be made in non-food sectors. However, this discussion should consider the need for sustained agricultural recovery to be firmly in place once the current WFP food relief operation is phased out.

WFP/FAO Rapid Food Security Assessment

A Rapid Food Security Assessment (RFSA) was conducted jointly by WFP and FAO in June 2008. This provided the opportunity to gauge the level of food insecurity quickly and over a wide area and to indicate priorities for food distribution and agricultural interventions, following a protracted period without systematic information. All provinces were surveyed: eight by WFP/FAO and two by U.S. non-governmental organizations (NGOs) at an earlier date.

FAO conducted visits to cooperative farms in South Hamgyong and South Hwanghae and had discussions at county level. WFP field teams elsewhere recorded field observations of agricultural areas and conducted household interviews with farming families. Predictably, farm machinery, tractors, trucks and harvesting and threshing equipment were very antiquated, obsolete and run down, compounded a serious lack of fuel, electricity, supplies and spare parts. There is much reliance on animal draught power for all but the heaviest ploughing and plot levelling tasks. However, fodder shortages mean that farms are unable to maintain more than one draught animal per five to six farming households. The shortage of quality animal feed is likewise responsible for the reduction in grain-consuming pigs and chickens, relative to the growing numbers of grazing animals, notably goats and rabbits. Nowhere were animals found to be numerous, and there appeared to be little explicit integration of livestock with cropping systems.

By far the most serious concern is the marked shortage of fertilizer. The annual loan of 350 000 tonnes normally received from the Republic of Korea was not available for the 2007/08 season. Typical allocations are now only 45 to 50 percent of those received during the last or previous agricultural seasons, which in turn invariably fall short of actual plant requirements. The dependence on high levels of fertilizer is due to the national need to maximize yields from the very limited amount of cultivable land.

Domestic supply of fertilizer is negligible and dependence on international donations, at best, precarious. Fertilizer prices have skyrocketed, recently rising further and faster than any other commodity. Forecasts suggest that this trend is unlikely to reverse or cease over the next five years. Farms are compensating by applying much larger quantities of 'self-sufficiency' and 'high-quality' local alternative fertilizer, usually compost made with peat or humus, crushed limestone and manure. Farmers and labourers from nearby towns are engaged in the very heavy

tasks of producing and applying large quantities of the locally made, alternative fertilizer. The practice is wasteful of natural resources, especially the use of peat (normally used by households as fuel), which near some farms was reported as having become seriously depleted. There is a need to apply whatever chemical fertilizer rationally, using systematic soil-testing facilities being developed under current FAO projects, as well as continuing longer-term restoration of soil fertility through increased dissemination of 'conservation agriculture' and use of organic manure, cover crops and crop rotations involving legumes.

Very severe food deficits were recorded in urban districts or those counties with a large non-farm population. This feature was most marked in the northern provinces, where former industrial or mining communities experience heavy levels of unemployment or underemployment and have little access to productive land. In these provinces, cooperative farm families who, during a reasonable harvest year are modestly food-secure, were experiencing dwindling household food stocks as they were obliged to share their produce with relatives in nearby towns.

The amount of cultivated sloping land observed in South Hamgyong and South Hwanghae appeared not to be excessive. In such areas, on some sloping land, replanting of trees was evident. However, in North Hamgyong and Ryanggang the extent of sloping land cultivation and the extreme angles on which farming was taking place were more starkly evident to field teams. Much of the encroachment onto the higher slopes appeared to be recent. These northern provinces are mountainous, and the very limited amount of level cultivable land has led to encroachment onto the fragile soils of the sloping lands, some with high gradients and only marginal potential. Such practices invariably encourage soil erosion, damage to watersheds, excessive runoff and consequent flooding of lowland areas. Agroforestry projects that address these issues are therefore to be encouraged.

Farmers expressed concern for early crops, given the cold and dry spells which had been variously experienced early in the season. Field observations, however, suggested a reasonable harvest outcome. The area under potato cultivation had expanded relative to wheat and barley, especially in colder parts, as farmers attempted to compensate for the poor main harvest of 2007 and temporarily ease the prevailing food shortages. Production figures reported an overall increase with a total harvest of 584 775 tonnes compared with 523 508 tonnes during the 2006/07 corresponding season – an increase of over 61 000 tonnes. These efforts underscore the importance of the early season crops and the need for expanding the area under double cropping.

FAO'S PROGRAMME IN THE DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA IN 2008

FAO received funding in 2007 from the Central Emergency Response Fund (CERF) of the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) for procuring seeds, fertilizer and plastic sheeting to assist the most seriously flood-affected provinces. These were used early in 2008 to enable farmers to plant spring crops under the double-cropping programme. Furthermore, in response to the poor 2007 harvest, serious food shortages and sharply escalating food prices, FAO secured further funding from CERF and from its own Technical Cooperation Programme (TCP) under the Initiative on Soaring Food Prices (ISFP) to provide much-needed agricultural inputs for the planting of 2008 winter and 2009 spring crops. A further proposal for funding under ISFP has been submitted to the European Commission (EC).

