DESIRE REPORT series

DESIRE WB-3 Stakeholder Workshop 1 report

WP3.1 Stakeholder Workshop 1 report - held in Eskişehir, Turkey, January 22-23-25, 2008.

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Workshop Report - English summary

Stakeholder workshop 1

Land degradation and desertification – existing and potential prevention and conservation strategies

Results and conclusions from the stakeholder workshop

Name of the study site: **Eskişehir**

Date of workshop: **January 22-23-25, 2008**

Author(s):**Mutlu Gürler, İnci Tolay, Sanem Açıkalın, Faruk Ocakoğlu**

I General information

A) Workshop

Workshop moderator(s):**Mutlu Gürler**

List of workshop participants:

Sex M / F	First name, name	Stakeholder category / institution (e.g. land user, researcher, NGO, GO)	Local or external?
M	Ali CENGİZ	Land user	L
M	Azmi CAZ	Land user	L
M	Ali ŞENTÜRK	Land user	L
M	Niyazi OLUÇAY	Land user	L
M	Burhan GÖNEŞ	Land user	L
M	Süleyman FİLİZ	Land user	L
M	Halil BAŞTÜRK	Land user	L
M	Bahaddin YENİPINAR	Land user	L
M	İbrahim EĞLİK	Land user	L
M	Halil MİHALİÇ	Land user	L
M	Yusuf KOYUN	Land user	L
M	Aziz ALBAYRAK	Provincial Directorate of Agriculture/GO/Manager	E
F	Gül KILIÇ	Provincial Directorate of Agriculture GO/Researcher	E
M	A. Levent SEVER	Anatolian Agricultural Research Center/GO/Researcher	E
M	Savaş BELEN	Anatolian Agricultural Research Center/GO/Researcher	E
M	Bilal DEMİR	Anatolian Agricultural Research Center/GO/Researcher	E
M	Yakup KARAMAN	Anatolian Agricultural Research Center/GO/Manager	E
M	Celalettin AYGÜN	Anatolian Agricultural Research Center/GO/Researcher	E
M	Necmettin BOLAT	Anatolian Agricultural Research Center/GO/Researcher	E
M	Erdinç SAVAŞLI	Anatolian Agricultural Research Center/GO/Researcher	E
M	Soner YÜKSEL	Anatolian Agricultural Research Center/GO/Researcher	E
M	Dr. Cemal ÇEKİÇ	Anatolian Agricultural Research Center/GO/Researcher	E
M	Ali DEMİRCİOĞLU	Provincial Special Management/GO	E
M	Ragıp YILDIRGAN	Provincial Special Management/GO	E
M	Mukadder GÜVENÇ	Provincial Special Management/GO/Researcher	E
F	Zehra ÖZSOY	Provincial Special Management/GO/Researcher	E
M	Hüseyin ÜNAL	Head of the Provincial Chamber of Agriculture/NGO	E
M	Varol YICAZ	Vice-president of the Provencial Chamber of Agriculture/NGO	E
M	Emrin CENGİZ	Provincial Directorate of Environment and Forestry/GO/Researcher	E
M	Cemal KARAKURT	Provincial Directorate of Environment and Forestry/GO/Researcher	E
M	Dilaver UZUN	Provincial Division of the State Water Affairs/GO/Researcher	E
M	Turgay ESER	Provincial Division of the State Water Affairs/GO/Researcher	E
M	Hasan H. UYSAL	Provincial Division of the State Water Affairs/GO/Researcher	E
M	Serdar TOPRAK	Research Institute for the Protection of Soil and Water Resources/GO/Researcher	E
M	Arif SIRCI	Eskişehir Agricultural Credit Cooperation/NGO/Manager	E
M	Özer ÜLKER	Eskişehir Union of Irrigation/NGO/Manager	E
M	Mehmet YALAN	Union of Agriculture/NGO	E
M	Ali Rıza KILIBAZ	Tepebaşı Municipality/Researcher	E
M	Gökhan ÇİÇEK	Tepebaşı Municipality/Researcher	E
M	Halil GÜNGÖR	Foundation for Combating Erosion and Reforestation/NGO/Manager	E

