

**United Nations Development Programme (UNDP)**

**Democratic People´s Republic of Korea (DPRK)**

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**Project Evaluation**

**“Improved Seed Production for Sustainable Agriculture”**

 **and**

**“Reduction of Post-Harvest Losses for Food Security”**

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# Executive Summary

The United Nations Development Programme (UNDP) in Pyongyang commissioned in late March 2014 the evaluation of two agriculture sector projects that are since 2011 being implemented in the Democratic Peoples´ Republic of Korea (DPRK). Both of these projects are financed through UNDP core funding and both are being executed by the Food and Agriculture Organization of the United Nations (FAO).

This evaluation report contains in four sections background information, details of the evaluation methodology, evaluation findings regarding relevance, effectiveness, efficiency, impact, sustainability and management, as well as lessons learned, conclusions and recommendations.

The “Improved Seed Production for Sustainable Agriculture” project aims to strengthen food security in DPRK through support for quality seed multiplication, while the second project “Reduction of Post-Harvest Losses for Food Security” intends to importantly reduce food losses by introducing better post harvest management techniques and technologies.

The evaluation is intended to do a stocktaking of the projects, to assess the so far achieved progress towards realizing the stated outputs and to analyze, in close consultation with all the concerned stakeholders, the effectiveness of the interventions. Based on this analysis, the evaluation is expected to provide the DPRK Government, the resource partner (UNDP), and the executing partner (FAO) with recommendations regarding options on project extension and/or substantive revisions for ensuring sustainable development, including any need for additional assistance and activities of the project prior to its completion.

Conducted in line with UNDP guidelines, the evaluation combined context, outcome and process evaluation tools to provide rich and practical information. The following techniques and approaches were used for the gathering, verification and analysis of the evaluation data:

* a thorough review of all available documents, including annual and semi-annual project reports, minutes from Project Board meetings, work plans, project documents, mission reports, implementing partner agreements, and other materials related to project activities,
* individual semi-structured interviews with a total of 16 key stakeholder representatives from the DPRK Ministry of Agriculture (MoA), the National Coordinating Committee (NCC) under the Ministry of Foreign Affairs, FAO and UNDP,
* direct observations during visits to six UNDP selected project sites, including two of the three beneficiary seed cooperative farms under the “Improved Seed Production for Sustainable Agriculture” project and four out of totally six farms directly benefitting from the “Reduction of Post-Harvest Losses for Food Security” project,
* Focus group discussions with beneficiary representatives at the visited Maekjon and Unpa seed farms as well as Pyongam, Pyongam, Soho and Jangsuwon cooperative farms.

The evaluation is limited to the assessment of the projects´ performance during the period from March 2011 (project start) to March/April 2014, including project objectives, inputs, activities and the extent to which anticipated outputs were produced. Since the projects´ implementation period has been extended until 31 October 2014 numerous particularly important activities are yet to be carried out during that time. Outputs achieved at this point are therefore only partial. Another limiting factor for the evaluation was the availability of sufficiently detailed, reliable and independently verifiable data, including production and productivity related statistics.

Evaluation findings show that both projects progressed in general satisfactorily towards the delivery of the planned outputs despite the recorded delays during start-up and parts of 2013, when financial transaction problems caused certain activities to be put temporarily on hold. It is expected that the interventions will contribute to improvements in two key areas influencing food security within DPRK, provided critically important challenges are addressed during the rest of the implementation period,.

The “Improved Seed Production for Sustainable Agriculture” project concentrated its support to the seed sector in DPRK via farms that produce seed of both, staple food and vegetable crops. Project outputs are a combination of capacity building efforts and the introduction of improved equipments, which are expected to result in quantitative as well as qualitative advances in the seed production. The delivery of outputs is ongoing. Full project benefits will therefore only be realized during the current season.

The so far achieved, preliminary average increase in seed production has been estimated at 20-25%. Preliminary MoA records of qualitative improvements indicate that the percentage of seed passing international quality standards increased from 13 to 20%.

Another way of increasing the amount of available food lies in the reduction of production losses. In DPRK current post harvest losses (PHL) are high, which therefore offers potential for rapid gains.

