

Concept Paper



Rapid Action Wheat Seed Production & Distribution And Review of the Seed Sector in Afghanistan

**A Concept Paper under the
Agricultural Production and Productivity Programme
National Agriculture Development Framework**

Ministry of Agriculture, Irrigation and Livestock

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Proposal for a Rapid Action Wheat Seed Production and Distribution Programme and Review of the Seed Sector in Afghanistan

Background

Responding to the high priority given to Agriculture and Rural Development in the Afghanistan National Development Strategy (ANDS) and the subsequent Agriculture and Rural Development Strategy (ARDS) and Agriculture Master Plan (AMP), the Ministry of Agriculture, Irrigation and Livestock (MAIL) developed its National Agriculture Development programme. The Agriculture Production and Productivity sub-programme of this plan recognizes the availability and accessibility of high quality seed as one of the major conditions for attaining food security and agricultural growth.

Wheat, being the major staple crop, absorbs approximately one third of all cultivated land in the country and is primarily grown as a subsistence crop. Traditional agronomical practices and use of traditional low potential varieties by an estimated 50% of the farmers, result in average yield levels of roughly 2 to 2.5 MT per Ha for irrigated crops and 1 to 1.5 MT for rainfed crops. Experiments carried out in research stations, as well as under farmer field conditions, have indicated that the use of high quality seed, i.e. Certified Seed of improved varieties, has the potential of increasing the yields by 30 to 50% and combined with appropriate cultural practices and the use of fertilisers, yields could almost be doubled. Hence, if merely all farmers would adopt these practices, not only could the country as a whole become self sufficient again in grain production, but also could many small farmers grow their family requirements on less land and devote (more) land to other crops, thus moving from mere subsistence to commercial farming. Ensuring availability and accessibility of certified seeds to all farmers in Afghanistan will therefore have a high potential for a direct and rapid impact on food security and agricultural growth.

Although variety work and seed production have been going on for many years, the sub-sector has suffered tremendously from the political situation preceding and during the Taliban regime and it was only in 2004 that a comprehensive initiative was taken to restore and modernise the seed sector with the start of the "Variety and Seed Industry Development project", funded by the EC and implemented by the FAO. It is to a large extent through the activities of this project that a formal seed system is now functioning in the country.

Present status

Roughly, the seed system can be divided over four levels¹.

The first level is variety research and breeding. In Afghanistan this is the responsibility of the ARIA (the Agricultural Research Institute of Afghanistan). Despite that the institute is under-capacitated with limited capable staff and facilities, it has released a number of improved varieties in recent years and produced Breeders Seed (the first cycle in the production chain) amounting to resp. 19, 40 and 68 MT in the past three years (2006, 07 and 08), whereas this year (2009) a production of appr. 80 MT is expected.

The second level is the multiplication of Foundation Seed, which is the responsibility of the Improved Seed Enterprise (ISE), which is run by Government staff. With the legacy of being responsible for seed multiplication from "the old days", the ISE has plenty of land and facilities, but mostly old and/or poorly functioning. The output over the last three years has

¹ Seed multiplication rates are varying from 30 at higher, to 20 at lower quality levels.

been 400, 344 and 489 MT respectively in 2006, 07 and 08, whereas in the present year (2009) an output of appr. 1,600 MT is expected.

The third level is the multiplication of Foundation Seed into Certified Seed, which is done by small private enterprises under the control of the certifying agency. The FAO project, as well as ICARDA and a number of projects and NGOs have been active in creating and supporting these enterprises. Their joint output was 9,383, 7,630 and 11,270 MT respectively in 2006, 07 and 08. This year (2009) an output of appr. 16,000 MT is expected.

The fourth level of multiplication is by the farmers themselves. Traditionally, farmers keep their own seed and only acquire fresh stocks when they feel the quality has gone down or when they have consumed, sold or lost their own seed. Technically there is little objection against own multiplication of seed by farmers, as a good quality starting level and good farm level practices can be maintained to an acceptable extent for one to four years, depending on the circumstances.

