

## Remediating Desertification in Cointzio watershed, Michoacán state, México



In Cointzio basin, land degradation is mainly due to uncontrolled livestock that promotes soil water erosion. Farmers are living critical economical situation and livestock is a surviving importance.

### Priority Remediation Strategies

At the beginning of DESIRE, remediation strategies were focus on diminishing overgrazing through the reduction of livestock and the increasing of the animal quality. The first workshop defined different strategies to test: agronomic practices, gullies control... During other workshops and practice results, the agaveforestry appears as a new integral solution. The objective is to remediate badlands and generate very high incomes in the which let cattle not important for the farmer at mid term period. At this moment, it will be easy to reduce their number, and by this way, reduce soil erosion cause.

The last DESIRE workshop, based on results, showed that some technical options are effective and others less. The last ones do not solve the main cause of soil erosion (bad livestock management), meanwhile the agaveforestry is considered as the main alternative solution.



Initial rank	End rank	Remediation Strategy
-	1	Agaveforestry sustainable plantations with native plants
1	2	Agronomical strategies: mulch, minimum tillage, fertilisation, rotation...
2	2	Wood saver rural oven
3	3	Control run-off on existing gullies + plantations on the borders

### Promoting Remediation



#### 1 –Agaveforestry

► Degraded land are planted with local agave for Mescal and fodder production in association with trees.  
=> Generate high economical incomes with low inputs, maintaining biodiversity, remediate and protecting soil eroded... but just to be evaluated for this aspect!

#### 2 –Agriculture practices

► Agricultural systems tested during 5 y on 8 erosion plots of 350 to 1000m<sup>2</sup>  
=> Minimum tillage better system but with improve fertility and increasing stubble quantity and soil incorporation

#### 3 – Gully control

► Gullies are controlled by filtering stone dams done by local stakeholders and fund by SEMARNAT (Sec. Environment).  
=> Expensive, but gives work! Not reduce soil erosion, but reduce energy of water runoff. Localisation must be choose well. Must be used as part of a global strategy.

#### 4 –Reduce wood oven

► System developed by SEMARNAT since 4 years, but survey also by DESIRE  
=> Excellent acceptance and more ovens follow to be build. No risks of deforestation for using wood.

### Next Steps

- SEMARNAT accept to fund agaveforestry tests for the next years as well as development of plantations with local stakeholders
- DESIRE methodology follow next years (workshops, involvement with authorities, stakeholders, etc...)
- Issue for hidrological water payment pilot program for Cointzio basin
- 08/2012-Forum of Cuitzeo watershed (where Cointzio belongs to) with national, regional and local authorities, scientifics, administrations, stakeholders, people. Objective: Design and implement special forest program for Cuitzeo basin.
- 05/2013-3 nacional watershed management congress.

### How can we enable priority remediation options to be adopted?

- The results are already used by stakeholders and partly funded by administrations, specially by environment minister (SEMARNAT).
- Experimental sites managed by local people are more likely to be implemented in a longer term by farmers.
- Insert gender equity in decision and implementation of projects.
- Proposals need capacity building in community management and financing
- Money/funding is always a problem but can be turned through environmental taxes (water, carbon...) done on users downstream of the watershed (urban and industry) paying land and natural resource managers (farmers).

### Key Policy Messages

- Proposal must fit well in the local context
- A personal commitment
- Conducting a participatory approach that involves civil society, politicians, governments, scientists
- Adopt a comprehensive approach that combines environmental, social and economic
- Power to rely on agency policies and sustainable financing

Participatory environmental projects proposed, must have an integral approach, guaranteeing correct incomes and not survival ones.

TO PREPARE THE FUTURE, PRESENT MUST BE IMPROVE !

IF FARMER SONS WILL STAY IN THEIR FAMILY FARMS THANKS TO THE PROPOSAL, IT IS A VERY EFFECTIVE WAY TO MEASURE THE SOCIAL SUCCESS OF THE PROJECT!



Work with stakeholders

Test some proposals in fields, presenting results

Incorporate communities people in the scientific activities

Present results to the different authorities (field day, seminar, technical meeting...)

Priority remediation strategie(s) as selected in workshop (if ranked, provide in rank order in table - right) – comments based on workshop discussion (e.g.

- Why was this (or were these) strategies selected?

- Were any additional criteria used to evaluate the strategies (additional to those used in WB3 workshop)?

## How can we enable priority remediation options to be adopted?

- Summary of key points arising from workshop discussions about how selected strategies can be best disseminated for uptake by land managers and/or policy-makers
- If you used a meta-plan and sticky-dot prioritisation, provide ideas in rank order (with comments about each idea from the discussion where relevant) – if you didn't use this technique but still think you can rank them, please do so (ranking obviously isn't relevant if the workshop only considered one strategy)
- Are there existing (or could there be potential future) local/regional policies that could promote wide adoption of the strategies
- Are there any major obstacles identified for adopting the priority remediation



From planting to harvest agaves after 7 to 12 years, leading to soil protection and the production of Mezcal (Photos C. Prat, IRD, 2009, 2011)