Effect of socio-economic and gender issues on sustainable resource management

by

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Abstract

The key to sustainable environment and natural resource management is to integrate marginalised rural people into the formal economy. The majority of such people are the women of Africa, who have virtually no access to farm-based resources, except through their male relatives. The lack of access to or rights over land and other resources among African women reflects itself in failed rural development schemes. The notion of natural resource management is intrinsically linked to rural development, because the allocation of resources is important in generating sustainable livelihoods. Without access to resources there cannot be enough incentive for sustainable natural resource management and consequently rural development is curtailed. Thus, there needs to be equality in the allocation of resources and support mechanisms, which encourage people to use their resources sustainably. This paper attempts to relate the socio-economic, cultural and gender issues of natural resource management, to environmental sustainability as it applies to Eastern and Southern African generally, and to the New South Africa in particular. The rationale is to relate resource access, ownership and control to the efficient and sustainable use of natural resources in agricultural production.

1. Introduction

As stated in the UNICEF Progress of Nations Report (1998):

> *"The day will come when nations will be judged not by military or economic strength, nor by the splendour of their capital cities and public buildings, but by the well-being of their people: by, among other things, their opportunities to earn a fair reward for their labour, their ability to participate in the decisions that affect their lives; by the respect that is shown for their civil and political liberties; by the provision that is made for those who are vulnerable and disadvantaged".*

Of all the issues that influence society, none is more profound than gender: the countless, unspoken cultural rules that differently govern the behaviour of female and male persons in every country in the worl, from the day they are born. The difference between men and women show up clearly in the division of responsibilities at home and in their communities.

In the farming sector, the situation is not different. While women are considered to be producers of food their male counterparts concentrate on cash crop and livestock production. Women constitute the main agricultural labour force in Africa., and indeed in the Eastern and Southern African region (ESA). Ironically, men cultivate larger areas and produce more agricultural goods, because they have access to more resources and better technology. This gender bias is an important cause of poverty, because it limits the women's capacity to contribute to food production and economic growth. Greater impact and overall improvement in sustainable agricultural production brought about by the use of improved technology, such as animal traction (AT), can only be truly accomplished if gender issues are addressed in the process of rural development.

More than one fifth of humanity live in poverty while nearly two-thirds of humanity subsist on less than 3 dollars per day. The numbers of the poor are increasing. At the

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same time, the world is hurtling away from environmental sustainability.

1.1 Definition of environmental sustainability

According to the World Bank, environmental sustainability (ES), is defined as: maintenance of natural capital. Of the three forms of capital – human made capital, human capital, and natural capital, environmental sustainability falls in natural capital. Natural capital is the natural environment, which is the stock of environmentally provided assets, such as topsoil, deposits, atmosphere, tropical forests, ground and under-ground water, wetlands, fisheries and biodiversity. All these provide a flow of either renewable or non-renewable useful goods or services.

Sustainability means maintaining environmental assets, or at least not depleting them. It means maintaining global life-support systems. The rapid depletion of these essential resources, coupled with the degradation of land and atmospheric quality indicate that the human race has not only exceeded its current social carrying capacity, but is actually reducing future potential and biophysical carrying capacities by depleting essential natural capital stock..

The importance of sustainability arose because the world is recognising those current patterns of development are not generalizable. Present levels of per capita resource consumption in any one place cannot be generalised to all the people living currently, or future generations. ES became a widely espoused goal in the late 1980s and early 1990s. It was reinforced by the Brundtland Commission of (1987), and the United Nations Earth Summit of 1992 (World Bank, 1993).

Africa faces an environmental crisis, manifested by rapid deforestation, loss of soil fertility, low agricultural productivity, disappearing biodiversity, and unmanageable urban environment. These have thwarted the continent's social and economic factors. Some external influences have also conributed but these are not discussed in this paper.

The ESA region has considerable diversity and similarities. It is a region that is endowed with a variety of natural and human resources. The most important similarity is the dominance of agriculture and its contribution to national development. Agriculture employs 70% - 80% of the total labour force and contributes substantially to the region's gross national product and foreign exchange earnings.

Various studies have confirmed that this region is rich in renewable natural resources of land, water, forestry, wildlife and marine life (Rwelamira and Kleynhans, 1996).

