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ECONOMIC OPPORTUNITIES IN THE DRYLANDS UNDER THE UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

Background information for the Special segment^{*}

BACKGROUND PAPER 1

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INTRODUCTION

Given that the drylands occupy more than 40 per cent of the global land area but are inhabited by only around one third of humanity, technically speaking drylands are relatively under-populated. However, the dryland populations tend to be characterized by poverty to a much larger extent than other areas. Most of the drylands people live in the rural areas, off the land. These facts nurture the image of drylands as environmentally, economically and socially inhospitable areas. Indeed, drylands do not benefit from a generous natural resource base, and often they are less productive than many other land areas. Poverty of the drylands people is commonly attributed to a persistent decline of the drylands' low productivity, namely desertification. However, most drylands, in spite of the risk of desertification deriving from their natural characteristics, do offer tangible economic opportunities which can dramatically alleviate the current prevailing poverty, provide for self-sustained livelihoods and guarantee the sustainability of further dryland development.

WHY DOES POVERTY PREVAIL IN THE RURAL DRYLANDS?

Poverty in the drylands is not necessarily driven by desertification; a recent survey of available data classified only 10–20 per cent of the global drylands as irreversibly losing much of their natural productivity, i.e. as being desertified.¹ Yet, poverty may also occur in non-desertified drylands, due to their natural low and fluctuating land productivity as compared to all other terrestrial ecosystems on earth, the polar regions excluded. This low productivity is attributed to low precipitation, high evaporation and low soil quality, which also emanate from the water constraint. Unfortunately, neither the low precipitation nor its between-year fluctuations can be dramatically improved by currently-available science and technology. Thus, generation of income from dryland biological productivity expressed in crops and livestock and other commodities is harder than in non-drylands, unless larger inputs than would have been necessary in non-drylands are injected into production. To conclude, living in drylands above poverty requires knowledge and experience for grappling with drylands constraints.

In the past and up to present times dryland people mitigated these constraints by reducing losses to evaporation through harvesting surface runoff and storing water in the soil profile and in surface and sub-surface reservoirs. They also cultivated dryland-adapted crops and animal breeds, and developed ingenious rangeland management and cultivation practices that further supported the maintenance of sustainable livelihoods.

However, following global demographic and socio-economic trends many dryland populations assumed an accelerated growth (the drylands' population growth rate is currently the highest, compared to human populations of other major ecosystems²), combined with increasing aspirations for a higher standard of living. As a result, in those areas where resources for productivity were used at a rate faster than the rate of their renewal, the production per person declined, eventually resulting in reduced rather than increased productivity, and poverty.

WILL LAND PRODUCTIVITY ALONE CONTINUE SUSTAINABLY TO SUPPORT THE DRYLAND RURAL POPULATION?

Rural dryland communities usually strive to avoid poverty by preventing failure of the ecosystem to support increasing demand. The measures they have so far taken have been successful in some cases and have failed in others. The experience gained from these successes and failures enables the identification of technological and social measures. These measures combined can

prevent a further decline in land productivity and the risk of desertification, while increasing productivity in a sustainable manner and thus building the basis for human well-being.

The measures identified range from the application of land-use practices that are based on adaptive local knowledge with modest technological and financial investment, to the use of modern and rather expensive technologies. The implementation of the latter measures constitutes new economic opportunities derived from the drylands' productivity, and provides a relatively high and stable livelihood and human well-being. However, while there is clear evidence of the success of the adapted or adopted technologies, there are also cases that demonstrate failure. These failures have often gained more exposure and publicity than the successes, and the prevailing notion seems to be that many prescribed land-use practices have not brought the desired results, or have failed to reduce poverty, or have even increased it.

It is however widely acknowledged that the reasons for failure are not due to technical faults inherent in these technologies, nor in their not being practised in the environments for which they have been designed; in most cases, the failure is not attributed to the land user misusing the technology. Rather, failures are due to policy, social and economic factors which are not conducive for prescribed implementation of the practices and technologies and which impair their field performance. Thus, there are still economic opportunities in improving dryland livelihoods based on land productivity, provided that this track for poverty alleviation couples technological advances with compatible policy and social environment.

Even if social and policy constraints are removed and transformed to support drylands development, this track can be effective only as long as the local resource base is not exploited beyond its capacity for renewal. There are no technologies for sustainably increasing land productivity in the drylands well beyond what the dryland resource base can support. Therefore, in places where the limit to sustainable land productivity has already been reached, and in others where it is expected due to the projected population increase, productivity will decline and the risk of desertification and/or consequent poverty will increase. When the drylands' inherent limited productivity becomes fully exploited and cannot be further increased at a reasonable cost, maintenance of well-being can be achieved only if the required additional income is generated by livelihoods independent of land productivity. Such livelihoods do not exert an added pressure on land resources; hence they enable increased income that does not add to desertification risks (figure 1).

This track of "alternative livelihoods", however, requires investment in both physical infrastructures and human capacity, and a supporting policy and social environment is critical for its successful implementation. Such an environment is also beneficial for sustainably improving land productivity. It is therefore imperative to start investing in a supporting societal, policy and economic environment as early as possible, as well as exploring and investing in the alternative livelihoods prior to the projected further population increase that will not be sustainably supported by the drylands' productivity. The most promising route for poverty reduction and for achieving sustainability in the rural drylands is to take both tracks simultaneously – apply measures for a sustainable increase in productivity and take initiatives for sustainable "alternative livelihoods" which are independent of land productivity (figure 1).

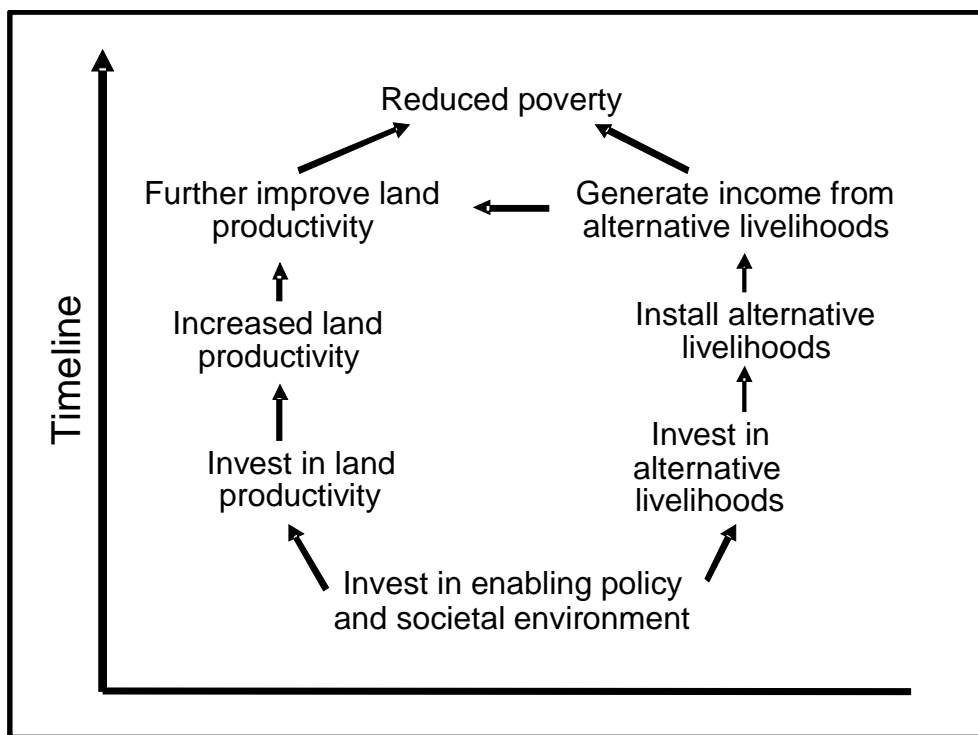


Figure 1. The timeline for investment in drylands' economic opportunities, thus alleviating dryland rural poverty