B) Background

Eskişehir hotspot covers a drainage basin (about 80 $km^{2)}$ of a dam called Keskin dam, 20 km NW of Eskişehir town in NW Anatolia. The hotspot is inhabited by ca 3000 people living in 5 villages and 1 quarter. Farmers in two villages are settled on flat alluvial plain and mostly practice irrigated cropping, while more than ¾ of the hotspot relies on dry farming. The Northern part of the hotspot has steep slopes and generally is allocated for pasture lands. Our own field observations and experiences of farmers show, that **soil erosion by water** and **urbanization stress** (i.e. extending Eskişehir city towards hotspot, i.e construction of new houses and blocks for summer holiday or permanent use) constitute the major land degradation types in the hotspot area. Focus group discussions revealed that l**arger scale socio-economic drivers** (i.e. increasing mean age of farmers, changing world views, increasing input costs etc.), the **legislative situation** (part of the hotspot villages have recently been included into the Eskişehir municipality), and a **lack of agricultural education** from state organizations are major difficulties regarding the conservation of soil and water resources.

II Results and conclusions from sequences / exercises

1) Impact chains – chains that link causes and effects of land degradation

(↱ results form Exercise 2: the water and biomass cycles)

A. Disturbances identified in the water and biomass cycles

Disturbances identified in the water cycle:

1 **Low and irregular rainfalls:** Annual precipitation is approx. 360 mm and there is a continental climate in the hotspot area. Farmers are aware of the effects of global climate change in their activities. In recent years rainfall was decreasing and irregular.

2 **Run off:** Steep slopes of hotspot area and inappropriate cultivation practices (no cover crops are grown, almost no terracing is made, monoculture is dominant, overgrazing, wrong tillage methods etc.) accelerate run off. Urbanization pressure by occupying vegetating soils encourages run-off in the hotspot area. Irrigation techniques used in the area are generally flood and sprinkler irrigation which increase run-off.

3 **Low water retention capacity of soils:** Organic matter content is low, limited organic manure is applied, and inappropriate cultivation practices are used, which reduces the water retention capacity of the soils.

4 **Reduced discharge of groundwater and sources:** due to low organic matter content of soils water permeability is low. Steep slopes are dominant in the

area. These factors lead to low water retention in the surface; rill erosion is widespread; beside this, rainfall is inadequate for recharge of groundwater and sources.

5 **Increase in evaporation:** There is over- and irregular grazing in the area, no mulching is applied; unsuitable cultivation practices are used and there are not good agricultural extension services to support the farmers. Vegetation cover is weak, drip irrigation is not widely adopted; all these factors lead to high evaporation.

Disturbances identified in the biomass cycle:

1 **Low regeneration capacity:** Some of the plant varieties which are palatable were overexploited by animals so these plant varieties disappeared; there is no governmental support for regeneration and improving pastures.

2 **Poor and slow vegetation growth:** In dry farming areas every year cereals are grown (monoculture); no legumes which increase soil fertility by fixing nitrogen into the soil are grown; fertilizing practices are not based on soil and plant analysis so nutrient status of the soils are imbalanced; in the pastures and dry farming areas annual rainfall is inadequate for a good vegetation.

3 **Destruction / overexploitation of vegetation cover:** there are too few trees, both natural and plantation, for good forest vegetation; natural forests are not under appropriate conservation, they have been exposed to destruction in the past; pastures are overexploited and not improved, management rules and regulations are lacking.

4 **Early withering of plants:** In natural, uncultivated areas soil humidity in the critical growing periods is not enough for completing adequate maturity of plants because of irregular and inadequate rainfall; dry farming areas of the arable lands are only depending on natural rainfall which is inadequate and irregular so crop plants matures early, this leads to yield and quality losses in crops; farmers do not apply adequate plant disease management practices (no technical, scientific support), so crop plants biomass and yield are decreasing by pests and insects.

5 **Accelerated decomposition and mineralization:** Weather conditions are appropriate for fast decomposition of organic matter which is already low, that it is aerobic and warm in the spring; although rainfall is inadequate for plant growth, this effect on soil moisture is enough for microbial activity; accelerated decomposition as well as decelerated one not desired because optimum mineralization rate is convenient for a good regeneration of vegetation for supplying mineralized nutrients when the plant needs them timely.

B. Causes and effects of land degradation (impact chains):

Two different types of factors can be identified that cause disturbance in a) the water and b) the biomass cycle, and that lead to land degradation in the study site: 1) causes related to human activities, and 2) causes related to natural conditions.