The success of the Post Harvest initiative by project end depends on the extent to which post harvest losses are reduced, but even more importantly, on how well it will have demonstrated the most cost-effective methods of reducing these losses. Thanks to the establishment of comprehensive baseline data, the project will during the upcoming 2014 cropping season be having a first-time opportunity to clearly and accurately measure the achieved post harvest loss reductions for each step in the harvesting process of every crop on all six demonstration farms. The stated aim is an overall reduction of losses by some 50% from the recorded pre-intervention total loss levels of 15.56% in rice, 16.65% in maize and 16.35% in wheat and barley. Improved infrastructures and equipments, including threshing yards, threshers, harvesters and two complete rice milling plants supplied through the project, are expected to play a particularly important role for reaching those goals. Based on preliminary figures recorded at one of the six demonstration farms, the envisaged 50% reduction of post-harvest losses to around 7.5% seems feasible.

A total of 6,804 cooperative farmers are expected to directly benefit from the achieved results under the Post Harvest project. Primary cooperative farmer beneficiaries on the seed farms number 3,612.

Challenges are mainly related to the projects’ capacity to generate the necessary data for measuring detailed progress towards lower post-harvest losses as well as increased availability and use of improved seed. This area requires significant additional attention, along with the need to urgently update the sustainability strategy. Operational recommendations for the remaining implementation period therefore include a proposal to boost the projects´ ability to carefully measure and document field results in order to ensure that firm statements with regard to the viability of the piloted technologies and management practices, as well as their suitability in different environments, can be made prior to the project end. A very intense collaboration with the MoA, PAC, the county authorities and management teams of beneficiary cooperative farms will be essential in the process.

Another, in parallel implemented, UNDP/FAO “Strengthening Capacity for the Improvement of Food and Agriculture Information System (Agricultural Databank)” initiative was supposed to strengthen the availability of baseline information and specifically assess / monitor post harvest losses on the demonstration and neighboring farms. The early closure of this Agricultural Databank initiative in 2013 had a negative effect on the other projects´ capacity to access such key data. In view of this and given the intensity of additionally required PHL assessment efforts ahead, it is recommended that the Project Board considers re-allocating some of the remaining budgetary resources for temporary external project support by a qualified technical specialist.

The evaluation also recommends further, well-targeted investments for the development of the seed sector and the reduction of post-harvest losses in DPRK. They should closely build on the experiences gained, seek to consolidate achievements and focus particularly on the up-scaling of proven results from the current demonstration cooperatives.

One particular focus in future seed sector programming would need to be on further seed quality improvements to fully reach international quality standards. It is recommended that potential future project phases or projects in support of the seed sector furthermore consider including the testing of high-cold-tolerant winter wheat varieties (such as those grown under similar conditions in China), as they could help revitalize the country´s double cropping programme. Other double cropping system related benefits could potentially be obtained through the introduction of short duration, photo insensitive and cold tolerant hybrid varieties of maize, which could be used in combination with wheat and barley. Programming support to strengthen breeder seed production and to make reasonable priced hybrid rice and hybrid vegetable seed of superior cultivars available in larger quantities are seen as additional priorities.

In supporting further post-harvest related programming additional benefits are for example possible through an even wider use of threshing -cum- seed drying floors, combined harvesters, mobile threshers, maize shellers and improved crop storage, whereby the sustainability of the adoption of technological innovations is primarily dependent upon their profitability in the local setting.

# Section 4:

# Lessons Learned, Conclusions And Recommendations

## 4.1. Lessons Learned

The remaining implementation period of the two projects is seen as particularly important for lesson learning. The following list of lessons learned is therefore only meant as an initial starting point for these efforts. Given the pilot character of the evaluated interventions, additional efforts will be required during the following six months to adequately capture lessons learned in a comprehensive manner.