ECONOMIC OPPORTUNITIES BASED ON LAND PRODUCTIVITY

LIVING OFF THE LAND – THE TECHNICAL ASPECTS

Successful traditional but evolving practices that mix species and life forms which create synergy rather than generate competition (agroforestry, agro-sylviculture and sylvi-pastoral systems) should be encouraged. They can be combined with “conservation agriculture” using rotation, mix of species of different rooting depths and providing year-round soil cover, “conservation tillage” and “no tillage” that increase soil organic matter and water holding capacity, reduce evaporation, increase a crop’s water use efficiently and maintain soil biodiversity. Labour costs are relatively low, but pesticides, fertilizers and equipment may be expensive. Cheaper alternatives for building up soil organic matter are locally available – plant- and animal-derived fertilizers, nitrogen-fixing plants and transport of organic material and litter from adjacent non-cultivated ecosystems. Ploughing to break up soil crusts and building raised contour ridges and eyebrow terraces are labour intensive but increase rain-use efficiency.

Further sustainable intensification based on technology-laden practices are surface and sub-surface drip-irrigation linked with measures to reduce evaporation further and control the crop’s microclimate using a plastic cover that allows light penetration but reduces evaporation and insecticide use.³ These practices range from covering individual rows of low-stature crops to including plots within “growth houses” or “greenhouses” in which crops are relatively detached from the outer environment by controlling internal environmental conditions. The resulting efficiency in water and land use reduces pressure on land resources. This intensification generates more yield per unit of investment, which includes physical infrastructure and energy for ventilation and cooling; hence crops must be highly valuable to compensate for it. This “greenhouse” production of cash crops in drylands may be more profitable than in the non-

drylands, on account of two physical/climatic virtues in many, though not all, drylands: high irradiation due to relatively low overcast, and higher ambient winter temperatures relative to those prevailing in the nearest non-dryland areas. Yet, the benefit from investing in an artificially-created micro-environment that differs from the prevailing natural one is higher when practised in hyper-arid and arid drylands than in semi-arid and dry sub-humid ones.

Even the most sophisticated dryland irrigation technology cannot be practised to increase rangeland productivity in drylands. Hence the strategies for range management under low rainfall, rainfall variability and drought include sale of stock as soon as drought emerges, reducing the number of unproductive animals, expansion of areas available for grazing but avoiding over-extension, weaning and selling stock earlier, purchasing supplementary feed, and moving livestock to less affected areas. Dryland animal husbandry with little or no dependency on free ranging is often advantageous, especially in comparison to practising it in non-drylands due to the improved animal health deriving from the relative isolation of settlements and the dry conditions.

LAND PRODUCTIVITY AS AN ECONOMIC OPPORTUNITY – THE ENABLING ENVIRONMENT

None of the above-mentioned practices is new yet they are not widely practised. To make them economic opportunities for dramatically increasing the well-being of rural people requires societal and policy measures, including planning, financial, marketing, knowledge and prioritization.

Planning

- Introducing land-use planning that matches the environmental conditions (by identifying the agro-ecological zoning or the aridity scale) and is compatible with the sociocultural and economic setting;
- Reinforcing the planned land uses, land tenure and water rights for promoting responsible practices and providing incentives for long-term investment through legal and administrative frameworks;
- Promoting voluntary cooperation and cost-sharing mechanisms that facilitate up-scaling and sustainable intensification;
- Promoting labour markets for farmhands at periods of high market demand;
- Increasing coordination between local and national government ministries dealing with rural development, social policies and the macro-economy.

Financial instruments⁴

- Linking subsidies to land users' commitment for long-term involvement and investment in prescribed practices;
- Providing credit lines to farmers for incorporating into their production systems technological innovation and infrastructure in irrigation, water management, storage of products and livestock husbandry;
- Securing prices for agricultural commodities that constitute a just and fitting reward to their producers through the creation of markets and price control, and protecting the rural sector from the negative effects of globalization, while exposing it to its prospective benefits and opportunities;
- Mobilizing local, national and foreign support from the public and private sectors, using a diversity of financial tools and innovative financial mechanisms for investments compatible with the needs of the local populations, such as investments, grants, concessions, credits and micro-credits, and revolving funds (which recycle funds by providing loans, receiving loan repayments, and then providing further loans).

Marketing

- Developing agricultural commodity processing facilities;
- Developing mechanisms for linking producers to markets – storage and transportation infrastructures, and information flow on markets for matching supplies with markets' demands.

Increasing knowledge

- Investing in “in-house” agricultural research and extension while maintaining follow-up of scientific and technological developments using information technologies, exchange visits, and professional interactions;
- Developing and operating transparent monitoring and evaluation of climates, soils, land productivity, agricultural inputs and outputs, markets, demography and human well-being indicators in the rural areas, and making results usable and available to stakeholders including the direct land users;
- Transferring information to land users for expanding their knowledge and strengthening their skills for adapting new and emerging technologies to their specific conditions. These can be provided through extension services, the creation of “farmers’ field schools”, mutual farm visits, and improving education at all levels in the rural areas.

Prioritizing

- Identifying and prioritizing areas and sectors of need, by:

- (a) using the monitoring and evaluation system: overlaying geo-referenced maps of low human well-being and poverty on maps of land degradation, further overlaid on aridity and agro-ecological maps for -
- (b) defining the areas where poverty and degradation already prevail, demarcating them from those that are at imminent risk, as against others in which land use is apparently sustainable, and -
- (c) evaluating which of these areas and socioeconomic sectors will most benefit from investment and assistance in its environmentally and socially compatible economic opportunities, and -
- (d) empowering the poor by improving their access to legal protection instruments for reducing their marginalization and insecurity.