1a) Causes related to human activities which disturb water cycle and lead to land degradation: Climate change (global warming) due to a lack of tree planting and destruction of vegetation; urbanization pressure; using inappropriate agricultural practices (especially unsuitable tillage, irrigation methods, no mulching, no terracing on steep slopes etc.); not improving the soils by green and stable manures, compost use, crop rotation etc. which are increasing factors of water infiltration into the soil;

drainage techniques are not used; overgrazing is made; there are deficits in the management of the water cycle (lack of laws, control, sanctions, training and education for water conservation).

2a) Causes related to natural conditions which disturb water cycle and lead to land degradation: Continental climate type; low and irregular rainfall; steep slopes; low organic matter content of the soils; rill erosion; low recharge of groundwater and sources; hot weather conditions which increases evaporation; weak vegetation cover.

1b) Causes related to human activities which disturb biomass cycle and lead to land degradation: Extinction of seed plants; monoculture/reduced biodiversity; destruction of the forest; overgrazing; lack of management rules and regulations; deficits in the management of the biomass cycle (lack of laws, control and sanctions, training and education, deregulation of markets, inconsistent agricultural politics for conservation vegetation cover).

2b) Causes related to natural conditions which disturb biomass cycle and lead to land degradation: Poor ripening and dissemination of seeds; extinction of some plant varieties; lack of water and nutrients; plant diseases; drying of the soils, few microorganisms because of low organic matter content of the soils.

Effects of the water cycle disturbance in the hotspot area: Reduction of water availability for plants, loss of soil and nutrients due to erosion, decreasing yields, drying of soils, lack of water for irrigation, low soil moisture, salinization risk in irrigated soils.

Effects of the biomass cycle disturbance in the hotspot area: Low vegetation cover, exposition of soil to water (too much) and wind erosion (less), perturbation of water cycle, disturbance in nutrient cycle, loss of fertile soil surface horizons, decreasing soil quality (physical, chemical and biological) for an optimum crop growth.

C. Socio-cultural, economic, political, and legal constraints:

a) **The lack of education of farmers and agricultural workers:** Few farmers have high school education, most of them only attended primary school. So explain and adapting new technologies widely in agriculture seem to be a limiting factor.

b) **Migration from rural areas to urban areas:** farmers in the villages generally belong to older generations. Their innovative capacity and motivation is low regarding the adoption of new technology for sustainable agriculture.

c) **Farm size and poverty:** Small farmers with limited income and resources for investments are dominant in the villages although there are a few big farmers who have enough facility for sustainable agriculture.

d) **Dividing the land:** Heritage laws lead to the division of arable lands into smaller parts. This makes an efficient use of machinery, labour and soil and water conservation measures difficult.

e) **No crop production planning and market organization:** Farmers perform their crop production and market decisions and activities by their own, they do not have governmental guidance; some cooperation exists but not functional enough for marketing crops.

f) **Lack of effective farmer organizations:** Available organizations for supporting farmers are not functional enough.

g) **Problems and errors in the implementation of agricultural policies:** Agricultural policies are made centrally by Ministry of Agriculture without considering local farmers real needs.

h) **Farmers get no subsidies for soil and water conservation measures like farmers in EU countries:** Farmers would like to receive subsidies to apply soil and water conservation measures.

i) **The high levels of woman labour and its positioning in the countryside constitute significant handicaps to involve them in soil and water conservation studies:** Women are generally at home to look for children and livestock and to do other farm works, they do not satisfactorily join social life or only with their own gender.

j) **Legal status of some villages has been changed in the hotspot area:** Some villages in which effective farming continues were included to central municipality, because of this reason farmers face serious constraints to maintain their agricultural activities.

D. Already applied solutions at the local level

Some tree planting activities have been started in some villages but not continued. Some legal constraint regarding the status the land on which forest studies started prevented these studies. Apart from this, there seems to be no reasonable, effective applied solutions at the local level.

