

Scientists and stakeholders learn to listen to one another

Knowledge exchange is the key to sustainable action



How should scientists approach all the stakeholders that can contribute to ensuring that the research has practical uses? How can the interest of the stakeholders be maintained?

By stakeholders we mean everyone who has an interest: from farmers to national policy makers, from schoolchildren to the UNCCD. The DESIRE Project has included a series of stakeholder workshops in all study sites. This has allowed full discussion of ideas to combat land degradation and desertification, many of which are now

being trialed on experimental plots. Local stakeholders are involved in monitoring the trials where possible, and all stakeholders will be invited to consider the evaluation of success, and contribute to future recommendations.

The most rewarding workshops are where there is full support for seeking sustainable options from a wide range of people. It is important to try and include a range of ages and standards of education, and as many women as men.

Each page is from a DESIRE study site partner:

University of Aveiro, Portugal (Mação site); Democritus University of Thrace, Greece (Nestos river basin); University of Botswana (Boteti site); L'Institut de recherche pour le développement (IRD), France (Cointzio site, Mexico); Instituto de Investigaciones Agropecuarias (INIA), Chile (Secano interior)

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For more information and contact details see:

- The DESIRE Harmonised Information System: www.desire-his.eu and DESIRE website: www.desire-project.eu

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Establishment of the monitoring plot (15/10/2009)

Method of counting the trees cut (15/10/2009)

Measurement of the trunk diameter (15/10/2009)

A workshop on “Participatory monitoring”, was held in the Mação municipality, October 15, 2009

An exercise to design a practical methodology for initiating a participatory process for environmental monitoring was organised by Patrícia Santos (MSc student at Wageningen University). Prof. Celeste Coelho, (leading research in the Mação study site) made a short presentation about the DESIRE project, summarising the project’s overall aim and the specific objectives. Then the UAvr team and local stakeholders demonstrated their ideas on a field trip. The scientists and stakeholders together selected local indicators for monitoring the Fuel Management Strips in Mação municipality.

Seminar: “Mação Forest Strategy/ Desertification and Forest Fires”, held in the Mação municipality, May 11, 2010

This was organized by the National Focal Point of the UN Convention to Combat Desertification, the National Authority for Forestry (AFN) and the

Municipal Council of Mação within the celebrations of the “United Nations Decade for Deserts and the Fight against Desertification (2010/ 2020)”. The stakeholders involved included: government representatives, researchers, specialists and technical staff of forests and desertification areas, forest owners, among others.

The aim was to present recent developments and disseminate experiences and good practices in these areas, as well as the identification of possible reorientations that can be adopted in the future.

Celeste Coelho gave a presentation entitled: ‘Local stakeholders and sustainable forest management: forest fire prevention and restoration of burned areas’, presenting results also from DESIRE. The seminar also included a field trip to key sites in the Mação municipality, under the guidance of the Mação City Council.



Field trip: members of the National Authority in the Forest. (11/05/2010)



Plot used to demonstrate the population density of the trees in the experimental area. (11/05/2010)



Presentation in the experimental area by the Eng, António Louro. (11/05/2010)

NESTOS, GREECE - addressing soil salinization

Democritus
University of
Thrace, Greece



At this study site many years of irrigation with saline groundwater have made the soil salty and less productive for crops. The current involvement of the local stakeholders is mostly with demonstrations of remediation strategies to combat desertification. In order to help the local stakeholders understand the importance of taking action in the area, some debates at local coffee shops and discussions out in the fields have taken place.

There have also been meetings with local authorities and the Deputy Mayor, which aimed to exchange perceptions about land degradation and desertification matters in

this area. Non-saline surface water is needed for irrigation, to prevent further damage to the soils and crops.

The municipality of Topeiros has agreed to contribute to the supply of the necessary equipment to provide fresh water transport from outside the area. Therefore, with the permission of the Administrator of the Department of Water Management, a petrol pump, used to draw water from the adjacent canal, and a network of pipes, were provided by the local Administration for Land Reclamation, to transfer this water to the fields being monitored.



A. Pechtelidis, 2009

Debate with farmers at a coffee shop in Maggana village



Discussions with a farmer about the quality of water used for irrigation



A. Pechtelidis, 2009

Land degradation has been identified as a challenge in the Boteti area of Botswana. One reason is that pastoral families needing fuel for cooking and warmth collect firewood and deplete the resources around settlements, hence needing to cover greater distances to collect fuelwood. So, one sustainable option is to promote biogas for domestic fuel.



Through participatory community workshops (1), consultations and household surveys (2) DESIRE scientists and stakeholders established that biogas production from cattle dung (3) was a more sustainable and relatively more affordable option as a source of domestic fuel. Reducing brushwood collection for fuel in the Mopane woodland would help to sustain a vegetation cover and mitigate land degradation in Boteti.