ECONOMIC OPPORTUNITIES INDEPENDENT OF LAND PRODUCTIVITY – “ALTERNATIVE LIVELIHOODS”

Drylands are endowed with several natural attributes with a potential to promote economic opportunities often greater than those derived from land productivity. This is because (a) these attributes are in relatively short supply in the non-drylands, which gives their dryland practitioners a competitive edge over non-dryland practitioners, and (b) while most economic opportunities derived from the inferior land productivity (relative to that of non-drylands) are already realized, the opportunities provided by these relatively superior dryland attributes have hardly been tapped.

Most significant among these attributes are (a) the intensive, extensive and stable provision of sunlight, and (b) the abundance of “empty” space in the drylands. These attributes make solar energy development, aquaculture, tourism and afforestation economic opportunities that provide “alternative livelihoods” in the dryland rural areas. These, as well as bioprospecting and mining, though already practised at a small or larger extent, have not yet attained their full potential capacity and are currently rather “strategic” options with high promise. Like the opportunities still available for the “traditional” livelihoods based on land productivity, the large-scale realization of opportunities for alternative livelihoods depends greatly on the prevalence of an enabling societal and policy environment. When this is in place, the development tracks driven by economic opportunities for both the land-based traditional, and the non-land base alternative, livelihoods should be implemented simultaneously. Furthermore, once the alternative livelihoods take off, part of the income generated through them can be reinvested in further promoting opportunities for livelihoods based on land productivity (figure 1).

SOLAR ENERGY DEVELOPMENT

Solar power plants, which until recently have been of marginal interest to mainstream energy producers, are likely to play an increasing role in power generation for both environmental and security reasons. The world’s drylands are sufficiently large that covering a fraction of their landmass with light-capturing and concentrating systems is feasible. Whereas land productivity decreases as aridity increases, the efficiency of solar power generation increases with aridity, due both to the incidence of solar radiation and to the availability of vast unutilized and therefore cheap land areas. Four per cent of the accessible global desert area (hyper-arid and arid

drylands) can produce an annual energy production that would equal world energy consumption, at an attractive cost while providing steady income.⁵

The economic value of this clean, renewable energy source is projected to increase as the detrimental effects of global warming, coupled with the advancing depletion of fossil fuel reserves and the need for energy for water desalination, become apparent. This will intensify the improvement of technologies that make dryland solar energy a commodity produced and used locally as well as exported, thus channelling affluence from non-dryland and industrial countries to the developing dryland countries, as well as from urban to dryland rural areas. In addition, the local use of solar energy in drylands will reduce the overexploitation of natural vegetation for biofuel and its threat to land productivity (figure 2).

AQUACULTURE

Biological productivity requires light and water; can the abundance of dryland light compensate for the shortage in water? Water shortage due to low rainfall is exacerbated by the sun-driven evaporative loss (transpiration). But plants that live in water do not transpire; aquatic microscopic algae, of which many are of high nutritional, pharmaceutical and industrial value, are competent light-capturing and highly efficient biomass-producing organisms. Once cultivated in transparent but evaporation-proof containers they utilize in full the abundant sunlight for an intensified production of their valuable biomass, while their water demand is scaled down to what is required as growth medium. A number of micro-algal species which have already proved suitable for cultivation in drylands produce chemicals for which there exists a significant global market demand. Other species cultivated in drylands can be used locally as feed for yet another, even more lucrative, dryland aquaculture, that of fish and crustaceans.

As is the case for micro-algae, fish live in water but do not evaporate water; cultivated in evaporation-proof containers, their water-use efficiency in drylands is much higher than that of dryland crops. Dryland aquaculture is advantageous not only compared to dryland “traditional” farming, but also compared to non-dryland aquaculture. In non-drylands, aquaculture competes on high-value agricultural and urban land, whereas in drylands non-utilized land is abundant and cheap. Furthermore, in many drylands the water demand of aquaculture, even though low, is not at the expense of dryland agriculture water use; brackish water that abounds in many drylands is optimal for aquatic organisms but of low quality for most plant crops, beside increasing soil salinization if used for irrigation.⁶ Finally, unlike coastal aquaculture that generates environmental problems and has dubious sustainability, dryland aquaculture is environment-friendly, potentially sustainable and economically promising; the exploitation of natural fish stocks is reaching its limit,^{2,7} the global demand for non-marine aquatic protein is accelerating and aquaculture production has not yet fulfilled its potential.⁸

TOURISM

The large expanses, relative isolation, remoteness and sparse populations of many dryland areas are being turned into assets by expanding tourism driven by the increasing affluence and free time and high mobility enjoyed by a large segment of the global population. These factors are coupled with the growing craving for non-congested, unpolluted, pastoral and pristine landscapes, promoted by the increasing publicity given to the scenic, historical, cultural and spiritual assets unique to many drylands. These, together with tourism’s becoming the world’s largest employer and an important economic factor in many developing countries, constitute tourism as a drylands rural economic opportunity.

Similarly, dryland wildlife and biodiversity is a major draw for ecotourism, paradoxically because many drylands are devoid of woodlands and dense high vegetation and hence free of obstructions to viewing wildlife. Given this growing interest, more wildlife conservation takes place outside protected areas, becoming integrated into dryland agricultural, pastoral and urban areas. This opens business opportunities such as agro-tourism. It is based on dryland agriculture itself, which inspires non-dryland people and attracts curiosity and admiration. This adds value to farming and pastoral communities and constitutes an incentive for maintaining these rural livelihoods.

Dryland tourism constraints are its vulnerability to local instability and deteriorating security, the cost of travel due to the remoteness and isolation, and the harsh climate which imposes a high energy and water demand on residential facilities. The energy issue can be addressed through construction and architectural solutions for passive cooling and heating⁹ and the use of solar energy¹⁰ and the water demand has already catalyzed the improvement of technologies for the recycling and reuse of waste-water and for water desalination in drylands.¹¹

AFFORESTATION

Afforestation depends on land productivity, but rather than producing a crop it generates a service benefiting the global environment; trees effectively sequester carbon and also produce renewable energy in the form of fuelwood. These mitigate global climate change, for which dryland afforestation can be rewarded through the rapidly growing “carbon trading” under the Clean Development Mechanism (CDM) of the Kyoto Protocol.¹² Though drylands are less efficient than non-drylands in carbon sequestration, their potential for further carbon sequestration is high, due to their large area coverage.¹³ This potential is barely realised, whereas the use of non-drylands forest is already close to maximum. By the same token, whereas space for afforestation in drylands is abundant and cheap, most space in suitable non-drylands is either cultivated or afforested. Thus, dryland afforestation for both firewood production and carbon sequestration is more profitable than non-dryland afforestation. It will provide both locally-generated income from selling fuelwood and other non-timber forest products, and foreign investment, since the price of stored carbon on the global carbon market is expected to increase rapidly. In addition, whereas pastoral and farming livelihoods extract soil nutrients and put the land at risk of soil erosion and salinization, afforestation effectively protects the soil and the provision of firewood reduces the destruction of range vegetation.