2) List of local indicators for land degradation and conservation

(↗ results form Exercise 3)

Indicator	Used by (stakeholder group)
Low fertility of the soils-Some support for soil analysis by government	Farmers (but not effectively used)
Low yield and losses in quality-Certified seeds support by government	Farmers
Drought stress in soils and crops-Partly compensation as financially by government	Farmers
Reduced vegetation and biodiversity in grazing land-No conservation	
Reduced and irregular rainfall-No conservation	
Rill erosion-No conservation	
Sediment movement and accumulation-No conservation	
Lost fertile surface soil in steep slopes-No conservation	
Reduced discharge of groundwater and sources-No conservation	
Flooding through stream -No conservation	
Soil crusting and compaction-No conservation	
Tillage on the direction of slope-No conservation	

3) List of stakeholders and their influence and interest in regard to sustainable land management

(↗ results form Exercise 4)

Stakeholder / stakeholder group	Influence on the sustainability of land use?	Motivation / interest in the implementation of sustainable land management?	Comments
Small holders	Very big	Medium	Need education, training, financial support and driving
Large-scale farmers	Very big	Big	Need subsidizing, training and technical help
Governorship	Big	Medium	
Special Provincial Administration	Big	Medium	
Provincial Directorate of Agriculture	Big	Medium	No reach effectively all farmers
Research Institutions	Big	Medium	Initiative is low
State Hydraulic Works	Medium	Medium	
Municipalities	Medium	Low	Legal constraints to farmers
NGOs	Medium	Medium	Cooperation for SWC is weak
Agricultural Credit Cooperatives	Low	Medium	Only reach large scale farmers
Provincial Directorate of Forestry	Medium	Medium	Legislative constraints for forest status of some land use type

4) Selection and appreciation of locally applied technologies and approaches (↱ results from Ex. 7)

4.1. Assessment made by **local stakeholders**:

Technology / approach	**Already applied or potential solution?**	**On land use type** (e.g. crop land / grazing land, etc.)	**Labour** required (initial and maintenance)	**Costs** (initial and maintenance)	**Impact / Effectiveness**						**Limiting factors / constraints**	**Overall assessment of the potential for the local context**
					economic		ecological		Socio-cultural			
					ST	LT	ST	LT	ST	LT		
Terracing	Potential	Agricultural	High	High	-	++	++	+++	0	+	Driving force, financial support	Positive
Mulching	Potential	Agricultural	Medium	High	+	++	+	+++	-	++	Availability of organic material	Positive
Improving grassland	Potential	Pasture	High	High	+	+++	++	+++	0	++	Driving force, financial support	Very positive
Tillage perpendicular to slope	Potential	Agricultural	Medium	High	-	++	+	+++	0	++	Appropriate machinery, financial support	Positive
Check dam	Potential	Natural	Very high	Very high	-	+	++	++	0	+	Driving force, financial support	Slightly positive
Tree planting	Partly already applied	Forest and Orchard	High	High	+	++	+	+++	+	+	For forestration legal constraints for land use type; providing seedling, water scarcity	Positive
Vegetation strips	Potential	Agricultural	High	High	+	+	++	++	0	0	None	Positive
Drip irrigation	Potential	Agricultural	Medium	Medium	-	++	++	++	+	+	Driving force, financial support	Positive
Crop rotation	Partly already applied	Agricultural	Medium	Medium	++	+++	+++	+++	0	0	Only can be used under irrigated conditions	Positive
Fodder Crops Production	Partly already applied	Agricultural	Medium	Medium	+	++	++	+++	0	0	Only can be applied by a part of the farmers (livestock producers)	Positive

Legend: ST = short-term LT = long-term

Labour and costs: very low, low, medium, high, very high

Impact / effectiveness: **+++** (very positive), **++** (positive), **+** (slightly positive), **0** (medium),

- (slightly negative), **--** (negative), **---** (very negative)

4.2. Assessment made by **external stakeholders**:

Technology / approach	**Already applied or potential solution?**	**On land use type** (e.g. crop land / grazing land, etc.)	**Labour** required (initial and maintenance)	**Costs** (initial and maintenance)	**Impact / Effectiveness**						**Limiting factors / constraints**	**Overall assessment of the potential for the local context**
					economic		ecological		Socio-cultural			
					ST	LT	ST	LT	ST	LT		
Terracing	Potential	Agricultural	High	High	-	++	++	+++	0	+	Planning, labour, finance, maintenance	Positive
Improving grassland	Potential	Pasture	Medium	Medium	0	+++	++	+++	0	+	Responsibility for continual conservation	Positive
Tree planting	Partly already applied	Forest and Orchard	High	High	0	++	++	+++	+	+	Legal constraints for land use type, continual technical help	Positive
Drip irrigation	Potential	Agricultural	Medium	High	-	+++	++	+++	+	+	Introduction, teaching and convince the farmers for using the technology	Positive
Crop rotation	Partly already applied	Agricultural	Medium	Medium	++	+++	+++	+++	0	0	Only can be used under irrigated conditions	Positive
Fodder Crops Production	Partly already applied	Agricultural	Medium	Medium	+	++	++	+++	0	0	Only can be applied by a part of the farmers (livestock producers)	Positive