Studies have been undertaken by the African Development Bank (1993) and regional institutions such as the defunct Southern African Centre for Co-operation in Agricultural Research (SACCAR) and the Southern African Commission for Conservation and Utilisation of the Soil (SARCCUS). These studies recommended various ways of solving agricultural problems affecting smallholder and large-scale farmers and those that deal with the conservation and utilisation of natural resources.

2. Key issues of environmental conservation and development.

2.1 Environmental issues related to agriculture in Eastern and Southern Africa

It is neither possible nor advisable to generalise about the extent of environmental degradation and natural resource management and mismanagement in ESA region. However, a pool of key environmental issues affecting sustainability of agriculture in the region is summarised below.

1. Population pressure, in some areas, has necessitated utilisation of marginal grazing land for food and cash crop production, leading to overgrazing. This problem is common in Tanzania, Botswana and Zambia. Resource use conflict is common in the smallholder agrarian systems, which is associated with the allocation of land between livestock rearing and crop production. Even among commercial-farming communities, long-term environmental consideration is sacrificed for short-term profits. This is true among commercial farms in South Africa and Namibia.

2. Pressure on the land created by population concentration due to conditions of war. This has been the case in Angola, Mozambique and now in the Democratic Republic of Congo.

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3. Soil erosion: caused by over-exploitation of natural resources and and poor land management practices through over-cultivation, overgrazing and deforestation. This problem is prevalent throughout the region, but is more severe in some countries such as Lesotho and Botswana.

4. Water resource pollution, contamination of land and ground water due to industrial and agricultural activities. Pollution of water resources is a serious problem in Swaziland, Tanzania. Zambia and Malawi. Some countries have established environmental protection and pollution control bills, but enforcement is a problem.

5. Siltation of rivers and dams is increasing due to the population pressure, as people cultivate increasingly steep slopes, resulting in more soil erosion into rivers and dams.

6. Tsetse fly infestation, which limits grazing land per livestock unit and potential arable land. This problem is still serious in Tanzania, the Congo and to a lesser extent in Botswana.

7. Poor land management practices by peasant farmers which do not promote sustainability of resources. An example is bush burning to clear fields which exposes the soil to the sun and the impact of raindrops.

8. The communal land tenure system, which allows free grazing and accumulation of livestock. This undermines the concept of land carrying capacity and promotes environmental deterioration.

9. Natural problems like drought and aridity affecting environmental sustainability. In countries like Botswana and Namibia, drought underlies many of the problems encountered in the utilisation of land based resources.

2.2 Socio-cultural and economic issues

Environmental considerations affect virtually all aspects of social, cultural and economic development. While international and national development activities are organised along sectoral lines, environment is cross-sectoral, touching all areas of development. Also peoples lives and traditions are closely related to environmental conditions. People must be involved in environmental decision making and actions.

While the impact of environmental problems, such as deforestation, erosion and loss of soil fertility is being assessed, the underlying causes of such problems needs a closer look. Growing populations and the resultant stress on land requires special attention. Policies and incentives, which affect natural resources management, as well as traditional practices, land tenure, access to and control over resources, and other social and cultural factors, need to be reviewed. Likewise, the economic factors and political will necessary to make changes have to be assessed.

The 1990's have seen environmental sustainability becoming a priority of economic development almost entirely due to social concerns. Lack of environmental sustainability harms people, and is inequitable and non-democratic. It requires social sustainability by way of scaffolding of people's organisations that empower self-control and self-policing in peoples' management of natural resources.

2.2.1 The cultural environment and animal traction

There are socio-cultural factors within the production environment, which comes into play in the overall decision process. In most countries of ESA region, animal traction technology is dominated by men. Where AT work involves oxen, there are additional gender related limitations and traditional roles where women involvement becomes limited. Studies in countries such as Tanzania, Zambia and Malawi support this observation. In countries like Lesotho, women, by tradition, cannot handle oxen. Livestock ownership in most of Sub-Saharan Africa, is deeply rooted in culture. For example, livestock, especially cattle are considered a sign of wealth and are the responsibility of men.

In recent years women in ESA region have become actively involved with animal traction, and especially as a means of transport. Through hiring and borrowing, women have had more access to animal power for cultivation, even though at the convenience of the hirers. This may cause poor timeliness and may affect productivity.