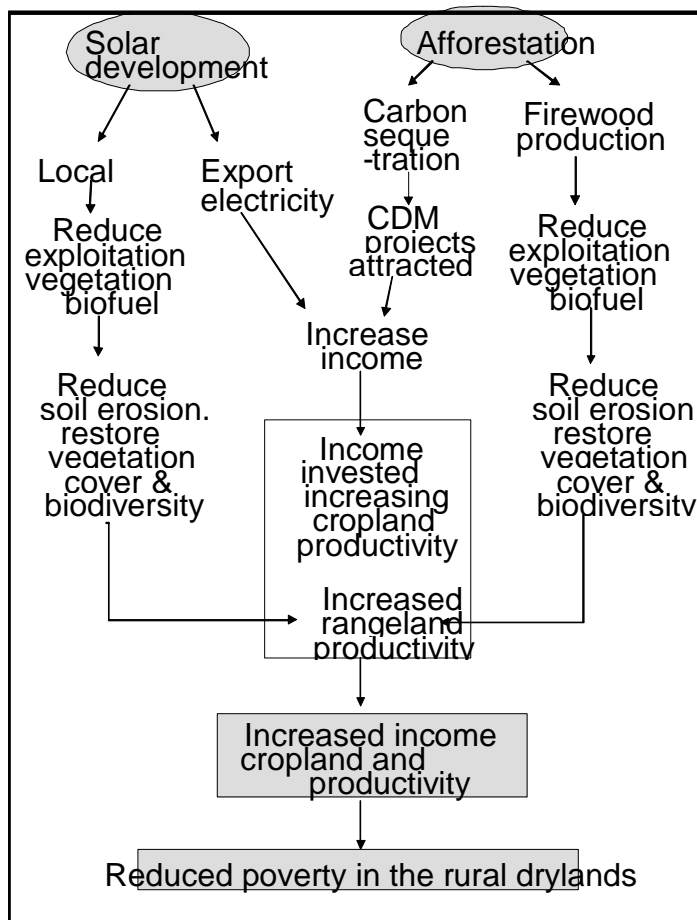


Figure 2. Economic opportunities of alternative livelihoods (grey circles) have a potential to promote traditional livelihoods based on land productivity thus jointly reducing poverty (grey rectangles).

Depending on local conditions, trees can either reduce local and regional water storage or they can augment it, and depending on tree species, they can promote indigenous biodiversity or become invasive alien species. When these trade-offs are considered and caveats avoided, afforestation becomes an attractive dryland economic opportunity.

BIOPROSPECTING BASED ON DRYLAND BIODIVERSITY

While the biodiversity-richest tropical ecosystems are expected to provide the majority of pharmaceutical and other useful compounds in the long term, bioprospecting has already yielded valuable products from other ecosystems, including drylands.¹⁴ Surely dryland biodiversity is lower than that of the tropics, yet of 25 global “biodiversity hotspots” eight are in drylands. Two features make drylands attractive for bioprospecting. First, at least 30 per cent of the world’s globally important cultivated plants originated in drylands, which still host their progenitors and relatives; these can be used for further improvement of food plants the world over.

Second, many dryland species are used by dryland peoples for medicinal and cosmetic purposes and as spices. It is probably the extreme conditions and the threat of losing their production to herbivores that generates the activity of unique biochemicals produced by dryland plants.¹⁵

Thus, bioprospecting can yield substantial income and be instrumental in mitigating rural poverty. This is provided that the societal and policy mechanisms to guarantee directing the income to the rural dryland people are in place.

THE EXTRACTING INDUSTRIES

Many drylands are rich in non-renewable resources such as oil, gas and diamonds whose occurrence in drylands is not linked to the drylands' environmental conditions. Other extracting industries are based on potentially soluble mineral sequestered as solid deposits due to the prevailing dry conditions. In spite of their relative richness in extractable resources, the dryland mining and extraction industries contribute little if anything to poverty alleviation in the rural areas. Moreover, they often generate local or even regional cross-boundary environmental degradation, which often further lowers the well-being of local people. The mining and extractable resources of the drylands can turn into dryland economic opportunities when the mining industries, committed to dryland sustainable development and the eradication of rural poverty, (a) invest some profits in dryland rural development, and (b) adhere to environmentally-sensitive practices, jointly formulated by the World Conservation Union (IUCN), the United Nations Convention to Combat Desertification (UNCCD) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), and apply them to dryland regions.¹⁶

INSTRUMENTS, MECHANISMS AND TOOLS FOR REALIZING ECONOMIC OPPORTUNITIES IN THE RURAL DRYLANDS

Catalyzing and realizing the above-described economic opportunities in the rural drylands require financial instruments in place and mechanisms to create and access them. Beside national and local Governments, the financial instruments are the private sector and public foreign aid. Several mechanisms that motivate targeting of these instruments to economic opportunities in the rural drylands and which facilitate access by rural dryland people and their Governments to these instruments are international agreements such as the UNCCD, other relevant multilateral environmental agreements (MEAs), and international institutions such as the World Bank and the Global Environment Facility (GEF). These and other institutions and organizations devised and utilize tools for driving, supporting and sensitizing activation of the financial instruments (figure 3). Only a few of these entities specifically target UNCCD implementation. Yet many priorities of the international community (e.g. figure 4), though moulded for responding to global concerns, are of high relevance for dryland sustainable development. In the following, mechanisms and tools are described first, and this is followed by a discussion of the financial instruments.

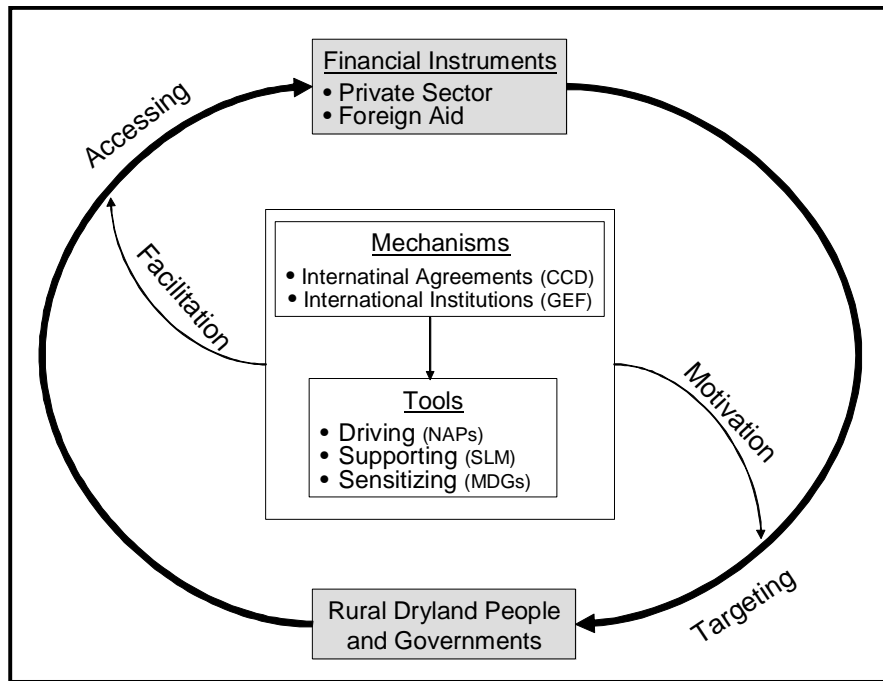


Figure 3. Instruments, mechanisms and tools for realizing economic opportunities in the rural drylands