A major Swedish-funded programme of support to agricultural and horticultural production concluded in September 2008, with considerable achievements in the areas of training and capacity building, conservation agriculture, fruit production and soil testing. FAO coordination activities have received Swedish support over the past five years up to the end of this project. Machinery was provided for conservation agriculture, notably direct seeders, direct sowing machines, harvesters and tractors with spare parts. Two Ministry of Agriculture staff attended a conservation agriculture workshop in Rome with FAO supporting them for a further tour of technical institutions. In terms of fruit production, planting materials were provided for orchards, together with spraying equipment, shears and grafting knives. Four specialists from the National Fruit Agency undertook a study tour in China during March and April.

Laboratory equipment and supplies, refrigerators and air conditioning systems, as well as reagents were supplied to two soil testing stations in Mundok, South Pyongan, and Sinchon, South Hwanghae, recently established under the project. This permits soil testing, analysis and soil mapping in four provinces. In May and June, four technicians received soil laboratory training in Shijiazhang, China.

The emphasis on conservation agriculture is continuing with a Netherlands-funded project, which integrates spring potato production into the double-cropping system. The immediate priority during 2008 and 2009 is to build improved potato storage and germination facilities at 11 cooperative farms.

FAO has supported the capacity of the Ministry of Agriculture's veterinary services in dealing with any new outbreaks of both avian influenza (AI) and foot-and-mouth disease (FMD). The programme for prevention and control of AI is funded by the EC. A key component of the programme is the construction and equipping of a laboratory for influenza diagnosis at Jongju vaccine plant in North Pyongan province. Similarly, facilities at the Central Veterinary Station in Pyongyang are being upgraded to assist with diagnosis of FMD. A contingency planning exercise was led by three international veterinarians for FMD epidemiology/surveillance, and a table-top simulation exercise is planned. In each case, the newly upgraded facilities need to meet biosafety-level 2 (BSL-2) requirements. Five laboratory staff from Jongju vaccine plant and three from the Central Veterinary Station were therefore trained in China on the operation of BSL-2 laboratory security standards.

The pine caterpillar *Dendolimus spectabilis* is currently infesting some 200 000 hectares of forested areas occupied by the native *Pinus densiflora* trees. These forested tracts are important to watershed protection, especially those bordering the main western granary areas. FAO, in partnership with the Ministry of Lands and Environmental Protection (MoLEP), is implementing a set of measures designed to eradicate the caterpillar pest. These include the use of insecticide-impregnated tree banding, sex pheromones and biological control. FAO is providing equipment for a Forest Pest Management Centre being developed by MoLEP, as well as basic tools and bicycles for forestry workers in order to access the infested areas and implement the proposed measures.

Building on the experience on an earlier project supported by the Government of the Kingdom of Norway, FAO in 2009 will resume support to the fisheries sector. A project will rehabilitate and improve facilities for coastal fisheries and mariculture in Kangwon province along the West Sea. Some 40 beneficiary fishing cooperatives will be selected during the final quarter of 2008.

SUMMARY

Within the proposed project profiles prepared for 2009, there is an emphasis on diversity, to include projects from a range of specialties and encourage the involvement as partners of different ministries, research institutes and academies. Collaboration between agencies within the Government on individual projects is welcomed.

The approach taken reflects an appreciation of the varying resource endowments across the country. There is a clear imperative to develop higher potential agricultural areas, but also to offer projects that can improve prospects for the most food-insecure, vulnerable communities. Fisheries are therefore considered to allow development in coastal communities which have little prospect of improving their livelihoods through agriculture. Agroforestry is similarly appropriate for inland counties in mountainous regions.

It is intended to consolidate on the successes of earlier smaller-scale FAO pilot projects by disseminating technical innovations over a wider area for use at cooperative farm level. Activities with potential for expanding cultivable areas or increasing unit crop yields are therefore given priority. Aggregate production goals are not, however, being stressed to the exclusion of important consumption issues. Nutrition of women and children is considered through diversifying the range of available food products, improved food processing and preventing unnecessary spoilage.

With the prevailing food shortages and the scaling up of food relief activities, emergency considerations are once again highly prominent. Funding opportunities have arisen for the provision of emergency agricultural inputs. Complementary measures are however essential to secure the longer-term recovery of the agriculture sector. These range from basic preparedness to the structural development of farming systems that are both resilient and adaptable in the face of changing climatic and economic pressures.