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2.2.2 Land and women

Throughout Africa, empowering women, to reach at least parity with men, is overdue. Aspects such as equal access to land, job creation for women, health, social security and education for girls have raised concerns. Women empowerment is nothing more and nothing less than increasing women's control over their own lives. This, according to Goodland (1993), includes increasing the choices open to women, especially in land ownership and women's access to resources and credit.

Women, especially in the rural areas, see access to land as central to their role in social reproduction and the domestic economy. Women throughout the region are the food producers and land is important to them as a resource.

Fewer women than men are commercial farmers. Also, in conditions where there is a keen interest in stock farming among men, relatively few women aspire to become stock farmers. In the rare cases were women own stock, they are not part of stock owner's organisations, where these exist, which excludes them from decision-making processes.

In most rural communities, community politics and local governance are still largely structured by an over arching ideology and practice of male authority. Rarely do women participate in the committee or traditional governance structures of the community, except for women groups. This is inspite of the fact that they are deeply involved in community affairs and actively participate in social networks beyond the household. How can a community effectively address issues of environmental sustainability without involving women?

In South Africa where a Land Reform program is currently ongoing, the concentration is on the needs for land, as they apply to men and women differently. There is limited focus on the crucial questions of the relations of power that determine women's participation in, access to and control over land and other resources.

2.2.3 Water, fuel-wood and women

Women, helped by children spend an un-proportionate amount of time and energy on two activities essential to all households, water and fuel. More time spent on these activities means less time is available for other productive activities. Thus, any facilitation of water and fuelwood supply will be beneficial especially to the poorest of the poor women.

A number of ways have been tried to alleviate the problem. Cheap rooftop collectors are used for harvesting rainwater. Where possible hand pumps on bore holes are helpful. Women use plastic containers for headloads of water, some use wheel barrows, animal drawn carts, or rudimentary wheeled urns, to lighten the burden. More innovative use of animal power should be looked into, to help in borehole pumping of water instead of limited hand and expensive diesel pumping.

Heavy reliance for cooking and heating by the majority of the people on fuelwood collected from natural woodland, has led to severe and worsening deforestation hence environmental degradation through soil erosion. Most African households in the rural areas use wood for cooking and other purposes. In most areas, fuelwood contributes over two thirds of the total energy used in the rural areas (Goodland, 1993).

While it is difficult to diseggregate causes of deforestation and erosion, fuelwood collection and overgrazing are major factors. Other factors such as forced overcrowding and poverty, as is the case in Angola, Mozambique, Namibia and the former South African homelands, add to the already serious problem.

Over time, fuel-wood is becoming scarce and is not within easy reach by communities. Wood collectors now have to go further into the forests to obtain wood. Scarce household money has started to be allocated to buying commercial fuels, mainly wood and paraffin, thus impoverishing rural households further.

Rising energy and cost for fuel-wood collection, like water, penalizes women. Raw fuel-wood is less expensive than charcoal, coal, electricity, paraffin or gas. Practically, all fuel-wood used in rural areas is collected by women. Due to woodfuel scarcity more women's time is spent in collection. One headload may cost over 3 – 5 hours collection time. Depending on the size of the family and the different uses for the woodfuel, 2 – 3 loads may be needed per week, which needs 6 – 15 hours. Many women walk 6 – 19 kilometres per headload, weighing between 21-38 kilograms. Heavier loads have been recorded.

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The possibility of cheap handcarts and animal drawn carts for wood and water is already being promoted. However, more innovative ways of using animal traction for this purpose needs to be looked into.

2.3 Who is responsible for environmental degradation?

Environmental degradation is exhibited by irreversible soil erosion, deforestation, gullying, sedimentation of farms, flooding, droughts, and other effects. While there is fair agreement on the severity of environmental degradation there is less agreement on the causes.

As partly described above, the main causes of environmental degradation can be summarised as:

1. Fuel-wood collection.
2. Artificially concentrated population; exacerbated poverty and denied access to resources.
3. Inappropriate land use, deforestation and soil loss.
4. Overgrazing.

2.3.1 Lack of access to resources

In a world of limits and scarcity, the affluence of the rich has an opportunity cost on the poor. Likewise, the powerful tend to dominate the powerless and take over the better resources from the country or area. Landless poor people are usually forced onto marginal soils that are difficult or impossible to work sustainably.

