

## **A Public-Private Partnership Scheme To Avert Desertification in the Drylands of Kenya: Lessons for Social Scientists**

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### **Abstract**

The drylands of Kenya make up about 80% of the total land area and are defined by aridity, thermal stress, soil moisture deficiency and general human want. The poverty bedeviling the drylands leave their inhabitants without a sustainable livelihood, compelling them to rely on physical environmental resources. Indeed, the exploitation of natural resources in these areas has led to the manifestation of the tragedy of commons hypothesis. Official documents show that about 80% of households in these areas use charcoal and firewood as fuel, leading to deforestation. This situation is not accompanied by re-forestation, leaving more land bare annually, and therefore risking desertification. This is compounded by overstocking and encroachment of human settlements, which further leads to the destruction of other natural resources, including wetlands. This paper analyzes literature and roots for a paradigm shift in the exploitation of dryland resources to avert possible desertification. As a panacea, it proposes a public-private partnership of social scientists to avert this trend and augment environmental management and livelihood in the drylands of Kenya.

**Key words:** *desertification, drylands, public-private partnership, resources*

### **Introduction**

Both drylands and desertification are climatic concepts, and therefore may be defined in climatic terms, although their drivers go beyond weather and climate. While conceptually it may be fluid to define desertification across time and space, this paper refers to the United Nations and other authorities for a meaning. On its part, the United Nations (1994) defines desertification to mean land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. As such, this definition has implications of both natural and anthropogenic activities that affect the physical environment adversely, leading to the loss of both flora and fauna due to resultant low biological productivity.

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According to Barrow (1991) desertification is the degeneration of ecosystems in semi-arid or arid areas, the degeneration being indicated by decreasing primary productivity and biodiversity loss. While there are several indicators of desertification ranging from biological, social and economic, measuring desertification has proved difficult given that the terms used are ambiguous and may not necessarily have measurable indicators. Barrow (1991: 145-6) observes:

It is difficult to establish the extent and trends of desertification when agencies and individuals often use terms like *significant* or *serious* without defining what they mean...estimating the rate of change is much more of a challenge.

Despite the difficulty in measuring desertification, satellite photographs may give indications of the tendency towards desertification. In addition, courtesy of vegetation removal in water catchment areas, rivers that were once perennial may become seasonal. Again, to measure the rate at which such rivers become seasonal and how this tends towards desertification may again pose difficulties. Nonetheless, it is widely acknowledged that courtesy of natural and anthropogenic activities, there is a visible tendency towards desertification in the drylands areas of the world. This is perhaps the major driver for the UN Convention to Combat Desertification (UN, 1994). As a follow-up, therefore, we try and define what is implied by combating desertification.

The UN (1994) has defined combating desertification to include activities that are part of the integrated development of land in arid, semi-arid and dry sub-humid areas aimed at prevention and/or reduction of land degradation, rehabilitation of partly degraded land and the reclamation of land that is already classified as desert. While there is no particular party that can be identified as the sole cause of desertification given that we all contribute in one way or the other to this process, combating the phenomenon must of necessity be a stakeholders' role. It cannot be gainsaid that the causes of the process come in plural form (Barrow, 1991). Hence, combating it should be a multi-sectoral, multi-approach and multi-stakeholder process. As such, governments, the private sector, individuals, civil society, community-based groups, non-governmental organizations and donors, among others, have a role to play in fighting not just the process but also the adverse effects that it leaves in its wake.

### **An Overview of the Drylands of Kenya**

Kenya was divided into 47 counties by the Constitution of Kenya of 2010, as provided for in its Chapter Eleven (11) and the Fourth Schedule regarding devolved government and the separation of the functions of the national and

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county governments, respectively. Of the 47 counties, about half are arid, semi-arid or partially semi-arid; and therefore regarded as drylands. Some of the dryland counties include Turkana, Marsabit, Garissa, Kitui, Makueni, Tana River, Wajir, Mandera, Samburu, Kajiando, Narok, Baringo, Isiolo and Taita Taveta. Others are partly dryland such as Tharaka Nithi, Machakos, Laikipia, West Pokot, Nyeri, Lamu, Kwale and Kilifi.