PROPOSED PROJECT PROFILES[1]
AGRICULTURAL REHABILITATION AND RECOVERY PROGRAMME 2009

PROJECT PROFILE 1. Integrated Crop and Livestock Production

Theme	Food Security, Energy and Soil Fertility
Objective	Increase crop and livestock production through adopting an integrated programme
Targeted beneficiaries	15 cooperative farms
Implementing partner	Ministry of Agriculture
Project duration	January–December 2009
Funds requested	USD 800 000

Livestock numbers have been increasing over the past decade according to a strategy based on levels of feed availability on cooperative farms. The pattern has been to encourage the breeding of grazing animals and herbivores, notably goats and rabbits, whilst the numbers of pigs, which make heavy demands on feed, have correspondingly been reduced.

Pigs still remain highly valued animals and their production can be economically justified within a well-managed crop–livestock system, an essential feature being the use of pig manure for increasing soil fertility and thereby crop yields. Biogas production plants installed at the farm level will provide both high-quality compost (used successfully to increase early crop production during the 2007/08 season) and domestic heating energy for cooperative farm households.

Manure derived from pigs is a potential alternative to high-cost chemical fertilizer. One pig can produce annually 1.5 tonne of manure, containing 26.5 percent of organic matter, 10 to 15 kg of nitrogen, 21 percent of phosphorous and 9 kg of potassium. The objective is to build a pig-rearing unit, in which 200 to 500 pigs can be housed, on each of the beneficiary farms. Given its high value, production of pork meat can repay the outlay in feed several times over. Households may participate through retaining a breeding animal, with piglets then being fattened on the cooperative farm unit. There is an additional benefit of higher crop yields from the use of pig manure, which may be integrated as part of a crop rotation scheme utilizing a pilot area of 50 to 100 hectares on each farm.

The 15 cooperative farms will derive greatly increased income from the sale of such a high-value animal, as well as a dependable heating and manure supply with increased crop yields. The agriculture sector will benefit from an improved livestock production model. Increased consumption of animal protein is indicative of improved living standards, and those poorer communities including women and children previously unable to consider meat as a realistic dietary choice will enjoy better nutrition.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	500 000
Training	120 000
Project support/technical expertise	100 000
General operating expenses	80 000
Total	**800 000**

[1] The project profiles are presented in the order of priority as requested by the FAO National Coordinating Committee of the Democratic People's Republic of Korea.

PROJECT PROFILE 2. Enhanced Food Security through Double Cropping

Theme	Food Security and Nutrition
Objective	Increase crop production through double-cropping systems and improved soil fertility by application of conservation agriculture
Targeted beneficiaries	25 cooperative farms
Implementing partner	Ministry of Agriculture
Project duration	January–December 2009
Funds requested	USD 800 0000

Given the very limited arable land available for cereal production, the practice of double cropping is now established as a key strategy for improving food availability in the Democratic People's Republic of Korea. This allows an early harvest in June of wheat and barley along with potatoes, ahead of the main season staple crops, rice and maize, which follow from July to October. This early crop component in double cropping now contributes 10 to 15 percent to overall annual production. The harvest in June is of critical significance in alleviating the intense food shortages which develop with the depletion of the previous main harvest.

The Democratic People's Republic of Korea has relied in the past upon a highly intensive form of agriculture to maximize domestic food production. Over time, conventional tilling practices have depleted soil fertility, leading to a reduction in soil organic matter and NPK elements, with sloping lands rendered increasingly susceptible to topsoil erosion. Conservation agriculture, as an alternative, offers a more resilient and adaptable framework for expanding double cropping. Minimum or zero tillage practices are combined with restoring soil fertility through the use of cover crops and crop rotations involving legumes, crop residues, mulching and green manure. An immediate 50 percent reduction in fuel requirements can be achieved. Fertility levels of cropping areas are carefully monitored and applications of chemical fertilizer progressively reduced as intrinsic soil nutrient levels recover. FAO-supported pilot projects using these methods have recorded impressive yields. The objective is that wider dissemination of conservation agriculture will enable further expansion of the area under double cropping. Machinery, both consistent with the conservation agriculture approach and capable of significantly expanding the double cropping area, will be procured, including an appropriate mix of manual, oxen- and tractor-driven direct seeders and fuel-saving pedal-driven threshing equipment and harvesting machines. Chemical fertilizer will be used economically as indicated by soil fertility testing.