In preparation for the construction of a pilot biogas plant, scientists have collected baseline data through a household survey on household energy consumption, woody biomass measurements, and cattle dung estimates (to establish the adequacy of feedstock for sustainable biogas production). They found:

- There is indeed a very **high dependency** on firewood as a source of energy for cooking (100% - Mopipi; 98.4% Mokoboxane), heating (77% - Mopipi; 96% - Mokoboxane), warming bath water (98.7% - Mopipi; 98.4% - Mokoboxane) and various family events or ceremonies (78.5% - Mopipi; 83% - Mokoboxane)
- There has been **increasing scarcity** of firewood within more accessible areas (86% of Mopipi and 90% of Mokoboxane respondents). This is facilitated by the increasing use of oxcart and motor vehicles in firewood collection, especially in the larger village – Mopipi (88.9% of respondents).
- On average, families use 10kg of firewood per

day.

- Most firewood is collected from communal land predominantly (not solely) lying in the easterly direction.
- There is enough cattle dung in the Mopipi area to support domestic biogas production on a sustainable basis. The total dung output per animal per night was estimated at 5.4 kg wet weight.
- Biomass of both live and dead fuel wood increases linearly with distance from the village. Biomass of live trees (25 989 kg per ha average) was far greater than that of dead wood (919 kg per ha average), suggesting depletion of the latter stock as people currently depend on dead, rather than live, wood for energy. *Colophospermum mopane* (the most preferred firewood species) contributed the most biomass of live tree species and, as expected, the least biomass of dead tree species – underscoring its popularity as a firewood resource.

THE COINTZIO WATERSHED, MEXICO



L'Institut de recherche pour le développement (IRD), France



1. *Agave inaequidens*, natural vegetation used for local production of Mezcal alcohol, Potrerillos, 2009
2. Ecological oven "Patzcuari" developed by SEMARNAT, Family Domínguez, San Rafael Coapa, April 2010
3. Filtering stone walls to control erosion, Potrerillos, 2009

In 2007, according to a Federal law, the Commission of the basin of Lake Cuitzeo, which includes the Cointzio watershed, was created. The integrated management plan of the natural resources of the basin of lake Cuitzeo was the result of the work of 50 stakeholders (administrators, scientists, citizens, farmers, fishermen, NGOs, etc.) during 4 workshops of 2 days, and small meetings of the coordination group during 2008.

The DESIRE Project was included in this, especially in a "strategic watershed plan" for one sub basin of Cointzio (El Pedregal-Potrerillos). Workshops showed that people are most worried about poverty and water availability, and see environment degradation as a consequence of poverty, along with unemployment and low prices for agricultural products.

So, after identifying the problems and discussing the causes, solutions were proposed and evaluated. Ideas and practical actions included: construction of family ecological ovens, construction of water distribution systems and reservoirs, construction of filtering stone walls to control erosion, development of pasture and

minimum tillage practices, and reforestation.

Now new projects are starting: mushroom production, fencing cattle out of fragile areas, use of local agave (*Agave inaequidens*) (keeping biodiversity) for land protection and remediation with agro-forestry systems, as well as a new Mezcal (alcohol) production system in the new official production area.

There are hopes that all these efforts, discussions and workshops will convince stakeholders to create a local watershed commission. This should help to better integrate all the members of the communities, give more visibility to the institutions, and coordinate community actions, with a special focus on controlling cattle, as these are the main cause of land degradation.

These results are possible only because the actions have become part of regional and local policies. The involvement of the Secretary of the Environment (SEMARNAT) of Michoacán state, gives DESIRE legal recognition as well as promoting best use of resources and a framework for action.



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SECANO INTERIOR, CHILE

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C. Ovalle

Barrier hedges in Yumbel, October 2009



C. Ovalle

Scientists and stakeholders discuss possible options

Excellent results were obtained by the DESIRE Project in the experimental sites in Cauquenes. A new, participatory and diffusive project in soil conservation techniques was beginning with the Municipality of Yumbel in 2009 in the secano interior of the Bío Bio Region.

This area is strongly affected by water erosion, where soils are mostly degraded. The techniques implemented are: contour ploughing with barriers of *Phalaris tuberosa* and *Chamaecytisus proliferus*, on soils for slopes greater than or equal to 20%; and wheat with no tillage on soils for slopes less than 15%. The results obtained with this new Project were presented in October 2009, in a Field Day with the participation of 400 farmers in Yumbel. Yield on the untilled wheat was 5.7 Mg Ha⁻¹, which was 300% higher than for the average conventional tillage system.

In Chile, the Agricultural and Livestock Service (Servicio Agrícola y Ganadero SAG, <http://www.sag.gob.cl>) implements rehabilitation programs for degraded soils and contributes with subsidies to the farmers to implement the conservation practices which are being studied through the DESIRE Project. The results obtained in DESIRE are being adopted by SAG to generate new policies and concrete instruments to help the farmers. This allows implementation of measures for improvement and conservation of soil and water resources throughout local agriculture.

Also, in April 2010 we began to publish the first of three articles in the local Chilean newspaper: "Diario la Discusión", all about the conservation techniques used in the DESIRE Project.



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Wheat grown
with no-tillage
gives higher yields
than with
traditional tillage