In general, much of the country is ecologically a dryland comprising of roughly 80% of the total land area of about 582,000km<sup>2</sup> (RK, 2007; 2008). The weather conditions in the drylands are generally unreliable for livelihood diversification using local knowledge and skills as typified by aridity, soil moisture deficiency, high thermal stress and generally environmental vagrancy. This makes livelihood options in the drylands highly limited and largely unsustainable in the long-run (Mwenzwa, 2013a; b). Indeed, some areas such as in Marsabit County exhibit near-desert conditions, ruling out crop husbandry, and leaving livestock rearing as the most important local livelihood option. This is again challenged by weather patterns, poorly developed bazaar, overstocking and cattle complex among local populace.

#### **Livelihood Options and Challenges in the Drylands of Kenya**

Dryland populace, particularly the purely nomadic pastoralists, have for a long time been associated—wrongly or rightly—with cattle complex. Overstocking in particular is responsible for environmental degradation that dwindles pasture and related resources, thus heightening competition for the same. Land so degraded has less biological productivity, and this is worse in the largely arid areas that are disproportionately disadvantaged given their unique natural environmental challenges. When human and natural challenges combine, they compound one another, thereby increasing risks and vulnerabilities many-folds that undermine wellbeing. The aftermath requires external intervention to militate further degradation and possible desertification.

Due to the prevailing weather conditions, local inhabitants – who are largely nomadic and agro-pastoralists and comprise about 30% of the country's population—have to compete over the few resources available. This in turn leads to both human-human and human-wildlife conflicts. The foregoing notwithstanding, the drylands contribute roughly 5% of Kenya's gross domestic product (GDP), mainly through livestock production (Republic of Kenya, 2003; 2007; 2008; 2009, 2011b). Nonetheless, this is far below what the drylands can contribute given their potential once local resources are exploited and economic activities diversified and revitalized. In the midst of such untapped wealth is unparalleled want that manifests itself in the form of high poverty indices and low human development indicators (KNBS & SID, 2013; Republic of Kenya, 2011a; Mwenzwa, 2013a).

Dryland livelihood options that include—but not limited to—dryland farming, livestock husbandry, tourism, mining and other extractive industries remain highly challenged by both natural and anthropogenic events (Republic of Kenya, 2009; 2011a; Mwenzwa, 2013). For example, livestock husbandry remains challenged by, among others, a poorly developed bazaar, livestock theft, ethnic conflict, oscillating weather conditions that affect pasture growth, and overstocking (Republic of Kenya, 2009; 2011a). Crop farming on its part is ruled out in much of the largely arid areas, with irrigation farming being out of question in some areas. In semi-arid areas though, some crop farming takes place largely for household subsistence. Again, this is severely challenged by unreliable rainfall, poor farming technology, inability of local farmers to utilize the necessary inputs and poor grain storage practices (Mwenzwa, 2011).

Moreover, many farmers concentrate on relatively less labour intensive crops that are ill-suited for the drylands at the expense of drought tolerant crops that may however be more labour intensive (Mwenzwa, 2013a; Mwenzwa, Kimiti & Kiptui, 2013). For example, many farmers in the largely semi-arid Kitui County grow crops such as beans and maize instead of more climatically adaptable crops such as millet and sorghum (Mwenzwa, 2013). This works against local food self-sufficiency, investment and access to vital social services including health, education and information. Therefore, it is not surprising that human development indicators have remained low in the drylands of Kenya.

Alternative livelihood activities are in the form of micro-enterprises and the primary extraction of natural resources, some of them such as logging, sand and firewood harvesting and charcoal burning being largely environmentally-detrimental. These are compounded by poor environmental conservation practices such as slash and burn cultivation, unregulated quarrying, hunting and human encroachment into wildlife habited areas. Moreover, industries that would support dryland livelihood activities such as the Kenya Meat Commission have yet to be devolved in line with the newest constitutional dispensation (Mwenzwa, 2013). These, among other issues, stand in the way of dryland development and must be seen as impediments to the general progress of the country.

Flowing from the foregoing, one may ask: what exactly are the environmental challenges affecting the drylands of Kenya? What is the outcome of the interplay between natural environment and anthropogenic activities in the drylands? Are there signs of possible desertification in the drylands of Kenya? What is the way forward to averting further environmental degradation in these areas? What should be the role of the public and private sectors in this regard? Where does the panacea lie given

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that human action/inaction and weather seem to be leaning towards dryland degradation and desertification? Answers to these questions form the gist of this work.

