CSD-16/17 Matrix

(updated Sept. 2008)

What is the Matrix?

The Matrix is **an information tool** developed by the Secretariat at the request of the CSD-16 Bureau. It aims to provide user-friendly information on practical experiences in implementation in the thematic areas of agriculture, rural development, land, drought, desertification and Africa. It is based on information submitted by Governments, including through national reports; and by UN agencies, international and regional organizations and by Major Groups. It takes into account information contained in Secretary-General's reports and Partnerships for Sustainable Development registered with the CSD Secretariat, as well as information emerging from the regional implementation meetings.

The Matrix is not an official outcome document of the CSD. As an information tool, it is a work in progress. The Secretariat will continue to update the Matrix as more information on implementation is made available.

Governments, UN agencies, and Major Groups, as well as other relevant regional and international organizations, are welcome to submit comments and inputs to the Matrix, at CSDMatrix@un.org.

Structure of the Matrix

The Matrix seeks to provide the user with a convenient overview of concrete experiences in addressing barriers and constraints identified in the areas of agriculture, rural development, land, drought, desertification and Africa. It consists of four columns and is structured as follows:

- *Barriers/Constraints* – Information in this column is based on Secretary-General's Reports, national reports, reports of Regional Implementation Meetings and the related background documents, and inputs from Major Groups and CSD Partnerships.
- *Case studies* – Case studies are drawn from Secretary-General's Reports, national reports, reports of Regional Implementation Meetings and the related background documents, and inputs from Major Groups and CSD Partnerships, as well as case studies submitted for CSD-16.
- *Lessons learned, best practices or results* – This column provides a snapshot overview of the lessons learned, best practices or results of the particular case study.
- *Key implementation actors* – This column indicates key implementation actors, based on information contained in the case studies.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
I. Theme: Agriculture			
A. Food Security: [Agenda 21, Chap.19. A; JPOI, Para.40]			
- Limited capacity for project implementation - Difficulties in reaching household level effectively	**Empowerment for food security 2005-2009- Project in South Africa** Ensuring that all agricultural activities are supported by a strong emphasis on sustainable natural resources management;	• Enhancing food security at household level through: (i) increasing agricultural production, storage and preservation; (ii) diversifying food supplies; (iii) increasing household income; (iv) improving food distribution; (v) strengthening capacity building and raising awareness; • Using local facilitators instead of external consultants; • Joined action of Department of Agriculture with Department of Education and Department of Health	Federal Planning Bureau, Belgium; Flemish government: Ministry of Environment; Department of Agriculture and Environmental Affairs, Kwazulu Natal – South Africa
- Lack of access to land resources	**International Land Coalition** Secure access to land resources is essential to eradication of hunger and poverty. The International Land Coalition encourages major groups and governments to work together by testing and assessing innovative community approaches to securing land access by rural poor people	Ensuring secure access to land requires, inter alia: • A community-driven approach, fostered by civil society organizations; • An enabling legislative, regulatory and judicial framework; • An inclusive national forum on land in which policy issues can be debated before changes are introduced; • Pilot projects to demonstrate successful experiences.	Governments; bilateral and multilateral donors; major groups
- Gap between the current state of the art for local crop monitoring and the wide-scale operational system requirement	**Global Agricultural Monitoring systems by integration of earth observation and modeling techniques (GLOBAM)- "STEREO" programme** Developing operational systems to increase food security by increasing crop production.	Importance of developing operational systems to increase food security by increasing crop production through monitoring of inter-annual variability of meteorological conditions.	Government of Belgium – Federal Planning Bureau

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- Lack of capacity to evaluate and regularly report on the general state and trends of agriculture's interactions with the environment	**National Agri-Environmental Health Analysis and Reporting Program** Tools are being developed to integrate indicators into policy development and assessment, and these tools are used to help bridge the "attribution gap" and contribute in assessing performance. **http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181580464260&lang=e**	• Science-based agri-environmental information plays a critical role in guiding policy and program design. • Agri-Environmental Indicators (AEIs) as science-based indicators can help identify trends with respect to soil, water, air, biodiversity and environmental farm management, describe the spatial distribution of a given problem, enable comparative analysis between regions or identify causal linkages between driving factors and environmental outcomes. • Agri-Environmental Valuation (AEV) aims to value in monetary terms the environmental costs generated by or services provided by agriculture, and ultimately build this information in the integrated economic/environmental modeling system.	Agriculture and Agri-Food Canada
- Limited capacity of rural households to ensure food security and nutrition	**Improving Food Security and Nutrition Policies and Programme Outreach-Project in Malawi** Capacity building of households to ensure food security and nutrition.	• Capacity building of households is required to ensure food security and nutrition through diversified crop production, storage, processing and marketing of crops, small livestock activities and access to potable water. • Building capacity of governments is necessary in order that food security and agriculture related policies and programs are aligned with nutrition objectives.	Government of Belgium; Government of Malawi: Ministry of Agriculture and Food Security, Ministry of Irrigation and Water Development, Ministry of Local Government and Rural Development, Department of Nutrition and HIV and AIDS; FAO; local communities.
- Lack of effective business models to reduce food insecurity and hunger	**Business Alliance Against Chronic Hunger (BAACH)** BAACH was formed in 2006 by a group of CEOs and public leaders to reduce hunger on the ground in Africa. It promotes effective business models to reduce hunger, facilitates dialogue and engages in global partnerships with governments, NGOs, international agencies and communities. The Alliance is a cross-industry, multi-stakeholder initiative championed by the Consumer Industry Partnership community of the World Economic Forum.	Through BAACH, businesses leverage their expertise and capabilities to improve value chains – from production, processing and packaging to retailing and marketing – to increase food supplies, nutrition and incomes in hungry regions.	Business and Industry: Unilever; Sealed Air; General Mills; TNT; Nike; Technoserve; The MDG Centre; The Rockefeller Foundation.

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- Necessity to provide early warning	**Global Monitoring for Food Security (GMFS)** GMFS provides early warning, agricultural mapping and crop yield assessment services in support of food security monitoring activities in Africa. **http://www.gmfs.info/**	Establishing partnerships, by concerting efforts to bring data and information providers together in monitoring Food Security and related environmental processes in Africa, provides more wide-spread earth observation to assist stakeholders, nations and international organizations to better implement their policies towards sustainable development.	Federal Planning Bureau, Belgium; European Space Agency (ESA); FAO; Governments of Ethiopia, Senegal, Sudan, Malawi and Zimbabwe.
- Enhancement of food security information at the international level	**Food Security Learning Center (FSLC)** The FSLC was created in 2002 to serve as an online hub of information exchange for the U.S.-based food security movement, and increasingly, for international partners. To this end, the FSLC provides information on a variety of topics related to food system change, ranging from nutrition programs, to urban planning, to farm-to-cafeteria initiatives. http://www.whyhunger.org/fslc/default.asp	• This database, consisting of over 130 profiles of exemplary food security initiatives, enables grassroots organizations considering community food projects to learn what has worked in the past in order to plan future initiatives. • Recurring themes in terms of lessons learned include the importance of community organizing, building diverse partnerships, and addressing issues of race and class in the food system.	U.S. Department of Agriculture; Community Food Security Coalition
- Lack of gender-sensitive approach to food and food security	**Combating hunger, food insecurity and malnutrition through gender-informed nutrition and agriculture activities** The USAID Gender-Informed Nutrition and Agriculture Alliance (GINA) has proven effective in reducing hunger and poverty. The program employs a gender-focused, community-based approach to improving household food and nutrition security, with a particular emphasis on the well-being of children under five. http://inside.usaid.gov/EGAT/off-ag/act-gina.html.	When given access to and control of increased household resources, women have shown that they will use these resources to improve the well-being of their families, especially their children.	The USAID Gender-Informed Nutrition and Agriculture Alliance (GINA), local communities in Mozambique, Nigeria and Uganda

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- Avoiding the loss in production of fruit and vegetable crops	**Eradication of horticultural fruit fly pests (the Mediterranean fruit fly, Ceratitis capitata), Peru** Detrimental impact of fruit fly to fruits and vegetables that produce food shortages.	• Avoiding the use of chemical products, thereby helping to preserve the environment. • Avoiding the loss in production of fruit and vegetable crops in the regions of Tacna and Moquegua (where losses amounted to approximately 40%) and contributing to improving the quality of life of producers and consumers and creating opportunities for national and international trade of these products. • Modernizing the internal systems of commercialization through the direct linking of producers, traders and exporters. • Incorporating the national and international private sector in the investment for fruit and vegetable production. • Obtaining the confidence of the financial sector and national and international institutions.	The Animal and Plant Health Service (SENASA) of Peru; FAO; IAEA; Interamerican Development Bank
- No long-term policy at national or local levels to address food security - Lack of capability to market seeds	**Small holder common bean (*Phaseolus vulgaris*) seed production – case of Malawi** The program is aimed at making seeds of improved bean varieties more readily available to smallholder farmers. http://ftp://ftp.fao.org/SD/SDA/SDAR/sard/GLO_bean_production_Malawi.pdf http://www.ciat.cgiar.org/beans/index.htm	• Impacts on livelihood of the practice users - farmers around Bunda College of Agriculture who received seeds increased their harvest • Changing to early maturing varieties of maize made farmers escape droughts. • Farmers who could held to seeds longer after the harvest got a better price.	Malawi Government – Seed Inspection Unit of the Ministry of Agriculture; Faculty of Development Studies, Bunda College of Agriculture, Lilongwe, Malawi; USAID; NGOs

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- Gender inequality regarding right to land and other property	**Household food security (HFS) in South Asia – cases of India and Nepal** HFS is a multifaceted construct that cannot be ensured merely by relying on sustainable macro-level production and the public distribution system (PDS) as the PDS may not be accessible for the poorest in terms of economic distance (affordability) and where implemented, the distortions in the PDS implementing system (corruption, physical accessibility) may render it ineffective in providing food security.	• The mobilization of poor women is the first, critical step towards providing them with space and leverage to earn, grow, save, create, share and challenge, especially in traditional societies such as in South Asia. • The creation of infrastructure enhances the food security status of families in the long run. This is achieved by improving access by women to markets, ensuring better irrigation facilities and providing wage employment during lean seasons. • The government's welfare approach needs to be replaced by a more participatory, locally active approach targeting women. • It may not always be possible for land to become the primary resource base. Therefore, thrift and credit groups, human capital and credit, especially targeting women, can be utilized as an alternate resource base.	The Ministry for Local Government of Nepal, relevant ministries in India, IFAD, NGOs, local women's groups
- Necessity for better base asset of poorer households	**Food Security in Ethiopia** Establishing funds for food insecure communities to help them rebuild their productive asset base.	• Revolving funds have been established in over 1,000 food insecure communities that avails small loans to the communities' poorest members to help them rebuild their productive asset base or start up an income generating activity. • Returns from the use of loans from the revolving funds have reported increases in incomes and assets.	Government of Ethiopia, local authorities, local communities

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- Necessity to cut hunger and poverty in Africa	**Ending Hunger by Transforming African Agriculture** The U.S. Presidential Initiative to End Hunger in Africa (IEHA), which began in 2002, focuses on improving smallholders' productivity and increasing rural incomes in order to alleviate hunger and poverty. http://www.usaid.gov/locations/sub-saharan_africa/initiatives/ieha.html	• Improved agricultural productivity and access to markets have been achieved. IEHA activities are succeeding in raising beneficiary productivity of targeted commodities; • An integrated and comprehensive approach to investments in agriculture (i.e., improved policy, technology and links to markets) can increase productivity and trade.	IEHA, Ghana, Kenya, Mali, Mozambique, Uganda, and Zambia, Malawi and Niger
- Resistance to change management practices	**System of Rice Intensification (SRI)** This system is raising rice yields, both irrigated and rainfed, by 50 to 100% -- or even more -- by changing the management practices for plants, soil, water and nutrients; higher yield is achieved with 80-90% less seeds, 25-50% less water, 10-20% lower costs of production, and even less labor once methods are mastered; http://www.panap.net/uploads/media/SRI_November_2007.pdf	• Changes in crop management can elicit large increases in production from existing genetic potentials; • Agriculture need not be depending on capital-intensive or chemical-based production methods; • SRI productivity gains come from inducing larger, better-functioning root systems and more abundance, diversity and activity of soil biota; • SRI concepts and practices have already been implemented by farmers and NGOs in India to wheat, sugar cane, finger millet (ragi) and mustard; • Soil fertility can be substantially enhanced through compost and other organic matter inputs augmented by increased root exudation.	Government of Madagascar; Cornell International Institute for Food, Agriculture and Development (CIIFAD); Association Tefy Saina in Madagascar; civil society; farmer organizations; private sector; individual actors in Asia, Africa, the Middle East and Latin America.