Other important elements of the seed sector are

Legislation. A seed policy has been endorsed by Government and stakeholders and is active since August 2005. A national Seed Law is in the process of ratification.

Seed certification. There are trained teams, consisting of government staff, who do the field inspection and laboratory testing of the seed lots. Once the Seed Law is ratified, these teams and their facilities will be combined and organised to form the national Seed Certification Agency.

Distribution and awareness raising. This is an extension element which is indispensable for the success of all seed production efforts. At present almost all certified seed is purchased by organisations who distribute it in their operational areas, generally with (heavy) subsidies (Ag Depots, voucher schemes).

Weaknesses and Constraints

Building up the system and raising it to the full capacity that is required to provide farmers in Afghanistan with quality certified seed according to their needs and demands is a time consuming process. Bottlenecks are not only the ones of practical nature on the supply side, but importantly also those on the demand side. Farmers are not used to paying for value addition in the form of seed quality. They will also not be benefiting from such enhanced quality if they have no knowledge of and access to essential inputs, like growing practices, fertiliser, disease control and irrigation. For a good number of years to come, the seed sector will therefore depend on subsidised distribution systems, raised farmer's awareness through extension and development and availability of the complementary agricultural inputs and facilities. Despite all efforts made in this respect, there are still a large number of farmers that have not been reached by these programmes, due to a combination of factors, of which the insufficient availability of seeds is a major one.

Other weaknesses and constraints of the system are the following:

- ARIA, responsible for research, variety testing and breeding and production of Breeders Seed, lacks sufficient qualified personnel, facilities (land, equipment) and funding
- The ISE, responsible for production of Foundation Seed, lack sufficient qualified staff, an incentive system and modern and functional equipment
- The Private Seed Enterprises are virtually concentrated in the 11 provinces covered by the FAO project and other organisations that support them. They depend heavily on formal customers that procure the seeds at appropriate prices and distribute it with subsidies
- About 50% of the cultivated wheat area in the country is planted with seeds of improved varieties and particularly less so in rainfed areas

- Limited availability of improved varieties and seed for rain-fed wheat
- The seed system is presently focused on wheat. Efforts in crop diversification are at an early stage.

Opportunities and Lines of Action

At the present rate of production, only 10 to 15,000 MT or approximately 4 – 5 percent of the total national seed requirement of approximately 300,000 MT is covered by certified seed. In view of the farm level multiplication practice by farmers, a national supply of 10 to 15 percent of the total requirement, of 40 to 50,000 MT annually would be sufficient as a longer term routine. At the present pace of development and projections, this rate could be reached in a couple of years time. However, it will not provide for a short term goal of replacing all traditional varieties with improved varieties, for which, provided that all farmers could be reached, a one time injection of up to 150,000 MT of quality seed would be required.

A future programme should therefore have a two pronged approach with two objectives:

1. Further development of the national seed system in line with the present developments and trends, aiming at creating a technically and commercially sound system with a capacity of producing up to 50,000 MT of Certified Seed per year on a routine basis.
2. Embarking on a rapid multiplication exercise, aiming at producing and distributing some 50,000 MT of Quality Determined Seed per year on an emergency basis for two to three years.

Ad 1. This objective will be further pursued through the continuation of the activities of the EC funded FAO project. The present € 10 million programme is funded till 2011 and an additional grant of € 14 million is forthcoming to enable the project to expand it's activities from the present 11 provinces to nationwide coverage² within the same project term.

Ad 2. This objective requires an immediate and concerted action of Government and Private Seed Enterprises (PSEs), whereby the latter will procure and process seed from selected standing crops, planted with Certified Seed in the past season, and the Government will ensure field inspection, lab testing and labelling of the seed. Crucial requisite of this activity will be a guaranteed procurement of the seed against guaranteed prices by the Government, as the PSEs will not be in a position to bear the risk of such an exercise. This activity can be implemented in the current growing season, but should be initiated IMMEDIATELY! That is to say, the time schedule given in Annex 1 can not be compromised upon³.