### **Desertification Trends in the Drylands of Kenya: Deforestation**

The dryland inhabitants in Kenya, who are mainly nomadic and agro-pastoralists, rely heavily on natural environmental resources for their livelihood on a daily basis. It is appreciated that nature gave people the environment to appropriate and meet their needs, albeit in a manner that puts the future into account. However, people have apparently gone overboard and undertaken activities that for the most part border on environmental destruction, hence threatening their own welfare and survival. In this case, the extent and rate of deforestation in the drylands of Kenya are so severe that if unchecked, one is staring at desertification in the very near future. The data in Table 1 is partly illustrative of the foregoing observation.

**Table 1: Household Fuel Consumption Patterns in Arid Counties**

County	H/holds using firewood (%)	H/holds using charcoal (%)
Garissa	72.7	24.1
Isiolo	64.9	29.1
Mandera	93.4	5.5
Samburu	81.0	17.4
Tana River	81.6	16.4
Turkana	87.0	11.4
Wajir	91.4	7.4
<b>Average</b>	<b>81.9</b>	<b>15.9</b>

Source: KNBS & SID, 2013

Table 1 presents data on household fuel consumption, specifically firewood and charcoal in the largely arid counties in Kenya. Firewood and charcoal have especially been selected because they involve direct interaction with the natural environment during their extraction, which involves cutting trees for the respective fuel. It is to be noted that the largely arid areas of Kenya, like elsewhere in the world, are characterized by aridity, salinity and an imbalance between precipitation and evapotranspiration, such that the resultant moisture deficiency rules out crop husbandry and meaningful vegetation grown. Indeed, biological productivity, whether flora or fauna, is so diminished that in some areas land has remained bare for decades.

Moisture deficiency dissuades afforestation in the presence of accelerated deforestation for firewood and charcoal. For example, in Wajir County, one of the most arid areas of the country, 91.4% and 7.4% of households depend on

firewood and charcoal respectively for cooking fuel. In addition, and as Table 1 attests, on average about 82% of households in the arid areas of Kenya use firewood as cooking fuel. This means they have to harvest the raw materials from the neighbouring forests without attendant afforestation. When deforestation takes place against no meaningful afforestation, as is the case in fragile arid environments, the result is that the rate of baring land is so high, with high probability of possible desertification. It should be added that firewood and charcoal from these areas are also responsible for feeding the urban market in the cities. If afforestation takes place in the arid areas without any form of reforestation amid aridity and soil moisture deficiency, then what is the rate towards desertification in the arid areas of Kenya?

The story is not any better in the semi-arid areas of the country in which, as Table 2 attests, many households use firewood and charcoal as cooking fuel, despite unfriendly climatic conditions.

**Table 2: Household Fuel Consumption Patterns in Semi-Arid Areas**

<b>County</b>	<b>H/holds using firewood (%)</b>	<b>H/holds using charcoal (%)</b>
Kitui	88.6	8.2
Makueni	84.8	11.2
Narok	79.5	16.7
Tharaka Nithi	88.9	7.5
Embu	81.1	11.2
Kwale	80.4	11.3
West Pokot	91.4	7.2
<b>Average</b>	<b>84.9</b>	<b>10.5</b>

Source: KNBS & SID, 2013

Table 2 shows that in the largely semi-arid areas that are climatically not very different from the arid areas, there is acute exploitation of forests for firewood and charcoal. These areas are also climatically challenged although there is little farming, particularly for family subsistence. However, notwithstanding this, Table 2 shows that deforestation in the largely semi-arid areas is very high; and on average close to 85% and 10.5% of households use firewood and charcoal as cooking fuel, respectively. It is notable that from both Tables 1 and 2, there is an apparent increase in charcoal use with decreasing aridity perhaps due to increasing sedentarization of the populations as we move from arid to semi-arid areas. Tables 1 and 2 also show that, on average, there are more households in semi-arid areas that use firewood and charcoal as cooking fuel compared to arid areas. This may be explained by the nomadic nature of most populations in arid areas in which the true picture of the state of affairs may not have been captured.