MECHANISMS – INTERNATIONAL AGREEMENTS AND THEIR DRIVING TOOLS

International agreements of relevance to drylands, mainly MEAs, and international institutions that mainly target developing countries use programmatic tools such as the UNCCD’s national

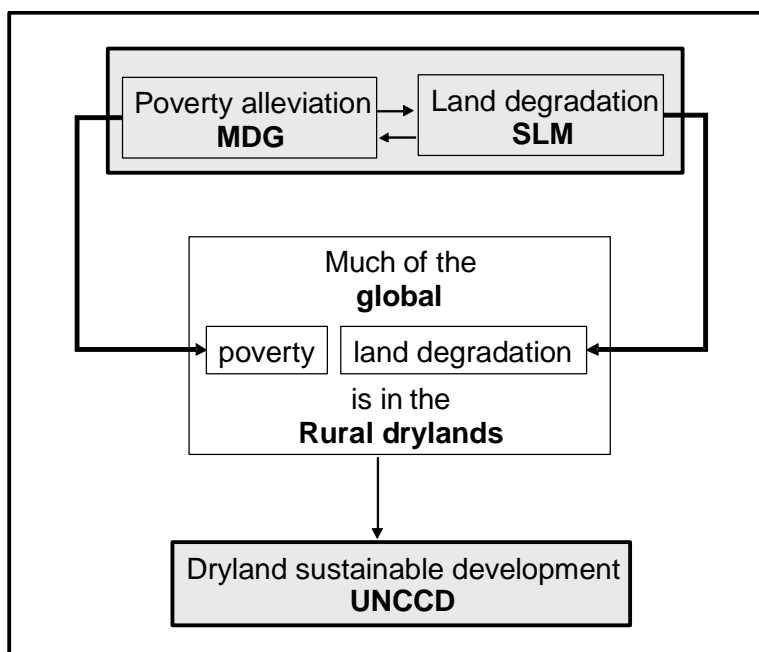


Figure 4. Tools for attending global concerns are of direct relevance to rural drylands and the implementation of the UNCCD

action programmes to combat desertification (NAPs) and the World Bank Poverty Reduction Strategy Papers (PRSPs) that are prerequisites for accessing the financial instruments and hence are indispensable in driving economic opportunities in the rural drylands (“driving tools”).

The United Nations Convention to Combat Desertification and national action programmes

The UNCCD is an agreement for promoting sustainable development in drylands, especially in developing countries and with a particular focus on Africa. The NAP framework mainly drives this objective. The NAP constitutes a critical iterative process by which the dryland country identifies the biophysical and social causes for concern, prioritizes response activities, defines the roles of national actors and specifies the need for the involvement of prospective partner countries, organizations and institutions. The Global Mechanism (GM), the UNCCD's tool for mobilizing resources to combat land degradation and poverty in drylands, assists in identifying stakeholders and facilitates negotiations with them. The UNCCD secretariat and the GM are involved in the NAP process by facilitating the mainstreaming of the NAPs with other available frameworks, strategies and programmes. NAPs include measures for enabling legislation and social and economic policies, and for reducing duplication of effort through cooperation between relevant ministries (agriculture, environment) and different sectors (agriculture, water, energy and environment) and by joint synergistic implementation with other MEAs. When these are in place, the UNCCD secretariat and the GM help realize the potential of the NAP process for exploring, identifying, negotiating, raising and mainstreaming financial resources and partnerships for implementation of specific programme components.

The Convention on Biological Diversity and its Dry and Sub-humid Lands Biodiversity Programme

The objective of the Convention on Biological Diversity (CBD) is the conservation of biological diversity, the sustainable use of its components and the fair sharing of its benefits. For its implementation in drylands the CBD has developed the Dry and Sub-humid Lands Biodiversity Programme which supports targeted actions in response to identified needs of conservation and sustainable exploitation of dryland biodiversity. Because components of plant biodiversity are instrumental in dryland soil conservation and hence in preventing land degradation and conserving soil and water, the programme promotes synergy between, and joint implementation of the CBD and the UNCCD.

The United Nations Framework Convention on Climate Change and the Kyoto Protocol

The United Nations Framework Convention on Climate Change (UNFCCC) highlights mitigation of global climate change by reducing greenhouse gas emissions and enhancing carbon sinks, hence endorsing conservation of vegetation cover, reforestation and afforestation and conservation of soil that functions as carbon sink. These measures also prevent land degradation, restore dryland productivity and ameliorate local dryland climate. Joint implementation of the UNFCCC and the UNCCD therefore generates more synergy. Instruments devised by the Kyoto Protocol of the UNFCCC such as the Joint Implementation and the Clean Development Mechanism (CDM), encourage global carbon trading that can benefit rural dryland communities. Indeed, decisions 5/COP.6 and 6/COP.6 of the UNCCD invite developing dryland countries to conclude partnership agreements with industrial stakeholders for implementing the UNCCD through measures taken under the CDM.

World Bank, Poverty Reduction Strategy Papers, and TerrAfrica

The World Bank is a development bank that provides loans, technical assistance and policy advice to developing countries. It has introduced a new framework, the PRSPs, which are central to its Country Assistance Strategy for reducing poverty by allocating resources and forging public–private sector partnerships. These country-driven analyses, which involve domestic and external partnerships, constitute a prerequisite for development assistance and hence are indispensable for dryland countries seeking the World Bank support. Mainstreaming NAPs could contribute usefully to the “greening” of the PRSPs.

The TerrAfrica initiative of the World Bank is a fresh effort to integrate international support better in a structured partnership process and should link with the UNCCD implementation and review processes. The coherence between the TerrAfrica initiative and the UNCCD offers to industrial country parties of the UNCCD an opportunity for a more coordinated response to the needs of the developing country Parties to which they would wish to respond under Article 6 of the Convention.

