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Restoration of degraded drylands in northern Chile: The need of local stakeholders' participation to prevent and combat desertification

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Desertification is one of the main factors determining poverty, long-term socio-economic problems, natural resources depletion and disturbances in rural communities living at the Coquimbo Region drylands (North-Central Chile). The Chilean State, along with private initiatives, have invested 473.6 Million dollars (1976 to 2008) to recover degraded areas through afforestation and soil management of 1,373,758 hectares. However, there is no information about the impact of the practices and changes experienced by the local stakeholders. Therefore, there is a need for a comprehensive evaluation considering both socioeconomic and biophysical aspects. To this end, a Protocol on Integrated Assessment (IAPro, PRACTICE project) was applied in two rural communities, involving communal afforested sites and their adjacent degraded drylands: El Sauce (ES, Limarí province) and Las Cañas (LC, Choapa province), Coquimbo Region. Participatory afforestation and soil conservation projects were implemented at both sites by the Chilean National Forestry Service (CONAF) in agreement with each local community (Jiménez y Tapia Agricultural Community at ES and Las Cañas de Choapa Peasant's Community at LC). The protocol involved 7 steps: (1) Stakeholder platform identification and engagement; (2) Baseline assessment and selection of site-specific indicators; (3) Integration and weighting of common and site-specific indicators; (4) Data collection; (5) Integrating and perspectives on a MCDA (Multi-Criteria Decision Analysis); (6) Collective Integrated assessment and knowledge sharing; (7) Dissemination. Interviews involved local and institutional stakeholders related to both sites' implementation, administration and/or local impacts. For the ES site, 5 actions were defined and assessed: No action (control); fences; mechanic and biological practices (soil stabilization, runoff control on slopes); runoff control in micro-basins, gullies and ravines; and footpath for educational and demonstration purposes. The same actions plus 'conservation and management of native forests/shrubs at strict exclosure' were identified at LC site. All of the stakeholders interviewed at both sites recognized the actions, but not all of them had specific knowledge about some of the practices. Afforestation was the most selected and valued practice, revealing deep knowledge about the actions and positive valuation of the site experience, but also a need of more support for maintenance. At ES, the main concerns were drought and derived unemployment; at LC, the main concerns were access to the site, prolonged droughts, local conflicts and lack of community commitment. At both sites, many stakeholders highlighted the need for more financial support, better management and assistance in solving local conflicts. External stakeholders value both sites as replicable models and their positive impacts in increasing afforestation and soil conservation experiences; they also identify a need for continuous financial support and the exploration of other models for site implementation and educational activities. The integrated assessment identified a match between the trends in biophysical indicators' results and the perspectives on those indicators expressed by stakeholders. It remained clear that every intervention to combat desertification requires an active involvement of local stakeholders and the implementation of educational modules to ensure the adoption of appropriate practices.

Keywords: Land degradation – restoration actions – participatory approach – economic and environmental aspects – recovery of degraded drylands