Direct beneficiaries will be cooperative farms, with increased supplies for normally seriously food-deficit urban and peri-urban populations, especially vulnerable groups most dependent upon Public Distribution System rations.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	480 000
Training	120 000
Project support/technical expertise	120 000
General operating expenses	80 000
Total	**800 000**

PROJECT PROFILE 3. Support to Small-scale Marine Fishing

Theme	Food Security and Nutrition
Objective	Construct anchored fishing vessels by two pilot fishery cooperatives for eventual use by wider fishing communities along the Korean West Sea Coast
Targeted beneficiaries	40 cooperatives with a total population of 6 000
Implementing partner	Ministry of Fisheries
Project duration	12 months
Funds requested	USD 630 000

Coastal communities are highly dependent for their livelihoods on fishing, given their reduced access to arable land. Some fishing cooperatives operate trawlers and a variety of medium- and smaller-size boats, many in need of maintenance, spare parts, fuel, nets and other equipment in good repair. In the Korean West Sea, continuous supplies of fish are available all year round, especially migratory species such as krill (small shrimp), launce, anchovy and bonito. The average depth is only 40 metres, and tidal patterns are conducive to small-scale fishing, by anchored fishing vessels using passive stationary fishing nets. Techniques are highly fuel-efficient; boats require only small-capacity engines and there is very minimal use of fuel. The engine is used only to power the vessel a short distance to and from the fishing grounds. When caught, fish is salted and fermented for the domestic market. The fermented krill is the most lucrative product as it is traditionally the favourite seafood that is used as a side dish and as an additive in the Korean *kimchi*.

The two pilot cooperatives would be supplied with construction materials for 40 anchored fishing vessels and 80 tidal nets. The boats which need to be constructed are 28 feet in length. Two cooperatives already have been identified that possess the skills and capacity to undertake boat-building and construction of nets with the materials provided, most of which can be obtained locally. The constructed vessels and nets would then be disseminated, together with operational techniques, to cooperatives along the Korean West Coast. Secondary beneficiaries would be those directly involved in processing, fermenting and distribution. There would be a widespread benefit to consumers, notably populations of coastal counties, which consist of about 40 percent children, 16 percent women and 8 percent elderly.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	520 000
Training	10 000
Project support/technical expertise	35 000
General operating expenses	65 000
Total	630 000

PROJECT PROFILE 4. Strengthening Vegetable Oil Production and Processing

Theme	Food Security and Nutrition
Objective	Improve and increase efficiency levels of oil production and processing by providing electrically powered expeller-pressed oil (screw) presses and provide income-generating opportunities from the production of oil, oil-cake and small-scale candle-making
Targeted beneficiaries	Cooperative farm families (households of approximately five persons each) on some 200 farms
Implementing partner	Ministry of Agriculture
Project duration	12 months
Funds requested	USD 220 000

Soybean is the most important legume element in rotation with cereals. In recent years, the emphasis on rotations to maintain soil fertility has led to a dramatic increase in soybean production. Soybeans have the largest protein content of all cultivated legumes; some varieties contain as much as 50 percent of high-quality protein. Soybean is the preferred dietary legume in the Democratic People's Republic of Korea from which a number of culinary products are derived. It is the main source of cooking oil. The seeds contain a large quantity of oil, ranging from 13 to 25 percent depending on the variety, which makes oil extraction both practical and inexpensive.

Oil is traditionally extracted using expeller-pressed oil (screw) presses at individual household and village levels. Households own small, locally manufactured units that are mainly mechanical hand-operated. However, the mechanical operation of these presses is less than efficient. Production losses are relatively high, with only 50 to 60 percent oil yields. An earlier small-scale Turkish-funded project supplied 27 farms with electrically powered expeller oil (screw) type presses, which increased oil yields to an estimated 80 to 85 percent. The project benefited 47 000 women and children. The aim is to replicate this successful experiment over a wider area. Some 200 cooperative farms (representing 100 000 households or 500 000 people) will be provided with this low-tech improved efficiency means of producing cooking oil from soybeans. The procured equipment will be supplemented with in-country training.

Increased oil surpluses would lead to higher incomes for cooperative farms, with labour savings from using improved technology. This is likely to act as a stimulus to further soybean production with improved soil fertility due to its increased use in crop rotations. Wider availability of oil will benefit those vulnerable groups, especially women and children, whose diets are deficient in energy and essential fat soluble vitamins.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	154 000
Training	14 000
Project support/technical expertise	30 000
General operating expenses	22 000
Total	**220 000**

PROJECT PROFILE 5. Integrated Forest and Natural Resources Management

Theme	Land and Environment
Objective	Establish county-level integrated forest management and watershed protection
Targeted beneficiaries	15 counties
Implementing partner	Ministry of Lands and Environmental Protection
Project duration	18 months
Funds requested	USD 785 000

Deforestation of uplands, whether for cultivation or fuel wood, leads to loss of ground cover and of stability with increased runoff and soil erosion, especially during the recurrent episodes of torrential rain which the Democratic People's Republic of Korea has been experiencing with increasing regularity. This has led to the now familiar pattern of heavy flooding of lowland farms with damage to crops and infrastructure and the silting of watercourses, including irrigation systems.