* The implementation of the project activities needed substantially more time than anticipated, this in part due to the DPRK specific circumstances regarding procurement, including the difficulties caused by constrained transfers of funds into the country.
* Project cycles should be of sufficient duration to provide enough time for building a solid base that will allow projects to work successfully with low resource communities. A longer term focus of seed and post harvest programming was found to increase the likelihood of sustainable results under the prevailing conditions in DPRK.
* Best practices training should at the same time be supported by matching appropriate infrastructure development and technology improvements. Matching the facilities (cost, size, scope) to local needs and management capabilities is essential, as is the delivery of practical training to ensure that the infrastructure is properly utilized, managed and maintained.
* Given the prevailing conditions at the post harvest project demonstration cooperatives, higher than initially anticipated investments in improved machinery and equipments were needed. This meant that the originally planned budget level for this component was found to have been somewhat too low. In the initial budget planning there should have furthermore been some additional room for other unspecified expenditures for expendables and non-expendables, including for a small number of pumps or small quantities of fertilizer and imported seed.
* Avoid over-building – large facilities are very difficult to manage and can be too costly to be profitable. Strengthening of support services (local post harvest equipment suppliers, repair services, engineers) is an important element for the success of project activities.

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* Improved practices were more easily adopted if they fit well into an existing value chain (representing small steps of improvement rather than requiring huge changes).
* Training of master trainers proved to be an efficient approach under the prevailing conditions in DPRK.

## 4.2. Conclusions

Well designed and executed development assistance in support of improved seed and post harvest management has the potential to make a very significant difference in the quest towards achieving sustainable food and nutrition security for the people of the Democratic People´s Republic of Korea.

The country´s national food balance sheet indicates that the domestic food supply is 340,000 mt below the anticipated demand during the 2013/2014 marketing year. Given an estimated domestic staple food production of 5.04 million mt, the deficit is important, but nevertheless not at a level that would make it impossible to reach self-sufficiency. Reaching the national self-sufficiency goal in the DPRK is however contingent to productivity increases as the available cropping area can´t be expanded much further.

Better quality seed of improved varieties, made available in sufficient quantities, allows cooperative farmers to produce on the same surface significantly increased amounts of staple food crops with a similar level of inputs. Innovation in seed breeding and multiplication is therefore a clear sectoral priority in DPRK, along with better farming techniques as well as policies to boost double cropping and improvements in potato and soybean farming.

The “Improved Seed Production for Sustainable Agriculture” project concentrated its support to the seed sector in DPRK via three seed farms that produce seed of both, staple food and vegetable crops. Project outputs are a combination of capacity building efforts and the introduction of improved equipments, which are expected to result in quantitative as well as qualitative advances of the seed production. The delivery of outputs is ongoing. Full project benefits will therefore only be realized during the current season.

Another way of increasing the amount of available food lies in the reduction of production losses. In DPRK current post harvest losses are on average well above 15%, which is high and offers therefore potential for rapid gains. Preliminary figures, recorded on one of the six demonstration farms benefiting from the evaluated “Reduction of Post Harvest Losses for Food Security” project, show that a 50% reduction of such losses to around 7.5% is clearly within reach.

The success of the Post Harvest initiative by project end depends on the extent to which post harvest losses are reduced, but even more importantly, on how well it will have demonstrated the most cost-effective methods of reducing these losses. Much of the work to reach this goal is still ahead, as related key project activities are yet to be fully implemented. The remaining time until the project end date (an extension until 31 October 2014 has been granted during the last PB meeting) is therefore crucially important.

Evaluation findings show that both projects progressed in general satisfactorily towards the delivery of the planned outputs despite the recorded delays during start-up and parts of 2013, when financial transaction problems forced the project to put certain activities temporarily on hold. Challenges, in part caused by weaknesses in project design and the limited availability of data, are mainly related to monitoring and reporting. This area requires significant additional attention during the remaining implementation period, along with the need to urgently update the sustainability strategy.