The present proposal will outline the action to be taken with respect to this second objective. It will elaborate on the actions that need to be taken in the coming half year, i.e. all activities related to the production and procurement of the seed, whereas planning and design for the distribution of the seed will have to be done within now and July/August this year.

² This will include all accessible areas in the country and for the time being exclude the southern conflict prone provinces.

³ In case the hereinafter described scenario and the mentioned deadlines can not be made, an ultimate possibility would be to import seeds from Pakistan. This practice, however, must be strongly discouraged, in view of the unacceptable risks involved of not being able to supervise and guarantee the quality of the seeds purchased.

Based on the results of this year's exercise and taking into account the planned activities contained in the EC programme for enhancement of the present FAO led seed programme, the whole seed system and future lines for development of the sector will need to be reviewed at a later stage this year. It is recommended that MAIL will appoint a capable officer assisted by a consultant to overview and coordinate the current activities, as well as the review and planning for future strategies.

Objective

The objective of the present proposal will be

- To address the immediate needs for quality wheat seed in the country and to provide a strategy for the way forward in the seed sector in Afghanistan

More specifically

- To provide a plan for the production and procurement of some 30 to 40,000 MT of quality seed in the current growing season for distribution to farmers who have thusfar had no access to certified seed
- To provide assistance to MAIL for the coordination of activities under the rapid seed multiplication programme, design and planning of this year's seed distribution and to provide directions for the way forward in the seed sector

Outputs

- Procurement of at least 30 to 40,000 MT of quality seed for distribution to needy farmers for planting in the 2009/10 growing season
- A distribution plan for the procured seed referred to above
- A review of the seed sector in Afghanistan, detailing their Strengths, Weaknesses, Opportunities and Threats and a strategy for the way forward towards a balanced and sustainable permanent seed system that reaches all farmers in the country, taking into account the prevailing and expected future circumstances

Activities and implementation strategy

An overview of activities, responsibilities and timing for this year's seed production/ procurement programme are outlined in Annex 1. Planning for the distribution of the seed⁴ should take place in the course of time, while the production/procurement is underway. This, and the review of the seed sector, should be done by a MAIL appointed coordinator, assisted by an external consultant. These will also be responsible for supervision and monitoring of the programme. They should be appointed as soon as possible.

It is also proposed that MAIL will form a committee, consisting of representatives of MAIL, the FAO seed project, the EC, National Seed Board and the ANSOR (Afghanistan National Seed Organisation) to guide the process and review it's progress. This committee should also be consulted for the planning of the seed distribution for this year and the formulation of

⁴ A timely start should be made to plan this. Agricultural Extension Officers in all provinces and district should survey the seed demands and assess the number of farmers that belong to the target group of users of non-productive traditional varieties. Participatory processes should be utilised to determine beneficiaries at community level. Simultaneously, the coordinator and consultant should review past activities and experiences of past distribution schemes in consultation with the actors (donors, NGOs) involved in them.

strategies and plans for the future strategies and lines of action for the seed sector in Afghanistan as a whole, which will be proposed by the seed consultant.

While some preparations, like provisional work planning and informing of regional seed offices and PSEs are already ongoing, the programme will only really swing into action when the decision on funding has been taken. This should be the case by ultimately the first week of April 2009. The programme will be led and supervised by the FAO Seed project until the moment that MAIL will have appointed the coordinator and consultant for it.

The regional seed offices in Kabul, Herat, Mazar, Kunduz, Jalalabad and Helmand will be responsible for field inspection and laboratory testing. Together with the PSEs they will identify the farmers (fields) from which seed (potentially) can be procured. The latter will make the contracts with the farmers, based on a first inspection of the fields.

An important requisite for producing quality seed is to remove the off-type plants (rogueing) to ensure homogeneity and varietal purity of the lot. This should be done when the plants will be physiologically maturing. This is a process instigated by temperature and starts as early as end of April in the East, followed within a week to a fortnight in the South, North and West of the country. Harvesting will start as early as end of May in the East and progresses in the same order in the other parts of the country. The central provinces will not be considered as the harvests are too late there to be in time to be processed and prepared for the next planting season.