The Government policy is to encourage sustainable use of sloping land through agroforestry techniques, permitting farmers in upland areas to harvest both food and renewable energy supplies, whilst enabling regeneration of vegetation and long-term securing of watersheds. Cultivation is allowed to be carried out on previously encroached sloping land, while reforestation simultaneously works to prevent further soil degradation, with multipurpose utilization of the soil space.

The objective is to expand integrated watershed and natural resources management at county level by implementing a wide range of sustainable land management practices, previously developed from smaller-scale pilot projects supported by FAO. Demonstration plots will be established to introduce fuel wood plantations, agroforestry areas and soil erosion prevention and control, terracing and use of shrub contours. Irrigation facilities will be installed for tree nurseries, seeds, and saplings, with simple instruments for soil testing and measurement provided.

As the institutional framework level for supervision and coordination, county structures need to be reinforced and developed to handle a wide range of introduced technologies. An extension unit will be the centre for disseminating innovations and establishing the framework for participatory use of natural resources. Whilst the primary beneficiaries will be upland farmers, those in lowland areas will benefit due to increased asset protection and more controlled use of water resources, both potable and for irrigation.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	450 000
Training	160 000
Project support/technical expertise	130 000
General operating expenses	45 000
Total	785 000

PROJECT PROFILE 6. Preparedness Planning

Theme	Disaster Preparedness and Mitigation
Objective	Ensure standing capacity in the agricultural sector to support a national response in the event of a major flood/typhoon
Targeted beneficiaries	25 000 of the worst-affected families
Implementing partner	WFP, UNICEF, European Union Project Support units, Ministry of Agriculture, Ministry of Food Administration and National Coordinating Committee for WFP and FAO
Project duration	12 months
Funds requested	USD 360 000

The floods which occurred in August and September of 2007 underlined the high threat level to agriculture and food supplies posed by natural disasters. Most rainfall in the Democratic People's Republic of Korea occurs in the summer months, and recent trends show an increasing propensity for rainfall to be heavily concentrated at peak times. As in 2007, this can be devastating to crops and farm infrastructure. Typhoons in recent years have caused heavy damage to housing, roads, bridges and communication systems. The unstable nature of slopes due to unregulated deforestation and cultivation renders many localities, especially in highland areas, prone to mudslides during periods of intense rainfall.

The high level of cooperation between government and international agencies in response to the flooding together with the renewed awareness of the threats posed by natural disasters in the Democratic People's Republic of Korea have encouraged a well-coordinated effort in preparedness planning, involving United Nations agencies, the International Federation of Red Cross and Red Crescent Societies and international NGOs. A full interagency exercise beginning in May 2008 has produced a detailed and comprehensive Preparedness and Response Plan, designed to assist a directly affected population of 100 000, with a further one million indirectly affected individuals in ten counties. Within this framework, FAO aims to protect communities from impending flood threats by pre-positioning one million sacks to fill with sand for safeguarding reservoirs, dams and irrigation systems, or for use in evacuating seed stores and granaries to safer locations; tools (shovels and axes) and wheelbarrows will be provided for these tasks. For use in the early recovery stage, further tools and equipment will be provided, notably forks, hoes, submersible pumps and watering cans to cooperative farms, and nets and other basic fishing equipment to coastal communities.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	300 000
Training	
Project support/technical expertise	30 000
General operating expenses	30 000
Total	360 000

PROJECT PROFILE 7. Expanding Dairy Production

Theme	Food Security and Nutrition
Objective	Strengthen the capacity of dairy processing to promote improved diet and income-generation for farmers
Targeted beneficiaries	Food processing plants and cooperative farms
Implementing partner	Ministry of Agriculture
Project duration	12 months
Funds requested	USD 300 000

Whilst there has been some technical assistance to dairy farms, a major constraint to the expansion of the dairy sector is the unavailability of reliable manufacture of starter culture for yoghurt and rennet for cheese-making. Milk processing plants on local farms use locally made starters with low activation to produce yoghurt. These are frequently found to be unreliable and of low quality, hence 35 to 40 percent of milk produced in the hot summer months, which might otherwise be productively used, is wasted. *Lactobacillus* spp., the main component for local starter culture, are variable in composition and difficult to maintain any consistent standard of viscosity and flavour for yoghurt. There is no locally produced rennet, which similarly limits any progress in cheese-making. Abomascum from calves or goats can be used for rennet; however, the numbers of cattle are very limited. Although the numbers of goats have been steadily increasing, they are numerous mostly in more remote uplands and are slaughtered at peak times in winter when feed is short, making a steady supply of rennet throughout the year impossible. The absence of an appropriate cheese-coagulating enzyme prevents farmers from using a further outlet for preserving milk and developing a key income source.