Ironically, it is the poor and powerless who become impoverished and this leads to environmental degradation. Most of the benefits of development, such as agricultural extension, technology and access to credit are enjoyed by rich and the powerful.

The lack of access to and rights over land and other farm based resources among most African women places them in a disadvantaged position and renders them victims of environmental damage. Inequality, poverty and sewed land tenure systems increase the usage of marginal agricultural lands, intensifying environmental damage by deforestation and encroachment on less fertile soils.

3. What can be done?

A strategy to combat environmental degradation and ensure proper natural resource management has to be all-inclusive and holistic in nature. All the stakeholders, whether peasants small-scale or commercial farmers have to be involved in order for such a strategy to succeed.

A rural restructuring program (RRP) to reduce artificial population densities and to rehabilitate existing damage is needed.

A program to rationalise land use via suitability zonation is necessary.

3.1 Women empowerment

All steps taken to eliminate or slow down environmental degration must be accompanied by empowerment of women. Empowerment may include non-environmental issues such as effective health and reproductive health services such as the means of choosing to limit reproduction, a pre-requisite for population control.

According to Chimere – Dan (1993), women empowerment is “the ability to take control over their own lives”. For this to happen, women need opportunity for informed decision-making on matters affecting them and their families. The means towards fulfilling women’s goals should be under their control. Women are agents of economic and environmental change, and must be recognised for their role in managing resources and families. Equal rights for women on wages and resource ownership is essential.

In South Africa, the new constitution guarantees equal gender rights to all land-related issues. However, in practice communities operating on tribal lands still adhere to traditional rules and regulations. In the traditional authority system, land continues to be allocated to men who in turn allocate it to their wives to use. In KwaZulu Natal, for example, since 1987, the law allowed women household heads to acquire land in their own right, although there is little evidence, so far, that this provision has become practice.

3.2 Destocking

Current patterns of overstocking are widely and graphically documented in most countries of the ESA region. There are no incentives to undergraze and there are compelling incentives

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to overgraze. Communal grazing on community rangelands always leads to overgrazing. Grazers do not count the often-irreversible reduction in productivity brought about by overgrazing. Unfortunately women do not have much say in this arena as most of them do not own livestock.
The significant savings, social security, sociological and prestige role of cattle ownership have to be balanced against the widespread degradation they cause. Women can play a vital and meaningful role in environmental groups that discuss program-wide cattle policy. Women are already involved in the stall-feeding of stock. They usually participate in collecting fodder and water and bringing it to the stock into the stalls. Rotational grazing by paddocking and seasonal herding away from deteriorating range and to better range should complement this effort. The latter strategies have to be implemented by men and boys.

3.3 Tree planting

The Food and Agriculture Organisation (FAO) of the United Nations advocacy for tree planting is already observed annually in many countries of Sub-Saharan Africa. The benefits to rural development and the environment brought by trees include:

- Restoration of degraded sites in high density areas.
- Watershed management.
- Fuelwood.
- Reduction of wind erosion.
- Hedges for weather improvement.
- Provision of fruits, nuts and shade.
- Reduction of evaporation.
- Habitat for pollinators and honey sources.
- Green manure and mulching.
- Traditional medicines.
- Provision of timber, poles and other wood products.

In places where tree plantations have been successfully established (e.g. in Swaziland), women have managed to play a major off-farm role in seed collection, seedling management, distribution, nursery management and participation in training thereoff.

There is still scope for more employment creation in the dry land trees sector such as wattles, dates, nuts, fruits, jojoba, cashew, leguminous and other indigenous tree species. The labour absorptive capacity of, tree based, smallholder agriculture is environmentally and economically significant.

3.4 Community, household gardens and agroforestry

In countries where land is extremely limiting, with a significant proportion of people being landless, kitchen or urban gardening and raising of small stock is already common. Community gardens, village ponds, or agroforestry are promoted as a means of alleviating poverty. Community gardens are entirely by elderly women and their female relatives. Gardens are irrigated either by bucket carried from a well, dam or a stream; occasionally by hosepipe or sprinkler. Women, thus, have the experience needed for replicating such labour intensive, poverty reducing and environmentally sustainable agriculture. Even peri-urban and urban gardens are often cultivated by women and women seem to be more willing to associate with each other for the common good. Such experiences have been widely documented (for example by: Roth, 1992; Rwelamira, 1997; King, et al. 1993 and others).