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- Achieving food security from livestock	**Changing Importance of Livestock in Agricultural Economies and Global Trends** Current livestock portfolio addresses livestock production, processing, marketing/trade, natural resource and risk management, and human and animal health. http://glcrsp.ucdavis.edu/	• An integrated approach is required to incorporate policies, technologies and institutional capabilities. • Animal agriculture cannot be separated from a farming system without severing the vital link to household and national economic development and nutritional security. • Long-term donor support is needed to ensure continuity from research activities to ultimate uses of knowledge and information.	USAID and implementing institutions in developing countries active in livestock research and development
B. Sustainable Agriculture [Agenda 21, Chap.14, JPOI Para.40]			
- Limited coordination between federal and state governments	**Cross-cutting agenda, Agriculture – Environment – case of Mexico** Building basic agreements and explicit commitments between different entities of the federal and state governments	Building basic agreements and explicit commitments between different entities of the federal and state governments has proven to be a valuable tool in order to obtain measurable results for sustainable agriculture.	Government of Mexico- Ministry of Environment and Natural Resources together with other ministries
- Need for capacity building - Lack of income diversification and access to credit services - Limited women's development capacity	**Sustainable Livelihoods Approach (SLA) – case of Yemen** An SLA analysis was selected because it is a holistic method that allows the different aspects of rural livelihoods to be brought out, ranging from the strategies used by poor people to overcome poverty, their strengths and historical achievements, to their aspirations and their capacity to achieve their dreams, and incorporates gender specificity	• Capacity building of communities and the development of stronger community institutions is necessary for them to be a more effective interface with outside authorities. • Government institutions need to be oriented to be more aware of, responsive to and focused on the needs of the communities, particularly the poor. • If credit is available, landless families have the opportunity to develop livestock activities. Project can also assist in ensuring sustainable management of the rangeland. • Women's desire for improved skills to assist them in their role in livestock and agricultural production needs to be addressed by training in different areas.	Government of Yemen - Ministry of Agriculture and Irrigation, IFAD, Women's Economic Empowerment Association of Yemen

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- Small farmers lack capacity to cope with uncertainty and to use to their benefit increased food productivity and market opportunities	**Farmer to Farmer Extension System in Kenya** This is a grassroots process that involved all the poor regardless of their land size and asset level Other internet links: http://www.knefap.org http://www.fao.org/sard/en/init/1574/2225/1846/index.html	• The process empowered farmers to understand their place in the development chain and made them able to demand service from third parties • There is high level of sustainability as the farmers are active actors being trainers themselves and teaching each other through learning by doing • The extension/ service providers have been able to appreciate the farmers as real partners other than receivers of knowledge.	Kenya National Federation of Agricultural Producers; FAO; Ministry of Agriculture of Kenya.
- Lack of formal knowledge in sustainable agriculture - Lack of proper capacity building for the right groups to catalyze appropriate processes for development	**Honduran farmer school** The School was organized by ANAFAE to promote practical application of research for ecological agriculture and best practices and learning among participating partners. http://www.idrc.ca/uploads/user-S/11629273191Farmer_participatory_research_briefs_(Sept_2004,_May_2005,_April_2006).doc http://www.idrc.ca/en/ev-30500-201-1-DO_TOPIC.html http://www.crdi.ca/en/ev-87332-201-1-DO_TOPIC.html	It is expected that there will be • a reduction in the use of agrochemicals among farmers in Western Honduras, • the development and adaptation of alternative technologies to address drought conditions in Southern Honduras, • implementation of participatory methodologies among a significant number of ANAFAE members, • the integration of research into membership activity.	The National Association for the Promotion of Ecological Agriculture (ANAFAE); World Vision; Cooperation of Women; local farmers.
- Lack of capacity building of local farmers for humane and sustainable farming	**Model Farm Project: Sustainable and Humane Livestock Production** The aim is to establish an international network of commercially viable, humane and sustainable model farms in order to demonstrate to governments, the public and farming community that commercially viable humane and sustainable farming is a practical reality that is already working on the ground. http://www.modelfarmproject.org	• Individual farmers can make a significant difference and contribution to the local community when provided with information, guidance and a platform for achievement, thus increasing local production for local consumption, and decreasing rural to urban migration. • Only by engaging and working with local farmers, producers and industry stakeholders can the Model Farm Project develop solutions and alternatives to industrial-style animal agriculture relevant to the focus country.	World Society for the Protection of Animals; Food Animal Initiative (FAI); Ministry of Agriculture Feed Industry Centre, China Agriculture University; Wylton International Inc.; Welfare Quality Project; Sao Paulo University; local farmers in Brazil and China

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- Lack of easily accessible agricultural knowledge	**eXtension** An interactive learning environment delivering the best, most researched knowledge from land-grant universities across America. **http://www.extension.org/main/about**	eXtension connects knowledge consumers with knowledge providers - experts who know their subject matter inside out. **eXtension offers:** • Credible expertise • Reliable answers based upon sound research • Connections to experts in American universities • Creative solutions to today's complex challenges • Customized answers to specific needs • Trustworthy, field-tested data • Dynamic, relevant and timely answers eXtension is unlike any other search engine or information-based website. It's a space where university content providers can gather and produce new educational and information resources on wide-ranging topics. Because it's available to students, researchers, clinicians, professors, as well as the general public, at any time from any Internet connection, eXtension helps solve real-life problems in real time.	eXtension is made possible through a unique partnership of more than 70 universities found in every state and territory throughout the United States. These land-grant universities have as their missions research, teaching, and outreach to Americans. eXtension brings the best of the best from these institutions. Click on the links below to go to any of the partner organizations: http://www.extension.org/main/partners

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- Resistance to the introduction of new methods such as planning crop sequences over several seasons, to minimize the build-up of pests or diseases	**Conservation agriculture for smallholder farmers in dryland areas - Laikipia District, Kenya** The goal of Conservation Agriculture (CA) is to maintain and improve crop yields and resilience against drought and other hazards, while at the same time protect and stimulate the biological function of the soil. http://www.fao.org/sard/en/init/2224/index.html	• The equipment used for direct seeding, can spread fertilizer and seeds simultaneously, reducing the workload: a single person can now perform the work initially undertaken by three persons. • Farmer field days and farmers to farmers exchange visits facilitated by the project attracted the participation of small scale farmers within the district and other stakeholders. • Farmer field schools were backstopped by subject matter specialists, including local and international consultants that gave training on key, essential subjects. These included weed and cover crop management, gender and group dynamics, equipment access and utilization, efficiency on the use of chemical and fertilizer, among others.	Ministry of Agriculture of Kenya; African Conservation Tillage Network; FAO.
- Limited capacity to anticipate and manage the impacts of the dynamic changes in local and regional markets	**Modernizing Agrifood Markets: Including Small Producers in Dynamic Markets** Necessity to provide strategic advice and guidance to the public sector, agrifood chain actors, civil society organizations and development agencies on developments in local and regional markets.	• Success is built on foundations of supportive public policies, organized producers, and a receptive business and private sector, combined with a facilitation “space”. This may not be in the form of four different organizations – any of the actors could champion a process and work in any configuration. • Governments have significant room for introducing pro-poor policies including interventions and investments, even within an overall framework of free trade and liberalized markets. This room is underutilized. • National multi-stakeholder task groups can build understanding between stakeholders, help shape the structure of the domestic market and support change. Such structures benefit from being embedded in a governance and legislative framework and thus working together for the medium and long term.	Government of Canada – International Development Research Center

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- Cultural constraints for initiatives of women farmers	**Agri-Business by poor women integrating livestock-crop systems and Vermi-composting for sustainable agriculture and empowerment** Importance of women's access to resources in order to generate income. Other internet links: http://www.um.dk/Publikationer/Danida/English/Evaluations/FarmWomenInDevelopment/annex7.asp	• The women learned to earn income through composting and ways of handling business making profits at the same time. • The women learnt other ways for employment and income generation. • The women are 'change agents' for promoting organic farming. • Local women, when empowered, are as capable as local men in business management.	Local women's groups, local government in Gujarat, India Government of the Netherlands
- Cultural constraints to involve women farmers in all aspects of agricultureial production	**Women Farmer's Fairs – An Effective Technique for Transition from Invisibility to Recognition and Empowerment of Women as Farmers** It provides a vast platform to women farmers to interact and establish linkages **http://www.gujaratindia.com/Initiatives/Initiative8_5.htm**	• The fairs are effective techniques for transition from invisibility to recognition and empowerment of women as "Farmers". • Sensitizing techniques have to be developed for men and officials towards women farmers. • Women farmers have better capacities to handle land and livestock and to work out various livelihood options.	Government of Gujarat, India; civil society; farmers, both men and women.
- Lack of awareness to integrate environmental sustainability in agricultural productivity	**National Agri-Environmental Health Analysis and Reporting Program** Necessity to develop agri-environmental indicators to evaluate and regularly report on the general state and trends of agriculture's interactions with the environment and health of the environment in key priority areas. Other internet links: http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181580371933&lang=e	• Agri-environmental indicators have been developed to evaluate and regularly report on the general state and trends of agriculture's interactions with the environment and health of the environment in key priority areas. • They were developed for the following areas: environmental farm management, soil quality, water quality, air quality and biodiversity.	Government of Canada – Agriculture and Agri-Food

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- Value chain analysis almost never use any degree of disaggregated poverty understanding nor do they examine environmental impacts	**Value chains and the rural poor in disadvantaged regions** Value chains are selected to promote and support, and to examine the effects of options for organizing value chains on distributional outcomes.	• Impact on agricultural incentives on environment as value chain analysis is increasingly used by policy makers and development program designers in order to select value chains to promote and support, and to examine the effects of options for organizing value chains on distributional outcomes. • Small producers for global markets need to be supported in order to access viable pro-poor value chains and enhance economic infrastructure	Government of Canada - International Development Research Centre (IDRC) Country-level investigations in Bolivia, Egypt, Honduras, India, Senegal, Uganda and Viet Nam
- Limited interaction between livestock production and natural resource use and conservation - Lack of the ability of institutions in developing countries to identify problems in livestock production and to develop appropriate solutions	**The Collaborative Research Support Program: a problem model approach to capacity building and agricultural development** Long-term commitment is critical to enable the generation of knowledge regarding specific development problems and issues, and to build the capacity in the developing countries so they can generate new knowledge and extend and implement solutions.	• Capacity building is fundamental. Together with transfer of technology, knowledge, skills, and resources, and effectively equipping institutions and organizations in the developing countries with the capacity to manage and sustain project development and implementation.. • The impact of project leadership cannot be underestimated. Projects either fall short or succeed based on the quality and integrity of their leaders, and utmost consideration and evaluation must be given to personnel prior to project planning and implementation.	Global Livestock Collaborative Research Support Program; Women; Children and youth; Indigenous peoples; NGOs; Local authorities; Business and industry; Scientific and technology community; Farmers in Africa, Europe and North America, Latin America and the Caribbean and West Asia, USAID, University of California, Davis

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- Necessity of innovative models for scaling up agricultural production for high-value markets	**Agricultural Technology Transfer – case of China** The project aims to give poor farmers the opportunity to participate in high-value agricultural markets both domestically and internationally.	• The types of innovations being tested include the introduction of both technical and institutional innovations. • The project has several sub-projects that allow small dairy, pork and poultry farmers to adopt higher production standards and to aggregate product, through technical and organizational changes, that allow them to share large-scale facilities. • The project has also introduced commercial farmers' associations to many areas. • New technologies have been introduced including mushroom farming, goat and dairy cattle breeding programs, pesticide residue testing for fresh products, hybrid seed production, and organic meat production.	The Government of the People's Republic of China, World Bank
- Lack of modern agricultural knowledge	**Agriculture Research Extension and Training – case of Georgia** The aim of the project is to develop an efficient and cost effective agricultural knowledge system to demonstrate, disseminate and promote the adoption of appropriate technologies that increase sustainable agricultural production and reduce pollution of natural resources.	• The competitive grant scheme for extension of appropriate agricultural technologies has been piloted and then mainstreamed nationwide. • The target beneficiary, the scientific research Institute of Horticulture, Viticulture and Oenology, achieved major progress in restructuring its institutional set-up. • The largest and top priority fields of Georgia's agriculture, horticulture and viticulture, are covered by a fully functional institution capable of providing scientific support, laboratory services, extension, training, and advice.	Government of Georgia, Institute of Horticulture, Viticulture and Oenology, World Bank

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- Lack of knowledge by farmers	**Agricultural Education for the World** Land grant universities were established in the USA in 1800s to provide a broad segment of the population with a practical education that had direct relevance to their daily lives, especially in agriculture. They continue to do that to this day for people all over the world. http://www.csrees.usda.gov/qlinks/partners/state_partners.html	The U.S. Land Grant University system continues to provide essential support for agricultural research, education and assistance – both in the U.S. and around the world. For the academic year 2005-2006, nearly 3,000 degrees in agricultural fields were awarded to foreign nationals. These institutions help ensure that agriculture systems are economically viable, meet the food needs of the world's population, and contribute to sustainable development.	Land grant universities – over 100 institutions in the USA
- Necessity for sustainable agriculture research and education	**Grants and Information to Improve Profitability, Stewardship and Quality of Life** Sustainable Agriculture Research and Education (SARE) program administers a competitive grants program under the direction of councils that include farmers and ranchers along with representatives from universities, government, agribusiness and nonprofit organizations. SARE also conducts educational and extension programs in an effort to increase knowledge about sustainable farming practices. http://www.sare.org www.csrees.usda.gov/nea/ag_systems/sri/sustain_ag_sri_survey	A participatory research and education grants for crop and livestock production and marketing enhance farm profits, environmental stewardship, and quality of life in rural communities. Involving farmers and ranchers in participatory research ensures that they will use the results.	Sustainable Agriculture Research and Education (SARE) program - USA
- Inability to access credit without a very high collateral l	**Working with Domestic Banks to Expand Credit: Loan Guarantees for Private-Sector Agricultural Development** Over $250 million of the USAID-guaranteed loans has gone to the agricultural sector worldwide. http://www.usaid.gov/our_work/economic_growth_and_trade/development_credit/index.html	• The unwillingness of banks in developing countries to lend on the basis of potentially profitable business and investment plans, rather than collateral, can be overcome by partial loan guarantees. • To make the guarantees truly effective and sustainable, they should be coupled with technical assistance to improve both borrower and lender skills to reduce the risk of loan default.	USAID Development credit authority Lending institutions in developing countries

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- Necessity for empowerment and improved livelihoods of farmers through the discovery, organization, and dissemination of sustainable agriculture and natural resource management knowledge	**Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program** All Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM) activities link sustainable natural-resource management with the economic concerns of local populations and the promotion of good governance. http://www.oired.vt.edu/sanremcrsp	Building participatory, science-based development for sustainable agriculture and natural resource based systems requires adaptation and local commitment. It involves building the human resources and the institutions that mobilize those resources, promoting local leadership and conflict management skills, and creating local private-public partnerships that a support policies for investment in innovative production processes and market institutions.	National Research Council (NRC), USA, USAID's the Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM); local populations in Uganda, Kenya, Zambia, Ecuador, Bolivia, Peru, Mexico, Indonesia, Philippines, and Vietnam
- Decreasing soil fertility and food production - Lack of exchange framework between input suppliers and producers of fertilizers - Gaps in financing - Necessity of technological and human capacity building	**Fertilizer micro-dosing and warrantage credit system for small-scale farmers in the Sahel** Soil erosion was significantly reduced and soil fertility and water use were enhanced through fertilizer micro-dosing. Other internet links: ICRISAT http://www.icrisat.org/gt-aes/ResearchBreifs3.htm	• Results of the demonstration trials showed that sorghum and millet yields were 44 to 120% higher when using the fertilizer micro-dosing and the income increased by 52 to 134%. • Farmers' access to credit and inputs was greatly improved through the warrantage system. • Public awareness of the micro-dosing technology was heightened through the media. • The organizational capacities of farmer organizations were strengthened. • A network, with the collaboration of the NGO partners, linking farmer organizations, credit institutions, and the private sector actors of the sub-region was established.	United States Agency for International Development; FAO; farmers in Burkina Faso, Mali and Niger.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Necessity to enhance use of fertilizers but at the same time prevent loss of nutrients	**Nutrient Management in Agriculture to Increase Productivity and Protect the Environment** The loss of the nutrients in fertilizer and manures can lead to the pollution of water bodies, degrade wildlife habitat, and reduce biodiversity. www.nrcs.usda.gov/TECHNICAL/NRI/ceap http://store.swcs.org/index.cfm?fuseaction=c_Products.viewProduct&catID=574&productID=9630	Research has provided information on many practices that can be applied to greatly reduce the impacts of fertilizers and manures used in agriculture. The challenge is how to implement a practice, and how to establish policies, programs, and incentives that will get a high rate of adoption of appropriate practices by farmers.	USDA
- Necessity to have technical assistance available in one place	**"One-stop information" Source on Sustainable Agriculture and Energy for Farmers and Ranchers** Free technical assistance is offered via a toll-free number in English and Spanish for 12 hours per day. Assistance is also available through a website that offers more than 250 publications on topics directly related to sustainable agriculture and marketing. www.attra.ncat.org	Having a "one-stop" approach simplifies access to the latest information on production practices, alternative crop and livestock enterprises, innovative marketing, organic certification, and highlights of local, regional and national sustainable agriculture activities.	The National Sustainable Agriculture Information Service with a public/private partnership between USDA Rural Business-Cooperative Service and the National Center for Appropriate Technology
- Necessity for adequate help to farmers to reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters	**Encouraging Conservation on Agricultural Lands through Incentives and Technical Assistance** The programs make payments to farmers for adopting practices that achieve environmental targets for soil quality and water quality. The incentive programs are supported by education, extension and technical assistance programs. www.nrcs.usda.gov/programs	Key to success is a focus on national environmental priorities, deploying a range of options for financial incentives, and provision of technical assistance. To get high farmer participation, voluntary incentive programs depend upon making payments large enough to offset the costs of implementing the improved practices or for production that may be lost.	USDA