Procurement of the seed by the PSEs will start immediately upon harvest and continue during June and July. Processing will be done throughout until September in order to be finished before the next planting season.

Crucial timings in relation to funding are as follows:

Funding guarantee	Before start of operations	1 st of April
MOU with FAO/ANSOR	At start of programme	1 st of April
Fund release for operations	At start of operations	8 th of April
Contracts and Guarantees for PSEs	At start of field work	22 nd April
Advance money to PSEs	Before start of harvest	22 nd May

Limiting Factors / Conditions

Data available at the time of writing this proposal suggest that it will be comfortably feasible to produce 26,000 MT of Quality seed this season. Of this, 16,000 MT is the projected production of Certified Seed from the fields planted with Foundation Seed this year and 10,000 MT is the expected yield of fields planted with Certified Seed this year, which, provided they meet the field standards, could be upgraded into Quality Declared Seed (QDS). Seed in excess to these 26,000 MT has to be procured from farmers that have procured Certified Seed in the past and kept their stocks in conditions, good enough to provide grain that might meet the quality standards to qualify as seed. This seed would be graded as Commercial Seed. There is no record on the number and whereabouts of such farmers, but it may be assumed that they will be found.

The other limiting factor (technically) is the processing capacity. The maximum total capacity of mechanical seed cleaning in the country would reach about 200 to 250 MT per day. In a period of three months, a maximum of 20 to 25,000 MT could thus be handled. It should be possible to process (clean) the remaining 10 to 15,000 MT manually. It does, however, require a high level of effort and organisation from the PSEs, as they will have to handle about four times the usual volume.

For field and lot inspection, there are six centres, which each have a staff of 2 to 4 persons. In normal years, they hire casual labour⁵ and train them, from the time that field inspection starts (1st April) until the seed is distributed (September/October). For the work load required for 16,000 MT, this year, some 25 additional workers would have to be hired. This number needs to be increased to 75 in order to handle the inflated quantities of the present proposal.

In order to initiate the operations, a funding guarantee, as well as availability of part of the estimated total amount required for hiring the additional inspection work force, must be there (deadline 1st April). For contracts with the farmers to be made, guarantee must be given to the PSEs that the seed procured by them will be bought by the Govt. and their financial risks will be covered (deadline 1st of May). In order to be able to start procuring, the PSEs need advance funding to pay the farmers (deadline 1st of June).

It is crucial that appropriate administrative procedures and responsibilities are in place before any contract or disbursement can be made. These functions will be a responsibility of MAIL.

Estimated costs

- An international consultant for the duration of six months	\$ 200,000
- Allowances, etc. for national coordinating staff (MAIL), Including the national coordinator	\$ 25,000
- Hiring charges of additional staff for inspection (75 x \$ 250 x 6 months)	\$ 112,500
- Incentives for MAIL field staff (13 x \$180 x 6 months)	\$ 14,400
- Training of inspection staff and PSE workshops	\$ 15,000
- Daily allowances and Transport of inspection teams	\$ 35,000
- Additional laboratory equipment and consumables	pm
- Miscellaneous	\$ 12,100
- Service charge (FAO) (appr. 5%)	\$ 21,000

Total :	\$ 435,000
- Seed procurement (contracted PSEs) ⁶ 40,000 MT x US\$ 600 =	\$ 24,000,000
- Costs of distribution ⁷ 40,000 MT x US\$ 200 (???) =	\$ 8,000,000
Total cost of activity	Appr. US\$ 32,435,000⁸

⁵ These are mainly students, and jobless graduates of Agriculture University and School of Agriculture and retired govt. officers

⁶ The amount is based on an estimated market price of wheat grain of \$ 400, added with US\$ 200 for processing, handling and margin for farmers and PSEs

⁷ The amount required for distribution of the seed is highly speculative. This will entirely depend on the distribution plan that is to be made later on in the season and can not be reliably estimated at this moment.

⁸ There will be a return flow of money for the farmer's contribution if the seed is not given free of charge (recommended!) It has to be decided where this money will go.