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Indeed, there seems to be an increasing firewood use with decreasing aridity such that more households in the largely semi-arid areas use firewood as cooking fuel compared to those in the arid areas. Nonetheless, the bottom line is that, just like in the arid areas, there is wanton destruction of forests for both firewood and charcoal in the semi-arid areas without attendant reforestation. This may be compounded by dryland farming in the form of shifting cultivation in which slash and burn push practices the semi-arid into arid areas as the latter tend towards desertification. Data in Table 3 attests to the use of firewood and charcoal as fuel as it spills over to the largely high potential rural areas.

**Table 3: Household Fuel Consumption Patterns in High Potential Areas**

County	H/holds using firewood (%)	H/holds using charcoal (%)
Kirinyaga	75.4	14.9
Meru	81.9	12.7
Siaya	82.6	14.5
Homa Bay	84.0	13.4
Nyamira	90.7	6.6
Kisii	86.4	9.3
Kericho	84.1	11.9
<b>Average</b>	<b>83.6</b>	<b>11.9</b>

Source: KNBS & SID, 2013

Data in Table 3 shows that in the high potential areas, there are still high levels of firewood and charcoal uses as cooking fuel. Indeed, the difference between these areas and the largely semi-arid areas is insignificant. However, it should be noted that whereas there is no reforestation in the semi-arid and arid areas despite the wanton destruction of forests for firewood and charcoal, high potential afforestation is particularly in the form of agro-forestry. Indeed, in high potential areas, land is most individually owned, while in the arid and some of the semi-arid areas, land is communally owned. While in the former people may take responsibility for individual pieces of land, in the latter they normally engage in stiff competition over the communally owned resources to maximize personal benefits, despite the environmental consequences: the *tragedy of commons*.

As we move towards urban areas, the use of firewood as cooking fuel diminishes significantly even as the use of charcoal increases. On average only 1.4% and 6.4% of households use firewood as cooking fuel in Nairobi and Mombasa cities, respectively (KNBS & SID, 2013). In addition, about 16.5% and 41% of households in the two cities use charcoal as cooking fuel, respectively. It is also notable that most of the firewood and charcoal used in urban areas is largely harvested from both the arid and semi-arid areas.

Deductively, it can be argued that urbanization has a role to play in the desertification of the drylands of Kenya. In addition, it is not far-fetched to say that the *tragedy of commons* hypothesis is a reality in the drylands of Kenya, and hence their tendency towards desertification.

### **The Place of Social Sciences in Combating Dryland Desertification in Kenya**

From the data, it cannot be refuted that the drylands of Kenya are tending towards desertification. This is especially so when anthropogenic activities and climate change cross-pollinate in an irreversible manner in the absence of a multidisciplinary and multi-sectoral approaches from outside the box. It is acknowledged that all life, flora or fauna is dependent on the environment resources in the drylands of Kenya. On their part, resources are diminishing at a rate that is unmatched with their replenishment. In such a case, social scientists in both the private and public sectors need to find a foothold and stamp their prowess in a manner never witnessed before: the role of social sciences and scientists must be felt effectively. What would be the role of these disciplines and respective professionals in averting desertification in the drylands of Kenya?

*Sociology*, the science of society, is a very important discipline when it comes to intervention in societal problems. It is the systematic study of relationships among people; and sociologists assume people's behavior is influenced by their social, political, occupational, and intellectual environment in which they find themselves (Giddens, 1991; Giddens, Duneier & Appelbaum, 2006; Schaefer, 2001). Among others, the subject matter of sociology is the study of how man interacts with his environment; whether that environment is natural or social, and the outcome of the interaction in both the short and long-run.

In this particular work, the concern is how people interact with their physical environment, the reasons and the outcome. It is, therefore, important for sociologists to apply their accumulated knowledge of society and its constituent social institutions to avert desertification. This would particularly be in research to unearth the drivers of environmental degradation. The starting point would be perhaps to ask the questions: why is man destroying the environment, his livelihood and by extension himself? Is it because of the lack of options? Is it ignorance? Or is it sheer stupidity? Why is man so fallible as to destroy himself?

*Economics* is the study of the ways in which human beings eke a living, and hence takes into account the way the society is organized for people to satisfy their human wants and needs. As such, its scope and subject matter



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may be summed as production, distribution and consumption of goods and services. Specifically, and as far as this work is concerned, economics may be concerned with explaining and guiding in a predictive manner the strategies that man uses to satisfy his wants; including appropriate and/or misappropriate environmental resources. Hence, the question is: what would be the role of economics and economists in averting desertification in the drylands of Kenya?