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of incentives to boost more sustainable agriculture	**Zinc fertilizer boosts yields and public health in Central Anatolia** This program actively promotes efficient and responsible production and use of plant nutrients to maintain and increase agricultural production. http://www.fertilizer.org/ifa/news/2007_13.asp http://www.un.org/esa/sustdev/csd/csd16/mg/mgdp-bi.pdf	• With right incentives from the industry by having the same price for zinc-fortified fertilizer as for those containing just the three main plant nutrients, the Turkish farmers were able to increase the use of the zinc-fortified fertilizer per year within a few short years. • This approach has also reduced zinc deficiencies in the local population.	Toros Agri Industry and Trade Company
- Distrust in new methods for farming	**Farmers exchange and the implementing of ecologically sustainable methods** Possibility for the Bangladesh farmers to learn about ecologically sustainable methods from other farmers in Tamil Nadu, India. http://www.svalorna.org/pages_sv/PRESS/pressmeddelanden.html	• After this exchange, there was great knowledge diffusion when the farmers came back. The gains were higher ecological sustainability in the farmers' production and a better self-confidence amongst the farmers. • The farmers have changed to ecological methods in growing and they have increased their yields to some extent. • Women involved in the project feel more empowered and there are several examples of farmers who have started their own businesses afterwards.	The Swallows Latin America, Sweden (NGO); local farmers in Bangladesh and India.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of farmers' capacity to adopt to new technologies - Lack of access to markets	**Integrated crop-livestock farming system – case of Burkina Faso** The aim of the project is to establish participation and collaboration between local farmers and IFAD and to have project research activities based on farmers' demand, adapted to local conditions and managed by producers. http://\\faoext06\FTP_Waicent\SD\SDA\SDAR\sard\English GP\EN GP Africa\crop-livestock_Burkina_Faso.pdf	• Building of stone rows has not only helped in controlling runoff and soil erosion but has also conserved moisture. • The crops and residues produced were mostly recycled as livestock feed. The animal manure produced was used for soil enrichment. • The sheep fattening system had an impact on mixed crop-livestock farms in terms of increased income and improved food security. • The crop yield in areas with the stone walls has increased two to three times more than the crops in control plots. • Application of compost or animal manure with or without phosphorous fertilizer, allowed yield which is 24-39 times the yield obtained in the half-moon treatment without any amendment.	Government of Burkina Faso; Canadian International Development Research Center (IDRC); IFAD; local farmers.
- Developing standards and measures for organic produce from developing countries	**European Action Plan for Organic Food and Farming (EAP)** The EAP provides for an overall strategic vision for the contribution of organic farming to the development of sustainable agriculture and food production. http://ec.europa.eu/agriculture/qual/organic/index_en.htm	EAP puts forward a list of 21 concrete policy measures to be implemented, such as improving information about organic farming for consumers and traders, streamlining public support via rural development, improving production standards, strengthening the control system and research.	European Commission, other EU institutions, general public

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
II. Theme: Rural Development			
A. Rural Development and Poverty Reduction [Agenda 21 Chap. 14; JPOI, Para. 40]			
- Surplus of rural labor that needs work	**Township Enterprises** *"Entering factories but not the cities - leaving farm work but not the homeland"* To keep unemployed rural labor remain in rural areas, the Government, in the wake of economic liberalization, allowed ownership alternatives ranging from individual-owned, village-run cooperatives, to joint ventures where enterprises were free to decide on the means of production and marketing.	• Township Enterprises that fully employ local resources are actively promoted, assisting development of human resources with training on management and procurement. • Special attention has been given to joint ventures and the use of modern technology and management techniques • As an example of cooperation between Township Enterprises and the agriculture sector, the enterprises show a way for rural surplus labor to operate from their homes in the rural areas.	Government of the People's Republic of China
- Lack of access to information	**The Gyandoot Project** About 60 per cent of the 1.7 million people of Dhar live below the poverty line. People depend on small farm production and are often exploited by middlemen, money-lenders, and corrupt officials.	• A computer network, connecting 31 villages, provided online services, including land revenue-related transactions. • The benefits of the project reach over half a million people. • Greater access and control over information have empowered the community and has resulted in better governance.	Dhar district, in Madhya Pradesh State, India.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Uneven increase of agricultural production due to different organizational capacities, socio-cultural factors, institutional and policy environments - Negative consequences to environmental sustainability due to land degradation	**The International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)** The concept of IAASTD was endorsed as a multi-thematic, multi-spatial, multi temporal intergovernmental process with a multistakeholder Bureau cosponsored by the FAO, GEF, UNDP, UNEP, UNESCO, the World Bank and WHO. The IAASTD development and sustainability goals: the reduction of hunger and poverty, the improvement of rural livelihoods and human health, and facilitating equitable, socially, environmentally and economically sustainable development.	• An increase and strengthening of agricultural knowledge, science and technology (AKST) towards agroecological sciences contributes to addressing environmental issues while maintaining and increasing productivity. • Strengthening participatory research and extension partnerships, development-oriented local governance and institutions such as cooperatives, farmer organizations and business associations, scientific institutions and unions support small-scale producers and entrepreneurs to capture and add value to existing opportunities on-farm, post-harvest and in non-farm rural enterprises. • Achieving development and sustainability goals calls for national and international regulations to address the multiple economic, environmental and social dimensions of these transboundary issues.	Multilateral and bilateral donors Governments Major groups
School food systems lack capacity to have creative, dynamic, incremental and inclusive procurement approach that calibrates demand and supply.	**Home-Grown School Feeding around the world** There is a need for a joined-up, cross-cutting approach that sees local school food systems as a development tool capable of delivering health, economic, social and environmental benefits for local communities but also for "distant others". http://www.cardiff.ac.uk/cplan/contactsandpeople/stafflist/s-z/sonnino-roberta-dr-overview.html	• The re-localization of the food system through school food reform has an invaluable contribution to make to achieving the main goals of sustainable development and to meeting the MDGs. • Specifically, sustainable school food systems can contribute to create new markets for local food producers, to promote public health, to foster environmentally-benign forms of agriculture and to create new generations of knowledgeable, educated and empowered consumers.	Economic and Social Research Council (UK); British Academy; World Food Programme.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- The larger concentration of animals raises issues of odor, spills from manure holding facilities, and concerns about concentration of nutrients	**Effective Strategies for Animal Waste Management on Large Farms in the U.S.** USDA supports research, education and outreach to producers in manure storage and handling, soil and water nutrient management, feed management, pathogen control, air emissions, and small business development of new technologies. www.ers.usda.gov/Briefing/AgAndEnvironment/animalagriculture.htm	Applied research programs coupled with education, information and cost-share programs can help farmers and ranchers find cost-effective ways to comply with requirements.	USDA
- Lack of expertise and capacity building in rural communities	**Farmer-to-Farmer Volunteers for Technology Transfer, Market Chain Development and Strengthening Local Organizations** The John Ogonowski Farmer-to-Farmer (FTF) Program transfers knowledge and expertise of U. S. agricultural producers and businesses to developing and middle-income countries, and emerging democracies. http://www.usaid.gov/our_work/agriculture/farmer_to_farmer.htm	Transferring technical knowledge and expertise to individuals and institutions through volunteers can help build local capacities and introduce new productive technologies and innovations in rural economic institutions. Measurable impacts on incomes and productivity are possible in a short-time period, if assignments are well planned.	USAID, FTF, local partner institutions
B. Natural resource management [JPOI, Para. 26]			
- Overuse of chemical-based agriculture methods reduces crop yields and increases the poverty of small farmers	**Integrated Plant Nutrition Systems** Introduction of Integrated Plant Nutrition Systems in farming sectors of Pakistan, Philippines, Nepal, Sri Lanka, and Viet Nam.	• The programme aimed at introducing the use of on-farm-produced organic material (e.g., compost, farmyard and green manure and other low cost elements) to improve soil structure and sustainable production capacity and had noticeable impact on poor farmers, particularly in Nepal and Sri Lanka. • The use of compost proved especially effective in high-value vegetable farming, an activity predominantly carried out by rural women.	ESCAP, Governments of Pakistan, Philippines, Nepal, Sri Lanka and Viet Nam; FAO.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Benefits of using native plants to restore and maintain ecosystem health	**Use of Native Plants in Ecosystem Restoration** The use of native plant in re-vegetation projects plays an important role in the maintenance and restoration of native plant gene pools, communities, and ecosystems, and can help reverse the trend of species loss in North America. http://www.fs.fed.us/wildflowers/nativeplantmaterials/index.shtml http://nativeplants.for.uidaho.edu/network	Increased use of native plants starts with a policy-level commitment. Implementation involves increasing the knowledge and understanding of how to successfully use native plant material in projects on federally managed lands as well as other land.	USDA Forest Service
- Lack of capacity for sustainable natural resource management	**Sustainable Natural Resource Management- Project in South Africa** The aim of the project is to enhance agricultural productivity through adequate and sustainable inputs. http://www.lin.vlaanderen.be/	• Increasing the agricultural production in 2 pilot areas of the province in South Africa with very specific eye for sustainable natural resources management requires adequate resources. • Food comes first, only afterwards farmers are prepared to invest in sustainable natural resource management.	Flemish government: Ministry of Environment Department of Agricultural and Environmental Affairs Kwazulu Natal - South Africa
- Building resilience to shocks such as climate change	**Natural Forest Management in Senegal** USAID has helped rural populations better manage local natural forest resources, strengthen and diversify their economies and reduce and even reverse degradation rates. http://senegal.usaid.gov/news/releases/2008/08_01_31_AG_NRM_forest_plans.html	• Rural producers, when they had secure rights and responsibility, demonstrated themselves to be effective managers of local forests and forest products. • Senegal decision-makers found community-based Natural Forest Management to be an effective vehicle for poverty reduction and rural economic growth. • Community-based Natural Forest Management also demonstrated itself to be an effective vehicle for decentralization, democratization and improved governance.	USAID and the Government of Senegal

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Silt and nutrients damage coral reefs	**Protecting Coral Reefs by Stabilizing Hillsides in Jamaica** USAID/Jamaica focuses on achieving sustainable natural resource management and biodiversity conservation while building economic opportunities as a key component to stability and sustained development www.usaid.gov/our_work/environment/water/jamaica_ridge.html	Integrated strategies for protecting whole water ecosystems, together with local capacity building, can help set clear environmental priorities and ensure implementation of sustainable management plans. A participatory approach to setting priorities, with extensive stakeholder and community consultations, can ensure local support and ownership of needed management actions.	USAID, Government of Jamaica
- Lack of sustainable agriculture has detrimental impact on environment	**Enlisting Economic Opportunities in the Fight Against Hillside Erosion in Haiti** This USAID-funded program is designed to increase farmer productivity and raise incomes by promoting environmentally friendly tree crops with export cash potential. http://www.usaid.gov/ht/economicgrowth.htm	Sustainable agriculture approaches can increase both farmer income and improve soil conservation. Technical assistance improved sustainable production, post-harvest processing, and market access for targeted crops	USAID, Government of Haiti – Ministry of Agriculture
- Lack of early warning system for natural disasters	**U.S. Contributions to the Indian Ocean Tsunami Warning System** National Oceanic and Atmospheric Administration (NOAA) outlined the detailed architecture for regional and national tsunami warning systems, and will continue to play a prominent role following program completion. www.us-iotws.gov.	Disaster management is strengthened with an end-to-end, multi-hazard disaster warning system. Simultaneous attention must be given to the policy arena, capacity-building, deployment of appropriate technology, and financial sustainability.	USAID, World Meteorological Organization

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
C. Rural infrastructure and social services [JPOI, Chap.4]			
- Lack of clear ownership of abandoned large-scale agricultural facility	**Rural Business Zone Třanovice** The project revitalized facility of the former state farms.	Economic contributions: • Business development and the creation of work opportunities • Diversification of business activities • Development of public and private sector partnership • Development of the entrepreneurial environment in general • Reducing unemployment • Increasing purchasing power and tax revenue. Social contributions: • Improvement in the demographic situation (number and composition of the population, positive migration balance, etc.) • Improving regional identity • Development of local culture Environmental contributions: • Improving the value and the use of existing facilities and areas • Elimination of (potential) old pollution • Strengthening the ties to the project "Biomass Production and Its Energy Use" as a basic conceptual framework for the support and development of alternative agriculture.	State Environmental Fund, Ministry for Regional Development and others of the Czech Republic

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of access to irrigation leads to socioeconomic deprivations	**Water-agriculture-poverty nexus** Explores five key interrelated dimensions of the agricultural water/poverty reduction relationship: production, income/consumption, employment, vulnerability/food security, and overall welfare. The case study analyzes the impact of improved community access to irrigation on poverty in Sri Lanka and Pakistan.	Irrigation access allows poor people to increase their production and incomes and reduce vulnerability caused by seasonality. Yet, irrigation benefits may accrue unevenly across socioeconomic groups. The study finds that: • Agricultural water/irrigation access reduces chronic poverty incidence. • Irrigation's impact on poverty is highest where landholdings are equitably distributed. • Effective rural poverty reduction requires that agricultural water/irrigation development be targeted at poor communities/areas/localities. • Unequal land distribution is associated with inequitable distribution of agricultural water benefits	Asian Development Bank at test sites in Mandi Bahauddin and Gujrat districts, Pakistan and Uda Walawe Left Bank Irrigation System, Sri Lanka
D. Access to local markets [JPOI, Chap.4]			
- Limited access to productive assets, low income-generating capacity	**Rural Development and Modernization Project for the Eastern Region**	The project includes three major thrusts designed to overcome historical causes of poverty: • Strengthening the human and capital resource base. • Transforming current subsistence agricultural and non-agricultural activities into profitable, market-oriented rural business. • Rehabilitating deteriorated areas and establishing a permanent pattern of sustainable natural resource use.	IFAD, Government of El Salvador
- Lack of access to markets for small producers	**Modernizing Agrifood Markets: Including Small Producers in Dynamic Markets** The aim of the program is to provide strategic advice and guidance to the public sector, agrifood chain actors, civil society organizations and development agencies on approaches that can anticipate and manage the impacts of the dynamic changes in local and regional markets http://www.regoverningmarkets.org/	• Market restructuring may be fast but it is not linear and can be patchy and uneven. • Understanding and supporting the functioning of chain intermediaries is one key to inclusive market development • Land tenure, including equitable distribution of land among farmers, is important for all farmers to benefit from marketing expansion and to avoid being left behind (or excluded) when market restructuring occurs.	International Development Research Centre (IDRC) – Government of Canada, UK Department for International Development (DFID), US Agency for International Development (USAID) Center for Chinese Agricultural Policy, Tegemeo Institute of Egerton University, Kenya, Latin American Centre for Rural Development (RIMISP), Chile, Sustainable Development Policy Institute (SDPI), Pakistan