## 4.3. Recommendations

## 4.3.1. Operational Recommendations For The Remaining Implementation Period

* The overall success of the two evaluated projects depends on the extent to which post harvest losses are reduced and seed production is improved, but even more importantly, on how well the interventions will have demonstrated the most cost-effective methods for reducing these losses and strengthening seed management. In order to do so, the projects´ ability to carefully measure and document field results and achieved improvements is essential, as, based on these field results, potential adjustments need to be made, which must then be tested again. This particular component of the overall project implementation process requires significant strengthening during the remaining project duration, as substantial amounts of additional data will need to be collected and processed.
* It is therefore recommended that adequate additional efforts in data collection, recording / processing of field results and related reporting are initiated soonest possible, in order to ensure that firm statements with regard to the viability of the piloted technologies and management practices, as well as their suitability in different environments, can be made prior to the project end. A very intense collaboration with the MoA, PAC, the county authorities and management teams of beneficiary cooperative farms will be essential in the process.
* Another, in parallel implemented, UNDP/FAO “Strengthening Capacity for the Improvement of Food and Agriculture Information System (Agricultural Databank)” initiative was supposed to provide inputs on baseline information and assess / monitor post harvest loss (PHL) on the demonstration and neighboring farms. The early closure of this Agricultural Databank initiative in 2013 certainly had a negative effect on the other projects´ current capacity to generate, analyze and disseminate key productivity, production and PHL data. In view of this and given the intensity of additionally required PHL assessment efforts ahead, it is recommended that the PB considers re-allocating some of the remaining budgetary resources for temporary external project support by a qualified expert in this specific domain. If approved in principal, detailed planning of such external support will be of great importance, as the timing of expected contributions would need to be carefully aligned with the already scheduled follow-up field survey that will compare the 2014 season post-harvest losses on the six demonstration farms with the earlier established baseline data.
* Much of that already scheduled follow-up survey work will in fact be done rather late for being published prior to 31 October 2014. The possibility of having certain, limited activities still taking place after the current project end date should therefore not be fully excluded. A project phasing down period could be defined for this purpose.
* Findings from the upcoming comparative analysis of the on the six demonstration farms introduced measures for improved post harvest management and resulting recommendations on reducing PHL on farms in DPRK should be compiled, published (in the form of extension materials in Korean language), and made available to county officers and cooperative farms. The translation of other by the two projects produced English language training material and handouts into Korean language should be considered.
* Given the limited remaining duration of the projects, the updating of the sustainability strategy should be undertaken as early as possible.
* As part of this strategy authorities should continue to train farmers in post-harvest practices by building this into their established extension programmes.
* The project should consider procuring of a limited additional stock of essential spare parts for all imported project equipments. These spare parts should then be centrally stored by the Agricultural Mechanization Department in the MoA, from where they could be rapidly delivered to the beneficiary cooperatives in case of need. Ideally, the Agricultural Mechanization Department in the MoA would also
* put system in place that ensures a continued replacement of used spare part stocks,
* organize continued refresher training for the engineers that are in charge of maintaining respective equipments, and
* oversee the proper updating of maintenance log sheets in each beneficiary farm.

## 4.3.2. Recommendations In Relation To Potential Additional Assistance For Future Seed and Post Harvest Sector Programming