Global Environment Facility

The Global Environment Facility (GEF) helps developing countries carry out programmes that protect the global environment by providing grants for projects addressing biodiversity, climate change, international waters and land degradation. It is the official financial mechanism of the CBD and UNFCCC and recently has also been designated as a financial mechanism for implementing the UNCCD. The GEF has developed tools for catalyzing economic opportunities in the rural drylands – five Operational Programmes (OPs) which provide grants for promoting five of the GEF focal areas (FAs) relevant for the implementation of the UNCCD and for catalyzing economic opportunities in the drylands: OP1 “Arid and Semi-Arid Zone Ecosystems” supports the biodiversity FA, OP7 “Promoting the Adoption of Renewable Energy” supports the Climate Change FA, OP9 “Integrated Land and Water Multiple Focal Area” supports the International Waters FA, OP12 “Integrated Ecosystem Management” (IEM) supports a “multifocal” area of land degradation (LD, primarily desertification and deforestation) as a cross-cutting issue in projects addressing at least two FAs within the context of sustainable development, and OP15 “Sustainable Land Management” (SLM) also supports the LD FA, with no cross-cutting caveats.¹⁷

By mobilizing the SLM, the LD FA encourages partnerships for implementing OP15 which provide coordinated financial and technical support for actions that are demonstrably beneficial to both local and global stakeholders. Greater linkages between the NAPs and OP15 would better optimize the connection between global environmental and national sustainable development and would help in mainstreaming local sustainable development into global environmental concerns.

Though of global focus, OP15 is tailored for addressing drylands specifically, and can be complemented by OP12 (IEM) when supporting LD programmes which cross-cut the Biodiversity and Climate Change FAs, thus promoting a synergistic joint implementation of the UNCCD, CBD and UNFCCC in drylands (figures 5 and 6). Thus, addressing vegetation cover benefits the global environment since it maintains habitats for biodiversity and increases carbon sequestration. The incremental costs of these activities, together with those of solar energy

development and firewood production by dryland afforestation, can be covered by GEF grants. The FA on “International Waters” is relevant to drylands, since irrigation water in drylands is often derived from cross-boundary rivers.

CONCEPTUAL TOOLS

Conceptual tools such as the SLM and ecosystem and landscape “approaches” as well as “mainstreaming” constitute institutionally and internationally agreed concepts preferably to be adopted when using the programmatic driving tools. Though not indispensable, their demonstrated adoption when forging the programmatic driving tools can tangibly contribute to their success in accessing financial instruments.

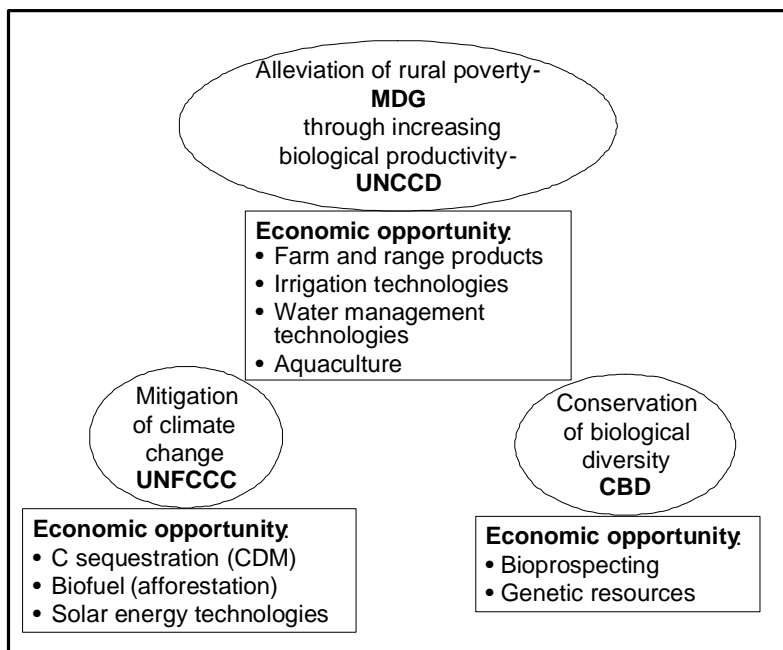


Figure 5. Economic opportunities in rural drylands (circles) motivated and facilitated by joint implementation of the Rio Conventions

Sustainable Land Management

SLM is a conceptual supporting tool adopted by most instruments and mechanisms relevant to dryland management (the GEF, UNCCD, the New Partnership for Africa’s Development (NEPAD) – a programme for promoting diversification of production through investment in land and water development, including aquaculture,¹⁸ the Comprehensive Africa Agriculture Development Programme (CAADP), the TerrAfrica initiative and the G-8 Gleneagles Summit). The SLM is a holistic, integrative and overarching approach for achieving sustainable development based largely on land productivity (figure 6).

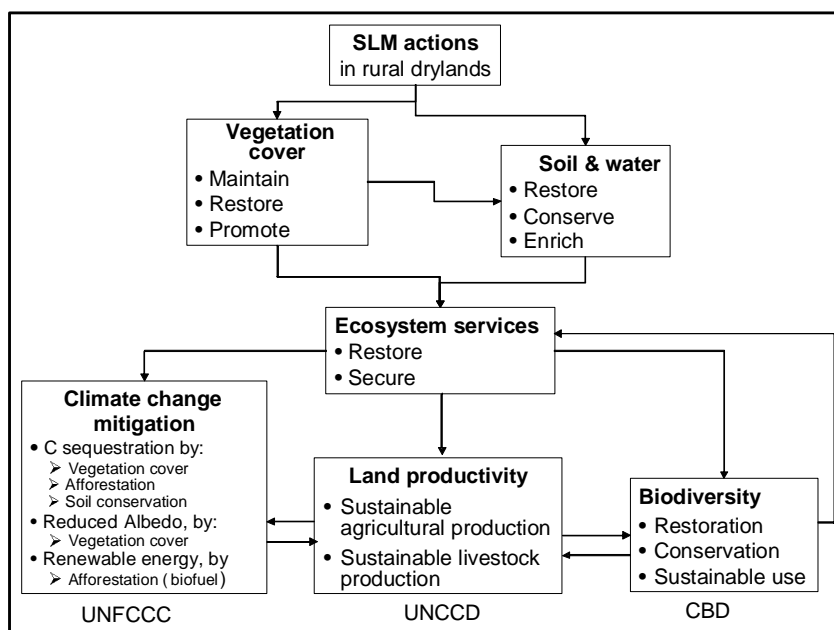


Figure 6. The SLM tool supports the joint implementation of the Rio Conventions resulting in rural economic opportunities

It recognizes the contribution of environmental sustainability to human well-being, the dependency of sustainable development and land use on a prudent utilization of ecosystem services, the role of biodiversity and its conservation in the provision of services and the significance of social and economic factors in moulding land-use policies, including the participatory, bottom-up approach which empowers grassroots land users through access to knowledge. Most importantly, the SLM concept supports further agricultural intensification of lands already under cultivation provided the above recognition leads to compatible actions.¹⁹

The Ecosystem and Landscape Approaches

The Ecosystem Approach targets drylands through the CBD programme of Dry and Sub-humid Lands Biodiversity, which recognizes the significance of dryland biodiversity, especially that of domestic food crops and livestock originated in drylands. It identifies drivers of land degradation as contributing to irreversible loss of dryland biodiversity and its consequent impacts on livelihoods.