The immediate objective is to provide stable and reliable rennet and starter culture substances to revitalize the dairy sector. Concurrently, work would begin on developing a continuous supply of local manufacture with the use of specialist equipment. Beneficiary institutions will be food processing plants and cooperative farms. There is a widespread potential benefit to farmers through productively using a far greater volume of milk for income purposes, and to consumers by improving nutrition through greater availability of protein, fat, and fat soluble vitamins, especially vitamin A, which are all very deficient in the diets of vulnerable groups (children and women), with elevated requirements.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	200 000
Training	20 000
Project support/technical expertise	50 000
General operating expenses	30 000
Total	**300 000**

PROJECT PROFILE 8. Improved Quality of Animal Feed Using Selected Additives.

Theme	Food Security and Nutrition
Objective	Increase meat production through production of improved local animal feed
Targeted beneficiaries	Cooperative farms
Implementing partner	Ministry of Agriculture
Project duration	January–December 2009
Funds requested	USD 500 0000

Livestock production has increased over the past decade based on a strategy which economizes on the use of expensive animal feed. Cattle are increasingly necessary for providing plough and traction animals on farms due to declining mechanization and growing fuel shortages. Their numbers are however seriously limited by fodder supply. Cooperative farms have increasingly bred goats to make use of summer pasture, yet silage and fodder shortage leads to heavy off-take, especially of males during winter. Pork is the preferred meat in Korea, yet pig numbers are being reduced due to their high relative feed requirements. Availability of animal manure is restricted. The health and nutrition of vulnerable groups, especially women and children, are seriously affected by very low levels of dietary animal protein.

Soybean and maize, which feature elsewhere as animal feed, are prioritized for human consumption. Green fodder cultivation is severely limited in the Democratic People's Republic of Korea due to the ever-increasing need to expand the areas under cereal cultivation. Animal feed preparations rely heavily on the use of post-harvest crop residues that are very high in lignin, which limits digestibility and nutrient availability.

The objective is to boost animal production through supplementing crop residues with additives, providing amino acids and improved digestibility. Using this feed, it is estimated that increases of 10 to 20 percent in meat production may be achieved. A production system for additives requires appropriate start up technology, materials, equipment and training. Beneficiaries will be cooperative farmers whose livestock productivity will increase and consumers whose nutritional status will be enhanced through greater dietary availability of meat.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	350 000
Training	40 000
Project support/technical expertise	60 000
General operating expenses	50 000
Total	**500 000**

PROJECT PROFILE 9. Support to Improved Vegetable Seed Production

Theme	Food and Nutrition
Objective	Improved seed production of spring and autumn vegetables, especially Chinese cabbage
Targeted beneficiaries	100 cooperative farms comprising 50 000 households of about 250 000 beneficiaries, of which 40 percent are children, 16 percent women and 8 percent elderly. Secondary beneficiaries are up to one million consumers in urban and peri-urban areas
Implementing partner	Pyongyang Vegetable Research Institute
Project duration	12 months
Funds requested	USD 800 000

Cabbage seed production will be the initial focus, given its key role in the traditional diet and local economy of the Democratic People's Republic of Korea. Cabbage is a particularly important food source during winter as the main vegetable constituent of *kimchi*, a long-lasting pickle, which is especially valued during the harsh winter, when supplies of other foods, notably cereals, are scarce. The area under cultivation and production of cabbage on cooperative farms is therefore frequently much higher compared to other vegetables.

The immediate aim is to improve seed multiplication of Chinese cabbage, thereby making high-quality seeds more widely available, repeatedly over successive seasons. Improved varieties may increase yields of Chinese cabbage by up to 40 percent. Existing seed multiplication facilities have only poor-quality equipment and machinery and depend on the use of traditional techniques, while serious constraints limit their ability to produce high-yielding varieties that are resilient to pests and diseases and adaptable to different agro-ecological conditions found within the country.

Materials for the construction of specialist net housing, covering three hectares of the Pyongyang Vegetable Research Institute, are required. These dedicated-purpose greenhouses will need complete new irrigation systems with submersible pumps, as well as roof insulating fibre for use in winter. Each stage of the production process needs to be upgraded with improvements in screening to guarantee seed quality (purity and uniformity) harvesting and packing techniques of vegetable seeds. Technical workshops will be held to update specialists on seed stock characteristics and multiplication, with *in situ* practical training on demonstration plots. Training activities will be supported by the production of written materials. There will be an Information, Education and Communication (IEC) component with practical instructions on vegetable seed cultivation disseminated to work units on cooperative farms. The project will be the foundation for improving the national vegetable seed multiplication system.