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of capacity for dairy business services	**Integrating Smallholder Producers into Vibrant Dairy Product Value Chains in Kenya** This project takes a market-based, value chain development approach to increase smallholder milk production focusing on training and technology transfer, development of dairy business services providers, support for producer-owned milk cooling businesses, assistance to dairy processors for product innovation and promotion of milk consumption. http://www.usaid.gov/ke/ke.agbuen/activities/kddp.html	• Smallholder dairy farms in Kenya milking two to three cows can be highly productive when provided with training, technical assistance and access to market-based inputs; • Project impacts can be sustained through dairy business service enterprises and producer-owned milk bulking and cooling businesses; • Quality dairy products are a tradable commodity that generate export revenues and promote rural social and economic development.	USAID, local communities in Kenya
- Lack of capacities for market-oriented organizations	**Strengthening Capacities of Member-Owned, Self-Governing and Market-Oriented Cooperatives** The USAID Cooperative Development Program strengthens the development of cooperative systems in developing countries and emerging democracies by utilizing the expertise and resources of long-established U.S. cooperative organizations. http://www.usaid.gov/our_work/cross-utting_programs/private_voluntary_cooperation/coop.html	Agricultural co-ops are a successful rural development model that allows for increased economic benefits and the ability for members to direct and control their own development. The peer-to-peer approach between established cooperatives in the U.S. and those in developing countries ensures that practical solutions are found to on-the-ground implementation problems.	USAID, co-operatives in developing countries
- Lack of access to market information	**Leveraging Communication Networks to Distribute Critical Market Information in West and East Africa** USAID supports a variety of projects that use information and communications technology to improve regional markets; improve market access for smallholder farmers; and, increase food security by linking together existing regional efforts to generate, disseminate and make commercial use of market information. http://www.tradenet.biz/ http://www.ratin.net/	Better Information and communication technology can supply traders with improved early warning marketing and trade information that lead to more efficient and competitive transactions in food trade between surplus and deficit regions in East Africa. Additional advances can be leveraged through communication networks that distribute critical market intelligence and information.	USAID, local rural communities in East and West Africa

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
III. Theme: Land			
A . Land and water resources: [Agenda 21 Chap. 10; JPOI, Para. 40]			
- Need of sustainable use of natural resources	**Agri-environmental payments in Hungary** This is a local community-based programme to enhance productivity of land in a sustainable way and the efficient use of water resources.	• The agri-environmental payments contribute to the development of rural areas and provide environmental services for the whole of the society. • The payments encourage farmers to apply production methods that are compatible with the sustainable use of the environment, the landscape and the natural resources and the conservation of genetic sources on agricultural lands. • The measure contributes to the fulfillment of the commitments undertaken in Gothenburg regarding the reversal of the decrease of biodiversity until 2010 and to the fulfillment of the objectives under the Water Framework Directive.	Government of Hungary
- Lack of proper valuation of water	**Green Water Credits project** By creating a market between water users and water service providers, the ongoing project aims to support the current water reform in Kenya, which assigns an economic value to water resources.	Green Water Credits (GWC) is a mechanism for transfer of cash to rural people in return for land and water management activities that determine the quantity and quality of all fresh water.	Government of Kenya

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of integrated land and water management	**Growing coffee while caring for land and water in Guatemala and Mexico** This case is derived from IUCN's Water and Nature Initiative, a 6 year action programme to promote the sustainable use of ecosystem services in land and water management around the world.	In the coffee plantations that cover the border of Guatemala and Mexico, the coffee farmers are working to use a totally organic process by: • Educating the population in order to improve the quality of water and thus improve lives; • Changing the way they use water, recycling it throughout the entire process; • Having a tree planting nursery to grow trees for both farms but also for communal areas; • Having other produce than coffee in order to make coffee farmers not depend solely throughout the year on coffee production alone, while to stop soil erosion.	Local community in Guatemala and Mexico, IUCN.
- Lack of integrated water resource management	**Balancing land and water demands for development in the Pangani River Basin in Tanzani** This case is derived from IUCN's Water and Nature Initiative, a 6 year action programme to promote the sustainable use of ecosystem services in land and water management around the world.	The local community in the Pangani River Basin is trying to balance land and water demands for development through: • Establishing Pangani Basin Water Office to manage the problem at the local level; • Educating people to create awareness that water is everybody's right, and ensuring water is allocated equitably; • Protecting the source of water through constructing terraces to hold the water and protect the soil, and replacing the lost trees	Local government of Tanzania, IUCN
- Lack of water as well as degradation of soil fertility as constraint for sustainable agriculture - Lack of access to credit and to grain mills	**Soil and water conservation in Bongo district in upper east region of Ghana** Simple techniques to enhance soil organic matter and moisture content and to arrest soil erosion, can enhance yields and the livelihoods of rural households.	• Simple techniques to enhance soil organic matter and moisture content and to arrest soil erosion, often rooted in indigenous practice, can significantly enhance yields and the livelihoods of rural households, with only modest external investment. • By combining indigenous knowledge and commitment with some external ideas and facilitation, people in these conditions are making real progress in combating desertification.	UK Department for International Development; TRAX; local farmers in Ghana

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Need to improve irrigation efficiency and conserve water	**Research coordination to Overcome Barriers to Micro-irrigation** Irrigation is essential for high yields and net returns for a myriad of high value crops sensitive to water stress. Micro-irrigation offers a significant potential for improved water and nutrient application and use. http://lgu.umd.edu/lgu_v2/pages/showInfo.cfm?trackID=5254&CFID=3896218&CFTOKEN=19347802	• Micro-irrigation has significant potential for improving irrigation efficiency and nutrient management, but continued research is needed to overcome barriers to micro-irrigation adoption on an international scale; • Micro-irrigation provides many unique agronomic and water and energy conservation benefits that address many of the challenges facing irrigated agriculture, now and in the future.	USDA, U.S. Land Grant Universities
B. Sustainable land management: [Agenda 21 Chap. 10; JPOI, Para. 40]			
- Lack of conditions for running a farm - Need for sustainable use of local resources	**National Social Land Programme of Hungary**	• The aim of the programme is to help families living in an environment that is suitable for agriculture production, but lacking the conditions for running a farm. In this way, the living standard of the families is rising and they can work by using local resources that is beneficial from sustainable land use point of view. • The applications for the programme are written and submitted by municipalities and they manage the programme on local level. The municipalities provide extension services and trainings fro the families involved in order to help them being environmentally friendly and successful in farming.	Government of Hungary, municipalities
- Need for sustainable use of land and natural resources	**Land Use Project of Jordan**	The Ministry of Municipal Affairs prepared a comprehensive plan designating the land use throughout Jordan. This Master Plan is distinctive in that it is a directive map illustrating the natural, geographic and demographic characteristics, including the sustainability of natural resources. In a way that fulfills the government's development and economic plans.	Government of Jordan- the Ministry of Municipal Affairs

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of balanced development of land and environmentally friendly management of land	**Comprehensive Plan of National Land Construction of the Republic of Korea**	The Plan stipulates the goal of sustainable development of land as its basic principle by • Promoting balanced land development based on the harmonization between development and environment; • Enhancing competitiveness of land; and • Improving quality of life.	Government of the Republic of Korea
- Lack of capacity for sustainable land management and use	***Landcare* International Partnership and Approach in the U. S.** During the World Summit on Sustainable Development, the U.S. joined Australia and other countries to enhance worldwide use of the *Landcare* model for environmental and natural resource conservation, effective public-private partnerships, and authentic stakeholder participation in community action and decision-making. www.landcarecentral.org	Successful sustainable development outcomes can be achieved by fostering integrated conservation-based efforts in rural and urban places through: • Community-based group actions organized and led by farmers, forest landowners, homeowners, and others; • Peer-to-peer learning among local groups and group members; • Supportive actions by businesses and government agencies;	U.S. Landcare Central
- Necessity to protect farmland in face of new growth and development	**American Farmland Trust (AFT): Saving the Land that Sustains us** AFT, a non-profit membership organization, is committed to protecting the U.S. best farm and ranch land and improving the economic viability of agriculture http://www.farmland.org/default.asp	AFT utilizes the collective national experience to help communities implement effective solutions to keep farming and ranching viable, limit the impacts of new development and strategically protect the best farmland.	American Farmland Trust

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Need for development of indicators for monitoring and assessing progress of green infrastructure	**Planning for Green Infrastructure helps Communities Balance Conservation and Development Goals** "Green infrastructure" is the natural life support system of strategically planned and managed network of wilderness, parks, greenways, conservation easements, and working lands with conservation value. http://www.greeninfrastructure.net - Green Infrastructure http://www.unl.edu/nac/ - National Agroforestry Center	Green infrastructure training and "how-to" materials are key to building awareness and fostering on-the-ground actions. The emerging "Green Infrastructure Community of Practice" helps knit together disparate efforts into a more cohesive national endeavor implemented regionally and locally. Place-based efforts help integrate efforts and encourage implementation by partners.	USDA's National Agroforestry Center
- Limited capacity-building	**Integrated Soil Fertility Management project** The International Fertilizer Development Centre has developed an integrated soil fertility management package of sustainable inputs and practices raising agricultural productivity that is promoted through a participatory approach. The project operates in Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria and Togo.	The combined use of soil amendments, organic materials and mineral fertilizers replenishes plant nutrients in the soil and improves cost-effectiveness of external inputs. The yields are 2 to 3 times higher than national yields. The return on capital invested exceeds 100 per cent, and returns to family labour are 2 to 6 times higher than the average salary in sub-Saharan Africa	The International Fertilizer Development Centre

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of careful maintenance of the quality of soil	**The Benefits of Conservation Tillage and Crop Residue Management** Beneficial farm-level soil management practices can maintain the quality and long-term productivity of the soil, and also mitigate environmental damage from crop production. http://www.ers.usda.gov/publications/arei/eib16/	• The widespread adoption of the crop residue management and conservation tillage in the U.S. (about 60% of cropland) has resulted from education, public policies and programs, and economics; • The use of modern herbicides to control weeds, in conjunction with herbicide-tolerant plant varieties is an important factor in the high adoption rate of these practices. The adoption of any conservation tillage is about 30% higher for users of herbicide-tolerant crop varieties than for users of conventional crop varieties; • The farming decisions made by the operators of the nation's 2.1 million farms are shaped by market conditions, public policies, and the specific characteristics of individual farms and households. When making these decisions, farm operators have clear incentives to consider the impacts on their own well-being and that of their households.	USDA
- Limited knowledge of how to improve soil fertility	**Zaï technology in Burkina Faso** This program develops alternative farming methods including dry-season land preparation using minimum tillage methods through digging zai holes. http://www.ifpri.org/events/conferences/2003/120103/cases/zaiburkina.pdf http://www.worldbank.com/afr/ik/iknt77.htm	• Zaï proves most viable in areas with rainfall between 300 and 800 mm per year. With additional extension support, further expansion is possible into surroundings regions. • It works best in areas where the labor is cheap, for farmers who can afford to hire labor. • Farmers can use "zai" technology on an individual basis.	International Food Policy Research Centre IFPRI; Indigenous Soil and Water Conservation (ISWC), OXFAM, Rural Development Fund; local farmers

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Limited extension of services	**Farm Field Schools** Farmer field schools are increasingly recognized as an effective means for building capacity of farmers and service providers (facilitators, extension and research).	• Many farm field schools provide training in participatory diagnosis and constraints analysis; farmer empowerment; and farmer experimentation, innovation and adaptation to local contexts. • Substantial progress has been made, for example in Kenya and Sierra Leone, in adapting farm field schools for many areas: crop, livestock, soil and water management; marketing; life support-coping with HIV/AIDS, nutrition and post emergency interventions.	Government of Kenya, Government of Sierra Leone, etc.
- Lack of certification standards	**Rainforest Alliance certification** Rainforest Alliance certification is a comprehensive process that seeks to promote improvements in agriculture, forestry and travel.	Rainforest Alliance certification of coffee, cacao, fruits and flowers requires ecosystem management and protection of wildlife and waterways but opens a profitable niche market.	Rainforest Alliance
- Lack of an integrated approach in sustainable wine production	**South Africa Biodiversity and Wine Initiative (BWI)** The BWI is working closely with the wine industry to include relevant biodiversity guidelines in the Integrated Production of Wine environmental guidelines.	• This initiative has created a viable marketing opportunity, highlighting sustainable natural resource management and efforts to conserve South Africa's natural heritage. • In the last decade, this initiative has helped to ensure the participation of wine growers with more than 40,000 ha, representing 40 per cent of the total vineyards in the Cape province. • It resulted in setting aside natural habitat in contractually protected areas. It also entailed a change in farming practices to enhance the suitability of vineyards as a habitat, stimulating biodiversity, and reduce negative impacts in and outside vineyards.	Government of South Africa

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Need for an integrated approach to land and water management policy	**China's "Grain for Green" Programme** The programme, as a CDM activity of Chinese style, launched on trial in 1999 and implemented in 2002 across the country, is the biggest land-use transition, watershed management and poverty alleviation programme involving the largest population in Chinese history and across the globe.	• The programme has increased forest cover on sloped cropland in the upper reaches of the Yangtze and Yellow River Basins to prevent soil erosion. • When available in their community, households set aside all or parts of certain types of land and plant seedlings to grow trees. • In return, the government compensates the participants with in-kind grain, cash payments and free seedlings. • The programme covers 25 provinces/regions/cities over 1600 counties, involving 15 million households and 60 million farmers. Hence the Grain for Tree policy has a significant bearing on the ecological protection and poverty alleviation of the farmers in the soil erosion- and water erosion-prone regions	The Government of the People's Republic of China
- Lack of coordination in watershed management and poverty allocation programS	**Environmental Trust Fund and Watershed Management in Bhutan and Viet Nam** The Bhutan environmental trust fund was set up to finance nature conservation and biodiversity projects. Donors contribute to the government's core fund for implementing environment-related activities under its national programme. Interest from the fund is spent on projects, while the capital is locked to generate funding for future projects. Viet Nam trust fund for forest was set up in 1999 under the Ministry of Agriculture and Rural Development. It is supported by international donors to implement the Forest Sector Support Programme (FSSP) and other government programmes for the forest sector, including the 5 million ha reforestation project.	• Aligning donor support more closely to the priorities identified in the FSSP framework; • Targeting poverty alleviation for donor support to the forest sector; • Harmonizing aid to the forest sector and reducing transaction costs; • Supporting the transition towards a sector-wide approach.	Government of Bhutan, Government of Viet Nam

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- The need for an integrated approach to land management - Lack of regional cooperation and partnership	**TerrAfrica Partnership Programme and its Strategic Investment Programme for Sustainable Land Management in sub-Saharan Africa** TerrAfrica helps partners in sub-Saharan Africa to mainstream and upscale cost-effective and efficient sustainable land management including through regional partnership, knowledge generation and dissemination; and investment development and alignment.	TerrAfrica provides a common platform for partners to support African leadership and better target and align investment at multiple levels.	Governments in Africa, NEPAD, the UNCCD Secretariat, the UNCCD Global Mechanism, GEF, IFAD, FAO, the European Commission, UNDP, UNEP, African Development Bank (AfDB), Norway, Forum for Agricultural Research for Africa (FARA) and CGIAR centers.
- Lack of capacity to formulate National Action Programmes required by UNCCD and different levels of capacity in different countries - Lack of political will to address desertification at the national level	**LDC-SIDS Targeted Portfolio Project for Capacity Building and Mainstreaming of Sustainable Land Management** The project assists 47 LDCs and SIDS in 4 regions that, at the time of project conception, had not yet completed their National Action Programmes (NAPs) required for UNCCD. http://www.gsu.co.za/	• Rate of capacity building in targeted countries has varied between regions and between countries within regions, which poses challenges to fostering communities of practice and engaging all 47 countries equally in knowledge management exercises. • The expected outcomes and deliverables of the project will take longer than the initially projected project cycle, requiring reconsideration of project timelines and funding sources. • It is expected that countries will require substantial support in project implementation.	Canadian International Development Agency (CIDA) UNCCD Secretariat, Norwegian Ministry of Foreign Affairs, the Global Mechanism, NEPAD, FAO, UNEP and various regional and sub-regional organizations.
- Lack of one source for information on soil	**The European Soil Bureau Network – ESBN** The ESBN was created in 1996 as part of a network of "Centers of Excellence" of national soil science institutions for an objective of exchanging research outcomes and information in between national science institutions. It provides information on soil in Europe and addresses a number of environmental problems and questions. http://eusoils.jrc.it/esbn/Esbn_overview	The ESBN addresses leaching of agrochemicals, deposition of heavy metals, disposal of waste (agricultural, domestic and industrial), degradation of soil structure (through loss of organic matter, salinisation and subsoil compaction), risk of erosion (by water and wind), immobilization of radionuclides, supply of water at catchment level, assessing the suitability (and sustainability) for traditional and alternative crops and estimation of soil stability.	European Commission Scientific and research institutions in Europe

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
C. Information system and tools for land use planning : [Agenda 21 Chap. 10; JPOI, Para. 40]			
- Lack of information about soil conditions - Land degradation	**Soil monitoring programme in the Czech Republic** The monitoring program e on agricultural soil is being realized in the network of 190 representative monitoring plots on arable land, grassland and on special crops since 1992.	• The purpose of the whole monitoring system is to gain information about soil conditions, to explore changes in soil conditions especially because of human activities and to test new methods of soil exploration. • The results can contribute to develop methods to arrest land degradation, application of sustainable development principles in agriculture, and to develop strategies to protect land area.	Government of the Czech Republic
- Need for reliable information on components and factors of environment and land	**Data base for land and soil degradation and desertification of the Republic of Bulgaria**	• The system provides timely and reliable information on components and factors of environment. • On the basis of received information are elaborated assessments, analysis and forecasts for environment protection, including soil resources.	Government of the Republic of Bulgaria-Ministry of Environment and Waters
- The need to use new and advanced information system and technology	**Participatory land use development in Bosnia-Herzegovina** Reflection of the current state of the country's land resources.	In Bosnia and Herzegovina, an ongoing project created an inventory using a Geographic Information System (GIS) reflecting the current state of the country's land resources and a land evaluation system based on the FAO Agro-Ecological Zoning (AEZ) methodology	Government of Bosnia and Herzegovina

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of criteria and indicators at national and sub-national scales	**Indicators for Sustainable Management of Rangelands, Water Resources and Forests** Federal agencies are working with three national multi-stakeholder processes to advance the use of criteria and indicators as a framework for sustainable resources management of rangelands, water, and forests developing a common set of criteria), which focus on topics like biological diversity, ecosystem health; global carbon cycles, socio-economic benefits, and legal, institutional, and economic issues. http://sustainablerangelands.warnercnr.colostate.edu -- rangeland http://acwi.gov/swrr -- water resources http://sustainableforests.net – forests	Sustainable resource management can be fostered through multi-stakeholder processes that work on data issues, foster dialogue, and consider management decisions using a common framework. This collaboration has occurred at multiple spatial scales, and across political/institutional boundaries and several economic sectors.	USDA Forest Service and Natural Resources Conservation Service, Environmental Protection Agency, Geological Survey, Bureau of Land Management, and National Oceanic and Atmospheric Administration, Cuncil on Environmental Quality and the State of the Nation's Ecosystems Report (H. John Heinz III Center for Science, Economics and the Environment).
- The lack of consistent definitions and protocols for monitoring rangeland	**Cooperative Development of Standardized Indicators for Monitoring Rangeland** The Sustainable Rangeland Roundtable convened more than 150 rangeland scientists and managers, ecologists, sociologists, economists, policy and legal experts, and industry representatives to identify indicators for standardized monitoring of rangeland resources. They developed ecological and economic and social indicators. http://sustainablerangelands.warnercnr.colostate.edu/ http://srm.confex.com/srm/2008/techprogram/S1104.HTM	• Assessment and management of rangeland can be strengthened with standardized indicators and protocols, which are accepted by government, NGOs and land owners. • Indicators allow inventories to occur at multiple spatial scales, across public and private land ownership boundaries, and in different regions. It has a range of benefits: understanding the relationship between rangeland goods and services and indicators; a conceptual model with linkages among social, economic, and ecological rangeland resources; and, improved efforts to track changes in landscape pattern and loss of open space.	Forest Service, Bureau of Land Management, US Geological Survey, and USDA Natural Resources Conservation Service collaborated with NGOs such as the Society for Range Management, the Grazing Lands Conservation Initiative, the Ecological Society of America, The Nature Conservancy, the Consortium for Science, Policy and Outcomes, the National Cattlemen's Beef Association, the National Association of Conservation Districts and rangeland owners.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of geospatial information	**SERVIR: Putting Earth Observation Science and Technology into Practice** The "SERVIR," a Spanish acronym for "Regional Monitoring and Visualization System," leverages satellite resources from partner countries, such as the U.S., and integrates satellite data with geospatial information from member countries. Previously inaccessible data is now available via the internet, along with decision-support tools for interpreting the data, online mapping, and a three-dimensional, interactive visualization of the earth. www.servir.net	SERVIR has established itself as a protocol for linking remotely sensed data and analysis with decision-makers. Experience with the SERVIR system has shown that it is important to: • Draw on the expertise of multiple partners • Build on regional institutions • Build capacity of users	USAID, US National Aeronautical and Space Administration (NASA), other US government agencies, Meso-American governments, NGOs, the private sector, universities, international institutions, SERVIR, based in Panama at the Water Center for the Humid Tropics of Latin America and the Caribbean serving the countries of Central America, southern Mexico, and the Dominican Republic, Central American Commission on Environment and Development
D. Access to and distribution of land : [Agenda 21 Chap. 10; JPOI, Para. 40]			
- Lack of access to land	**Land Redistribution and Agricultural Development sub-programme (LRAD) of South Africa** The programme aimed at transferring land to specific individuals and groups, and improving peoples access to municipal and tribal land, primarily for grazing purpose.	The programme promotes: • Black people increased access to agricultural land and a way to address the legacy of past racial and gender discrimination; • A relief to congestion occurring in overcrowded former homeland areas; • Improved nutrition and incomes for the rural poor; • Stimulate growth from agriculture; • Stronger linkages between farm and off-farm income generating activities; • Opportunities for young people who remain in rural areas and improving their economic and social well being; • More productive use of communal land and environmental sustainability of land and other natural resources.	Government of South Africa

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of technology - Gender imbalance in rural development	**Agrarian reform in Brazil** In Brazil the process of redistributing and titling of land and settlement of small holders has placed emphasis on the sustainable development of small farmers' enterprises and rural areas. Ongoing efforts to establish essential rural infrastructure and to improve access to credits, technical assistance and training are underway.	The measures of the reform include: • The national policy for sustainable rural development facilitated the transfer of technology and production systems from successful family farms to the new land reform beneficiaries; • Guidelines were elaborated for sustainable development for small family farming and household agriculture; • Institutional capacity in the design and implementation of gender responsive policies were strengthened and programmes and projects implemented that reduce or eliminate legislative, administrative, socio-economic and behavioral obstacles to rural women's access to productive resources in the agrarian reform sector.	Government of Brazil
- Rapid deforestation, excessive logging, shifting agriculture and inefficient forest management	**Land tenure and environmental services – insights from Nepal and the Philippines** Leasehold forestry in Nepal was designed to achieve the dual goals of poverty reduction and eco-restoration and has been targeted specifically at degraded forestland areas. Community-Based Forest Management (CBFM) is the cornerstone of the Philippines' development strategy, and was adopted in 1995 in response to rapid deforestation caused by excessive logging, shifting agriculture and inefficient forest management.	• In Nepal, forest leases are awarded to a corporate body, industry or community for a maximum of 40 years renewable and formalized in a lease certificate. Leaseholds may be granted for the purpose of producing raw materials for forestry industries, selling or distributing forest products from forestation, operating tourism, agroforestry, or maintaining insects, butterflies and wildlife. • In the Philippines, the two primary instruments to grant long-term tenure adopted by the CBFM are the CBFM Agreement and the Certificate of Stewardship Contract. • Both the Nepal and Philippines tenure programs resulted in increases in socio-economic and environmental benefits. These programs were site-specific, depending on the physical and ecological context as well as on vicinity to settlements and ease of market access.	Government of Nepal, Government of the Philippines

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- The need for better agricultural marketing and price	**The doi moi reforms in Viet Nam** In Viet Nam the doi moi reforms, starting in 1986, allocated cooperative land to farm households, legalized private ownership of productive assets, deregulated agricultural marketing and prices, and devalued the exchange rate.	• The reforms in Viet Nam resulted in better farm-level prices for coffee and stimulated private farmers to expand coffee cultivation. • At the same time, many of the state coffee farms began allocating plots to workers, converting them from members of a cooperative to tenants or renters who were responsible for the productions of a given parcel of land.	Government of Viet Nam
- Lack of secure land access - Lack of capacity for acquiring secure land access	**Land and Sustainable Development: Linking Secure Land Access to the Implementation of Environmental Agreements** The aim is to bring those directly affected by a lack of secure access into the policy process by promoting a participatory approach, putting their knowledge at the centre and encouraging collective action. http://ec.europa.eu/sustainable/welcome/index_en.htm	This project supports the work of civil society members, especially regional networks, in developing countries with the overall objective of ensuring the livelihoods of the rural poor that lack secure access to land and other natural resources, to improve their socio-economic situation, but also to encourage a sustainable management of resources that closely involves local communities.	European Commission International Land Coalition IFAD Foundations in Albania and Bolivia. Local NGOs
- Lack of capacity of rural communities to get access to land	**Peasants claim for access to land** The project aims at Organizing and advocacy, in order to secure access to land for their communities, as well as to ensure that farmers have the skills and resources needed to use land productively. http://www.landcoalition.org/program/cefp_kpa.htm	• Capacity-building activities for farmers and farmer associations are essential, so they can better manage agrarian issues. This includes assistance for negotiations, training programs on leadership, civil rights, legal education. • Emphasis must be placed on the peasants' security as they can be accused by the police or military in their battle to regain access to land. • The cooperation between the villages is important, for a stronger negotiation position and more political influence.	Via Campesina, International Land Coalition (ILO), KPA - Konsorsium Pembaruan Agraria (a national network of NGOs and farmers' organizations) Local farmers

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of women in decision making processes concerning land and natural resources	**Gender and Property Rights: Giving Women a Place at the Table – case of Namibia** The Living In a Finite Environment (LIFE) Project consciously promoted women's participation and empowerment as part of the strategy for strengthening the community-based conservancies that were established to manage natural resources. As a result, the conservancies better considered women's interests when developing resource management plans, and women's access and use rights to resources were strengthened. http://www.ardinc.com/upload/photos/654Women_and_Property_Rights_June_07_FINAL.pdf	Gender must be taken into account. Including women in project activities often requires refinement of approaches and adaptation of established mechanisms. Educating both men and women about women's rights, and creating mechanisms for women to participate in decision making about resource management is often necessary for women to participate fully and effectively in natural resource management projects and to benefit equitably from them.	USAID, World Wildlife Fund (WWF) and Namibian NGOs

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
IV. Theme: Drought			
A. : Drought preparedness [Agenda 21, Chap. 12; JPOI, Para. 30]			
- Lack of institutional capacity for drought monitoring and early warning	**Establishment of the Climate Prediction and Applications Centre in Nairobi, Kenya** The Centre monitors intensity, geographical extent, duration and impact of droughts on agricultural production and issues early warnings. The World Bank and United Nations International Strategy for Disaster Reduction, Report on the Status of Disaster Risk Reduction in the Sub-Saharan Africa Region, 2007	• Issues early warnings to assist in drought preparedness. • Undertakes assessments of the impact of climatic variations on drought events. • Provides reliable and timely information to member states on droughts and their causes to help countries deal with emerging drought-related conflict situations.	Participating countries; WMO; UNDP.
- Lack of drought-relevant climate information	**Development of the Climate for Development in Africa Programme** The purpose of this three-phase programme is to guide the effective integration of climate information and services into development planning for Africa and to ensure the mainstreaming of climate considerations in achievement of the Millennium Development Goals. ECA/FSSD/ACSD-5/3	• Assists policy makers in making informed decisions on the effective integration of climate-related information and assessments into development planning. • Provides information for informed climate risks management	Global Climate Observing System; ECA; National Meteorological and Hydrological Services.
B. Drought management [Agenda 21, Chap. 12; JPOI, Para.30]			
- Lack of capacity for strategic drought risks management	**The African Drought Risk and Development Network** The Network provides a platform that assists practitioners in addressing issues related to drought risks and their implications for development. http://www.droughtnet.org	Promotes the development of coordinated strategies for enhanced and effective drought management at the national level.	Participating countries; UNDP; UNISDR.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of access to drought-relevant information and analyses - Lack of regional drought risks management	**Establishment of the Drought Management Centre for South-Eastern Europe** The Centre has been established to provide reliable and timely information relevant to drought management to decision-makers and to foster regional cooperation. ECE/AC.25/2008/3.	• Solicits and analyses the inputs from the UNCCD focal points, representatives of the national Meteorological and Hydrological Services and national drought researchers from each participating country. • Develops a regional drought management strategy.	Participating countries; UNCCD; WMO.
- Lack of access to drought-relevant information and analyses - Lack of regional drought risks management	**Establishment of the Network on Drought Management for the Near East, Mediterranean and Central Asia** The Network has been established to enhance technical cooperation among concerned national, regional and international organizations in the geographical region.	• Exchange of information and experience among the member countries. • Undertakes, and assists in, capacity-building on drought management.	International Centre for Agricultural Research in the Dry Areas; International Centre for Advanced Mediterranean Agronomic Studies; FAO Office for the Near East; other national, regional and international organizations.
- Lack of capacity building for combating drought	**Development of a remote sensing derived tool to assess the impact of conservation policy measures and drought on East African ecosystems (ENDELEO)** The project aims to assess the impact of a change in conservation policy and practices in drought vulnerable areas using space borne remote sensing imagery. http://www.plan.be/desc.php?lang=en&TM=41&IS=57	• The involvement of the civil society in the conservation and management of those natural assets is still impeded by a lack of access to regularly updated information, such as on the location and extent of the threats to these ecosystems or on the impacts of past interventions. This is also one of the main obstacles for the management authorities to respond to emerging threats. • In case of less productive ecosystems that sustain lower population densities, such as sub-humid, semi-arid and arid lands, the situation is further compounded by a lack of understanding or assessment of the impact of exogenous changes, including management policies.	Federal Planning Bureau – Government of Belgium Governments of East African countries