* Further, well targeted investments for the development of the seed sector and the reduction of post harvest losses in DPRK are recommended. They should closely build on the experiences gained through the two evaluated projects, seek to consolidate achievements in the seed and PHL sectors and focus particularly on the up-scaling of proven results from the current demonstration cooperatives. A careful balance of efforts to strengthen local capacities, including farm management skills and awareness of modern agricultural practices, along with a matching level of cost-effective technology and infrastructure improvements that result in sustainable, locally adapted solutions for enhanced efficiency and productivity of rural production systems have the greatest potential of improving food security in DPRK.
* One particular focus in future seed sector programming would need to be on further seed quality improvements to fully reach international quality standards. It is recommended that potential future project phases or projects in support of the seed sector furthermore consider including the testing of high-cold-tolerant winter wheat varieties (such as those grown under similar conditions in China), as they could help revitalize the country´s double cropping programme. Other double cropping system related benefits could potentially be obtained through the introduction of short duration, photo insensitive and cold tolerant hybrid varieties of maize, which could be used in combination with wheat and barley. Programming support to strengthen breeder seed production and to make reasonable priced hybrid rice and hybrid vegetable seed of superior cultivars available in larger quantities are seen as other priorities as these could have a very high multiplier and associated knock-on effects.
* In supporting further post harvest related programming substantial additional benefits are for example possible through an even wider use of threshing -cum- seed drying floors, combined harvesters, mobile threshers, maize shellers and improved crop storage, whereby the sustainability of the adoption of technological innovations is primarily dependent upon their profitability in the local setting. A broader targeting from cooperative to county or province level could be considered. Commonly used local standards (for example with regards to wheel sizes or engine tolerance against fuel contamination) should, if possible, be given preference when selecting imported equipments to be procured under potential future project phases.
* Empowering local cooperative farms, work team leaders and cooperative farmers through capacity building also improves the chances of sustainability. Accompanying administrative measures and incentives that encourage cooperative farmers to take greater responsibility for their crops (including after harvest) should, in view of likely resulting additional efficiency gains, be considered when planning potential additional project phases.
* It is critical to foresee adequate financial and human resources to ensure effective and quality monitoring and evaluation at the planning stage of potential future projects or project phases. The resources for monitoring and evaluation should be considered within the overall costs of delivering the agreed results and not as additional costs. While it is important to plan for monitoring and evaluation together, resources for each function should be separate. In practice, a project should have two separate budget lines for its monitoring and evaluation agreed in advance among partners.
* The “Beneficiary Results Assessment”[[1]](#footnote-1) methodology has during the past several years been increasingly introduced to strengthen results-based monitoring and reporting of project achievements. Under the prevailing conditions in DPRK it would have definitely been of great value also for the two evaluated projects. Planners of potential future project phases should therefore consider using the tool in DPRK. Specific attention should furthermore be given to establish baselines and identify data gaps.
* Annual Work Plans (AWPs) of potential future project phases should systematically include annual output targets. As projects are implemented through AWPs, it is critical to set annual targets for outputs and clearly reflect on them in the AWPs for monitoring purposes at the end of the year. Agreed upon annual output targets in AWPs should also serve as reference points for performance monitoring in any existing national or corporate results management or outcome monitoring systems.
* All English language training materials and handouts produced during potential future project phases should also be translated into Korean language. Is recommended that future project budgets systematically include related expenditures.
* UNDP/FAO -PHL/SP project start-up was significantly delayed due to lengthy internal agency negotiations on the future project implementation, project management and other contractual issues. As a result, the UNDP DPRK Agriculture Sector Interventions Mid-Term Project Review recommended that UNDP should consider in the future whether “Directly Executed” projects by UNDP would be more effective and efficient both in terms of Project Management and Financial Control. Numerous agriculture related UNDP projects elsewhere have been successfully implemented under both, “Directly Executed” and “Agency (FAO) Executed” modus. Both options have advantages and disadvantages and during this evaluation expressed opinions on the subject by consulted stakeholders vary, not surprisingly, widely. The evaluation recommends that further direct discussions between the concerned agencies, namely UNDP, FAO, NCC and respective line ministries, take place prior to deciding on the most appropriate modality for a specific future project in the agriculture sector. While the potential benefits of UNDP direct execution may indeed be greater for certain projects, particularly in cases where only limited agriculture-specific technical support is required, there are others where, in the DPRK context, the implementation through FAO clearly offers distinct advantages. This is specially the case where FAO´s technical strengths and close relationships with respective line ministries and departments, build through a long history of successfully implemented projects, are seen as an important success factor.
* Provided that there is a continued local posting of a Deputy FAOR in DPRK, the FAO internal reporting line from the CTA directly to the Beijing based FAOR should, in the interest of potential administrative efficiency gains, be reviewed when planning potential additional project phases or projects. FAO and UNDP may furthermore benefit from jointly exploring the feasibility of additional measures to increase the efficiency of collaboration and management arrangements[[2]](#footnote-2) for the implementation of future agriculture sector projects.

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1. FAO supported the development of the “Beneficiary Results Assessment” (BRA) methodology. Additional information is available on the FAO website (http://www.fao.org/fileadmin/user\_upload/emergencies/docs/Guide\_for\_Beneficiary\_Results\_Assessment.pdf) [↑](#footnote-ref-1)
2. Management arrangements for the two evaluated projects, as described in the respective Project Documents, specify that the FAO Chief Technical Adviser supervises the overall implementation of the projects “under the guidance” of “the Resident Representative of UNDP or his designate” and the “UNDP Senior Programme Advisor / Head of Programmes”. The UNDP CO provides CTA guidance as well as oversight and advice in the execution of the projects furthermore in its role as Chair of the Project Board. [↑](#footnote-ref-2)