FINANCIAL SUMMARY	
Budget Item	**USD**
Equipment and inputs	570 000
Training	70 000
Project support/technical expertise	100 000
General operating expenses	80 000
Total	820 000

PROJECT PROFILE 10. Emergency support to spring crop production

Theme	Agriculture/Livelihoods
Objective	Increase production of the early crops to be planted in spring 2009 by providing urea fertilizer, thereby stabilizing food prices through increased availability
Targeted beneficiaries	30 cooperative farms in the 'cereal bowl' provinces
Implementing partner	Ministry of Agriculture
Project duration	January–July 2009
Funds requested	USD 800 000

Prospects for the main season are in doubt due to the serious fertilizer shortage, which has prevailed during the season. Although the Government has historically provided fertilizer to farmers in exchange for a quota of the harvest, it is increasingly unable to make any provision with the underlying economic problems. Global prices for fertilizer have increased further and faster than any other major commodity. The country therefore has no prospect of purchasing fertilizer on international markets. Fertilizer production in-country is very limited. On average, farmers have received only half of last years allocation, which is nearly always set significantly below actual needs. This represents a very serious shortfall. Farmers have compensated by applying local and improved compost. The required application rates are much larger than those for chemical fertilizer. Despite these best efforts, yields are still likely to be seriously reduced. Moreover, the practice is not sustainable, as evidenced especially by the depletion of local peat resources, which many households rely on for domestic heating.

The objective is to increase production of the early crops to be planted in spring 2009 by providing urea fertilizer, thereby stabilizing food prices through increased availability as well as promoting livelihood recovery in the cooperative farm sector. The urea fertilizer will be distributed to cooperative farms in the 'cereal bowl' region in the south and west, which transfer food to counties experiencing serious food shortages.

FINANCIAL SUMMARY	
Budget Item	**USD**
Inputs	650 000
Project support/technical expertise	90 000
General operating expenses	60 000
Total	800 000

PROJECT PROFILE 11. Support to Agriculture and Food Security Coordination Activities

Theme	Programme Coordination
Objective	Provide and maintain linkages between government ministries, donors and partners, and maintain a focal point for coordination with other agencies and NGOs in order to support the agricultural rehabilitation and recovery programme of the Democratic People's Republic of Korea in 2008 and 2009, thereby contributing to poverty alleviation and increased food security
Targeted beneficiaries	Implementation of this project will ultimately support the most vulnerable coastal fishers, livestock producers and cooperative farms. The project will also coordinate and facilitate information-sharing among a wide range of stakeholders including UN agencies, ministries and non-governmental agencies active in or operating agriculture and food security projects
Project duration	November 2008 – October 2009
Funds requested	USD 400 000

The FAO Programme Coordination office in Pyongyang is headed by the international Programme Coordinator. A national Assistant FAO Representative based in Pyongyang is part of the FAO Representation structure. The Programme Coordination office is institutionally linked to the Ministry of Agriculture in order to benefit from its technical and operational setting. The Programme Coordinator works closely with major partners involved in the agriculture and food security recovery initiative such as UN agencies, bilateral cooperation agencies, international NGOs, farming/fishing cooperatives and Government entities.

The Programme Coordinator is involved in strengthening contacts with/amongst the current and potential stakeholders operating in agricultural/livelihoods rehabilitation and recovery initiatives in the country, collecting and centralizing related data and information requirements and making it accessible to stakeholders. Additional activities of involvement include monitoring the food security situation in the affected areas, providing technical support to humanitarian/development partners in agriculture- and fishing-related livelihoods-recovery initiatives, as well as in the formulation and implementation of related recovery projects, identifying and facilitating the implementation of localized assessments/studies, coordinating and supervising implementation of FAO donor-funded emergency and recovery projects, among other important functions.

Funding for this essential position ended earlier this year. In the interim, and for a limited period of time and based on reimbursement of the fund, it is being supported by FAO's Special Fund for Emergency and Rehabilitation Response.

FINANCIAL SUMMARY	
Budget Item	**USD**
Coordination	300 000
Training	40 000
Project support/technical expertise	60 000
Total	400 000

ANNEX. SUMMARY OF ONGOING AND RECENTLY COMPLETED PROJECTS

1. Ongoing Projects

TCP/DRK/3202: Emergency assistance to reduce the spread and impact of *Dendrolimus spectabilis* infesting native *Pinus densiflora* (USD 479 000, May 2008–April 2010)

The objective of this FAO-funded project is to contain the present pest outbreak, increase capacity building, including the ability to manage and prevent future outbreaks, improve facilities in a refurbished forest health centre and a develop a strategy for the longer-term management of forests.

TCP/DRK/3203: Input supply to vulnerable populations under the Initiative on Soaring Food Prices (ISFP) (USD 500 000, July 2008–June 2009)

The objective of this FAO-funded project is to improve the production of the main winter crops during the 2008 cropping season by providing urea fertilizer to selected farming cooperatives.

TCP/DRK/3104: Emergency assistance for early detection, response and control of foot-and-mouth disease outbreaks (USD 430 000, May 2007–October 2008)

The main objective of this FAO-funded project is to strengthen the capacity of the veterinary services to effectively contain the current foot-and-mouth disease (FMD) outbreak and to build the Central Veterinary Station's laboratory capacity to support the above through early detection of FMD and for verification of the success of the control measures.