3.5 Appropriate technology

In view of the need for employment creation, poverty alleviation and better natural resource management, appropriate technology regimes have to be promoted. Expensive machines have usefully been replaced by solar, wind and animal traction as power sources. This change is a crucial step towards environmental sustainability and progress. It is an important step from subsistence to a modest surplus. The two most urgent needs for women in this regard are in:

- Easing fuelwood supply, and
- Water collection

4. Recommendations

Below is a summary of actions towards environmental sustainability for Eastern and Southern African, in order of priority:

1. Empowerment of women to accelerate the transition towards population stability and sustainability in rural as well as urban communities.
2. Increasing government and NGO assistance for water supplies and renewable energy sources.
3. Promoting human capital formation, with a particular emphasis upon improving education, training and employment creation for girls and young women.

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4. Supporting technologies, which provide increased employment opportunities for unemployed individuals in rural and urban areas. Training on-the-job, apprenticeships, and tutoring.
5. Provision of improved health care for mothers, infants and children; social safety nets for the rural poor, and targeted assistance to low-income groups.
6. Providing increased support for rehabilitation of degraded ecosystems conservation and management of natural resources such as forests croplands and water.

4.1 International level needs for environmental sustainability

For completeness, at the international level, environmental sustainability needs:

1. Focus upon direct assistance to the poor, rather than expecting general economic development efforts to alleviate poverty.
2. The concept of sufficiency, rather than over-consumption.
3. Internalizing environmental costs in energy prices and accelerating the transition to renewable energy sources.
4. Internalising to the manufacturer of municipality the costs of disposal of toxic and non-toxic (e.g.sewage) wastes. Halting exports of such waste to our region. Such measures provide incentives to minimise toxic waste generation where it is produced.
5. Hastening technology transfers to rural areas, such that they may leapfrog environmentally-damaging stages of rural economic evolution.
6. Broadening conventional cost-benefit analysis to internalise environmental costs.
7. Increasing grants for rural areas to reach global environmental standards.
8. Supporting the maintenance of biophysical infrastructures upon which all-economic activity is built, and
9. Financing environmental investments as extended infrastructure investments.

Population supporting capacities of selected countries in Eastern and Southern Africa, with all cultivable land under food groups: FAO Estimates for 2000.

Countries able to support 1-5 times its 2000 population under subsistence level farming:	*Countries unable to support 2000 population under subsistence level farming:*	*Not able to support 2000 population under intermediate level farming:*	*Country able to support 1 – 5 times its 2000 population under intermediate level farming:*	*Country able to support 1 – 5 times of its 2000 population under intermediate level farming:*
Botswana Lesotho Malawi Zimbabwe	Angola Mozambique Tanzania Zambia	Lesotho	Botswana Malawi Namibia Tanzania Zimbabwe	Angola Mozambique Zambia

Source: Goliber, T.J. 1985.
NOTE: These estimates are based on the available land, including potential cultivable, and the anticipated population increases.

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Conclusion

Political will is a scarce resource in ESA. In some countries of the ESA region, it is still difficult to face up to the need for gender equality, income redistribution and population stability. If the concept of environmental sustainability has to be achieved, then each state has to commit itself to face these harsh realities. Empowerment of women is an inevitable first step towards population stability and sustainability.

It is easy to blame problems of environmental degradation to over-population. However, it is not population numbers that threaten the environment, but the lack of access to resources on one hand and over-consumption of resources on the other.

Massive information campaigns, directed to both men and women, particularly addressing the links between women's empowerment gender roles and economic impoverishment are necessary.

In order to achieve environmental sustainability and alleviate poverty throughout our region:

1. Human capital formation and social services, through education and training, employment creation, particularly for girls and women, to match that of boys and men, is necessary. Gender awareness is essential.
2. Conservation and prudent management of natural resources such as wetlands, water cropland and forests is paramount to environmental sustainability.
3. Appropriate technology has to be transferred to the rural areas to enable them to leap frog environmentally damaging stages of rural economic evolution. Such appropriate technology should be affordable, labour intensive and environmentally friendly. Animal traction has a special place in this regard.

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