Risk Analysis

Risk	Likelihood	Impact	Mitigation
Funding guarantee not in place by 1 st week of April	??	Severe	Killer assumption
Regional offices will not be able to hire sufficient capable casual staff	Low	Medium to severe	<ul style="list-style-type: none"> - Staff to be hired from other places, which will go at extra cost - Involve MAIL staff from other disciplines
PSEs not willing to cooperate	Low	Severe	Procurement of the seed should be guaranteed to them at the beginning of the programme
Insufficient suitable 3 rd generation fields can be identified	Low	Medium to severe	PSEs should be timely informed and extension staff should assist in identifying the fields
Funds will not be available in cash at the time of procurement and farmers will sell seed on the market	??	Severe	Killer assumption
Political climate in the country will not allow for inspection teams to visit the fields	Low	Severe	Careful planning and looking ahead, taking into account the prevailing circumstances at the time
PSEs will procure substandard seeds, resulting in complaints by receivers	Low	Medium	Close supervision and monitoring on the side of the inspection teams and the national coordinator and consultant
Seed will be given away for free, which will make farmers used to it and jeopardise the future of the seed industry	Medium	Medium	This point should be taken into account when designing the distribution plan
Seed distribution programme will be hijacked for political purposes	Medium	Medium	Ensure community participation for designing the distribution plan.
For any reasons, including those beyond control of the implementers, the seed may turn out to be of sub standard quality, resulting in complaints by farmers	Medium	Severe	Ensure that all parties involved are motivated to make maximum efforts through a combination of supervision and rewards (incentives)

Activity and responsibility matrix

	Activity	Actor/responsibility	Timing	Pre-requisites / Conditions
1.	Organise/lead/ overview the operations	MAIL	Throughout	MAIL to create a committee and appoint an officer and/or a consultant to liaise and coordinate
2.	Funding	Donor	Immediate	Guarantee of funding is an absolute pre-condition before any practical action can be taken
3.	Inventory of locations where certified seed was distributed and check for matching capacity of processing capacity (PSEs) and seed laboratories	MAIL appointed officer/consultant? together with PSEs and FAO	Immediate	
4.	Preparation of a workplan	MAIL appointed officer/consultant? together with FAO	Immediate	
5.	Notification of PSEs	MAIL / FAO	As soon as possible	Ideally, the funding should be guaranteed before informing the PSEs
6.	Formation and training of field inspection and seed testing teams	MAIL appointed officer/consultant? together with FAO	First half of April	Casual staff to be identified and trained to add on to existing quality control staff for inspection and upgrading of fields planted with certified seed; Funding of this activity must be guaranteed before 1 st of April for this deadline to be able to be met
7.	Contracts made with PSEs	MAIL	Before the end of April	Contracts should include a procurement guarantee of the seeds against the prevailing market prices and covering the risk taken by the PSEs
8.	First field inspection	Inspection teams, accompanied by PSEs	April / early May	Check the general conditions of the field and the standing crop (cleanliness, health, homogeneity); assess the potential of delivering a seed crop
9.	Contracts with farmers	PSEs	April / early May	Coinciding with the first field inspections

10.	Rogueing	Farmers, under supervision of inspection teams and PSEs	May	This should be done at the start of physiological maturity, when the varietal purity can be assessed.
11.	Second field inspection	Inspection teams, accompanied by PSEs	May	Seed will be harvested only from those fields that pass the minimum field inspection standards
12.	Harvest and procurement of the seed from farmers	Farmers / PSEs	June onwards	At this stage, loans to be provided to the PSEs for procurement of harvested seed; procurement from July onwards
13.	Seed processing	PSEs	July / August / September	Care to be taken that no mix-up takes place between Quality Determined and Certified seed
15.	Seed to be packed	PSEs / Inspection staff	August / September	Different bags to be used for QDS and CS
14.	Lot inspection, seed sampling and laboratory testing	Inspection / laboratory staff	August / September	Certification tags issued only for those lots that pass the minimum laboratory standards for purity and germination
16.	Procurement and distribution	MAIL	September onwards	
17.	N.B. Parallel to the above, MAIL should prepare a distribution plan, which should be ready and operational by September			