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Loss of income - Decrease in food production affecting food security	**Index-based weather insurance: piloted in Ethiopia and Malawi** Index-based weather insurance represents an emerging innovative market scheme for managing risks associated with drought. ECA/FSSD/ACSD-5/3	• Insurance of crops against droughts prevented insured farmers from financial losses in the case of such events. • It also enhanced access of insured farmers to finance needed to recover from drought events.	The World Bank; national financial institutions; local authorities; farmers.
- Inefficient water use in agriculture	**Coping with water scarcity: The FAO "Programmatic Approach to Water Use Efficiency and Agricultural Productivity"** FAO's "Programmatic Approach" provides a framework for managing the demand for agriculture water use seeking gains in water use efficiency and agricultural productivity.	• Increases efficiency of farm water management. • Improves irrigation system performance. • Supports adjustments of national water and irrigation policies. • Supports managing conjunctively the use of surface and groundwater, re-use of wastewater and drainage water, and desalination.	FAO; local communities; farmers.
- Decreasing drinking water resources - Sand encroachment affecting agricultural production - Lack of livelihood opportunities	**Drought management in the Sahel region of Africa: the case of the Tenadi Cooperative Group of Mauritania** The Tenadi Cooperative Group of Mauritania has worked against the background of years of persistent drought in the Sahel region of Africa that has killed the most of the livestock and annihilated the hopes of nomadic people who have been living there for centuries.	• Sinking boreholes with immersed pumps and reforestation of the area around the boreholes stopped the movement of dunes and solved the problem of drinking water. • Thanks to these activities, a large number of families have chosen to settle around the Tenadi oasis, where they are being trained in new income-generating agricultural techniques, including the introduction of drought-resistant crops	Tenadi Cooperative Group of Mauritania; farmers and herders.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of ridge tillage technology	**Ridge Tillage Improves Food Production and Water Capture in the Sahel of West Africa** The permanent ridges used in ridge tillage capture the first rains enabling earlier planting of crops, giving them more time to grow and accumulate biomass before producing grain. http://tpss.hawaii.edu/smcrsp/program_areas/pdf/ACN_fiche_technique.pdf	• Improved soil management and water capture help increase agricultural productivity; • Sahel farmers are embracing ridge-tillage technology because it appears to have a real, measurable impact on their livelihood; • Technology of this type must be appropriate to the specific agro-ecosystem and culture of the area, and benefits must substantially outweigh costs.	USAID, research institutions in Mali, Senegal and Hawaii, USA, local farmer communities in these countries
- Vulnerability to drought - Lack of drought management capacity	**The GEF Strategic Priority on Adaptation project** The project is piloting a range of coping mechanisms for reducing vulnerability of farmers and pastoralists to future climate shocks. The project is ongoing in Kenya, Mozambique, Zimbabwe and Ethiopia. Martin Krause, Coping with drought and climate change. Project inception meeting, Nairobi, 2005	Components of the project include: • Piloting coping strategies; • Improving early warning systems; • Assisting governments in developing drought management and adaptation plans; • Integrating climate change/drought across sector policies; and • Replicating and disseminating the results of the project.	GEF; farmers and pastoralists in the pilot countries.
- Lack of unified response to consequences of draught	**Livestock - coping with drought in Namibia** Policy options to cope with drought in the communal areas and freehold (commercial) farms. **http://www.odi.org.uk/networks/pdn/drought/sweet.html**	• An effective early warning system is invaluable for timely implementation of drought mitigating and relief measures. • Farm management practices should take into account the low and erratic rainfall expected in Namibia. • Drought subsidies should not become regular handouts, nor should they encourage poor management practices. • Food-for-work programmes are difficult to initiate quickly from scratch if there is no structure already in place. • NGOs can play an extremely useful role in the administration of drought relief measures in communal areas.	Government of Namibia, ODI-Pastoral Development Network

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Limited monitoring capabilities - Lack of funds and/or personnel to carry out activities and construct improvement projects outlined in the drought plan	**Analyzing Tribal Drought Management: A Case study of the Hualapai Tribe** The intention of this research is to provide a specific case study of drought impacts and management on a reservation, highlight concerns that are unique to reservations, and stimulate additional research and drought planning among Native American tribes. http://www.colorado.edu/hazards/research/qr/qr183/qr183.html http://www.azcommerce.com/doclib/commune/hualapai.pdf. http://www.itcaonline.com/tribes_hualapai.html http://www.fsa.usda.gov/drought/finalreport/reports.htm.	• A collaborative planning effort for drought plan should be ensured from the start. • The drought plan should concentrate on three components: monitoring, vulnerability assessment, and risk management. • A public education/discussion component should be initiated early in the process to inform the public and other officials about the need for a planning process, address contentious issues, and increase project buy-in. • Developed drought plan contributed to better understanding of drought, better coordinated efforts to prepare for and deal with drought, and the tribe has become more autonomous in declaring drought conditions.	Natural Hazards Center at the University of Colorado, U.S. Department of the Interior Bureau of Reclamation, Hualapai Tribe's Department of Natural Resources

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
V. Theme: Desertification			
A. Land management and livelihoods [Agenda 21, Chap. 14; JPOI, Para.41]			
- Lack of secure land tenure and landownership arrangements	**Land Code revision in Burundi** The Land Code has been revised to safeguard the tenure of small farmers, especially widows and orphans. Implementing the UNCCD: Ten African experiences. Secretariat of the UNCCD, Bonn, 2006.	• Establishment of a Communal Land Commission and a special department in the Commission for handling land ownership issues. • This department started issuing land ownership certificates, which serve as title deeds.	Communal Land Commission; farmers
- Inefficient water use in agricultural irrigation - Soil erosion	**Land degradation control in Algeria** The objective is to prevent land degradation, through improved irrigation and soil and water conservation measures. National report of Algeria on the implementation of the UNCCD	• Establishment of fruit trees plantations covering more than 1.2 million hectares of land. • The introduction of appropriate irrigation technologies in arid- and semi-arid regions resulted in improved soil productivity.	National Fund for the Regulation of Agricultural Development; National Programme for Agricultural and Rural Development; implementing agencies
- Lack of capacity for natural resource management to combat desertification	**Management of Natural Resources and Desertification in Africa: The Transformational Change in Namibia** In Namibia, wildlife-based enterprises (mostly in the tourism sector) managed by rural Namibian communities contributed to significant increases in both rural revenues and large mammal populations. http://www.usaid.gov/our_work/agriculture/landmanagement/pubs/nature_wealth_power_fy2004.pdf	• Rural people built opportunities using innovative natural resources management technologies to combat desertification and mitigate the effects of climatic changes, while pulling themselves out of poverty and up the economic ladder; • The increase in wealth accruing to Conservancies is attributable to the transfer of rights—and responsibilities—from the Government of Namibia to the Conservancies; • Increased capacity of the Conservancies to negotiate profitable agreements with commercial operators or otherwise manage a business, and the ability of the members to make and respect rules about managing their natural resources base also contributed to the success of the project.	USAID, local communities in Namibia

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Loss of biodiversity - Decreasing productivity of agricultural lands	***In-situ* conservation of crop varieties, indigenous terrace building and application of an agro-forestry system in Ethiopia** Initiatives undertaken at community level have the objective to improve land and natural resources management, drawing on the utilization of indigenous knowledge systems. National report of Ethiopia on the implementation of the UNCCD, 2006.	• Reduced the rate of genetic erosion. • Restored the local seeds or landraces in regions, where they were wiped out by severe drought. • Improved control of land degradation in hilly and mountainous areas. • Improved biodiversity conservation, productivity and living standards of communities involved.	Local authorities; local communities; farmers
- Large-scale land degradation - Lack of income and livelihood opportunities of local farmers	**The "Operation Arcadia" pilot project** The Operation Acadia project assists local farmers in restoring degraded land by planting Acadias that produce gums and resins – important products for Sahelian people's livelihoods. ECA/FSSD/ACSD-5/3	• Restored more than 13 000 ha degraded land. • Trained about 56 000 producers of gum Arabic and resin on ways to improve their production in order to meet international market standards. • Improved animal feeding and reduced conflicts between farmers and shepherds. • The sale of gum and resin overseas has brought in much needed cash to the region and helped the farmers diversify and increase their sources of income.	FAO; Government of Italy; local communities; farmers of participating countries - Burkina Faso, Chad, Kenya, Niger, Senegal and Sudan.
- Land degradation at regional scale - Water deficit caused by degrading trans-boundary and local rivers - Weak legal and institutional framework for regional cooperation	**The Regional Programme for the Integrated Development of the Fouta Djallon Highlands** Within the framework of a Plan of Action on the medium and long term to control desertification, drought and other natural calamities in Africa, the Programme aims at ensuring the preservation of natural resources and environment with the view to contributing to the improvement of the living conditions of populations in the area and reversing land degradation. ECA/FSSD/ACSD-5/3	• Strengthening of the legal and institutional framework to facilitate regional cooperation in the management of shared and trans-boundary natural resources. • Harmonization of laws and regulations. • Establishment of an observatory. • Development and dissemination of sustainable land management policies and practices.	Organization of the African Unity; eight Member States: The Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal, and Sierra Leone

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Insufficient soil and water conservation	**Soil and water conservation in Burkina Faso** The Mossi people of the Central Plateau and Eastern Region of Burkina Faso have successfully implemented soil and water conservation measures on a large scale. ECA/FSSD/ACSD-5/3	• Increase in crop yields, the numbers of on-farm trees, the numbers of livestock, and fodder production. • Household food security improved. • Some water tables rose. • Out-migration was partly reversed.	Local communities
- Sand encroachment - Loss of forest cover and grassland vegetation - Loss of income opportunities	**Managing land protection and economic activities: the case of Mauritania** A sand encroachment control and agro-pastoral development project used community empowerment approaches to initiate and manage land protection and economic activities in the saharan-sahelian part of Mauritania.	• The project benefited 40,000 people directly and 100,000-200,000 indirectly. • Movement of people back to abandoned land and villages. • The protection of agricultural and grazing lands improved vegetable production and animal farming leading to increased nutrition and sales of agricultural produce. • The status of women improved, due to their involvement in project activities and the formation of economic production units.	Local communities; local authorities
- Lack of infrastructure to combat desertification - Lack of effective water demand management and water conservation plans	**Desertification Strategies in Shenyang, China** http://www.shenyang.gov.cn	• Participants learnt how to combat desertification by planting windbreaks to protect farmlands. • Shenyang has established a wind-breaking and sand-fixing ecological function conservation area that covers an area of 2,300 square kilometers. • Tree planting has increased the tree canopy by planting 19 million trees between 2000 and 2005.	Government of the PR of China, Local government

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of community organization to combat desertification particularly regarding women	**Combating Desertification in Pakistan** The aim of the project is to establish and strengthen local community organizations to participate in the water resources development programs in order to combat desertification. http://www.unccd.int/publicinfo/localcommunities/pakistan-eng.pdf#search='scope%20khar%20dam%20pakistan'	• Community organization is a difficult task, when dealing with different stakeholders that have different interests. Conflict of interests should be handled carefully, while negotiating a project among different stakeholders and NGOs can play this role with a better position. • Local knowledge must be respected while planning a project. • Involvement of women is important in every decision making, particularly about developing water projects. • Building of water resources in the village reduce women's burden of fetching water saving about 50% of women's time daily. The saved time of women can be productively used in generating income to supplement household income. This in turn improves the status and image of women in family and society.	Society for Conservation and Protection of Environment Local communities NGOs Local government
B. Conservation of the natural vegetation [Agenda 21, Chap. 11; JPOI, Para 44.]			
- Rangeland degradation - Unsustainable livestock farming affecting livestock production	**The Tuo-Boswa Land-Care Cattle Project in South Africa** Due to uncontrolled grazing, the rangelands around the Thu-Boswa village in South Africa became degraded, rendering cattle farming unprofitable and unsustainable. Villagers established a livestock grazing management system to allow regeneration of degraded rangelands around the village and would increased profitability and sustainability of cattle farming. ECA/FSSD/ACSD-5/3	• Establishment of a livestock grazing management system with fenced paddocks and reticulated water systems. • Calving percentage increased from less than 50 percent to more than 80. • Climax grasses have increased in abundance in the grazing paddocks. • The overall status of the grazing resources has improved since the initiation of the project.	Village community; provincial government

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Degradation of grassland vegetation - Decreasing livestock production affecting food production and food security	**The "Zhanartu" ("Renovation") village project in Kazakhstan** The restoration of bush and motley-grass ecosystems on degraded river plains and improvement of the living standards of the villagers are the twin-objectives of the pilot project. These objectives are being achieved by transferring the grazing of large numbers of livestock to pastures further away from the village to decrease grazing pressure on the nearest pastures.	• Restoration of grassland vegetation around the village. • Increasing livestock production contributed to food security in the village. • Some families are already able to offer the produce from their livestock for sale on the market.	Village community
- Grassland degradation - Decreasing livestock production affecting food production and food security	**Preventing grassland degradation from overgrazing through "area enclosure" in Ethiopia** Eroded areas of land are protected from grazing for a period of years to allow for the natural regeneration of the original vegetation.	• "Area enclosure" has proved to be a particularly low-cost and effective approach to rehabilitation. • Soil and water conservation measures assist the process of natural regeneration. • Community ownership of the entire process is the key to its success.	Farmers and herders
- Large-scale grassland degradation - Loss of freshwater resources	**Rehabilitation of severely degraded grassland resources: The Ord River Catchment project in Western Australia** Regeneration of the Ord River catchment was the largest, but successful undertaking of a wide-scale rehabilitation of severely degraded grasslands in Australia. Paul Novelly and I. Watson, Successful grassland regeneration in a severely degraded catchment, Western Australia, 2006 (case study).	• Large-scale regeneration programs suggest that successful rehabilitation of extensive areas of degraded grassland requires addressing a combination of factors with an integrated approach. • Timeframes are long and significant commitment is required to achieve long-term goals.	Central and provincial governments; local stakeholders