The Landscape Approach developed by the World Wild Fund for Nature (WWF) and IUCN contributes to the Ecosystem Approach of the CBD by facilitating activities across landscapes. It integrates top-down planning with bottom-up participatory approaches. Economic opportunities in the drylands can benefit from the Landscape Approach through its development of ecological and social assessment at the landscape scale, and its negotiation framework for land-use decisions and for balancing trade-offs inherent in large-scale management.²⁰

Mainstreaming

Mainstreaming is a supporting instrument to be jointly applied by donors and recipients for increasing the effectiveness of foreign assistance to dryland developing countries and for its investment, together with local and national resources, in SLM leading to sustainable dryland development. Rather than independently interacting with a diversity of sources resulting in trickles of financial support going in different directions and targeting many goals most of which fail to be advanced, mainstreaming enables a focus on prioritized targets and reducing duplication of efforts. It results in a single, “main stream” of support with dimensions sufficient for making a visible, long-lasting difference on the ground.

The UNCCD dryland-focused NAPs can be effectively used for mobilizing support when streamlined with driving tools that are not just specific to drylands. They make a difference if used in drylands, such as the global poverty-focused PRSPs, through integrating the strong environmental and participatory features of the NAP with the strong economic and participatory analysis of the PRSP, as well as with other initiatives that target SLM and driving tools such as OPs 12 and 15. Streamlining may include: highlighting relations between rural poverty, societal policy and macroeconomic constraints, dryland low productivity and degradation of ecosystem services; focusing on the spatial distribution of poverty, identifying remedial approaches; deriving synergies from joint implementation of the Rio Conventions; quantifying the opportunity costs of not acting; and planning, monitoring and evaluation, enabling land users to iteratively adapt their practices, and donors to evaluate their effectiveness.²¹ Mainstreaming is an effective tool for integrating all other tools combined but it has a cost – the coordination between sectors and stakeholders requiring meetings and additional analyses (“transaction cost”). This cost can be born by the GM, and in Africa also by TerrAfrica which will also provide small pilot investments.²²

SENSITIZING TOOLS

Sensitizing tools, such as the MDGs, are targeted commitments of high visibility made at the highest possible international political level. Hence a mechanism that explicitly addresses them can strongly and effectively sensitize financial instruments for addressing drylands economic opportunities.

Millennium Development Goals

By addressing poverty eradication, to which the international community committed itself at the World Summit on Sustainable Development (WSSD), the MDGs are powerful tools for mobilizing support to realize economic opportunities in the rural drylands. This is because the MDGs are not likely to be achieved (by 2015) unless they are also addressed in the drylands. Three of the eight Goals are particularly relevant: Goal 1 is to halve the proportion of the world’s people on an income of less than a dollar a day and the proportion of people suffering from hunger, Goal 4 is to reduce by two thirds the mortality rate among children under five, and Goal 7 is, among other things, to halve the proportion of people unable to reach or afford safe drinking water.²³

Striving to achieve these goals in the drylands is commendable: 55 per cent of drylands people live in the rural areas and since 75 per cent of the world’s poor live in rural areas, drylands rural areas included, at least 40 per cent of the world's poor are in the rural drylands; also, a component of urban poverty consists of migrants from rural areas driven by land degradation.²⁴

Similarly, infant mortality in the drylands of developing countries is 54 per 1000 births, and there are only 1,300 cubic metres of water per person in the drylands.¹ Countries are also committed to the creation of an enabling policy and societal environment – a prerequisite for achieving the MDGs (part of Goal 7) and to developing open, rule-based, predictable and non-discriminatory trading and financial systems (parts of Goal 8).

The WSSD and the United Nations General Assembly identified the implementation of the UNCCD as contributing to the timely achievements of the MDGs. Thus, industrial countries are committed to addressing the risk of land degradation in the drylands, i.e. desertification, not only as Parties to the UNCCD, but also because by implementing the UNCCD they address poverty in rural drylands at risk of desertification¹ and hence fulfil their commitments for meeting the MDGs.

FINANCIAL INSTRUMENTS – THE PRIVATE SECTOR

Recognizing the significance of the private sector

Developing countries increasingly recognize the power of private sector investment in creating jobs, upgrading national human capital and improving access to international markets. The sixth session of the UNCCD Conference of the Parties in 2003 appropriately identified the private sector as a potential stakeholder and recognized incentives as critical for encouraging it to engage in ventures in drylands.²⁵ The third session of the Committee for the Review of the Implementation of the Convention (CRIC) in 2005 emphasized the potential of public-private and private-private partnerships for business opportunities provided by the development of renewable energies and sustainable water use.²⁶

Dryland opportunities for the private sector

Like any environmental threat, desertification creates business opportunities by motivating technological innovations for minimizing damage and mitigating impacts. Investing in environmentally sound technologies to attend the risk of land degradation is not only economically rewarding but also creates a socially and environmentally responsible image that enhances reputation. For example, current concerns regarding the environmental sustainability of fish farming and dryland afforestation, driven by the transition from logging indigenous forests and fishing in natural aquatic ecosystems to economic afforestation and fish farming, provide competitive advantages for businesses that devise innovative ways of sustainable dryland aquaculture and biofuel production.

The emerging concept of “ecosystem services” in the drylands highlighted by the Millennium Ecosystem Assessment (MA) opens up new opportunities for the private sector. The MA called for by the United Nations Secretary-General and supported by decisions taken by four MEAs, the UNCCD included, assessed the current condition of the ten major global ecological systems, one of which is the dryland system. It highlighted the links between the benefits people obtain from ecosystems and their functions (“ecosystem services”), the role of biodiversity in the provision of these benefits, and the well-being of people who constitute an interactive component of all global ecosystems. The MA identified desertification as a process resulting from a persistent reduction in the provision of services, and pointed out that since most dryland ecosystem goods and services are highly valuable but provided free, they present both a challenge and an opportunity for mutually beneficial interactions between dryland communities and the local and foreign private and business sectors.

An example of business opportunities derived from marketing an ecosystem service is that of the market for carbon reduction credits, based on the services of carbon sequestration and climate regulation. The value of the global carbon market for 2003 topped US\$ 300 million and is projected to reach US\$ 10- US\$ 40 billion by 2010. The engagement of the private sector in dryland carbon trading constitutes joint implementation of the UNCCD and the UNFCCC – an opportunity available in the drylands only. This is an environmentally acclaimed activity, yet it enables industrial countries to meet their national emission reduction targets by means of projects that constitute a dryland economic opportunity. Markets are also being created for aquifer recharge credits and renewable energy credits. Water exchanges, water banks and water leasing have emerged and promote market activity. Governmental incentives that pay for ecosystem services by compensating land-owning companies for revenues foregone when protecting an ecosystem service provided by their holdings can open up new revenue streams and novel business models in drylands.¹⁴ Finally, the private sector gains a competitive advantage by introducing mechanisms for consumers to express preferences for dryland products derived by implementing technologies that reduce rather than increase impacts on dryland ecosystems when responding to increasing demand.