Legend: ST = short-term LT = long-term

Labour and costs: very low, low, medium, high, very high

Impact / effectiveness: **+++** (very positive), **++** (positive), **+** (slightly positive), **0** (medium),

- (slightly negative), **--** (negative), **---** (very negative)

4.3 List of technologies / approaches to be evaluated by WOCAT methodology (result from Ex. 7)

-Tree planting
-Crop rotation
-Fodder crops production
-Drip irrigation

4.4 Draft outline of a strategy for sustainable land management (Ex. 8)

Objectives	Appropriate Technology	Adequate Approaches	Responsible Stakeholders
To increase soil fertility	Crop rotation	Technical help	Farmers
To limit water loss due to high evaporation	Drip irrigation	Financial and technical support, training	Extension services, sales agents, credits institutions
	Mulching	Technical support and training	Farmers, extension services
To improve destroyed vegetation	Improving grassland	Technical support	Farmers, research institutes
	Tree planting	Financial and technical support and cooperation with farmers and local forces	Governmental institutions (Provincial Directorate of Agriculture, Provincial Directorate of Forestry)
To prevent water and soil loss by erosion	Tillage perpendicular to slope direction	Technical support and training	Farmers, extension services
	Terraces	Financial and technical support and collaboration with farmers and local forces	Governmental institutions (Special Provincial Administration, State hydraulic Works, etc.)
To prevent flooding	checkdam	Financial and technical support and cooperation with farmers and local forces	Governmental institutions (Special Provincial Administration, State hydraulic Works, etc.)

III Evaluation of the workshop (Ex. 9)

Evaluation of contents and methodology of the workshop:

1. By participants (local and external):

Both local and external participants participated actively, timely and continually in the workshop. Motivation and interest were rather high and there was a good ambiance. Although local stakeholders showed some hesitation at the beginning, they were getting more relaxed and used to the methodology. They expressed their satisfaction and hoped to continue cooperation with researchers and other external stakeholders for SWC and sustainable agriculture. They also complained about so many things regarding government approaches to agriculture, and demanded much more help and support. Most of the external stakeholders were positive regarding contents and methodology and promised to help and cooperate with project management and local stakeholders for applying potential solutions.

2. By the moderator(s)

Eskişehir stakeholder meeting was realized in a warm ambiance with the attendance of a number of local and external stakeholders. Farmers, probably for the first time in their life, met experts and managers from the desertification-related GO's and NGO's to solve their problems with equal rights of expression.

Local stakeholders are expecting solutions to their aggravated problems – even indirectly related to DESIRE context – from the DESIRE team. Among others, they want guidance to deal with the challenges of urbanisation stress, trade of soil resources for industrial purposes, construction of aqueducts, providing agricultural information etc. Project leadership expresses the willingness to guide them to tackle these problems, and particularly to ease the communication between them and authorized GO's.

The many researchers and managers from Governmental Organisations who joined the meeting considerably decreased the productivity of discussion. But as the first meeting aimed at the clarification of problems and determination of strategies it was probably impossible to avoid this confusion. As a whole, we observed that GO's and NGO's are very keen to work and collaborate with farmers and DESIRE team.

Additionally the proximity of the living places of the DESIRE experts to the hotspot facilitates the communication and raises the motivation of both farmers and DESIRE team. Lastly, a TV broadcast of the Eskişehir stakeholder meeting encouraged very much, particularly the hotspot farmers. They have had the chance to distribute their problems and thoughts across the nation.

IV Other information

Difficulties encountered:

Changes made concerning the procedure suggested in the workshop guidelines:

How was the interest and participation of the different stakeholder groups in the workshop?

Almost all of the potentially relevant stakeholders were represented in the meeting from farmers, NGO's, agriculture-related GO's and local governors of various range. Although their interest was high at the beginning, to keep this dynamic throughout the project duration is a huge challenge.

Recommendations:

Comments: