



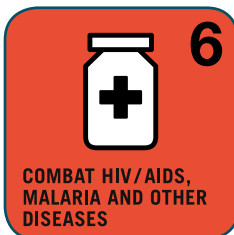
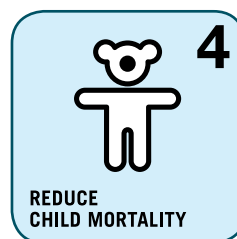
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Canadian International
Development Agency



The Global Drylands Imperative

Implementing the Millennium Development Goals in the Drylands of the World



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Contents

Foreword	5
Acknowledgements	7
Acronyms	8
Executive Summary	9
1. Introduction	11
2. Drylands and MDGs: perceptions, assumptions and lessons learned	13
Goal 1: Eradicate extreme poverty and hunger	13
Goal 2: Achieve universal primary education	19
Goal 3: Promote gender equality and empower women	21
Goal 4: Reduce child mortality	23
Goal 5: Improve Maternal Health	24
Goal 6: Combat HIV/AIDS, malaria and other diseases	25
Goal 7: Ensure environmental sustainability	27
Goal 8: Develop a global partnership for development	32
3. Challenges to achieving MDGs in drylands	33
Sociocultural challenges	33
Economic challenges	35
Climatic and ecological challenges	36
Policy and institutional challenges	37
4. Major opportunities	39
More knowledge and information	39

Research and development	40
International/global partnerships	40
5. Recommendations for energizing MDG implementation in drylands	41
5.1 Priority action areas	41
The global context	41
Specific activities for drylands	42
5.2. Integration of drylands into national MDG implementation strategies	45
5.3. Criteria for selecting dryland countries for fast tracking	47
5.4. Criteria for Investment priorities	48
6. Way Forward	51
7. References	53



Foreword

The Millennium Development Goals (MDGs) were approved by the General Assembly (2000) as part of the UN Secretary General's roadmap for implementing the Millennium Declaration. The 2002 World Summit on Sustainable Development (WSSD) in Johannesburg reaffirmed commitment to Agenda 21 and the Rio Declaration adopted by the United Nations Conference on Environment and Development (UNCED) a decade earlier.

Virtually all developing countries have now adopted MDGs as targets for development. Most donors and international development institutions have begun to re-engineer their approaches and procedures to focus on achieving the goals. For example the September 2005 UN World Summit in New York further confirmed the worldwide acceptance of MDGs as the framework for development, including the specific targets to be achieved by 2015. At the 31st G8 summit meeting in July 2005, European G8 members pledged to devote 0.56 percent of GDP as official development assistance (ODA) by 2010 and 0.7 percent by 2015. The G8 also agreed to cancel the entire \$40 billion debt owed to the World Bank and the International Monetary Fund by 18 highly indebted poor countries.

The scene is set for much greater determination to pull the poorest people on the planet out of poverty and help them live decent dignified lives. The challenges are as diverse as they are formidable. Drylands with high poverty rates are always bypassed by development. Previous Challenge Papers have attempted to show that lack of investment in developing the drylands is often due to limited understanding of their importance and potential in achieving the MDGs. The MDGs set challenging targets, and it is important that current misconceptions do not downplay drylands. As previously stated in this series, it will be impossible to meet MDG targets without special attention to drylands.

This paper explores the challenge of meeting MDG targets in countries that have large populations of poor people in isolated and remote locations in arid, semi-arid or dry sub-humid areas. The paper follows in the footsteps of earlier Challenge Papers. Common assumptions on achieving each target are discussed, critiqued, and composite recommendations for achievement set out. Some of the recommendations are very similar to those for more humid environments. However, given their high water stress and remote locations, drylands present special challenges. This paper shows how to overcome these challenges in the context of the MDGs. It also presents a proposal for rapid implementation of the recommendations to ensure results by the 2015 target for most of the eight Millennium Development Goals.

The Global Drylands Imperative (GDI)

The Global Drylands Imperative (GDI) brings together people and institutions interested in promoting sustainable development in drylands. It is an informal group of international organizations, donors, NGOs and individuals interested or actively involved in dryland development. This partnership is dedicated to increasing awareness on the importance of drylands among policy makers and within relevant international forums, with special focus on the United Nations Convention to Combat Desertification (UNCCD) Conference of the Parties (COP). The Challenge Papers Series aims to reach decision makers who determine important developments on drylands.

This particular paper, 'Implementing the Millennium Development Goals in the Drylands of the World', is part of the series of Challenge Papers prepared under the auspices of the Global Drylands Imperative. It is available globally, targeted at developing country policy and decision makers and their development partners, drylands development practitioners, and NGOs and international donors and institutions focusing on drylands in the implementation of the MDGs.

Disclaimer

The views expressed in this publication do not necessarily represent those of the member countries of the UNDP Executive Board, or of institutions of the United Nations system mentioned herein. The designations and terminology employed and the presentation of the material do not imply any expression or opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city or area, or of its authority, or of its frontiers or boundaries.

Acknowledgements

This paper was initially prepared for discussion at the Seventh Conference of the Parties to the United Nations Convention to Combat Desertification held in Nairobi in October 2005. The paper was written by Philip Dobie and Mounkaila Goumandakoye. They were privileged to use and incorporate numerous sources of information, including the following three specialized issue papers prepared by experts:

- ❑ Michael Mortimore's paper on 'Achieving the Millennium Development Goals in the drylands: poverty, hunger and environmental sustainability';
- ❑ Patricia Kameri-Mbote's paper on 'Achieving the Millennium Development Goals in the drylands: gender considerations'; and
- ❑ Thomas M. Maina's paper on 'Achieving the Millennium Development Goals in the drylands: health and welfare related issues'.

The paper also benefited from contributions by individual experts worldwide through an electronic forum conducted in April–May 2006. The forum attracted more than 200 participants and addressed three main issues: Challenges to achieving MDGs in drylands, priority interventions needed to energize implementation of MDGs in drylands and identifying criteria for selecting countries for fast-track implementation of MDGs.

Substantive contributions were received from Patricia Lantoso Ramarojaona, Mahmud Hossain, Batkhuyag Baldangombo, Indrissa Sanoussi, Wafa Essahli, Laurent Rudasingwa, Mariama Jankeh Bojang, Frank Msafiri, Riad Bensouiah, Ernest Manganda Iloweka, Friederike Knabe, Rose Nitunga, K.S. Gopal, Mohamed Elfadl, Kioko Munyao, Kalfa Sanogo, Valentin Dztso, Adama Daou, Girma Hailu, Jean Jacob Sahou, Juliette Biao, Richard Grah, Jesse Njehu, Eric Patrick, Mike McGahuey and Joseph Opio-Odongo.

There were additional contributions from Charles Haines, Joachim Gratzfeld, Sarah Anyoti and Anne Chege.

Another major source of inspiration and information was the series of reports of the Task Forces of the United Nations Millennium Project. These reports on MDG targets were to appraise the Secretary-General of the United Nations on steps to achieve the MDGs.

Dr. Winston Mathu (consultant) undertook the important tasks of synthesizing the e-forum contributions, harmonizing contributions from various sources and compiling the final draft.

The writing, publication, presentation and dissemination of this paper were made possible through a generous grant from the Canadian International Development Agency (CIDA). In addition, CIDA also provided invaluable input and advice.

List of Acronyms

CBD	Convention on Biological Diversity
CIDA	Canadian International Development Agency
CDM	clean development mechanism
DFID	Department for International Development
DDC	Drylands Development Centre
FAO	Food and Agriculture Organization of the United Nations
GDI	Global Drylands Imperative
GDP	gross domestic product
GEF	Global Environment Facility
GER	gross enrolment ratio
HDI	human development index
HDR	Human Development Report
HIV/AIDS	human immunodeficiency virus/acquired Immune deficiency syndrome
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICRAF	International Centre for Research in Agroforestry
IUGR	intrauterine growth retardation
JMP	joint monitoring programme
LPA	low-potential area
MDGs	Millennium Development Goals
MEAs	Multilateral Environment Agreements
NEPAD	New Partnership for Africa's Development
ODA	Official Development Assistance
PRSP	Poverty Reduction Strategy Paper
NER	net enrolment ratio
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	UN Framework Convention on Climate Change
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization
WSSD	World Summit on Sustainable Development

Executive Summary

Unlike in high-rainfall areas, the implementation of the Millennium Development Goals (MDGs) in drylands face special challenges. These include:

- ❑ sociocultural aspects such as the predominant nomadic lifestyles, gender inequalities (including demographics and traditional differentiation of male–female roles) and conflicts in some countries;
- ❑ economic challenges resulting in low investment due to poor infrastructure and limited markets;
- ❑ climatic and ecological challenges that limit production such as low and unpredictable rainfall, frequent droughts, climate-change-induced aridity and land degradation (deforestation and desertification); and
- ❑ policy and institutional challenges (low national priority, poor — or no — policies on management of, access to, and ownership of land and natural resources, and limited knowledge, information and awareness of the links between poverty, the environment and economics in the drylands).

This paper highlights the economic and ecological potential of drylands, as well as the vast information accumulated over the last few decades on their strategic importance to national development and meeting the MDG targets. In view of this, and taking into account the risk of marginalization threatening the drylands, the paper advocates for a new strategy for catalyzing and fast-tracking development activities in selected dryland countries to ensure they achieve the MDGs by the 2015 deadline.

The starting point is to use existing opportunities to energize MDG implementation in drylands. Such opportunities include tapping the increased knowledge now at hand that underscores the importance of drylands in the economies and livelihoods of dryland countries; the ongoing research and development initiatives of institutions such as the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Centre for Research in Agroforestry (ICRAF), and various international partnerships on drylands (for example the Multilateral Environment Agreements or MEAs and UNCCD in particular).

This paper revisits the United Nations Millennium Project recommendations and identifies specific activities for drylands, highlighting the need to focus on activities which empower rural dryland communities, and activities that improve rural–pastoral economies. Recommended priority action areas include:

- ❑ policy and legislation such as development of national strategies for MDGs, measures to link MDGs to Poverty Reduction Strategy Papers (PRSPs) and national budgets;

- ❑ infrastructure such as construction and maintenance of rural roads, schools and health clinics particularly for nomadic communities;
- ❑ services such as extended health and education services, agricultural and livestock extension, local communication services; and
- ❑ capacity-building for developing MDG strategies, institution strengthening, information dissemination and policy advice on decentralized governance and planning.

The paper makes a strong case for including selected drylands countries in the list of 'fast-track' countries where development assistance should be scaled up in the context of the UN Millennium Project. In this respect, the paper calls for special cooperation involving all stakeholders in order to mobilize and pool resources for priority activities in drylands.

Finally, the paper recommends criteria for selecting countries for fast-tracking, as well as fresh thinking and new action when prioritizing investment options.



I. Introduction

In this paper, the term 'drylands' refers to areas which are classified as hyper-arid, semi-arid and/or sub-humid,, excluding polar and sub-polar regions in which the aridity index (ratio of annual precipitation to potential evapotranspiration) is less than 0.65. These regions cover 40 percent of the earth's terrestrial surface and are home to two billion people, of whom approximately 800 million live in hotter, rural areas of poor countries, particularly in Africa.

In most drylands, poverty is high. Drylands are for most part bypassed by development. They attract little investment, usually because their importance and potential is unappreciated. This confines dryland dwellers to poverty and destitution despite international efforts to put drylands on the global agenda, including the United Nations Convention to Combat Desertification (UNCCD) which arose from the United Nations Conference on Environment and Development (UNCED) in 1992.

With the adoption of the Millennium Development Goals in 2002, the international community has an unprecedented opportunity for alleviating extreme poverty in its many forms, and to improve the livelihoods of millions in the world's drylands. However, this will only happen when there is special attention on, and more investment in, drylands.

The Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger

Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day

Target 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Goal 2: Achieve universal primary education

Target 3: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

Goal 3: Promote gender equality and empower women

Target 4: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

Goal 4: Reduce child mortality

Target 5: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Goal 5: Improve Maternal Health

Target 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Goal 6: Combat HIV/AIDS, malaria and other diseases

Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Target 8a: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Target 8b: Have halted and reversed the spread of tuberculosis by 2015

Goal 7: Ensure environmental sustainability

Target 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources

Target 10: Halve by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Target 11: Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers

Goal 8: Develop a global partnership for development

Target 12: Develop further an open, honest, predictable, non-discriminatory trading and financial system

Target 13: Address the special needs of the Least Developed Countries

Target 14: Address the special needs of landlocked developing countries and small island developing states

Target 15: Deal comprehensively with the debt problems of developing countries

Target 16: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth

Target 17: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries

Target 18: In cooperation with the private sector, make available the benefits of new technologies

At the request of UN Secretary-General, Kofi Annan, the Millennium Project identified practical strategies to meet the MDGs, emphasizing the need for scaling up investments in health, education and infrastructure, alongside promoting gender equality and environmental sustainability. The challenges vary across and within various countries and regions. This paper explores the challenge of meeting each MDG target in countries with large populations of poor people living in drylands.

Starting with a discussion of the common perceptions, assumptions and lessons learned on drylands, opportunities are then identified for implementing MDGs in drylands. These opportunities are analysed, critiqued and composite recommendations made for achieving all of the targets. The paper also presents a recommended strategy to energize the implementation of the MDGs in drylands, including criteria for selecting dryland countries for fast-tracking, and for prioritizing investments.

Three main outcomes are expected from this review:

- ❑ the inclusion of dryland countries in the fast-tracking list (in the context of the Millennium Project);
- ❑ a special programme targeting countries with large numbers of poor dryland dwellers (with priority action areas in the context of the MDGs); and
- ❑ special cooperation framework to facilitate implementation of the MDGs in drylands in the selected countries.

2. Drylands and MDGs: perceptions, assumptions and lessons learned

For most people, drylands bring to mind low and irregular precipitation, be it rain or snow. The limited and variable precipitation as well as other features largely define how drylands are perceived in terms of economic and livelihood potential. This in turn influences their ranking in national development planning. In this section, we examine the perceptions, common assumptions and lessons learned, and how all these factors combined may affect the achievement of MDGs in drylands.

Goal 1: Eradicate extreme poverty and hunger

Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day

Common assumptions

1. Size and scope: The drylands of the world are tiny, sparsely populated remote areas..
2. Cause and effect: Poverty is an inevitable consequence of low biological productivity and unreliable rainfall.
3. Production and potential: Drylands contribute little to national prosperity and do not yield good returns on public sector investments..
4. Capacity: Local adaptive capacity is weak (victim images) and dependency on external assistance high. Indigenous knowledge has little to contribute (paternalistic images). Poor Africans (in particular) are frequently portrayed as relatively helpless in the face of environmental threats they themselves brought about — whether involuntarily or through carelessness — because of their inappropriate technologies. They are perennially dependent on outside help.
5. Location: Drylands are too remote to participate on equal terms in domestic or export markets. Markets are governed by distance (or transport costs) and drylands are too far from ports and major cities. Therefore, dryland dwellers are doomed to subsist on the fringes of national and global economies.
6. Poverty alleviation: Poverty is purely lack of material well-being. Therefore addressing biological productivity and economic constraints in drylands will automatically alleviate poverty.

Lessons learned:

Drylands in many poor countries have been neglected in development plans, policies and processes. With the new focus on MDGs, these areas risk being left behind due to skewed investment policies by governments and donors favouring high-rainfall areas (Dobie, 2001).

There is abundant evidence that with appropriate incentives, technological innovations and investments, drylands can be productive. Witness the following cross-continental examples:

Kenya

Fundamental changes observed in Kenya's semi-arid Machakos District over a 60-year period suggested positive links between population growth, market development and sustainable environmental management (Tiffen et al., 1994). In the 1930s and 1940s, government officials were extremely concerned about erosion on hillside farms and clearance of woodland. Yet the district saw the value of output per square kilometer increase sevenfold between the 1930s and the 1980s. On a per capita basis, output doubled, even as the population increased fivefold. The local farmers achieved this through a fundamental transformation in farming practices, including: a reversal of erosion thanks to thousands of kilometers of farm terraces and field drains; improved productivity through integrated crop–livestock production systems; new or adapted farm technologies; increased labour inputs; and increased private investments, which were financed in part through off-farm incomes. Established systems of land tenure, better dissemination of knowledge through women's groups and other flexible institutions, improved technology, access to urban markets and the relaxing of farm legislation all contributed to dramatic socio-economic improvements in the district (Mortimore, 2005).

China

China's most fertile region is the coast, which is also favoured with good rainfall. It can be classified as a high-potential region. In contrast, the western region is the least developed, with limited natural resources and poor social infrastructure. It is a low-potential area (LPA). The central region falls between the two and from an agricultural perspective can be considered a medium potential area. More than 60 percent of the rural poor live in the western region and most of the rest live in the central region. Based on provincial level data for 1970–1997, the agricultural production and impacts of additional investments on poverty were estimated for each region. Other than irrigation, all investments had greatest impact on poverty in the low-potential western region, followed by the medium-potential central region. The high-potential coastal region ranked second or third for all investments. Most investments also yielded highest returns in either the central or western region, showing that investments in these regions have a win-win outcome. One reason for these favourable results is that China has already invested heavily in irrigated and high-potential rainfed areas, and productivity growth has slowed in many of these regions. With diminishing returns in favoured areas and relatively little public investment in many low-potential areas (LPAs)—including dryland areas—it is hardly surprising that the latter should now yield higher returns on some investments (Hazell, 2001).

Nigeria

In the Kano Close-Settled Zone in Northern Nigeria, population density outside the city grew from 226 people per square kilometre in 1962 to 414 people per square kilometre in 1991. Successive divisible inheritance saw smallholdings shrink further with each generation. Today, farmland averages less than 0.5 ha per member of the resident farming families. Surprisingly, instead of inducing natural resource degradation, this demographic pressure saw the continuation of a long-term trajectory of agricultural intensification dating back at least 150 years (Mortimore, 1993). In 1981, externally funded state-wide agricultural development support was introduced in such forms as subsidized inorganic fertilizers,

technologies, advice and roads. However, these new services were thinly spread across a population approaching 10 million. In the 1990s, activities were scaled down and subsidies removed. Although this took its toll, since 1981, new technologies have been widely adopted (for example, new varieties of groundnuts, cowpeas and maize, many more ox-drawn ploughs and ridgers). Most, if not all, of these developments were financed by the private sector. The growth in labour, inputs and land markets means local Hausa and Fulani farmers need more capital resources. Better livelihoods depend on off-farm incomes to meet farm inputs and options beyond home-produced food. Those without such income are food-insecure. More than 85 percent of the farmlands have no fallow season.

By recycling plant nutrients through intensive grazing, using compost manure, (organic fertilizers) and weed suppression, farmers achieve grain yields exceeding 1 000 kg per ha and 350 kg per capita in areas with average rainfall (about 650 mm). Without fertilizer, yields drop by half or three quarters, and farming becomes non-viable. Livestock are highly valued, and almost all households keep livestock. The more the people, the more the livestock. There are no rangelands and livestock feed on crop residues and weeds or labour-intensive tree browse. Annual manure and dry compost treatments range between 3.5–5.0 tonnes per ha. Nitrogen is added through fixation by leguminous crops. Key soil nutrients fluctuate depending on rainfall, the cropping system and farm inputs. However, comparative analyses at the same sites over a 13-year period suggested no significant trend at that timescale (Harris, 1998; Harris and Yusuf 2001).

While the remoteness and perceived poor productivity of the drylands are always cited as a disincentive against investment, the three examples above show that investment can be profitable even in places erroneously perceived as barren. The case of Machakos District shows that investment in soil and water conservation both by the government and farmers can considerably boost productivity. Indeed, there is a growing body of evidence that a greater marginal return on investment can be obtained in so-called low-potential areas than in apparently higher-potential areas (Dobie, 2001). In the drylands as elsewhere, people respond to incentives. Market incentives are of paramount importance. In Machakos, urbanization and market growth encouraged families to invest in educating children so they could secure employment in towns, with ultimate benefits for farm investment. In Eastern Burkina Faso, infrastructural development and supportive sectoral policies encouraged investment in soil and water conservation, intensification and tree protection. In northern Nigeria, the growth of food commodity markets and an open-border policy helped to stimulate investments in farm expansion and intensification. In southern Niger as well as Nigeria, the development of local and neighbouring markets overcame historical remoteness (Mortimore, 2005).

Private investment can be stimulated by public-sector investments and policy. The sustainable management of drylands is too large a challenge for the state or donors alone. Small-scale producers invest in modest but incremental and long-term strategies often overlooked by outsiders. These small investments have a massive aggregate impact. The evidence suggests that healthy private investment is accompanied by a release of human potential (knowledge, skills, technical adaptability, associational and institutional capacity, management of complex livelihoods and social resilience in the face of uncertainty) (Mortimore, 2005).

Policy can work through enabling incentives. Among the critical institutional arrangements whose positive impact is clear from past experience are land tenure, common pool resources, credit institutions, decentralized government services and research and extension systems. Drylands countries are diverse and the scope for influencing investment very much depends on each country's institutions (Mortimore, 2005).

Finally, while it is true that poverty has a direct bearing on material well-being, sensitivity is paramount: it should be appreciated that dryland dwellers, like all other people, have self-respect and self-esteem. This underlines the importance of participatory approaches, decentralized management of natural resources and good governance that welcomes self-expression.

Target 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger

Common assumptions

1. Opportunities for technological advancement (a green revolution) are few on account of productivity constraints. New technologies are needed to induce a green revolution like the one introduced in South and East Asia. Lack of appropriate technology to increase capital, land and labour productivity, as well as limited market access hamper transformation or modernization of production systems. Hunger results inevitably from supply failures in the local agricultural sector. Famines and long-term food shortages are due to low productivity. Urgent action is needed to improve productivity.
2. There are too many people in drylands in relation to land carrying capacity. Land over-use is the main cause of natural resource degradation. The last 60 years have seen a huge population increase. As land holdings are subdivided, there is less and less land to go round.
3. Poor countries cannot afford or sustain effective drought relief programmes. A rights-based approach to poverty and hunger, no matter how desirable, is unaffordable.

Lessons learned

While the impact of the green revolution on agricultural production in East and South Asia is well known, even here, the impact of improved technologies in rainfed drylands is less impressive.

In sharp contrast, agriculture in sub-Saharan Africa has failed to perform as expected during the past 40 years (Djurfeldt et al., 2005). For example, according to a policy paper by the Department for International Development (DFID, 2003), agricultural production declined by 5 percent between 1980 and 2001, while the absolute number of hungry people rose by 50 percent. Causes include falling commodity prices, poor incentives, ineffective aid and a decline in private investment. However, there are cases of conflicting evidence. For instance, in six West African countries, export agriculture (cocoa, cotton, groundnuts, palm oil and kernels) declined over the four decades between 1961 and 2000 (Mortimore, 2003). Conversely, Africa's food production per capita — population growth notwithstanding, increased by 4 percent between 1969 and 1971, and between 1997 and 1999 (Mortimore, 2005).

The data for the six West African countries does not conform to the general pattern. They reflect the mixed impacts of rising domestic demand for food, declining prices for export crops, government policies and droughts. Also, food commodity markets were continually reshaped by substituting locally produced cereals such as millet, sorghum and maize with imported foods like rice or wheat, or the substitution of roots or tubers (such as yams and cassava) with dryland cereals. Strong markets have appeared for the protein-rich cowpea, which is mainly grown in semi-arid areas. The livestock sector is also buoyant, benefiting from the rising incomes of more well-off urban consumers. In West Africa, dryland cereal production has tended to keep up with demand over the long term, except where explicitly discouraged by policy (Mortimore, 2005).

The resilience of the food-producing sub-sector is more remarkable than any weakness in the face of supply constraints. This is illustrated by data from Kano in northern Nigeria, where urban consumers rose from 250,000 in the 1960s to more than 1.5 million in 1991 (Ariyo et al., 2001). Kano is also a major food market for a large area. In spite of supply constraints (dwindling rainfall, land scarcity, low soil fertility, high costs of fertilizers, middlemen's high margins, illegal charges in the market chain and fuel shortages), real prices of millet fell during the 1980s and 1990s, with livestock prices dipping for most of the 1990s. This despite rapid price inflation beginning with the 1972–1974 Sahel drought, and producer complaints about rising marketing costs (Mortimore, 2005).

With its centuries-old markets and interregional trade, the Kano region defies stereotypes on remote and unproductive drylands. Its vibrant food and non-food markets suggest that policies to promote

interaction and trade could also benefit other drylands. With the exception of groundnuts, these markets have prospered with a minimum of state regulation (Mortimore, 2005).

However, as Sen (1999) has famously reported, the simple absence of food is seldom the cause of famine. It is commonly assumed that drylands are overpopulated and that hunger is an inevitable consequence of supply failures in local agricultural systems. However, a close examination of the root causes of acute food shortages reveals a more complex picture. For instance, the causes of the 2005 food shortages in Niger were complicated and are still under analysis. However, the popular belief is that the country ran short of food due to a year-long locust invasion followed by another year of drought.

The common belief that famine results from a failure of food supply is far too simplistic. According to the Food and Agriculture Organization of the United Nations (FAO), the production shortfall in Niger was only 11 percent compared with a rolling five-year average. There was abundant imported food in markets, but it was too expensive for the poor. This was probably the result of poor harvests coupled with an increase in the price of imported grains.

These observations substantiate comprehensive findings that famines are seldom caused by simple lack of food. Rather, they arise from a combination of factors. The Hunger Task Force of the United Nations Millennium Project identified five areas of priority intervention that must be addressed simultaneously to improve food security. The five are:

- ❑ increase incomes so that people can buy food;
- ❑ increase agricultural production;
- ❑ use food aid and other safety nets to reduce the vulnerability of the poor;
- ❑ improve nutrition for children, young girls and mothers; and,
- ❑ restore and conserve natural resources.

The previous section (Target 1) conclusively shows that it is possible to improve dryland agricultural production and income. Later sections of this paper will show that the Hunger Task Force's recommendations are all feasible.

The three case studies presented in Target 1 provide compelling evidence that a rise in population does not automatically lead to degradation and hunger. A certain population density or critical mass is needed to encourage diversification of livelihood strategies and shifting from subsistence agriculture and pastoralism. Evidence from long-term statistical trends in parts of Africa with extensive drylands demonstrates food production has responded to demographic growth and urbanization (at least since the 1980s) with greater resilience than is commonly supposed (Mortimore, 2005). Cities have the potential to generate great demand for dryland products, as is evident from the development history of countries such as the USA, Australia and Argentina, where dryland agriculture is the biggest driving force behind their industrial and post-industrial economies.

Poor dryland dwellers are highly vulnerable to climatic shocks, especially droughts. Drought is now recognized as the most serious natural disaster worldwide (UNDP, 2004). Such vulnerability pushes producers to a low-risk low-output approach to business. The risk of catastrophic failure during drought years is a powerful disincentive to investing money, materials and effort in production. Drought forces families to sell their assets which reduces their productive potential. Urgent and concerted action is needed to reduce vulnerability. Unfortunately, the common response to drought has been 'topical' assistance and food aid rather than tackling the root causes. Vulnerability can be reduced by various actions such as better water management, better access to markets, increasing rural-urban links, diversifying livelihood strategies and providing food as insurance to tide the community over a bad year. This comprehensive approach is hardly applied. It appears easier — and certainly cheaper — to continue to perpetuate the myth of poor productivity in drylands. Governments are seldom willing to invest in disaster preparedness, inevitably leading to wholly avoidable human suffering and even greater expenses.



Goal 2: Achieve universal primary education

Target 3: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Common assumptions

1. *Dryland communities are very remote, making it too expensive to provide and staff schools. Mobile pastoral societies cannot be served by conventional schools.*
2. *Many communities in the drylands are deeply steeped in very fixed traditional ways of life: attitudes on schooling and especially girls' development are difficult to change. Dryland communities will resist education..*

Lessons learned:

It is true that drylands areas are often remote from administrative centres, populations are sparse and many people move around with their animals. When budgets for education are thin calling for tough choices, education of dryland children is routinely the first casualty. Yet with clear policies and consistent commitment and support, poor dryland populations can excel in education. Some very poor countries provide opportunities for education that exceed what would be expected given their national income. In contrast, some remarkably rich countries fall well below expectations.

Ranking of educational opportunities for selected countries based on GDP

Exceeding expectations based on GDP			Falling below expectations based on GDP		
Rank	Country	GDP	Rank	Country	GDP
1	Mongolia	1,710	92	Bahamas	16,690
2	Kenya	1,020	93	Dominican Republic	6,640
3	Madagascar	740	93	Iran	6,690
4	Jamaica	3,980	93	Tunisia	6,760
5	Tanzania	580	96	Gabon	6,590
6	Philippines	4,170	97	Kuwait	16,240
7	Lesotho	2,420	98	Brazil	7,700
8	Honduras	2,600	99	Oman	13,340
9	Jordan	4,220	100	Saudi Arabia	12,650
10	Zambia	840	101	Equatorial Guinea	29,780

Source: Save the Children, 2005. Ranking based on an index derived from girls' school enrollment, gender parity and women's adult literacy.

The case of Kenya in the table above illustrates how strong government policy can drive educational reform. But here too, remote dry areas still lag behind. Kenya's Human Development Index has a staggering range of 0.748 in the richer areas to 0.228 in the poorest district. This is equivalent to a range between comparatively well-off countries like Algeria to even worse than the world's lowest performer on the human development index (HDI). The four districts in Kenya with the lowest HDI scores are remote arid and semi-arid districts, including those that were 'discarded' as the 'Northern frontier' during colonial times. However, Kenya has introduced a policy of providing free primary education and already, two of the poorest districts are recording good school enrollment rates, although the two driest and most remote districts are still lagging behind. Despite increased enrollment, Kenya's remote drylands continue to have the lowest enrollment and retention rates for girls (UNDP, 2005). However, it is clear that given the right policy and solid commitment, education can be provided in even under the most difficult conditions.

Mongolia is an excellent example of how to provide education to sparse nomadic communities in remote locations. During the Soviet era, the country invested in a vast and innovative education system, with adequate boarding schools and mobile schools for pastoralist children. Boys and girls benefited equally, and literacy rates have been high (98 percent for adults in 2000). The transition to a market economy in the mid-1990s initially reduced the budgetary quota for education, but this has since been restored by a new government focusing on social and human development. Mongolia invested 8.8 percent of its GDP on education in 2001, surpassing even Norway, which has the highest human development index in the world. There are problems in continuing to deliver universal primary education to a population that is still about three quarters mobile pastoralist. Boys' enrollment is a little lower than for girls because families tend to withdraw boys from school to look after livestock. The urban-rural gap in education is also widening (UNDP, 2004). Nevertheless, Mongolia provides an excellent example of how education services can be designed to meet the needs of poor people living mobile lives in the drylands. Meanwhile, experiments are ongoing to use modern technology for distance learning in Mongolia (see www.elearning.mn).

There are valid concerns that people living traditional dryland lifestyles in the tropics do not readily accept the need for education and in particular the need to educate girls. There is however also a realization that entrenched traditional perspectives, especially on gender, hamper development and lock people in poverty since they lack even the most basic skills to progress in a developing economy. There is urgent need for gender-centered development, legislation supporting gender equality and resources to promote education and gender equity. As a first step, sex- and age-disaggregated statistics on gender roles in drylands are crucial for effective interventions.

Goal 3: Promote gender equality and empower women

Target 4: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

Common assumptions

1. Adolescent girls in poor parts of the world are expected to marry and become mothers at an early age, and therefore have little chance of completing secondary or tertiary education.

Lessons learned:

The challenges of enrolling children in primary school and achieving equal enrollment of boys and girls is discussed in the previous section (Target 3). Enrolling and retaining girls in secondary education is particularly challenging. The assumption that girls are expected to marry at an early age and have children is accurate for most poor rural communities.

Girls who progress straight from primary school to secondary school tend to stay in secondary school more than those who join later (UNESCO, 2003). In other words, the transition from primary school to secondary school is critical, and there should be the greatest possible effort at transition to provide incentives for girls to remain in school. In the poorest communities, there are currently few incentives to keep girls in school. By the end of primary school they will have attained basic literacy and numeracy, which might well be considered adequate for the life anticipated for them. Also, free or subsidized schooling is usually only up to primary level, and the financial burden for secondary education is onerous for families. By puberty, social pressure mounts for girls to marry and have children, and there are often incentives for parents to marry off their children young: financial aspects including dowry and bride-price increase the pressure for girls to marry at the most 'marriageable' age. Data show that poverty is the greatest obstacle to girl enrollment in secondary school, and that sub-Saharan Africa has the greatest disparity between enrollment for boys and girls. Only five countries have parity between boy- and girl-enrollment, or disparity in favour of girls. In all other countries, girls are under-represented in secondary school. But in the rest of the world, there is a marked tendency for more girls than boys to enroll in secondary education, with clear trends for girls to be discriminated against only in the poorer countries (UNESCO, 2003).

It is certain that girls in poor drylands are the least likely to attend secondary school. The data quoted above are not disaggregated by ecoregions or locations within countries. Given that parents have to pay for secondary education, the data will be heavily dominated by relatively prosperous urban families that can afford to send their children to school. If this is generally true, then 'mathematical' equity in secondary education could be achieved by simply enrolling more urban girls into secondary school. However, for dryland communities, the challenge is far greater. Not only is poverty more extreme, but the traditional social expectations on girls are heavier, and communities are very far from most secondary schools. Distant schools with the attendant risk of sexual predation and girl-unfriendly sanitary and living facilities may be very unappealing to girls.

Despite the enormous challenges of raising girl enrollment in secondary school, steady progress has been made over the last fifteen years. Although some countries like Chad are at the bottom of the scale with very little improvement, others like Rwanda and Kenya are approaching gender equity. The most effective incentive for more girls from poor remote drylands to attend — and remain — in secondary school will be to reduce education costs for girls. This could be through a universal

approach to funding education, or by providing targeted scholarships for girls. It will be important to ensure that there are good quality, safe boarding schools, where living and sanitary facilities are female-friendly. Better transport will bring more of these schools closer to the poorest people. But deeply entrenched negative attitudes to girl education can only be changed by tackling gender issues across the board in development planning (and not just in girl education), as discussed in part in the previous section (Target 3).

Legal systems can be serious impediments when change is required in institutional rules, procedures to remove inequality. This is particularly true for gender rights. Often, the *de jure* position, which may provide for gender neutrality cannot be achieved in practice due to numerous obstacles which render the law powerless. Gender-neutral laws have, in many instances, resulted in *de facto* discrimination. "As long as we live in a society where women and men follow different paths in life and have different living conditions, with different needs and potentials, rules of law will necessarily affect men and women differently. The gender-neutral legal machinery ... meets the gender-specific reality..." (Dahl, 1987). Legislation ought to be promulgated for women's participation where they are excluded, beginning with rights to education, land and water. Legislation alone will not, however, remove the obstacles: legal provisions may remain 'paper rights' unless operationalized. Even where women's legal rights are provided for, ignorance of such rights exacerbated by illiteracy ensures that they do not benefit from such provisions. How effectively laws accord women equal opportunities largely depends on the society's willingness and ability to enforce such laws. This requires broad-based campaigns to educate society on the benefits of gender equality, defuse inter-gender tensions, and legal education on rights and how to enforce them. Public awareness campaigns should therefore accompany law reforms.



Goal 4: Reduce child mortality

Target 5: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Common assumptions

1. Dryland communities are far away from health services and are poorly nourished.
2. Reducing infant mortality requires food handouts and expensive extension of health services to remote areas

Lessons learned:

Children under five usually die from disease, birth complications or malnutrition. Yet the most deadly diseases plaguing under-fives are preventable and curable. With effective interventions, including obstetric and neonatal care for 99 percent of sick children and pregnant women around the world, child mortality would drop by 63 percent. (Jones et al., 2003). If all children were breastfed, and exclusively breastfed for the first six months, and if breast-feeding continued for another 18 months as the child is weaned, 20 percent of the children who die would be saved. However, for women living in the drylands, recurrent droughts, water shortage and poor diets all exacerbate malnutrition. In such circumstances, breastfeeding is difficult, thereby increasing child morbidity and mortality.

There is an urgent need to make good quality health services available to dryland communities. Health budgets for drylands are usually minimal and must be urgently and greatly increased. However, the marginal cost of serving extra people increases as the population become more sparse or more mobile. Under these circumstances, conventional models of providing healthcare are very expensive and ineffective. Innovative approaches are therefore needed. Mobile services have been introduced in various parts of the world, which can ensure that villages are regularly visited by health workers. Also, it is not always necessary to have fully qualified doctors and nurses for effective community healthcare. It is usually possible for adequate treatment and advice on disease prevention to be furnished by local para-medicals trained on primary healthcare. Ethiopia is currently training a large corps of para-medicals to work in rural areas. For instance in Tigray in Northern Ethiopia, a region that is vulnerable to malaria, community-based interventions for dealing with malaria outbreaks were introduced. Voluntary health workers were trained and assigned to mobilize communities. This community-based approach reduced deaths of children under five by 40 percent (Kidane and Morrow, 2000). Similarly, locally trained midwives can provide good quality care during childbirth. Local primary health workers can identify serious conditions at an early stage, including potentially dangerous births. The challenge will then be to get the patient to a health facility with the right equipment and staff. Better roads and transport will be needed, including ambulances.

The first step in providing adequate nutrition to under-fives is to ensure the health of the mother. Good nutritional advice, fortified food (where needed) and an adequate diet are important for adolescent girls and young mothers-to-be. Good nutrition during pregnancy is vital, and the principles of breastfeeding and child nutrition should be taught at schools, health clinics and during visits by health workers.

Goal 5: Improve Maternal Health

Target 6: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

Common assumptions

1. Dryland communities are remote from health services and poorly nourished.
2. Improving maternal health requires food handouts and expensive extension of health services to remote areas.

Lessons learned:

Clearly, maternal health and child mortality are inextricably intertwined: improving maternal health faces challenges similar to those of reducing child mortality. For example adequate health services to women and children are fundamentally affected by affordability, societal attitudes and prevailing power regimes. In addition, women in developing countries are often the victims of sexual abuse, and men have the ultimate authority on decisions that affect women's own bodies. When women can space births, children benefit. Many women lack, or are denied access to, contraception. In many societies, men control resources, including money for family healthcare.

Also, men often eat first, with women and children making do with the leftovers. Gender equity (to the extent that it connotes control of resources) is therefore central to better maternal health.



Goal 6: Combat HIV/AIDS, malaria and other diseases

Target 7: Have halted by 2015 and begun to reverse the spread of HIV/AIDS

Target 8a: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Target 8b: Have halted and reversed the spread of tuberculosis by 2015

Common assumptions

The spread of HIV/AIDS is so advanced that little can be done to prevent massive mortality and associated morbidity.

There are no adequate systems for delivering antiretroviral drugs to remote drylands.

There are no adequate systems for delivering medical and health services for malaria and tuberculosis (TB) to remote drylands

Lessons learned:

The negative impact of HIV/AIDS on development is already evident, particularly in parts of Africa. The effects are however not uniform, and the disparity is under study.

Poverty clearly drives the HIV/AIDS pandemic but the relationship is not perfect. However, it is readily acknowledged that in societies where significant numbers of men migrate to find work and return periodically, where poverty is endemic and where women have few rights, HIV/AIDS levels are often high. This perfectly describes many dryland communities, leading to the logical assumption that dryland communities are highly vulnerable to the effects of HIV due to limited access to information and lack of appropriate healthcare services.

In drylands, healthcare services are often severely disrupted by population movements and deteriorating financial and economic conditions (Menne and Bertollini, 2000). Disrupted health systems cannot cope with the population's needs. HIV/AIDS and hunger are interlinked. Women of reproductive age plagued by HIV/AIDS-related diseases are weak when under attack, lacking energy to perform routine tasks such as cooking, feeding children, fetching firewood and many others. This affects the entire family since the women are the main actors in households and communities.

Infection can be prevented through education; public awareness; focusing on vulnerable groups; access to condoms, sterile syringes and needles; testing and counseling; control of other sexually transmitted infections; prevention of mother-to-child transmission; and prevention of transmission through healthcare (UN Millennium Project, HIV/AIDS Task Force 2005a). But preventive action is not easy given the on-the-ground realities in remote drylands worldwide: few people have access to information; radios or televisions are scarce; and in most instances government services do not reach them. Healthcare is either rudimentary, unsafe or totally non-existent. Condoms are unavailable or unaffordable. Special effort and considerable scaling-up are both urgently needed to reach remoter populations with information and materials. Radio sets are expensive, but more importantly use batteries that are costly and difficult to obtain. Wind energy and solar-powered radios are available and have proved excellent for disseminating important information, especially local broadcasts in local languages. Condoms should be distributed freely, especially where people stop on travel routes. Many more health service investments are needed in the drylands (see discussion of Targets 5 and 6),

and this will be particularly important for the distribution of antiretroviral drugs that can alleviate the symptoms of HIV/AIDS for many years.

Social realities sit squarely at the heart of preventing HIV/AIDS transmission, of which gender issues are the most important. Women are often unable to insist on safe sexual behaviour and are victims of rape and other forms of sexual abuse. Until women are afforded equal rights, HIV/AIDS will continue to spread unabated.

*Although dry areas have fewer mosquitoes, malaria is prevalent throughout the drylands. Infection usually peaks with the onset of rains. The single most effective way of limiting malaria transmission is sleeping under insecticide-treated bed-nets. These, and anti-malarial drugs should be distributed free in endemic areas.. A perennial shrub, *Artemisia annua* provides a potent anti-malarial drug, artemisinin, and developing countries should grow the shrub widely and extract the active drug. It is believed that a 'tea' made from *Artemisia* is effective against malaria, which would make malaria treatment potentially cheap and universally available.*

Tuberculosis is usually associated with dense urban populations, where the bacillus that transmits it very easily passes from one person to another. Dryland populations might be less vulnerable to tuberculosis due to lower population densities, but they are still affected by the disease. Families live in very close proximity under conditions that favour TB transmission. There are effective antibiotics for tuberculosis. However, it is a six-month treatment whose side-effects often unfortunately deter patients from completing the course. It is important that patients are monitored by trained healthcare workers during treatment to deal with dangerous side-effects and to ensure treatment courses are completed. In remote drylands, this will only be achieved through serious improvement and expansion of health services, including the training of local para-medicals (see discussion of Targets 5 and 6).

Goal 7: Ensure environmental sustainability

Target 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources

Common assumptions

1. Desertification is a large-scale process of land degradation associated with climatic changes. The effects of desertification cannot be reversed unless the land is rehabilitated to its previous state.
2. Degradation inevitably increases deforestation and most rangelands are degraded by overgrazing.
3. Dryland ecosystems are in a state of equilibrium before desertification sets in and optimum management should retain that equilibrium.
4. Degraded drylands are largely of little ecological value and are not worth rehabilitating.

Lessons learned on desertification

Several devastating drought cycles struck the Sahel between the late 1960s and the 1990s. Average annual rainfall declined by up to 30 percent between 1961 and 1990. By 2001, the region was yet to fully recover, and it was assumed that major climatic shifts were driving desertification. These assumptions informed most of the provisions in the United Nations Convention to Combat Desertification. However, recently analysed time-series data from earth satellites in the Sahel call the assumption into question. A 'greenness' index (the Normalized Difference Vegetation Index) shows a strong increase in values between 1982 and 1999. This improvement took place mainly in the period after 1993. Preliminary studies indicate a continuation of the trend through 2003. Assessments of other parameters linked with the data support the conclusion that the observed trend is a real change on the land surface.

Rainfall data reflect an improvement towards the end of the period. The greening, however, is not uniformly related to rainfall. This suggests that factors other than rainfall are also contributing to the greening. These factors need to be studied through site-specific investigations on the ground: the resolution of the satellite data is coarse (8 km) and needs ground-truthing. At this stage, it is too early to say whether the greening is a recovery from a previous period characterized by declining rainfall and land degradation. What the greening of the Sahel reveals is that a simple projection of recent trends into the future is not a sound basis for policy (UNEP et al., 2003). And as the success stories in Target 1 indicate, farmers have devised better natural resource management. Policies based on assumptions that desertification is a global trend are not scientifically sound. Most evidence points to land degradation being a phenomenon caused by local action, therefore the same local action would stem degradation and restore the land.

Trees in the Sahel

Since colonial times, Sahelian farmers and pastoralists were accused of land destruction through fire, farming and woodcutting. Repressive legislation was imposed to 'protect' trees, especially from the expanding population's rising demand for fuelwood. Since the 1950s, there has been a dramatic rise in land clearance for farming, with a corresponding reduction in natural woodland. In more densely populated areas, the cultivated fraction soared from less than 25 percent to more than 70 percent.

But there is another side to Sahelian 'deforestation'. Field studies suggest that the fuelwood crisis is exaggerated due to underestimating the size of woodlands and yields. Woodland management is more sustainable than was previously perceived. Land clearance for shifting cultivation is rotational,

and mature trees are normally pollarded (not felled) which facilitates their regeneration after the cultivation cycle. When shifting cultivation gives way to permanent fields, these valuable trees grow to full canopy. Not only is tree planting widespread, seedlings which grow spontaneously are nurtured to maturity. The resulting 'farmed parkland' may actually carry more plant biomass than natural Sahelian woodland. The following cases are illustrative.

- In the Kano Close-Settled Zone of northern Nigeria, an old, established farmed parkland has on average 7–15 mature trees per ha, most with full canopies. Although some species are becoming rare, the population as a whole is regenerating. While harvesting fuelwood for their own needs, and selling to urban dealers, farmers still maintained stable or increasing tree densities from the 1960s to the 1980s, despite two drought cycles when they could have sold wood to raise money.
- In the Maradi Department of Niger, there was rapid conversion of dry forest to farmland from the 1920s until the 1970s, along with in-migration and rapid population growth. Farmed parkland, however, is now well established on permanent fields especially close to the villages. In fact, the practice of protecting and nurturing valuable seedlings is widely popular and also supported by government policy.

The multiple values of trees (such as for construction, crafts, food, fodder and medicine), coupled with extensive indigenous knowledge, provide strong incentives for biodiversity conservation in the drylands. New approaches to biodiversity conservation should support, and not override, these capabilities (Mortimore, 2005).

Pastoralism and non-equilibrium drylands

Pastoral mobility is a rational response to the scattered and uncertain distribution of natural resources. Most pastoral groups are found in environments with low and highly seasonal rainfall, where it is impossible to graze animals all year on the same pasture. Movement allows herders to use a variety of pastures, water points and other resources such as salt licks, and is a sophisticated adaptation to the challenges of risky environments. Grazing, like other uses, may cause a change in the plant species composition in rangelands, but evidence of widespread rangeland degradation under pastoral grazing is shaky. Contemporary ecological research shows that drylands follow an entirely different logic from wetter lands. Contrary to what standard range management theory and practice suggest, in drylands, vegetation growth is mainly determined by the rainfall that year, not by any grazing pressure the previous year. Where rainfall is highly variable from year to year, vegetation production too will vary. In such situations, and especially where annual grasses dominate the sward, the definition of a precise land carrying capacity is impossible. Grazing pressure is a less important determinant of species composition and biomass production than the amount of rain and available soil moisture. Snow plays a similar role in central Asian pastoral economies. This is not to say the danger of too many livestock damaging soil structure and vegetation is to be ignored. This ever-present danger is clearly apparent where livestock concentrate such as wells, markets or trekking routes. However, there is little evidence that dryland pastures as a whole are overstocked and overgrazed. Indeed, in large areas of East Africa and the Horn, the opposite is true: because of insecurity due to conflict and drought which reduce livestock, previously productive pastures have been invaded by unpalatable shrubs and trees (GDI, 2003).

Investing in rehabilitation: soil fertility management and carbon sequestration

Soil carbon is relatively scarce in drylands where most soils are degraded. The amount generally increases with rainfall and biomass productivity. Soil organic carbon depends to a large extent on the recycling of vegetation either directly through biological action, or via livestock grazing and manuring. If plant nutrients (for example, nitrogen) are lost through soil degradation or crop removal,

the capacity to produce plant biomass is reduced, and organic carbon will only accumulate if nutrients are provided to support primary production.

Living plants also sequester carbon from the atmosphere. The Kyoto Protocol aims to increase carbon dioxide sequestration worldwide. Until recently, the potential of drylands to sequester atmospheric carbon was not highly regarded because plant biomass stocks are relatively low, especially where land is degraded. However, this logic suggests that there would be proportionate gains if degradation were reversed. This can be through such simple practices as planting trees, incorporating green residues and increasing composting or manuring. Such options are in harmony with the aims of farmers and agropastoralists and have been widely adopted (see success stories under Target 1).

The vastness of the drylands has drawn attention to the possibility that a very small overall increment in plant biomass through better management could make a significant contribution to the global carbon budget. Modelling studies suggest that, within the structure of current dryland farming systems, alterations can be made that will result in annual carbon sequestration in the range of 0.02–0.29 mg per ha per year. Carbon sequestration payments, financed by emitters in industrialized countries, are being piloted in Mexico. The rationale is to promote improved land-use practices while also improving livelihoods.

Target 10: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Common assumptions

1. Drylands communities live in water-deficit areas and consequently have to suffer water shortages as an inevitable consequence of their lifestyle.

Lessons learned:

One of the most glaring realities in drylands is that water is in short supply, and household water provision is an incredibly arduous task. Children — usually girls — spend inordinate time in the tedious task of fetching water. Improved sanitation is rare in remote drylands and non-existent for mobile communities. In general comparison with urban areas, rural areas suffer poorer access to water and sanitation. Across the developing world about 73 percent of urban dwellers have improved sanitation, compared to a mere 31 percent of rural dwellers (World Health Organization/United Nations International Children's Emergency Fund Joint Monitoring Programme, 2004). Fortunately, there are technical solutions that can improve access to water. Drylands communities have vast knowledge on water. Their life rotates around water sources, and, perhaps more than any other communities, they appreciate the critical importance of protecting wetlands and water catchments.

Fairly simple technology can increase water availability. Wells can be hand-dug where the water table is fairly high, or boreholes sunk to find deeper water. Simple hand-pumps bring water to the surface. Water often remains below dry riverbeds. Simple damming techniques trap water. The most exciting prospect for dry areas is rainwater harvesting. This can range from simply diverting water that runs off slopes and storing it in cisterns, to major community schemes with dams and piped water. For example, the village of Ghandigram in Gujarat, India, has five big dams, 72 small dams and 72 'nullah plugs' (earth bunds across a gully or water channel). Even though the village received only 165 mm of rainfall in 2001, reservoirs filled, groundwater recharged and villagers enjoyed year-round uninterrupted piped water (Centre for Science and Technology, 2005). Although the technology of rainwater harvesting is relatively simple and can be largely built with local resources, the main constraint to greater adoption is centralized authorities: decentralization would bring communities together to develop and manage

their common resource. Water harvesting requires agreement among users on how a system will be built, participation in construction and equitable management. Conventional centralized governance systems are not conducive to encouraging the expansion of water harvesting on a large scale, and decentralization of authority is needed. In the Ghandigram example, a dedicated village institution was established to manage water, including charging farmers a pre-determined rate for irrigation.

Improved sanitation is easy to institutionalize in sedentary communities. Improved pit latrines and composting latrines have proven successful, but resources are needed to build these fairly simple structures. And village-level institutions are necessary to effectively plan and manage installation and maintenance.

There is a critical need to improve the dissemination of information on water, sanitation and hygiene. Women are usually the most involved in all these aspects, and they need not only information but also empowerment to enable them successfully design and manage local water schemes. Training is also necessary, as well as information technology appropriate for remote villages, such as the wind-up and solar powered radios discussed earlier. They are very effective in disseminating information.

Target 11: Have achieved by 2020 a significant improvement in the lives of at least 100 million slum dwellers

Common assumptions

1. *Slums are in cities. They have little to do with rural dryland communities*
2. *Migration from the drylands is involuntary and driven by ecological degradation*

Lessons learned:

The people who live in slums are often recent arrivals in the city and most of them come from rural areas. For example, in a study in Surat City in India, 80 percent of the slum dwellers described themselves as coming from outside of the city and 'all but a handful' came from a rural origin (Queen Elizabeth House, undated).

There are two sets of factors that possibly trigger migration from the drylands to cities. The first set are 'pull' factors because of the opportunities that cities provide, especially jobs and social services, that might attract people to cities. The second are 'push' factors that drive people away from their drylands homes. They include poverty, droughts and crises. Factors associated with drylands-urban migration are debatable, but there is no doubt that harsh conditions in the drylands are a contributing factor: when harsh conditions lead to severe deprivation, people tend to move.

A 1991 study in Mali (Diarra, 1991) revealed an increase in definitive migration from less ecologically-favoured areas to more favoured areas. About 86 percent of the migrant population surveyed cited drought and paid employment as reasons for migrating. The case of Mauritania is even more salient. The population of this country underwent dramatic changes due to drought and migration during the 1960s, 1970s and early 1980s. During this period, the population of the capital city, Nouakchott, which was originally a small administrative town of 15,000 inhabitants in 1958 swelled to more than 800,000 inhabitants in 2000. Many of the recent arrivals lived in the kebes (shanty towns) that sprang up around the capital. Today, more than 40 percent of Nouakchott's population still live in kebes (Handloff, 1988).

The 'Touareg Uprising' in the Northern Sahel drove many people to coastal West Africa, especially Abidjan. Recent food shortages in Niger have driven people to the capital, Niamey. However, seasonal

migration is common in the drylands. There are often long periods where there is a labour surplus and few employment opportunities. The short farming season is inextricably bound to rainfall patterns. Between harvest-time and land preparation, people – especially men – leave home in search of work. In good years, the men return each season, but when home conditions worsen, or when there are more opportunities elsewhere, they usually do not return. And migration becomes more permanent as more opportunities arise to travel to the developed world..

Most feasible models for better dryland productivity assume that fewer people will produce more animals and crops, and that high-value activities such as ecotourism will replace subsistence farming or herding. This will lead to more migration. Currently, many in the drylands have neither the education nor the skills to compete for the lucrative jobs in an urban economy. Thus their exodus from their dryland homes in search of employment is likely to only serve to swell the under-employed in city slums. As migration is inevitable, it makes little sense to try to control it. What can be done is to equip migrants for the change. To this end, education is central, as well as vocational training and adequate information and reality checks to ensure that people who move to cities understand the opportunities — and challenges — that cities present.

Attention must also be paid to the social effects of migration. It is usually young men who move (in the Surat City example, 60 per cent of slum dwellers are men). This leaves women to head households on top of the regular burden of caring for children and the elderly. When men are in transient conditions away from families, the risk of HIV/AIDS is amplified.

The dynamics of urban growth are complex and contextual. However, drylands are still fairly sparsely populated and in most cases, dryland dwellers have few urban centres to move to. Generally, countries, or large regions in big countries, tend to evolve with a single city which holds most of the urban population. For example 66 percent of Lebanon's population live in Beirut while 44 percent of the population of Burkina Faso live in Ouagadougou and 41 percent of the Paraguay's population live in Asunción (UNFPA, 2002). In these cases, there is relatively little growth of secondary cities, and people looking for opportunities are likely to travel to the distant capital rather than a nearby town. However, as city populations surpass the 750,000-mark, there is a tendency for secondary cities to grow. These trends bring cities closer to potential migrants, giving rise to more positive rural–urban dynamics, with market flows between the two for both labour and products.

Goal 8: Develop a global partnership for development

Target 12: Develop further an open, honest, predictable, non-discriminatory trading and financial system (includes a commitment to good governance, development and poverty reduction — both nationally and internationally)

Target 13: Address the special needs of the Least Developed Countries (includes tariff-and quota-free access for Least Developed Countries' exports, enhanced programme of debt relief for heavily indebted poor countries and cancellation of official bilateral debt, and more generous official development assistance for countries committed to poverty reduction)

Target 14: Address the special needs of landlocked developing countries and small island developing states

Target 15: Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term

Target 16: In cooperation with developing countries, develop and implement strategies for decent and productive work for youth

Target 17: In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries

Target 18: In cooperation with the private sector, make available the benefits of new technologies, especially information and communications strategies

Goal 8 is a set of obligations for the international community. While the targets may not be achieved in the drylands they must be achieved for the drylands. Overall, the Millennium Development Goals reflect a recognition that it is time to directly tackle poverty and to restore the dignity of the world's most dispossessed people. Earlier theories that if an economy grows at the top, the benefits will trickle down to all have proved untrue. Instead, the rich–poor divide has widened worldwide. The poor need much more direct intervention.

In many ways, drylands represent one of the last development frontiers. Here, the challenges of achieving the MDGs are greater than in many other places. It is therefore imperative that the noble aspirations of Goal 8 become a reality for drylands specifically, and not just for the aggregate developing countries. Problems of extreme poverty, of being landlocked and of perpetual debt require special trading and financial systems, not increased globalization where benefits flow to the coastal cities of growing economies. Where drylands have a potential competitive advantage — for example in livestock products, cotton and edible oils — they should not be eliminated from the world market by unfair competition from countries that are members of the Organisation for Economic Co-operation and Development (OECD). Unfair competition not only involves tariffs and quotas, but also includes setting impossible quality standards without transferring the knowledge and technology for compliance.

There should be a clear recognition that market forces alone have rendered most of the world destitute. Certainly, a more level playing field will help, but conventional market forces do not favour the poor, the remote and the landlocked, much less the drylands. Development must still be proactive, and donors willing to invest in the needs of the very poor. Also, it will be a long time before the positive effects of globalization come to the rescue of the poorest. Meantime, there are important opportunities for local and regional markets, as well as for trade between developing countries. These promising opportunities should be seized at the earliest possible opportunity.

3. Challenges to achieving MDGs in drylands

Country MDG Reports indicate that all developing countries are committed to reducing poverty and have embraced progress towards achieving MDG targets. At the same time, there is overwhelming evidence and concern that the implementation of the MDGs in drylands faces special country-specific challenges. These challenges can be categorized into the four main groups below.

Sociocultural challenges

- ❑ Population increase (MDG 1 and 7): Human and livestock population increase in many dryland countries significantly surpasses the increase in production. This is of a major issue in some countries. For example Swift (2002) documents an increase in pastoral population in Somalia compared to historical levels, and relative to available natural resources. The human population increase is explained in part by natural growth, internal migration and people moving from high-potential areas to marginal areas in search of land. The increase can also be partly explained by the fact that there has been little investment in reproductive health education for women, a factor which is strongly associated with fertility decline.
- ❑ Nomadic lifestyle (MDG 2, 4 and 5): In some countries, the national net enrollment rate (NER) for primary education is far much lower in drylands compared to high-potential regions. For instance in Kenya, drylands have consistently registered lower NERs over the past four years; rates that are sometimes up to four times lower than the national average. Completion of schooling is another significant problem affecting the drylands. While the dropout rates are high in sub-Saharan Africa, they are relatively higher in the region's drylands. Poverty due to drought and famine forces many children to drop out of school while hunger stalks those still in the school, putting them at a distinct disadvantage. In general, drylands not only significantly lag behind in national examination performance, but also register low enrolment rates when compared to gross enrolment ratio (GER). It is evident that drylands have many hurdles to overcome before they can achieve universal primary education. The challenges they face include the following:
 - Institutions and facilities: shortage of primary schools, secondary, colleges and other tertiary training institutions..Not only are institutions inadequate in number, even those that are there tend to be under-resourced, lacking facilities for eligible children;
 - Teachers: perennial shortage of schoolteachers, due to the low number of trained teachers from drylands, coupled with reluctance of teachers from various parts of the country to work in these hardship areas;
 - Policies: pastoral communities move frequently in search of pasture and other



resources like water, hence present a special challenge to policy makers. Government educational policies do not adequately address the needs of the pastoralist lifestyles and livelihoods. For instance in Kenya, some of the dryland communities run their own informal and mobile nomadic schools that go where the community goes in search of pasture. Governments tend to have an exclusive one-size-fits-all approach that does not allow for any adaptations to pressing local realities.

- ❑ Many developing countries reported high ratios of population per doctor. The scenario is even worse in drylands as doctors prefer working in urban centres or high-potential areas given the harsh working conditions in the drylands.
- ❑ In drylands, healthcare services are often severely disrupted by population movements and deteriorating financial and economic conditions (Menne and Bertollini, 2000). Disrupted health systems cannot cope with the population's needs, including such pressing needs as follow-up support to counter or cope with HIV/AIDS. The pressing urgency is evident considering that HIV/AIDS and hunger are intertwined.
- ❑ Widespread internal and cross-border mobility and migration by dryland dwellers (such as in the Sahelian belt of West Africa) to sustain livelihoods does however greatly increase vulnerability to HIV/AIDS.
 - Gender inequality (MDG3): Women play an essential role in dryland natural resource management. It is also acknowledged that without gender equality, MDG poverty reduction targets cannot be achieved. The UNCCD underlines this; the Beijing Platform for Action and the World Summit on Sustainable Development (WSSD) both stress it with no less emphasis. The Millennium Declaration, quite appropriately, highlighted gender mainstreaming and women's empowerment as a crucial 'cross-cutting theme' for achieving universal sustainable development. However, cultural norms and practices in most dryland communities militate against gender equality, particularly access to productive land.

The interpretation of gender as a cross-cutting theme in the MDGs is unfortunately not spelled out explicitly and left to governments and institutions to interpret. Goal 3, in terms of targets to be achieved, takes a rather narrow view of women's rights. Goal 7, environmental sustainability omits any reference to women's important role in this area and ignores the multiple commitments made by governments on gender and environmental conservation.

- ❑ Clan, inter-ethnic and cross-border conflict (all MDGs): Dryland resources, particularly water and grazing, are unevenly distributed. Competition for the limited resources, often leads to clan- or inter-ethnic and sometimes cross-border armed conflicts, giving rise to insecurity and disrupting development.

Economic challenges

Poverty rates (all MDGs and particularly MDG 1): Poverty poses the greatest challenge for dryland development, particularly in Africa. About 71 percent of the continent is either hyper-arid, arid, semi-arid or dry sub-humid. Yet more than 40 percent of Africa's population

live here. The highest incidences of poverty are found in drylands, with indications of a positive correlation between poverty and level of dryness. For example, the 2005 Kenya Human Development Report indicates that the four bottom districts (Marsabit, Turkana, Samburu and West Pokot) are all located in the arid and semi-arid zones (UNDP, 2005). Factors contributing to disproportionate dryland poverty include:

- ❑ Marginalization in investment decisions at political level. Most investments in development have been in what are considered higher potential areas. The erroneous perception persists that the return to investment is low for drylands and that per capita investment and maintenance costs are high because of low population densities in some arid and semi-arid lands.
- ❑ Poor markets and infrastructure. In the drylands of most developing countries populations are directly dependent on natural resources for their livelihoods, and pastoralism is a significant part of their economy. Availability of, and access to, markets for dryland goods and services are therefore central to food security and sustainable livelihoods, yet these are often either limited or poorly developed in most of the drylands.

Climatic and ecological challenges

These refer to ecological imperatives that limit dryland production and alternative options for fighting poverty, eliminating hunger and meeting other MDGs. For example:

- Water deficit. Drylands are characterized by low, erratic and unpredictable rainfall, recurring droughts; and poor water access, availability, and quality. Accessing clean water is more difficult in drylands than elsewhere. This has implications on health, especially for pregnant women, nursing mothers and children.
- Aridity. Anecdotal evidence suggests an increase in aridity in the Sahel and other regions and it is still unclear to what extent this is due to global warming, or due to local factors such as increasing human and animal population pressure on natural resources or due to inappropriate land use.
- Climatic demand. This refers to the very high rate of potential evapotranspiration that characterizes drylands relative to other areas, so that even when it rains, the water quickly evaporates and is thus not available for plants. This has negative environmental impacts (MDG7), and ,by extension, negative impacts on poverty eradication (MDG1).
- Climate change is considered to be of greater threat dryland livelihoods than in other areas. Climate change has led, or will lead, to increased frequency and severity of hurricanes, sand storms and changes in precipitation.
- Drought: More than any others, the efforts to eradicating extreme poverty (MDG1, reduction of child mortality (MDG4) and environmental sustainability (MDG7) face the challenge of recurrent droughts. Droughts are a common and ever-increasing feature in many dryland countries, resulting in famine and such negative effects as intrauterine growth retardation in the unborn, and deficiency in several micronutrients that are vital for the growth and development of children. The effects are susceptibility to infections, anaemia, and so on. Malnutrition also weakens the immune system. Most famine-related child deaths in drylands are from infectious diseases due to weakened immunity.

Frequent droughts and related risks (some expected to worsen with climate change) threaten investors, producers and consumers. Climate change is likely to bring an increased incidence of extreme events with for example, extreme floods that used to feature every 100 years now occurring every 20 to 30 years.

Land degradation (deforestation and desertification) threatens dryland livelihoods (particularly pastoral communities) as well habitats for niche plants and animals. Some of these irreplaceable endemic plants provide medicines and alternative crops.

As earlier discussed, soil fertility management appears to be a challenge in many drylands.

Finally, land degradation has devastating effects on gender equality and empowering women (MDG3). For example, deforestation and desertification amplify time and tedium as rural dwellers search for fuelwood, fodder and water, chores that are traditionally done by women and young girls. This negatively affects school attendance and performance for girls.

Policy and institutional challenges

There is an overarching consensus that dryland dwellers have limited political clout in shaping development narratives and policies. They are only marginally represented at decision-making tables since most of them lack the basic education necessary, education which is itself often tailored to suit sedentary commercial farmers. Manifestations include:

- National development and fiscal policies that mostly favour high-potential areas at the expense of drylands: In many cases, investments from bilateral and multilateral agencies are closely linked to the priorities of recipient countries. In most of the countries, the drylands are a low priority in national planning. Evidence shows that a big percentage of bilateral funding supports government expenditure in agriculture in recipient countries, which in most cases focuses on high-rainfall areas.
- Lack of political will and commitment to dryland development: The policy and commitment of the recipient government to dryland development is of great significance in ensuring the funding of MDG implementation in drylands. However, it is equally important that there be both political will and commitment to implement these policies.
- Lack of and/or inadequate decentralization policy for management of local resources. Decentralized policy for the management of natural resources has important implications for achieving MDGs to the extent that it provides for local retention of benefits (including finances) for rural development. Although most countries with drylands have embraced the decentralization policy, few have undertaken fiscal decentralization.
- Lack of appropriate policies for rural and urban settlement: Most countries do not have a coherent policy for centralization and decentralization of urban settlements. A well-developed hierarchy of urban settlements is not only good national policy for absorbing population growth, but is equally important for the rural economy particularly in drylands as small market towns are ideal locations for a range of rural industries and services, as well as providing a market for garden produce, meat and other products. A well-developed urban structure promotes more balanced economic development. Although most governments are committed to

decentralizing urban settlement, dryland markets for goods and services remain a major challenge.

- Inadequate information on environment–livelihood links by intervention actors. This makes it difficult to achieve sustainable development in these zones. (for example, ignorance of the rich biodiversity of drylands).
- Over-emphasis on technical solutions to dryland issues while ignoring sociocultural dimensions. A case in point is over-reliance on technological innovations without taking into account indigenous knowledge and practices that have stood the test of time and served local communities well for generations.
- Insufficient understanding of the links between land degradation and livelihoods and the local and national economy: Dryland dwellers are not given enough opportunity to promote traditional knowledge and adapt to natural resource degradation..
- Policies of development partners favour high-potential areas while dryland issues such as drought, insect pests and floods are treated in an ad hoc manner, usually as emergency humanitarian interventions, and rarely in a coherent and systematic manner.
- Terms of trade and access to external markets for goods and services remain heavily skewed in favour of developed countries. This affects the achievement of MDGs.. However, the ban on livestock exports to Central and West Asia and North Africa (CWANA) countries from the Horn of Africa countries is a good example of an external threat to achieving MDGs. Most dryland dwellers in the Horn depend exclusively on selling live animals to traders who then export to the (CWANA) and other countries. The cash buys cereals for the family table. This ban on export of livestock and livestock products was first imposed in 1998 and then again in September 2000. Such bans reduce income and consequently cereals for households. In addition, families have less money for other goods and services such as education and health.

These policy and institutional challenges significantly hamper achieving all the MDG targets.



4. Major opportunities

The apparent neglect of drylands can be reversed by mainstreaming dryland issues into national development policies and strategies. This is recognized in various global forums, including the sustainable development principles set out by UNCED (Rio de Janeiro, 1992). A number of countries with drylands have mainstreamed, or are mainstreaming, dryland issues into national development plans, an important first step towards energizing MDG implementation in drylands.

The Millennium Declaration reaffirmed support for these principles, and in particular mandated a number of 'first steps' to be taken, including "full implementation of the Convention on Biological Diversity (CBD), and the Convention to Combat Desertification in those countries experiencing serious drought and/or desertification, particularly in Africa". Further, WSSD (Johannesburg, August 2002) set specific goals with measurable targets to be achieved by year 2015. This is an important opportunity for sustainable development in developing countries; more so in the drylands which still suffer political and economic marginalization. Drylands must seize this moment.

Other important opportunities are highlighted below.

More knowledge and information

The last few decades have witnessed an unprecedented increase in knowledge and understanding of the importance and potential of drylands:

- ❑ They have highly resilient species, well adapted to the seasonal rainfall and recurrent droughts.
- ❑ Most of the world's most important food crops originated in the drylands. For example, maize, beans, tomato and potatoes originated from the drylands of Mexico, Peru, Bolivia and Chile. Millet, sorghum and various wheat species sprang from Africa's drylands.
- ❑ There is evidence of favourable returns to public investments in drylands. Indeed, there is abundant evidence that dryland pastoral and agricultural productivity not only has potential but has actually increased in many places over the last quarter century. Increased population density does not necessarily lead to degradation and destitution.
- ❑ Drylands are home to a rich biodiversity pool whose potential remains untapped. The biological diversity of drylands is of particular importance because it includes many unique biomass. They offer great potential for ecotourism and game ranching. Drylands also provide crop and rangeland resources, forest products, water, energy and minerals. Some of the dryland resources that can be tapped to enhance crop production include: solar energy, surface water or groundwater and minerals (Maina, 2005).

- ❑ Drylands cradle key watersheds (the Nile, the Niger River, and so on.) and wetlands with potential for agriculture, energy and fishing.
- ❑ Drylands have great economic and ecological potential beyond pastoralism. For instance, woody vegetation indigenous to drylands in north-eastern and eastern Africa, Sudan, Ethiopia, Eritrea, Somalia and others could provide opportunities for sustainable economic development, if properly utilized. Trees such as acacia, commiphora, boswellia and many others produce gum resins such as gum arabic, gum talha, frankincense and myrrh, medicinal or aromatic plants, biofuels such as *Jatropha*, and so on.

Research and development

Dryland research and management strategies have generated a broad range of farming systems and crop genetic resources. The advent of biotechnological interventions such as those spearheaded by ICARDA, ICRISAT or ICRAF would greatly enhance agricultural production and sustainability.

International/global partnerships

One of the most significant agreements reached during UNCED was the decision to elaborate the international convention to combat desertification. The adoption of UNCCD in June 1994 was a watershed in international efforts to comprehensively address threats and barriers to sustainable dryland development.

Other significant global initiatives from Rio were CBD and the UN Framework Convention on Climate Change (UNFCCC). These three MEAs are key to achieving MDGs in the drylands. Each proposes strategies for sustainable development, including good governance and sustainable land management based on lessons learned. There has been progress in developing Sustainable Development Reports, Environmental Action Plans, National Action Plans to combat desertification and action programmes. At international level, there are projects and important global partnerships including the Global Environment Facility (GEF) and the New Partnership for Africa's Development (NEPAD), not to mention multilateral and bilateral agreements on drylands. Several countries have also reported progress in establishing enabling environments through policy and legal reforms for better governance. These are an important starting point in energizing MDG implementation in drylands.

5. Recommendations for energizing MDG implementation in drylands

5.1 Priority action areas

The global context

The United Nations Millennium Project convened 11 Task Forces to investigate and recommend how to achieve the targets of the Millennium Development Goals. The Millennium Project came up with a series of global recommendations which were:

- ❑ Developing countries should draw up MDG-based Poverty Reduction Strategies.
- ❑ MDG-based Poverty Reduction Strategies should lead to scaling up public investments, capacity-building, domestic resource mobilization and ODA.
- ❑ Implementation of MDG-based Poverty Reduction Strategies should be a transparent and inclusive process.
- ❑ International donors should identify at least a dozen 'fast-track' countries for a rapid scale-up of ODA.
- ❑ Developed and developing countries should jointly launch a group of Quick Win actions to save and improve millions of lives.
- ❑ Developing countries should align national strategies with such regional initiatives as NEPAD and the Caribbean Community (CARICOM).
- ❑ High-income countries should increase ODA from 0.25 percent of GDP in 2003 to approximately 0.44 percent in 2006 and 0.54 percent in 2015.
- ❑ High-income countries should open up their markets for developing country exports.
- ❑ International donors should mobilize support for global scientific research and development to address special needs of the poor in health, agriculture, natural resources and environmental management, energy, and climate.
- ❑ The UN Secretary-General and the UN Development Group should strengthen the coordination of UN agencies, funds and programmes to support the MDGs.

(This is an abbreviated version of the Millennium Project's recommendations. For the full list, see United Nations Millennium Project, 2005b).

Specific activities for drylands

The recommendations below are country-level, for nations with significant numbers of poor dryland dwellers. The actions will ensure that these people, who are often sparsely distributed, benefit from the world's determination to achieve the MDGs.

Policy and legislation	
Activity	Target MDG goal
Carry out a national assessment of needs to achieve the MDGs with appropriate attention to drylands. Assess limitations caused by under-investment, poor policy and lack of capacity.	All
Draw up a national strategy for achieving the MDGs in all parts of the country. This strategy should be based on any current national development strategy, suitably updated to ensure that it will lead to achievement of the MDGs.	All
Promote dialogue between researchers, development practitioners, stakeholders and policy makers including ministers of finance on issues related to dryland development and MDGs.	
Ensure that the national strategy maximizes the benefits of decentralization and empowers people at community level.	All
Translate the strategy into an MDG-based PRSP as a basis for national budgets on dryland development.	All
Identify legislative barriers to development and provide incentives to private investors, including small-scale producers in the drylands. Special consideration to be given to gender, rights to access land and water, legislation on common property rights and laws, rules that inhibit marketing and trade, or that inhibit broadcasting information. Embark on legislative reform.	All
Pass legislation that encourages livelihood diversification.	All
Infrastructure	
Activity	Target MDG goal
Build roads to connect isolated dryland communities with markets and services.	All
Use properly-designed safety-net procedures (such as food-for-work schemes) to hire local labour to build, improve and maintain local feeder roads.	2
Build or improve market infrastructure at key places for better market interchange with drylands. Construct abattoirs with cold storage and transport facilities. Build cooperative grain stores or train farmers on post-harvest storage.	1,2

Build schools: initially the demand will be for primary schools including the possibility of mobile schools for pastoralist children. Later there will be a demand for secondary and tertiary facilities. Ensure that there are adequate boarding schools. Ensure that all schools have living and sanitary facilities that are friendly to girls.	3,4
Improve the information infrastructure, including Internet access, mobile telephone coverage and local radio and television facilities.	All
Services	
Activity	Target MDG goal
Create information nodes: village centres with good communications where sectoral advisory services can base their activities.	All
Encourage the establishment of local community radio. Distribute, subsidize the cost of, or provide credit for, appropriate equipment such as wind-up and solar powered radios.	All
Train teachers.	3,4
Provide school meals and feeding schemes for under-fives who are at risk and ensure adequate nutrition for adolescent girls. The food for the meals should be locally purchased. .	1,2,3,4
Produce and distribute fortified foods to people at risk, especially pregnant and lactating women.	2,5,6
Extend health and nutrition services to rural arid and semi-arid areas. Provide mobile clinics where necessary.	4,5,6
Train and employ more doctors and nurses.	4,5,6
Train cadres of local para-medical workers and midwives to provide primary health care, neonatal advice and obstetric services.	4,5,6
Improve ambulance services to remote places, and ensure that women with potentially dangerous pregnancies can reach good obstetric services.	4,5,6
Ensure the adequate distribution of drugs through the expanded health service, including anti-retrovirals to control the effects of HIV/AIDS	7,8
Distribute free insecticide-treated bed nets.	8
Train farmers in growing and processing artemisia	1,8
Train and employ agricultural extension workers to compensate for the loss of rural advisory capacity over recent years.	1,2
Train local extension support staff to deliver agricultural advice at the community level.	1,2
Establish local seed multiplication farms and tree nurseries.	1,2,9,10
Provide training in land rehabilitation and soil fertility management.	2,9,10
Use properly-designed safety-net procedures (such as food-for-work schemes) to rehabilitate degraded environments and also invest in water management and land management.	2,9,10

Encourage the establishment of a network of local agricultural traders through training and also through strengthening markets.	1,2
Sink wells and boreholes and extend piped water.	10
Provide training and investments in water harvesting schemes	10
Provide water points along livestock movement pathways (while also using all available information on the dangers of these services leading to environmental degradation due to animal concentration)	1,2,10
Invest in national agricultural research systems, especially for developing, testing and producing locally adapted seed.	2
Provide vocational training for people wishing to move from drylands to cities to ensure they can compete in the urban labour market.	11
Capacity building	
Activity	Target MDG goal
Provide capacity-building support to governments on the development of MDG strategies (such support can be provided by UNDP's Capacity 2015 Programme).	All
Provide advice on the development of MDG-based Poverty Reduction Strategies (advice can be obtained from the MDG Centre of the United Nations Millennium Project and from UNDP).	All
Provide advice on decentralized planning and governance tailored to the needs of dryland communities, including mobile communities.	All
Create a culture of using information by building capacity to run information hubs and community radio.	All
Support the development of local market associations to improve people's participation in marketing, including livestock marketing.	1,2
Identify knowledgeable and successful women and men farmers and pastoralists to work with local agricultural service providers and help other farmers improve their production.	1,2
Carry out public information campaigns. Important examples of issues to be promulgated include the importance of education, especially for girls, and gender issues.	All
Establish 'well woman' groups at community level, supported by health and nutrition services, where information can be exchanged on healthy pregnancies and birth, mother and child nutrition and breastfeeding.	2,5,6
Create associations of land and water users around river basements and catchments, to plan, contribute to, and participate in, resource management.	2,9,10
Strengthen dryland institutions to better respond to the needs of the populations and to enhance efficiency in local resource governance.	All

5.2. Integration of drylands into national MDG implementation strategies

Most countries already have an ongoing MDGs implementation strategy or plan. The concern is that based on past experience, it is highly likely that the strategy overlooks drylands. Drylands are already marginalized, particularly in the allocation of development funds.

Therefore, the first step towards energizing MDG implementation in drylands is to ensure seamless integration of dryland issues into national MDG strategies and programmes. The aim is to ensure that the programme for energizing and fast-tracking MDGs implementation in drylands is an integral part of the national strategy, and that there is coordination and harmonization with other national MDGs initiatives. This will ensure coherence and synergy in MDG implementation and provide a conducive environment for partnerships to support dryland MDG implementation.

Integrating dryland concerns into national MDG implementation strategies will require a 'gap analysis' — a review of the current strategy, progress to date and key issues pertaining to MDG implementation in the drylands. All countries are expected to prepare 'National Millennium Development Goal Reports' for the UN Secretary-General, highlighting opportunities, challenges, progress achieved, enabling or constraining factors and any additional support needed to attain MDGs. Every effort should be made to ensure the 'gap analysis' for drylands is part of the national reporting process, but this analysis can also be conducted separately if necessary.

The 'gap analysis' report will be the basis for developing the national programme for energizing MDG implementation in drylands. This, and the lessons learned over the last three decades, are the most crucial starting point for programme design. The design should:

- ❑ Use available information and scientific knowledge to define potential opportunities as well as appropriate MDG strategies to realize them. The Challenge Paper offers some leads on this. Geographic Information System (GIS) tools facilitate poverty–environment mapping, thereby enabling better targeting of programmes and accurately pinpointing environmental 'hotspots' as well as 'hotbeds' of deprivation.
- ❑ Capitalize on existing cooperation and funding mechanisms (such as the UNCCD, UNFCCC, and the clean development mechanism or CDM) in addition to other partnerships for implementing MDGs. The emerging carbon markets are an opportunity to reshape the view of drylands from a 'development sink' to a potential 'carbon sink' given a convergence between carbon emitters keen to buy carbon credits and aims to reduce dryland poverty (Mortimore, 2005).
- ❑ Most governments have national policies for decentralizing governance of natural resources. A few have included natural resource governance in their constitutions (for instance, Uganda and Ghana). This is a 'power tool' to empower dryland populations so they can influence decisions that affect them.
- ❑ Build on the existing traditional knowledge systems and coping mechanisms to reinvigorate institutional capacities in drylands; particularly tapping local knowledge and skills as well as social capital in implementing programmes to improve productivity, enhance adaptive capacity and demonstrate what drylands can achieve.