Economists need to come with a predictive economic model to determine the resource lose and consequences resulting from environmental degradation, particularly degradation that is unlikely to be replenished. The question here would be: What are the ecological benefits of the drylands? What is the opportunity cost of environmental degradation and resultant biodiversity loss in the drylands of Kenya? What are the alternative and environmentally-friendly livelihood options to save the fragile ecology and its resources? Another important role for economists would be coming up with an economic model not only to help determine the economic impact of the intercourse between anthropogenic activities and natural weather patterns on the dryland environment, but also the best combination of strategies to reverse the tendency towards desertification in the drylands of the country.

*Social work and community development* are primarily persuasive disciplines that require a minimum threshold of skilled approaches to engage people constructively in order to prevent adverse consequences on human population and the environment. On its part, social work is a professional service based on scientific knowledge and skills in human relations, which helps groups, individuals or communities to obtain social or personal satisfaction and independence in the form of self-reliance. It therefore means and includes engaging in community organization, social planning and promotion of social change to solve problems in human relationships, while at the same time empowering and liberating them and enhancing their wellbeing.

Community development implies the practices and academic disciplines of civic leaders, activists, citizens and professionals to improve various aspects of local communities. It is the long-term process whereby people who are marginalized or living in poverty work together to identify their needs, create change, exert more influence in the decisions that affect their lives and work to improve the quality of their lives, their communities and the general society. It therefore seeks to empower individuals and groups of people by providing them with the skills, knowledge and attitudes they need to effect change in their own communities. Here, the question could be: what would be the role of these two very closely related disciplines in averting desertification in the drylands of Kenya?

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Social change agents in the two disciplines must put their best foot forward in communication mobilization against environmental degradation perhaps through social entrepreneurship activities that are sustainable. These activities are expected to divert people's attention from environmental degradation into more constructive activities. In such a venture, the private sector should be invited to plough back some of their profits to fund such activities, and by extension save the environment. The change agents should also work to organize community members into income generating self-help groups after carrying out massive civic education and training of community own resource persons (CORPs) on the pitfalls of environmental degradation. In carrying out these important activities, social workers and community development agents should be able to partner with other professional to not only gather information on dryland environmental degradation and conservation, but also disseminate it to all stakeholders.

*Political science*, the study of social arrangements to maintain peace and order within a given society, deals with governments; with its specific interests being politics, laws, administration, theory of the nature and functions of the state and international relations. It has both a philosophical and a practical base, and examines the theory of systems of government. It also has its subject matter as the action of the government in: levying taxes, prohibiting and regulating certain activities, protecting the interests of citizens its own, and providing social services to improve human welfare.

*Criminology and law* are disciplines that may not necessarily be the same, but are related in more than one ways. On its part, criminology involves the study and generation of knowledge about crime and anti-social behaviour including their drivers, consequences and prevention. Law implies the prohibiting and compelling tool in society that acts to deter and punish those who contradict its provisions. Then, what should be the role of criminologists and lawyers, and generally the legal fraternity including the entire judiciary, in environmental management in the drylands of Kenya? Or do they have nothing to offer?

It is widely acknowledged that irrespective of gender, race, occupation or socio-economic status and the like, we are all dependants of the environment and its resources not only for livelihood, but most importantly for survival. This is the motivation for the enactment of specific laws and anchoring of environmental protection and its resources in the Constitution of Kenya. These laws include the Kenya Forest Act, the Kenya Wildlife Conservation and Management Act, and more specifically the Environmental Management and Coordination Act. While the role of the judiciary and generally the law fraternity is the enforcement of the laws, this role has not been played with the veracity it deserves, particularly in matter environment. In addition to pulling up their socks in this regard, they must endeavour to partner with other professional

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such as environmental educationists, and create awareness regarding environmental law. This must be done especially in fragile ecosystems such as the drylands of Kenya in order to avert the trends towards desertification.

*Environmental education/studies* involves human interact with the physical environment and the impact that anthropogenic activities have on the environment, particularly how man utilizes resources in tandem with the ideals of sustainable development. Hence, we should be concerned about not only how we best cope and contain environmental damage, but also our ways of life and how they affect the environment. Principal economic threats include pollution; production of non-biodegradable waste, and most important, the depletion of resources that cannot be replenished (Giddens, Duneier & Appelbaum, 2006). The latter is exactly what is happening in the drylands of Kenya with regard to deforestation as data and literature attests.