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Degradation of grassland vegetation - Soil erosion - Decreasing livestock production affecting food security	**Grassland rehabilitation in China** The Government of China provided large investments in the rehabilitation of natural grassland vegetation, pasturing seed plantation and converting grazing land to grassland. In most of the pastoral areas, the system of grassland contracted responsibility has been practiced and household livestock-raising is being supported. National report of China on the implementation of the UNCCD, 2006	• The trend of grassland degradation has been effectively contained. • Natural grassland vegetation has considerably been rehabilitated. • The capability of grassland resources to prevent soil erosion has been greatly enhanced. • The farming herdsmen who carry out the free-grazing ban and seasonal grazing are being subsidized with feed grains to avoid adverse impacts on livestock production and livelihoods.	The Government of the People's Republic of China; local authorities; farmers and herders.
- Unsustainable forest management - Lack of income opportunities - Lack of access to markets	**Sustainable forest management by smallholders in the Brazilian Amazon** A group of smallholders in the state of Acre, supported by the Brazilian Agricultural Research Corporation, has developed sustainable forest management systems based on traditional forest practices as a new source of income. UNEP, Global Environment Outlook: Environment Convention for Development (GEO 4), Valetta, Malta, 2007	• Farmers' incomes have risen by 30 per cent. • Cooperative agreements among neighbors facilitated the acquisition of oxen, small tractors and solo-operated saw mills, yielded higher prices in local markets and reduced transportation costs. • The smallholders created the Association of Rural Producers in Forest Management and Agriculture to market their products nationwide. • The Brazilian Environment and Renewable Natural Resource Institute and the Bank of the Amazon use the sustainable forest management system as a benchmark for development and financial policies for similar natural resource management schemes.	Smallholders; Brazilian Agricultural Research Corporation; Association of Rural Producers in Forest Management and Agriculture.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Necessity to evaluate land according to its true potential	**Dryland Health Assessment: Protocol for Rapid Evaluations Based on Local and Scientific Knowledge** An interagency team of scientists and practitioners developed an assessment protocol that integrates local and scientific knowledge. Seventeen easily observable indicators are used together with optional quantitative measurements to generate baseline assessments of land health. http://usda-ars.nmsu.edu/JER/Monit_Assess/monitoring_main.php	Monitoring of three ecosystem attributes -- soil and site stability, watershed function and biotic integrity – is necessary to understand the health of rangeland. The measurements used to monitor these attributes also can be used to generate indicators relevant to specific management objectives, such as maintaining wildlife habitat, biodiversity conservation or producing forage.	US National Research Council, U.S. Geological Survey and Agricultural Research Service, Bureau of Land Management, Natural Resources Conservation Service
C. Means of Implementation [Agenda 21, Chap. 33; JPOI, Chap. X]			
- Gaps in funding for community projects	**Establishment of the Desertification Community Trust Fund in Kenya** The Fund finances community projects on sustainable livelihoods. In particular, the Fund is to facilitate research on desertification, enhance environmental management and capacity-building, raise public awareness, and provide environmental awards and grants for promotion of the environment. Implementing the UNCCD: ten African experiences. Secretariat of the UNCCD, Bonn, 2006	• Local communities have access to the Fund through project financing, upon submission of project proposals and subsequent approval for funding. • Grants and awards are given to promote sustainable environmental management and capacity-building. • The Fund benefited from significant contribution by the private sector.	Trust Fund; private sector; local communities.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of investments for sustainable land management	**GEF financial assistance to the Strategic Investment Program (SIP) for Sustainable Land Management for Sub-Saharan Africa** SIP supports sub-Saharan efforts to design and manage programs of activities that advance SLM mainstreaming into development frameworks, improves governance for SLM, and strengthen coalition development. ECA/FSSD/ACSD-5/3.	The program aims to: • Restore soil fertility helping boost food production and food security; • Increase farm incomes; • Maintain ecosystem services; • Engage local communities in better managing their lands.	GEF; African countries benefiting from the SIP.
- Gaps in financial resources for UNCCD implementation	**The UNCCD Global Mechanism (GM) facilitates investment mobilization** The GM plays a catalytic role in mobilizing technical and financial support for UNCCD implementation. ECA/FSSD/ACSD-5/3	• GM catalytic funding facilitated the mobilization of investments for UNCCD implementation in African countries. • Supports the establishment of country-level financing partnerships. • Supports investment programming. • Supports countries to put the enabling conditions in place that are expected to trigger the flow of financial resources.	UNCCD Global Mechanism; Governments of receiving African countries.
- Lack of a strategic funding framework	**Morocco's strategy to secure adequate funding for combating desertification** The strategy provides the framework for the mobilization of financial resources to finance anti-desertification programs and projects. Implementing the UNCCD: ten African experiences. Secretariat of the UNCCD, Bonn, 2006.	• Improved the consultative process among national stakeholders on the selection of priority programs and projects on desertification. • Assists in the targeted allocation of financial resources to the implementation of the selected priority programs and projects. • Assists in achieving compatibility of financial assistance provided by bilateral and multilateral donors with priorities identified in Morocco's NAP to combat desertification.	Government; UNCCD Global Mechanism.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
D. Institutional and legal arrangements [Agenda 21, Chap. 39; JPOI, Para.105]			
- Lack of coordination in combating desertification	**Formulation of national action programmes to combat desertification (NAP): the case of Niger** The NAP provides the institutional framework for the targeted allocation of domestic and external resources for combating desertification and the implementation of actions at the national level. ECA/FSSD/ACSD-5/3	Projects implemented or being implemented within the framework of the Niger's NAP include: • The World Bank-financed African Land and Water Initiative; • The ADB-financed Natural Forests Management Project; • An institution-building project to support the NAP, financed by Italy; • The 'Youth Corps Poverty Reduction; • A HIPC Initiative-financed presidential initiative to encourage community participation; • The UNDP-financed Programme to Fight Poverty; • The Community Action Programme, jointly financed by the World Bank and the GEF; • The FAO-financed National Forestry Programme; • The Niger River Watershed project, jointly financed by the ADB and the Niger Basin Authority.	Government of Niger; World Bank; GEF; African Development Bank; UNCCD; UNDP; FAO; HIPC Initiative.
- Lack of a regional framework for action	**Developing a Pan-African Land Policy Framework** Under this initiative, regional economic communities are expected to facilitate the harmonization of policies and legislation for the better management of land resources within their region. ECE/AC.25/2008/4	• Facilitates the harmonization of policies and legislation for the better management of land resources within economic regions. • Increases vertical integration of agricultural production chains and economies of scale at the regional level	ECA; African Development Bank; regional economic communities.

Barriers/Constraints	Case Studies	Lessons learned, Best Practices, Results	Key implementation actors
- Lack of desertification information monitoring and assessment networks	**Setting- up Desertification Information Systems (DIS) in support of the implementation of NAP: the case of Tunisia** The DIS provides crucial information for national planning, helping policy makers to make informed decisions. It consists of the desertification issue chart at national level, which shows the quantities and qualities of the various natural resources, the causes of desertification in each region and monitoring indicators pertaining to the resources. Regular desertification observations are logged in the NAP indicator grid, which is the tool for monitoring desertification and evaluating the impact of the NAP.	• Monitors desertification processes and its impacts on natural reserves. • Evaluates the impact of initiatives undertaken on progress made in the implementation of Tunisia's NAP. • Provides assessments of the impact of investments provided for combating desertification.	Government of Tunisia; other national stakeholders involved in combating desertification.
- Lack of institutional and human capacities	**The UNDP Integrated Drylands Development Programme** The Programme helps countries to integrate their national action programme on desertification into national economic frameworks and to move from strategy development to effective implementation of the UNCCD including through resource mobilization. Report of UNDP to the third session of the Committee for the Review of the Convention (CRIC3), Bonn, 2-11 May 2005	Under this programme, Africa countries benefited in the areas of: • Ensuring that issues affecting the drylands are addressed in macro-economic policies; • reducing vulnerability to climatic shocks, especially drought and improving adaptation to climate change; • improving local governance for natural resource management.	UNDP Drylands Development Centre; benefiting African countries.
- Lack of laws and regulations for the protection and conservation of natural resources	**China's water and soil conservation law** The law has mandated local governmental authorities to incorporate soil and water conservation measures into land use management plans. National Report of China on the implementation of the UNCCD, June 2006.	The enforcement of the law resulted in: • Increased land productivity; • Decrease in soil erosion; • Increased water use efficiency.	The Government of the People's Republic of China; local authorities

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
VI. Theme: Africa			
A. : Sustainable Development for Africa [JPOI, Chap. VIII.]			
- Lack of sustainable development framework	**African 10-Year Framework Programme on Sustainable Consumption and Production (SCP)** The Framework has been approved at the African Ministerial Conference on Environment through its Dakar Declaration in March 2005.	• This program has identified four priority areas, all of them considered in the context of NEPAD's Environmental Action Plan and regional poverty reduction priorities: energy, water, urban development (including municipal waste management) and industrial development. • The program strengthens the existing institutional structures that promote SCP and support concrete projects related to SCP. • To support implementation, a Task Force on Co-operation with Africa has been established.	Task Force on Co-operation with Africa; governments of participating countries.
- Lack of unified body to deal with threats	**Institutional framework for peace management under the auspices of the African Union (AU)** This is an institutional framework for peace management is taking shape under the auspices of the African Union (AU).	• In this framework, the notion of common threats is defined, encompassing interstate and intrastate conflicts. • The principles for action are specified, including the key principle of the indivisibility of African security. • The responsibility for the implementation of security policy and actions lies exclusively with the Peace and Security Council of the African Union, which is to embark on peacemaking and peace building through mediation, consultation and dialogue.	The African Union; governments of member states of the African Union

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of regional body for energy	**NEPAD Infrastructure Short-Term Action Plan (STAP)** In the Infrastructure Short-Term Plan (STAP), NEPAD has identified seven projects related to energy distribution and production among its top twenty priorities.	These priorities, which are being translated into concrete projects, encompass the creation of power pools, the reinforcement of power interconnection and oil and gas pipelines, and strengthening regional cooperation through the African Energy Commission.	NEPAD, African Energy Commission
- Degradation and depletion of natural resources in Africa - Severe shortage of country-wide, as well as regional and sub-regional, quantitative and qualitative information on vegetation cover and current land use.	**Africover Project – Eastern Africa Module** The purpose of the Africover Project is to establish a digital georeferenced database on land cover and a geographic referential for the whole of Africa, but Eastern Africa Module is the only currently operational. The objectives of the project are to produce a regional assessment of East Africa land cover as a basis for regional and national level planning and decision making, preparing satellite interpreted land cover data bases of the whole of East Africa; to develop a network of local personnel trained in the utilization of remote sensing and GIS technologies for land cover inventory and monitoring and to develop a policy and mechanisms for data dissemination in joint cooperation with the national focal points established through the project support	The results so far include: • Provision of equipment to National Focal Point Institutions (NFPIs). • Set up of communication and networking mechanisms. • Interpretation of satellite images for the national land cover map executed by national photo-interpreters. • Training of national photo-interpreters on the AFRICOVER methodology. • Development of a complete set of integrated software that constitutes a cost effective reliable solution to produce, update and interact with land cover information. • Development of Land Cover Classification System (LCCS) used to produce the MADEs and adopted by FAO and UNEP as the international standard for land cover classification.	FAO, Governments of Governments of Burundi, Democratic Republic of Congo, Egypt, Eritrea, Italy, Kenya, Rwanda, Somalia, Sudan, Tanzania, Uganda

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of energy access	**"Cows to kilowatt" project in Nigeria** This project demonstrates how small-scale initiatives can be developed to offset energy shortages.	• At the community level, initiatives like the "cows to kilowatt" project in Nigeria demonstrate how small-scale initiatives can be developed to offset energy shortage: through the utilization of the methane produced by the degradation of abattoir wastes, the city of Ibadan and its partners expect to provide energy for 2,000 households in the neighborhood. • As a result, progress has been made in energy access for cooking and heating by the poor, as well as in electricity grid interconnection.	Government of Nigeria
- Finding the right balance to keep pest populations below economically damaging levels and to restrict pesticide use to amounts that are economically justified and reduce risks to human health and the environment	**Integrated Pest Management – cases of Uganda and Eastern and Southern Africa** The practice gives agricultural workers knowledge and skills on integrated pest population management (IPPM). Other internet links: http://\\faoext06\FTP_Waicent\SD\SDA\SDAR\sard\English GP\EN GP Africa\Biocontrol_diamondbackmoth_Africa.pdf International Centre of Insect Physiology and Ecology http://www.icipe.org	• IPPM gives them the ability that when instructed by an employer or manager to use a pesticide, they can suggest alternative IPPM techniques that are effective, reduce input costs, and pose less risk to the health of workers and the environment. They also help them to collectively bargain with employers to improve health and safety standards at the workplace. • This reduces impacts on the natural environment, lack of residues of pesticides in the soil and water. • It also results in reduction of pesticide use and consequently a reduction in production costs, lessening the health hazards for the waged agricultural workers and their employers, and improved health and safety of the communities living on the farms.	Swedish Trade Unions; Global Integrated Pest Management Facility; local farmers

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of adequate funding - Direct seeding implements are not readily available locally - Inadequate awareness-creation campaigns among all stakeholders - Poor integration of crop and livestock	**Conservation Agriculture for Sustainable Crop Production, Tanzania** The advantages of reduced and minimum tillage. Other Internet links: http://www.fao.org/ag/ca http://www.act.org.zw	The advantages of reduced and minimum tillage against conventional mechanical tillage practices are: • Willingness of district/local government authorities to introduce CA as an important approach to reverse land degradation. • Increased crop yields but lower production costs, mainly due to reduced labor inputs. This allows diversification into other agricultural production or rural income-generating activities; • Increased infiltration of rain and surface water, enhanced retention of soil moisture and resilience to the effects of drought. Stream flows show better regularity and improved quality; • Downstream benefits to the rural community such as reduced municipal water treatment costs and reduced damage to infrastructure due to runoff .	Ministry of Agriculture, Food Security and Cooperatives, Tanzania; FAO Office Tanzania
- Lack of competitiveness of selected agricultural sub-sectors that target national, sub-regional and international markets	**Agricultural Diversification and Market Development – Burkina Faso** Boosting the mango export.	The project focused on implementing an action plan to boost the mango export. It got tangible results as Burkina mango export increased from 2200 tons in 2006 to more than 3500 tons end of June 2007.	The Ministry of Agriculture of Burkina Faso, World Bank