OSRO/DRK/703/EC: Capacity building for the prevention and control of avian influenza (USD 750 000, January–December 2008)

The main objective of this EC-funded project is to build the capacity of the agriculture and health sectors in the accurate diagnosis, control and prevention of highly pathogenic avian influenza (HPAI), in an effort to control the emergence of potential pandemic influenza virus strain, thereby reducing the risk for neighbouring countries and the world at large.

OSRO/DRK/801/NET: Integrating potato production into the conservation agriculture approach, under double cropping (USD 788 650, June 2008–September 2009)

The overall objective of this Netherlands-funded project is to strengthen the technical capacity in the Democratic People's Republic of Korea to produce high-yielding virus-free potatoes in conjunction with the consolidation of the no-till conservation agriculture approach, thus increasing agricultural productivity and assisting in sustainably improving food security.

OSRO/DRK/803/CHA: Support to barley and vegetable crop production (USD 599 869, October 2008–June 2009)

The overall objective of this Central Emergency Response Fund (CERF) project funded by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) is to support farmers in providing a secure and dependable supply of barley and vegetables for the improvement of diets of vulnerable groups, especially those living in urban communities.

2. Projects Completed in 2008

OSRO/DRK/603/SWE: Support to agricultural and horticultural production and to the coordination of emergency and rehabilitation interventions in agriculture and food security in 2006–2008 (USD 2 334 430, October 2006–September 2008)

The general objective of this Swedish-funded project was to increase agricultural and horticultural productivity and produce a sustainable improvement in food security. The immediate objective was to assist the Government in its efforts to increase food production with the supply of farm machinery and horticultural tools for the 2007 and 2008 spring and summer planting seasons, coupled with the provision of soil-testing laboratory equipment, including in-country training for a further expansion of conservation agriculture and horticulture and study tours abroad. The project provided for the needs of approximately 200 targeted cooperative farms (about 100 000 households). Among the beneficiaries were some 150 000 women and 180 000 children (about 60 percent of the beneficiaries).

OSRO/DRK/704/CHA: Rapid restoration of food crop production and food availability (USD 600 000, October 2007–January 2008).

The objective of this CERF project was to provide an adequate quantity of inputs for prompt resumption of autumn/winter and spring cropping to 200 cooperative farms in five provinces affected by the 2007 floods, incurring infrastructural damage and loss of standing crops.

3. Projects Completed in 2007

OSRO/DRK/701/CHA: Support to summer crops 2007 (USD 700 000, April–December 2007)

The objective of this CERF project was to improve crop production on 200 targeted cooperative farms, comprising 100 000 households, during the 2007 cropping season by providing urea fertilizer to cooperative farms in the ‘cereal bowl’ provinces. This complemented projects aimed at promoting conservation agriculture, already demonstrating crop yield increases, reduced fuel use and labour requirements. A total of 1 600 tonnes of urea (46-0-0) fertilizer was delivered by early-July and immediately used on paddy and maize.

OSRO/DRK/504/NOR: Emergency assistance for the control and prevention of avian influenza (USD 193 150, January 2006–April 2007)

The primary objective of this Norwegian-funded project was to support efforts by the Veterinary authorities of the Ministry of Agriculture to prevent the reintroduction and establishment of avian influenza in the country by ensuring that the emergency preparedness plans are fully underpinned by a necessary surveillance programme and diagnostic laboratory facilities and technical expertise.

OSRO/DRK/601/MUL (NZE): Support to urban school garden activities (USD 18 985, February 2006–April 2007)

The main objective of this New Zealand-funded project was to increase the exposure of urban children to gardening activities through active learning and the introduction of basic horticultural elements and nutritional knowledge; provide urban children with practical experience in vegetable

production, without their being involved in the labour aspect; and improve children's knowledge of good nutritional practices.

OSRO/DRK/602/TUR: Support to oil crop production and processing (USD 20 000, August 2006–February 2007)

The main objectives of this Turkish-funded project were to increase efficiency levels by providing electrically powered expeller-pressed oil (screw) presses and create income-generating opportunities from the production of oil, oil-cake and small-scale candle-making.

TCP/DRK/3006: Emergency assistance for the control and prevention of avian influenza (amount USD 218 000, September 2005–February 2007)

The primary objective of this FAO-funded project was to support efforts of the Veterinary and Anti-Epidemic Department of the Ministry of Agriculture to prevent the reintroduction and establishment of avian influenza in the Democratic People's Republic of Korea by ensuring that emergency preparedness plans are fully underpinned by a necessary surveillance programme, diagnostic laboratory facilities and technical expertise. The project also provided technical assistance to improve vaccine production quality-control and vaccination strategy in the country.