An important entry point for environmentalists would be perhaps to undertake environmental impact assessment/audit (EIA/EA) to determine the status of the environment at a particular point in time. In the context of the drylands of Kenya, there is the need for a large-scale and occasional EIA/EA, akin to population and housing census, to determine the rate and trends towards desertification. In addition, based on data, we may endeavour to constitute and institutionalize desertification early warning systems (EWSs) in the drylands of Kenya, and carry out massive civic education and awareness creation in the same regard. Such awareness is expected to instil among the dryland inhabitants, and Kenyans in general, the environmental sensitivity that is necessary to take precaution measures to safeguard the environment and its many development benefits.

*History* is the study of past events so that we can relate them with the present and help us predict the future: a systematic attempt to learn about and verify past events, and to relate them to the present. It is appreciated that every event has a historical context that is important for predicting future events. Therefore, the study involves identifying, classifying, arranging and patterning events so that they can make sense. Then: what is the role of history and historians in averting desertification? Given that every event, including desertification, has a past, it follows that history can be very useful in understanding past environmental conservation methods—including indigenous ones that worked well—and combine them with modern ones to achieve a hybrid strategy to avert desertification.

Indeed, it is through a historical analysis of land degradation that we can be able to bring order, appreciate varieties of interventions, come up with various desertification prevention possibilities, and most important, predict

and come to terms with our limitations. The predictive power of history is an important tool to help us understand and appreciate the future pitfalls in ways perhaps no other social science is capable of. As such, historians have a task to unveil past environmental conservation strategies, their strengths and weaknesses, relate them with the present, and determine better strategies for the future to forestall desertification in the drylands of Kenya.

*Geography* is the study of the natural environment and how it influences social and cultural development. Its scope includes ecology, climate, resources, their accessibility and demographic trends. In addition, landforms and other related issues are a subject matter of geography, particularly geology. Professionals in these fields have a role to play in determining the geological importance of drylands, while pointing out the pitfalls of environmental damage in the drylands of Kenya. Of particular interest would be knowing the geological and economic impact of deforestation both in the short- and long-run. Such knowledge is important in informing policy formulation and coming up with civic education strategies from a point of professional information. Private sector professionals in this particular discipline, especially those in the mining industry, should be closely engaged in this regard.

*Communication studies* and *journalism* are interrelated disciplines in that while the former is important for disseminating information, the latter is not only vital in the same regard, but most importantly in searching for information. It has been acknowledged that information is power, and that the power is important in averting undesirable consequences such as environmental degradation and desertification. It is probable that in addition to inadequate livelihood options, the wanton destruction of forests in the drylands of Kenya is also a function of other factors. These include -- but may not be limited to -- ignorance, poor enforcement of environmental law and policies, and inappropriate information and knowledge among locals. What then should be the role of communication professionals, and generally the mass media in this regard?

The generalist communication professional can be very fruitful in facilitating environmental awareness and training local community-based groups on environmental degradation and management. On its part, the mass media's tri-roles of informing, educating and communication comes in handy to engage the dryland communities actively; and in the end reduce environmental damage and possible desertification in the drylands of Kenya. In addition, environmental journalists need to be provided with the resources they need to carry out investigation on dryland environmental issues, and disseminate the information to stakeholders including the government, the community, the private sector and international donors, among others, for concerted action.

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### **Conclusions**

Put together, the social sciences should combine knowledge and information generation to determine the remedies to desertification in the drylands of Kenya. While the public sector is important in this endeavor, the private sector must of necessity be brought on board to play an active role. In particular, the private sector should be able to plough back part of its investment returns into doing research and rehabilitation of the environment. Indeed, the multi-disciplinarity resulting from the triangulation of research methods, tools and professionals from the different disciplines is what has been lacking as far as averting desertification in the drylands of Kenya is concerned.

The foregoing is largely left in the hands of social workers and community development agents who only deal with the tip of the iceberg as far as dryland development challenges are concerned. This is in the form of providing relief supplies during emergencies and disasters such as drought and floods. While such gestures are important for saving lives in the short-run, it is the sustainability and dependency they elicit that make them ineffective. Hence, these need backing from other professions to produce hybrid strategies. Otherwise, desertification is likely to change from being a *possibility* to a *reality* in the drylands of Kenya.

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