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Limitation to access to access the finance - Natural disaster such as prolonged drought	**Honey Care Africa Limited – Kenya** Honey Care Africa is a private sector that links environmental conservation and poverty reduction through a model of sustainable beekeeping through providing beehives and related beekeeping equipments to organizations, communities and individuals across Kenya.	• All 2,000 rural Kenyan households are beneficiaries and rely on beekeeping for supplementary income (USD$200-250 per year). • Beekeeping plays a central role in the successful reproduction and conservation of a wide variety of native trees, shrubs and grasses. • "Sustainable Beekeeping" made communities engaging community-based tree nurseries and tree planting programs. • 43% of hives are owned by women.	Honey Care Africa
- Limited access to safe water which results in water borne illnesses	**Lufumbu Village Water Project, Tanzania** To provide water supply for the village Other internet links: http://ww.energyandenvironment.undp.org/undp/indexAction.cfm?module=Library&action=GetFile&DocumentAttachmentID=1796	• Initial funding for the project was raised by the local community. • Availability of clean and safe water for over 3,670 people in the community has reduced the incidences of water borne illness by 80%. • The project enhanced agricultural production, three square meals per family as opposed to previously two or less and the more children are able to attend and pay for school fees and uniforms. • Using water from the project, farmers have established nurseries for coffee and other tree species, which have led to the raising of over 100,000 tree seedlings and expanded coffee farming.	Grassroots communities, the Roman Catholic church and African 2000 Network.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Exclusion of the poorest - Initial phase of development is not profitable (constitution of the customer portfolio). - Mitigated perception of the services provided (willingness to "be repaid" for the value of the premium every year).	**Microcare Ltd. Health Plan, Uganda** Microcare aims at providing health insurance services to mid-income households that were initially covered. Through a well-calibrated access to basic health services, a cost-effective administrative process and a community/corporate based access to clients, this company, which first was a non-profit organization, targets a wide share of Ugandan population.	• 170 approved clinics and hospitals mid-2007 • Number of customers: 85,000 mid-2007	Microcare Ltd
- Lack of availability of eco-tourism resources	**Buhoma Village Walk, Mukono Parish Uganda** Buhoma Village Walk is the first community initiative in Uganda's eco-tourism area; it is a high quality community tourism product for tourists who visit Bwindi Impenetrable National Park (BINP).	• This project has directly improved the social economic conditions of the guides and site owners and indirectly helped community owners whose commodity/ services are being purchased. • Improved access to medical care, school fees and other house hold purchases as a result of the additional income being generated by the walk. • The project improved the relationship between Uganda Wildlife Authority (UWA) and the communities on the conservation of BINP. The communities have access to benefit accrued from the tourist fees. • It has established cultural exchange and dialogue between local community members and tourists, and has helped conserve local natural resources.	The Batwa: who were originally forest people with no source of income now perform their cultural dance. Uganda Wildlife Agency UWA.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Difficulty to reach a clear consensus on the nature and extent of environmental and social impacts caused by the dam. - Need for scientific research prior to the discussions.	**Restoring Kafue Flats, Zambia** WWF instigated dialogue between the Zambian Government, ZESCO, local peoples and commercial farmers, leading to an agreement in 2004 to restore a more natural flow pattern to water releases from the dam, to restore downstream fisheries, flood recession farming, wildlife and tourism without diminishing hydro electricity production.	• Local communities should be involved from the start of the process. • The technical aspects of developing a flooding regime are very costly as well as improving dam operating rules to benefit livelihoods and the environment. • Environmental health of Kafue Flats was restored, and as a result the livelihoods of local people. • Fish and pasture productivity has been increased resulting in livelihood benefits. • Environmental health has been restored. • Wildlife based tourism industry has been developed. • The project had minimal impact on hydro-electricity production and irrigation. • National government adopted policies to undertake similar community based natural resources management and integrated water resources management plans, and establish sub-catchment councils for other water basins in Zambia.	WWF, Zambian Government, ZESCO, local communities.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of early assessment of the social impact of the program - Limited capacity to maximize the benefit	**Working for Wetlands, South Africa** Working for Wetlands employs the most disadvantaged people in South Africa (in FY05: 18% youth, 54% women and 4% people with disabilities) for up to two years to restore degraded wetlands for nature conservation and better water management, and provide workers with training in work and life skills. n the nine years to 2005, Working for Wetlands rehabilitated 175 wetlands nationwide, employed 20,000	The 2005 socio-economic assessment identified poverty reduction benefits of the program as: • Increased and more reliable income. • Workers are employed for periods of 6 to 24 months. • Improved education and confidence with participants saying the program has made them 'better people' (statements from focus group participants). • Reduced vulnerability to shocks and seasonality, particularly for food security.	South African National Biodiversity Institute (SANBI) – the government program manager under the Expanded Public Works Programme for the Departments of Environmental Affairs & Tourism and Water Affairs & Forestry; Mondi Wetlands Project – a partnership of WWF, Wildlife and Environment Society of South Africa & Mondi Business Paper company, which provides technical advice to the field teams; Disadvantaged communities who have participated in the projects.
- Fundamental limitation of human and financial resources available for the project - Project can be dangerously vulnerable to outside forces beyond local village control	**The Village of Andavadoaka – Madagascar** The village community joined conservation group Blue Ventures to launch the world's first community-run Marine Protected Area (MPA) for octopus in 2004 focusing on the development of a large MPA network encompassing new species, habitats, zones and communities.	• Results of the first pilot no take zones resulted in dramatic and highly significant increases in octopus fishing yield, and increase in meat size of octopus increasing their earnings and the reproductive capacity of the octopus population • Data have shown that careful management of no take zones after reopening dramatically increase the longevity of fisheries benefits. • The National Government of Madagascar in 2005 used the project as a model to create seasonal octopus fisheries bans across the country	Local communities; Blue Ventures: Assisting conservation planning and alternative livelihood programs; Wildlife Conservation Society: Assisting developing community management committee; Copefrito: providing collection and export data and logistical support.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Important Financial and technical resources necessary. - Coordination issues in the early phases of TRACnet implementation	**TRACnet (Treatment Research and AIDS Center, TRAC), Rwanda** TRACnet is a dynamic information technology system designed to collect, store, retrieve, display and disseminate critical program information, drug distribution, and patient information related to the care and treatment of HIV/AIDS. The system covers the 134 health facilities offering ART in Rwanda accounting for 100% of all ART patients in Rwanda (32,000+) (2006 results). Currently, all 124 ARV sites countrywide use the TRACnet system: 107 via the calling phones and 17 via the internet access. In the long run, 400 sites are to be part of the network.	• 400 site level users have been trained to send their monthly program indicator report and their weekly consumable reports • Most users (over 90%) are able to conveniently and cheaply access the system via the toll free telephone interface with Interactive Voice Response Technology (IVR) technology; and reduce dependence on unreliable power supply. • Ability for physicians all over the country to easily and quickly discuss with highly qualified specialist about difficult cases. • Easy adoption of program, as most users accustomed to text messaging from phones after 15-30minutes of training are able to use the system.	TRAC (Treatment and Research Aids center); Ministry of Health of Rwanda.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Necessity for capacity building in the area of sustainable agriculture.	**Organic producers and processors of Zambia (OPPAZ)** OPPAZ provides production, marketing, technical advice, development of formal and informal working partnerships with other agencies and NGOs. Crucial is the provision of a technical advisory service to members on organic and specialized crop production, improved processing and storage to ensure standards. http://www.africanfarmdiversity.net/Documents/OPPAZ_final.pdf	• There is a need to provide the industry with the information it requires to encourage investment through practical research on the organic production of field crops suited to small scale farmers and specialized crops suited to larger producers. • A small and dedicated extension service should be trained, equipped and mobilized that can provide detailed and accurate information and training services to producers generated from local research and accumulated experience. • Mutually beneficial relationships between the organic producers and association within Zambia should be organized in order to gain economies of scale, the statutory standards and the necessary levels of quality. • There is a need to establish a marketing support, and internet facility where exporters can advertise their organic products to buyers world-wide.	Organic Producers and Processors Association of Zambia (OPPAZ); UK Darwin Initiative for the survival of species; Overseas Development Institute (ODI); German ministry of Economic Cooperation and Development; German Agency for Technical Cooperation; regional and national associations for plant products.
- Food insecurity, land access, no agricultural extension support - Lack of infrastructure and a perceived superiority of exotic breeds over indigenous	**Use of genetic resources to promote sustainable rural livelihood in South Africa** The aim of this program is to raise awareness of the value of indigenous resources in promoting rural livelihood and Generate understanding of agrobiodiversity policy issues and experiences in South Africa. http://www.fao.org/docrep/006/Y3970E/y3970e0b.htm http://www.iucnsa.org.za/	• Clear timeframes for implementation, clear incentives that will encourage farmers to continue their farming with indigenous breeds, e.g. tax relief, policies should be developed in consultation with the stakeholders and not in boardrooms. • Agricultural research on indigenous breeds should be financially supported by the government. • Indigenous knowledge must be protected through property rights. • Maintenance of gene banks should include indigenous varieties.	The World Conservation Union; NGOs and local farmers.

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of capacity building and finances to improve more sustainable methods in agriculture	**Conservation farming in Zambia** This program encourages the Zambian farmers to adopt more sustainable methods using either hand hoe or animal draft tillage. http://www.ifpri.org/events/conferences/2003/120103/cases/conservzambia.pdf http://www.irinnews.org/report.aspx?reportid=46943	• Input supply and credit is necessary for smallholders. • Extension support is needed, as well as labor management, weed control, credit and input availability for further expansion. Careful planning will enhance the process. • There is a necessity to enable farmers to better plan their work - the usual last-minute rush to prepare the land before the rains come, planting late and potentially losing up to 60 or 70 percent of their yield as a result, can in this way be avoided.	Zambia Government – Ministry of Agriculture, Food and Fisheries Conservation Farming Unit (CFU); Zambia National Farmers Union (ZNFU).
- Capacity building for better crop and consequently alleviation of poverty	**Bund construction for rice production in the northern region of Ghana** Although rice was an established crop in the Northern Region, yields were low. There is substantial surface runoff during the rainy season, and bunds that capture this runoff can significantly increase yields of this predominantly cash crop, particularly if the practice is combined with increased fertilizer use. http://www.afd.fr/jahia/Jahia/lang/en/home/NosProjets/AfrOuest	• Farmers are ready to invest large amounts of hard labor in the construction of the bunds that increase market opportunities even though declining soil fertility as rice is grown for several successive years on the same land is a challenge as well as the availability of fuel wood for the processing • Necessity of improved water conservation. • It is essential to build efficient and equitable producer co-operatives and linking them with the efficient operation of credit systems and agencies.	French Development Agency, Ministry of Agriculture and Food, Agricultural Development Bank, French Ministry of Foreign Affairs, local NGO, local farmers.
- Lack of capacity to meet standards of international markets	**Increased Incomes for Smallholder Farmers in Ghana through Agricultural Exports** In Ghana, the Trade and Investment Programme for Competitive Export Economy (TIPCEE) Program helps smallholder farmers improve their incomes from exports in a variety of value chains (including mangoes, pineapple, cashews, and papaya) by using information and communication technology. http://www.microlinks.org/ev02.php?ID=20389_201&ID2=DO_TOPIC	By finding practical ways to use information and communication technology, smallholder farmers can integrate into supply chain systems, be a competitive alternative to industrial farming, and manage processes (pre and post harvest) much more efficiently. This technology alone is not the complete solution, but coupled with a deep understanding of how the value chains work for the target crops, it can be a powerful tool.	Trade and Investment Programme for Competitive Export Economy (TIPCEE) Program, local farmer communities

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Necessity for sub-Saharan Africa's integration into the multilateral trading system and a more active role in global trade negotiations	**Expanding Trade Opportunities and Building Prosperity in Africa** Africa Growth and Opportunity Act (AGOA) has motivated substantial new investments, trade, and job creation in Africa. http://www.agoa.gov/index.html	While the absence of import duties under AGOA increases the competitiveness of African exports, certain factors like inefficient energy supplies, the high cost of electricity and limited access to financial services remain obstacles to full competitiveness. These constraints must be addressed to achieve long-term productivity gains, and to ensure that for sub-Saharan African countries remain competitive in global markets.	US and countries in sub-Saharan Africa, the U.S. African Global Competitiveness Initiative
- Lack of competitiveness of enterprises in sub-Saharan Africa	**Strengthening Africa's Export Competitiveness** The African Global Competitiveness Initiative (AGCI) supports efforts that improve the policy, regulatory, and enforcement environment for private sector-led trade and investment. It also supports activities to improve the market knowledge, skills, and abilities of private sector enterprises, to increase access to financial services for trade and investment, and to facilitate investments in infrastructure. www.watradehub.com/index.php?option=com_frontpage&Itemid=1 -- West Africa www.satradehub.org -- Southern Africa http://www.ecatradehub.com/home/index.asp -- East and Central Africa	• Inefficient energy supplies and the high cost of electricity and telecommunications hinder export competitiveness, as do high transportation costs; • American consumer preferences are not well understood by small African businesses. They need training on American consumer preferences, good business practices, and quality control; • Key results include increased African exports of apparel, cut flowers, seafood, and specialty foods; reduced transit times for commercial goods through customs and transportation reforms, and strengthened market linkages.	The African Global Competitiveness Initiative
- Zambia's smallholder farmers are poorly served by the agricultural inputs industry	**Building Agricultural Value Chains in Zambia for Retail Input Services** The USAID-funded Production, Finance and Technology (PROFIT) project upgrading strategy for the agricultural-inputs value chain focuses on improving the way in which input firms understand, plan, and market their products to smallholders. http://www.usaid.gov/zm/economy/eg.htm www.microlinks.org/ev_en.php?ID=21638_201&ID2=DO_TOPIC	A competitive value chain for agricultural input services is critical to the competitiveness of the principal food crop (maize) and cash crop (cotton) value chains.	USAID and local communities in Zambia

Barriers/Constraints	Case studies	Lesson learned, Best Practices, Results	Key implementation actors
- Lack of previous data on changes of the African environment	**Africa: Atlas of Our Changing Environment** The publication has more than 310 satellite images, 300 ground photographs and 151 maps, along with informative graphs and charts that provide a vivid visual portrayal of Africa and its changing environment.	The observations and measurements of environmental change illustrated in the Atlas help gauge the extent of progress made by African countries on important environmental challenges. It contributes to the knowledge and understanding that are essential for adaptation and remediation.	UNEP, U.S. government agencies, academic institutions and the private sector