Incentives to the private sector for investment in drylands

Local governments as well as the private sector of a dryland developing country need to provide an enabling atmosphere for motivating the committed involvement of Governments and the private sector of industrial countries (figure 7). Trust, stability and a regulatory framework are keys to involving Governments and business in industrial countries in realizing the economic opportunities in the rural drylands. These include:²⁷ providing political stability and building trust by putting in place regulatory systems and effective enforcement mechanisms, involving all stakeholders in policy development, providing direct incentives for addressing long-term environmental concerns, removing excessive bureaucratic requirements, removing potential friction between the public sector and the private sector, and reducing risk associated with innovative investment by promoting risk-sharing mechanisms.

Private and public sector partnerships

Though adhering to these guidelines is the Government's responsibility, it is in the private sector's interest to help secure stable and safe societies, avoid abrupt social and environmental changes and encourage government policies in ways of facing environmental challenges. However, the private sector cannot substitute for public sector support. Furthermore, private sector investments may have harmful effects on drylands and their populations unless the interests of these populations are duly safeguarded. This can be achieved by establishing public-private partnerships that leverage capital for projects that cannot obtain sufficient financing otherwise. The GM can facilitate the bringing together of the private-public sectors; and the G-8 Gleneagles Summit agreed to increase access to finance for encouraging such partnerships in Africa.

FINANCIAL INSTRUMENTS – FOREIGN AID

The Official Development Assistance (ODA) commitments of the Organisation for Economic Co-operation and Development (OECD) countries and other industrial countries as well as the World Bank and regional development banks address sustainable development in developing countries, dryland countries included. For motivating foreign aid for catalyzing economic opportunities in the rural areas, developing dryland countries need: (a) to invest in enabling

measures that create a policy, societal and economic environment conducive to realizing economic opportunities, and to allocate and invest national resources, including in the local private and public sectors; these motivate industrial Governments to respond in aid and also to encourage their private sector to join in (figure 7), and (b) to encourage and engage in regional and international coalitions by raising the profile of a common cause.

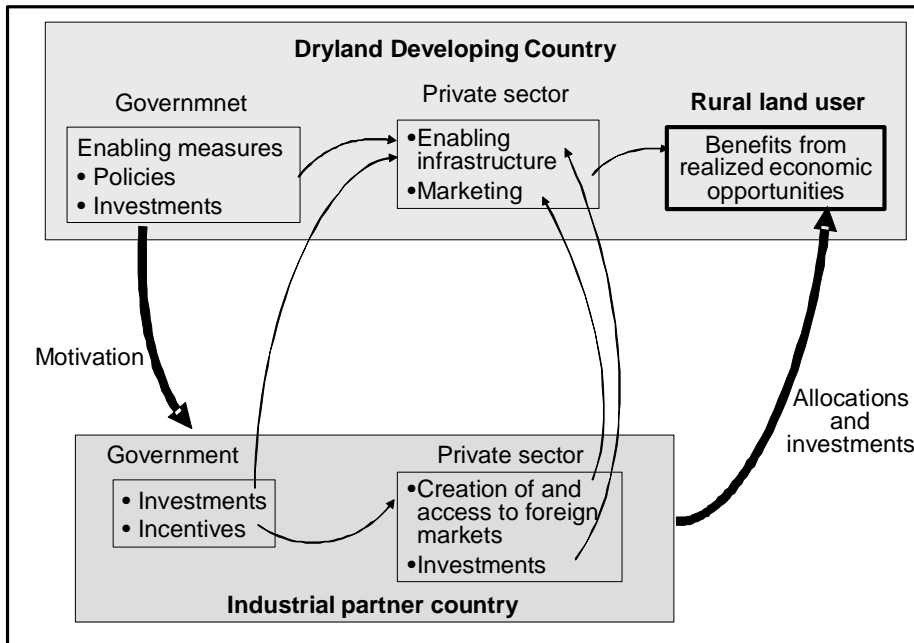


Figure 7: Mobilizing financial instruments (private sector and foreign aid) for benefiting dryland rural land use

With regard to recommendation (a), it worth to recall the Paris Declaration on Aid Effectiveness which was approved in March 2005 by close to one hundred countries. Through this Declaration, developed countries reconfirmed an increase in the volume of aid for progress towards the MDGs on the condition that in the recipient countries governance would be strengthened and performance improved by addressing local ownership and accountability. Also, the G-8 Gleneagles Summit indicated similar conditionality when pledging a substantial aid allocation to sub-Saharan countries. The participating countries highlighted their commitment to increase ODA to reach between 0.5 to 0.7 per cent of gross national income (GNI) during the period 2004 to 2015, depending on the country. Such conditions may catalyze new initiatives for achieving the MDGs.

With regard to recommendation (b) on encouraging regional and international coalitions, examples for implementing SLM include a coalition of five neighbouring Central Asian republics which attracted a suite of nine bilateral donors and fund-raising institutions that responded in a collective, harmonized and consistent manner to the needs of the five countries by mobilizing US\$ 470 million; and a coalition of nine countries sharing the Nile water (the Nile Basin Initiative) which brought together three fund-mobilizing institutions, seven European countries and the African Development Bank to support poverty alleviation.

OPEN QUESTIONS

- (a) Which innovative measures could be developed in the drylands for removing existing barriers and enabling rural people to adopt and adapt to “alternative livelihoods”?
- (b) Is the historical land allocation to “agriculture”, “rangeland”, “urban” and “protected areas” ecologically, economically, socially and culturally compatible with recent changes and current trends?
- (c) To what extent can the NAP under the UNCCD evolve into a mechanism to promote sustainable livelihoods and economic opportunities in drylands, and how can resources devoted to poverty eradication contribute to financing such opportunities?
- (d) Where is the window of opportunity to implement strategies for maintaining livelihoods in the drylands under scenarios of renewed natural catastrophes and climate change projections for the drylands?

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ACRONYMS

CAADP – Comprehensive Africa Agriculture Development Programme
CDM – Clean Development Mechanism
CRIC – Committee for the Review of the Implementation of the Convention
FA – focal area
GEF – Global Environment Facility
GM – Global Mechanism
GNI – gross national income
IEM – Integrated Ecosystem Management
IUCN – World Conservation Union
LD – land degradation
MA – Millennium Ecosystem Assessment
MDG – Millennium Development Goals
MEA – multilateral environmental agreements
NAP – national action programme
NEPAD – New Partnership for Africa's Development
OECD - Organisation for Economic Co-operation and Development
ODA – Official Development Assistance
OP – Operational Programme
PRSP – Poverty Reduction Strategy Paper
SLM – Sustainable Land Management
CBD – Convention on Biological Diversity

UNCCD – United Nations Convention to Combat Desertification
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNFCCC – United Nations Framework Convention on Climate Change
WSSD – World Summit on Sustainable Development
WWF – World Wide Fund for Nature