- ❑ Target successful investments in other dryland countries, cognizant that a conducive environment is necessary for local investment. Notable successes include the three case studies cited in this paper. These are the soil and water conservation example from the Machakos District in Kenya; the high production returns realized in the low-potential areas of Western China following intensive investments; and the highly successful agricultural revolution in the Kano Close-Settled Zone of Northern Nigeria following intensive subsidies, use of inorganic fertilizers, technologies and extension services..

5.3. Criteria for selecting dryland countries for fast tracking

The essence of the Millennium Development Goals is urgency. With only ten years to go, a rapid start is imperative. The UN Millennium Project has recommended identifying a number of 'fast-track' countries where development assistance should be scaled up very quickly to achieve MDGs. It is important that dryland countries are included in this list. Criteria for selecting the countries could include the following:

- ❑ The 'political will' and leadership of the country's government should be a major precondition. For example, it has increasingly become evident that countries that have devolved natural resource management to local communities have the best potential for achieving MDGs. Countries which have mainstreamed dryland issues in national development strategies or PRSPs offer promising prospects for achieving MDG targets.
- ❑ Countries with more than 60 percent of their population in drylands: the higher the percentage, the easier it is to convince the government to specifically address these areas with specific policies to improve development.
- ❑ Countries with more than 50 percent of the population living below the poverty line. This is consistent with MDG 1, targets 1 and 2 to "halve, between 1990 and 2015, the proportion of people whose income is less than \$1 a day"; and to "halve, between 1990 and 2015, the proportion of people who suffer from hunger." Countries with a low HDI (as assessed in the Human Development Report, or HDR) should be specially targeted.
- ❑ Dependence on natural resources as measured by the potential contribution of drylands to the national economy through livestock exports and other dryland products, given appropriate policies and government support. The higher the potential contribution, the easier it will be for governments to be more receptive and more committed to dryland development.
- ❑ Existing national and regional institutional capacity for dryland development. Institutions include government and non-governmental agencies and drylands community associations. This will lower the costs of dryland development and also build up on existing structures by offering the possibility of even greater success which is crucial in attracting long-term commitment to dryland development.
- ❑ Existing regional plans and commitment to regional interventions that address dryland issues from a regional perspective is more pragmatic given to the flow of dryland communities across national borders.

5.4. Criteria for Investment priorities

Concept

The challenges identified in this paper point to the need for a new people-centred approach to dryland development, faithfully following in the footsteps of previous Challenge Papers. This new approach turns the environmental conservation debate on its head: it puts human development as the necessary condition for environmental conservation, rather than the other way round. Such a process can be steered by “enlightened policy, participatory governance, facilitating institutions, sharing of knowledge, recognition of rights and empowerment of the voiceless” (Anderson et al, 2003).

According to the e-forum participants, the following are the special needs to be met in order to stimulate and/or catalyze achieving MDG targets in drylands:

- Enabling environment: policy reforms (particularly with regard to access and ownership of land and natural resources, and decentralized governance of natural resources)
- Awareness of, and knowledge on, the impacts of climate change on livelihoods at institutional and local community level to ensure informed decisions in adapting and/or finding alternative livelihoods
- Better understanding of the variegated development potentials of drylands
- Rural infrastructure: Need for communication infrastructure to promote investments in drylands and ensure better access to markets
- Participatory approaches: Involve local communities when making decisions that affect them
- Gender equality: Need to ensure gender equality and access to benefits in the design of projects and programmes
- Balanced development approach that links short-term emergency or humanitarian needs to long-term recovery strategies
- Integrated development strategies as opposed to sectoral planning approaches
- Peace-building or conflict prevention and resolution mechanisms to ensure community leaders get opportunities to resolve differences on resource access

The new approach to dryland development and the special needs identified above, provide the basis for a dryland investment strategy. The choice of the specific investment will be determined by the specific need, the socio-economic conditions and the prevailing national or regional institutional and policy environment.

Achieving MDG targets calls for an integrated and multi-sectoral strategy to ensure that different interventions are interlinked and mutually reinforcing for maximum impact on poverty eradication. The following could constitute the key elements for such a strategy:

1. Empowering rural communities: Activities could include training, sensitization on MDGs; strengthening the role of women and strengthening or establishing local pastoralist institutions such as pastoral associations, marketing associations and peace committees. Focus would be on generating consensus on common problems and reviewing options, then analysing these options in terms of time and costs.
2. Strengthening the rural or pastoral economy: Activities in this category could include support to livestock interventions (animal health and nutrition, livestock marketing); better natural resources management (range and water management) and livelihood support (economic diversification, financial institutions and anti-drought measures).

3. Improving services in the drylands (for example, human health, education and veterinary services).
4. Supporting measures for disaster management: The aim is to support capacity-building for preparedness, mitigation and contingency planning for drought and other disasters since these are recurring phenomena in drylands.
5. Influencing the interventions of external donors and international and local NGOs. One imperative in this regard is the need for a special cooperation framework involving governments, civil society, the private sector and development partners. The UNCCD's Global Mechanism could play an important role in this regard. Another option is to focus on UNCCD and advocate it as the main framework for implementing MDGs in drylands. This will be the main indicator of the seriousness and commitment of the international community to developing drylands in the context of the MDGs.



6. Way Forward

This review paper had three key aims: to identify, analyse and highlight the challenges of, and opportunities for, achieving MDG targets in drylands; to identify priority action areas through which MDG targets can be achieved; and to make a case for special attention to drylands and the need for a special cooperation framework to facilitate implementation of the MDGs in drylands in selected countries.

Section 2 of the analysis identifies some of the main perceptions, assumptions and lessons learned over the last three decades which demonstrate that certain interventions in drylands can — and indeed have — brought positive results. The analysis indicates that with commitment and well-targeted investments, MDG targets can be achieved in drylands.

Section 3 highlights the major challenges that have to be overcome if MDG targets are to be met by the year 2015, while Section 4 deals with opportunities that should be seized in order to expedite MDG implementation.

Section 5 identifies priority action areas to expedite achieving MDG targets in drylands. These include recommendations by the UN Millennium Project specific to drylands. This underscores the important potential of drylands on livelihoods; safeguarding local human capital; and empowering local communities to manage their natural resources.

MDG implementation calls for an integrated approach in view of the multidisciplinary and multisectoral nature of proposed interventions. The implementation strategy will require a strong partnership or cooperation framework involving all dryland stakeholders if MDG targets are to be achieved by 2015.

The review recognizes that efforts are already under way and many governments are already implementing MDGs in drylands, some with support from development partners. The key message from the analysis however is that in implementing MDGs, governments, NGOs and the international community cannot afford to treat drylands like other areas, given that drylands have often been historically marginalized in national development policies.

The implication for countries with extensive drylands is that they must re-examine their national MDG implementation strategy and accord drylands special attention. This is in view of the extraordinary challenges that drylands face and to establish specific programmes to energize or fast-track achieving MDG targets in the drylands. These programmes must be conceived and implemented in the context of the overall national MDG implementation strategy to ensure coordination and synergy.

The implementation of the special programmes for energizing MDG implementation in drylands will require extra capital. The challenge therefore is how to mobilize extra resources from traditional sources (internally from governments, private sector and NGOs

and externally from ODA. There are also other new and emerging funders for specific interventions, such as the GEF, NEPAD and CDM. If the special measures for drylands are to be realized, a 'special cooperation framework' is imperative for mobilizing, coordinating and harmonizing support from multiple sources for multiple purposes to one common end.

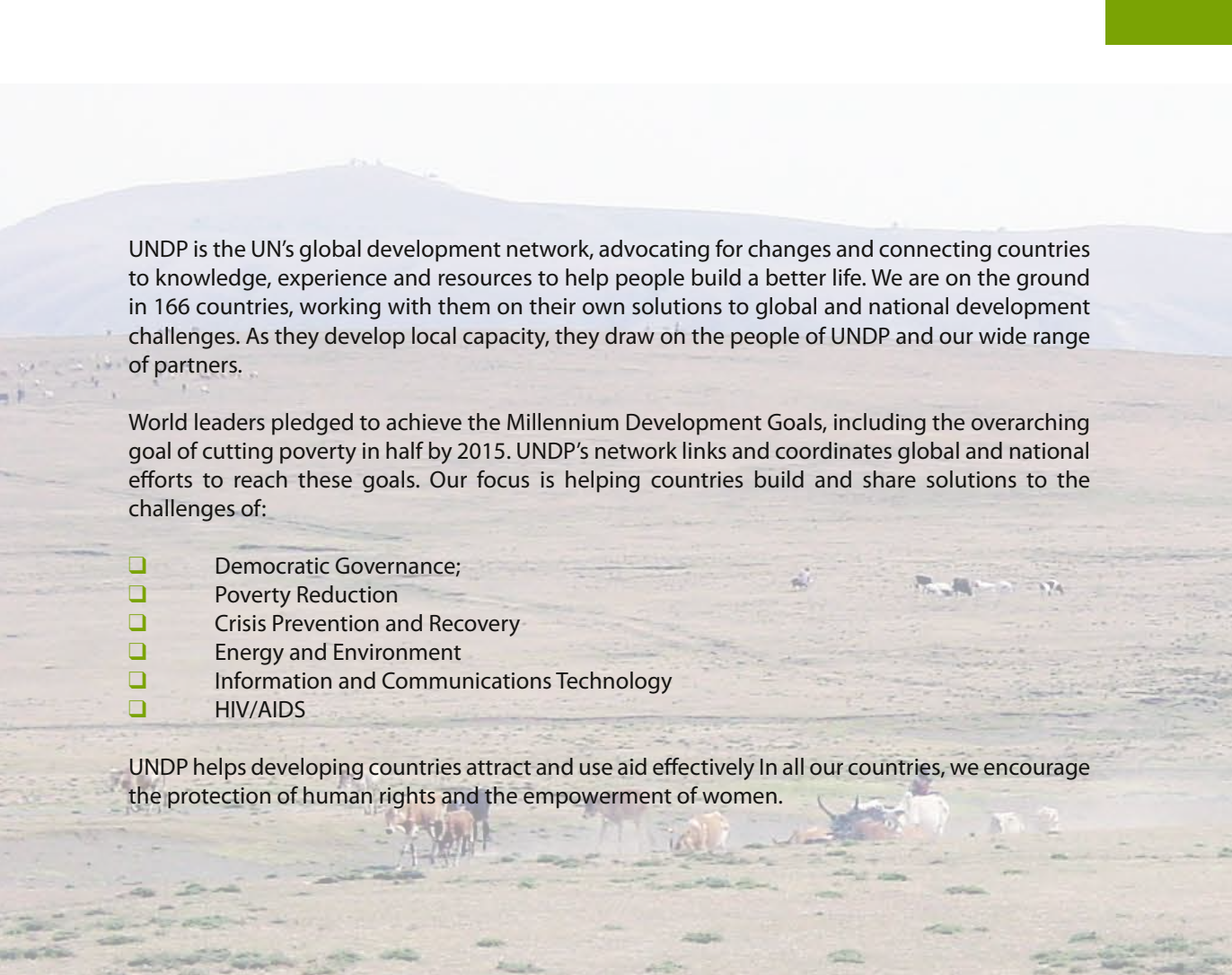


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