

1.3. Action plan for enhancing the application of windbreaks technology

The practice of agro-forestry was applied in Azerbaijan during former Soviet times. Currently, this practice is not applied by most private land-owners due to lack of knowledge. Agro-forestry has a broad application potential and provides a range of advantages, including the maximum use of the land and increased land-use efficiency, increased productivity of the land, protection and improvement of soils and water sources, and so on (Goal and objectives of windbreaks, lecture).

Agro-forestry systems take advantage of trees in many ways: to hold the soil, which increases fertility through nitrogen fixation, or through bringing minerals from deep in the soil and depositing them by leaf-fall, as well as to provide shade, construction materials, foods and fuel.

Such technology will be applied mainly in regions with high risk of erosion. Assessment of vulnerability should be provided in areas with the highest risk to negative impacts of climate change. Agricultural research institutions must be involved in the process in order to provide comprehensive analyses and feasibility studies related to application of agro-forestry system.

There are no specific programmes or strategies in Azerbaijan related to application of windbreaks technologies at cultivated lands. Some local-level and small-scale actions for the promotion of technology application have been initiated under different development projects, supported by international organizations. For instance, the German International Corporation has supported development of concept for windbreak application and the conducting of a feasibility study in one of the agricultural regions of Azerbaijan.

Main barriers of technology diffusion identified during barriers analysis could be listed as follows:

Barriers	Enhancing the application of windbreaks
Economic/financial	<ul style="list-style-type: none"> - Weak access to acceptable financial means - Weak access to markets - Lack of fiscal support to R & D institutions
Policy/regulatory	<ul style="list-style-type: none"> - No specific subsidy mechanism to promote application of new crop varieties
Information/capacity	<ul style="list-style-type: none"> - Weak capacity of research institutions - Weak agricultural extension services - Low level of awareness of economic and ecological advantages
Social	<ul style="list-style-type: none"> - Unfamiliarity with new technology - Small-scale lands

During the preparation of TAP, measures have been assessed taking into account their priorities, time scale, related stakeholders, key indicators for measuring implementation and funding resources. Most actions for diffusion of windbreaks technology are similar to those related to introduction of new crop species resistant to forecasted climate change.

TAP for the technology is provided in table 2.

Table 2: TAP for enhancing the application of windbreaks technology

#	Measures	Priority	Why it is important	Time scale	Related stakeholders, implementers	Key indicators	Risks	Funding sources	Costs
Economic/financial									
1	Develop mechanism for provision of long-term and low-interest loans, as well as grants through state, private and international funds	High	- Create access to financial sources	0-5 years	MED, MoA	- Easy access to funds created for farmers	- Low interest of financial institutions - Insufficient State funds	State, International	\$ 200, 000
2	Develop specific subsidy mechanism to promote application of the technology	Medium	- Promote wide application of technology	5-10 years	MoA, MoF, MED	- new set of package to support local farmers during application of windbreaks	- State procedures may be slow to endorse proposed recommendations	State, International	\$ 100,000
Technology									
3	Technical support to R & D institutions	High	- Improve technical capacity of R & D institutions	5-10 years	MED, MoA	- Improved capacity of R & D institutions	- No major risk	State, International	\$ 500,000
Information/capacity									
4	Organize specific capacity building programmes (trainings, seminars, workshops) for local farmers	High	- Increase capacities	0-10 years	MoA, NGOs	- Increased capacity	- No major risk	State, International	\$ 600,000
5	Develop and conduct information campaigns on the advantages of applied technology	High	- Raise awareness level	0-5 years	MoA, NGOs	- Awareness level on advantages of new technology increase by 50%	- No major risk	State, International	\$ 500,000
6	Develop mechanism for support to	High	- Increase	0-10 years	MoA, MED,	- Capacity	- Weak	State,	\$ 800,000

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	agricultural extension services		quality of agricultural extension services		MoF, NGOs	and quality of current extension service providers improved	collaboration with existing extension service providers	International	
Other measures									
7	Develop mechanism for implementation of demonstrative pilot projects	High	- Demonstrate practical advantages	0-5 years	MED, MoA	- Practical knowledge and skills of farmers increased	- Lack of funds	State, International	\$ 800,000