

CHAPTER 2

SOCIOECONOMIC STATUS, POVERTY, GENDER AND ENVIRONMENT



Introduction

The nexuses between socioeconomic status, poverty and gender on the one hand and environment on the other are emerging research and policy fields as the relationship between these mutually reinforcing sets of variables becomes increasingly clear. In this paradigm, because women, the poor and those who occupy the bottom rung of the socioeconomic hierarchy have limited resources, they are more likely to over rely on the natural environment for sustenance. Equally, because they enjoy an intimate relationship with nature, they are disproportionately affected by environmental degradation and natural disasters. In this sense then, addressing the plight of socioeconomically deprived sections of society, instituting poverty alleviation measures, attaining gender parity and ensuring sustainable environmental management are perceived as complementary goals. Tackling these exclusions is vital to the attainment of Vision 2030 because ultimately, improving Kenyans' welfare without compromising the country's environment must be buttressed by targeted pro-poor, pro-marginalized, gender equity and equality and environmentally sustainable initiatives. Although these are not discrete categories as many Kenyans simultaneously face multiple exclusions, because each of these categories elicits specific interactions with the environment, they are as far as possible, discussed separately below. An additional section discusses the multiple exclusions many Kenyans have to continually confront because they live at the intersection of these identity markers.

Socioeconomic status and the environment

Socioeconomic status is an individual's relative social and economic standing in society based on an amalgamation of three variables namely; educational attainment, economic activity (which encompasses business pursuits and occupational prestige) and income. There is a strong correlation between socioeconomic status and the environment because Kenyans with high and medium socioeconomic statuses have little interaction with the natural environment and they have the wherewithal to withstand ecological crises while those with a low socioeconomic status are disproportionately affected by these crises because they have to live and work in close contact with nature and they have a low coping capacity.

Education

State of education in Kenya

The Kenyan government introduced the Free Primary Education (FPE) and the Free Tuition Secondary Education (FTSE) programmes in 2003 and 2008 respectively. As the names of the programmes suggest, government pays all the tuition fees for all the pupils enrolled under the FPE programme while it pays part of the tuition for students under the FTSE programme. The costs for uniforms, school meals, transport to and from school, healthcare and boarding facilities and national examination costs are borne by the parents.

Some remarkable successes have been recorded under both programmes. Primary school enrolment has been rising since inception and leapt from 7.7 million in 2006 to 8.3 million in 2007, 8.6 million in 2008, 8.8 million in 2009 to 9.4 million in 2010 (GoK 2011). Because of this progress, the country is likely to achieve Millennium Development Goal 2 (MDG 2) which seeks to ensure that by 2015, all children (girls and boys) can complete a full course of primary schooling. Table 2.1 contains the primary school enrolment by standard and sex for 2006-2010.

On the introduction of FTSE, secondary school enrolment increased from 1.2 million in 2007 to 1.4 million in 2008, 1.5 million in 2009 and 1.7 million in 2010 (GoK 2011) as illustrated in Figure 2.1. As

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Table 2.1: Primary school enrolment by standard and sex, 2006-2010

Source: GoK 2011

Province	2004	2005	2006	2007	2008	2009*
Coast	556 013	585 543	600 041	643 355	658 860	689 798
Central	910 806	903 638	882 429	888 236	911 340	975 561
Eastern	1 371 680	1 379 909	1 378 210	1 480 629	1 538 785	1 565 188
Nairobi	229 252	237 858	234 819	319 000	320 102	345 939
Rift Valley	1 697 619	1 695 359	1 724 052	1 871 397	1 876 777	1 977 115
Western	1 101 162	1 143 972	1 122 557	1 273 510	1 333 640	1 365 127
Nyanza	1 321 901	1 324 239	1 334 597	1 441 735	1 508 264	1 576 779
North Eastern	69 958	70 891	81 182	98 629	115 287	138 172
TOTAL	7 394 762	7 597 285	7 632 113	8 330 148	8 577 619	8 827 535

* Provisional

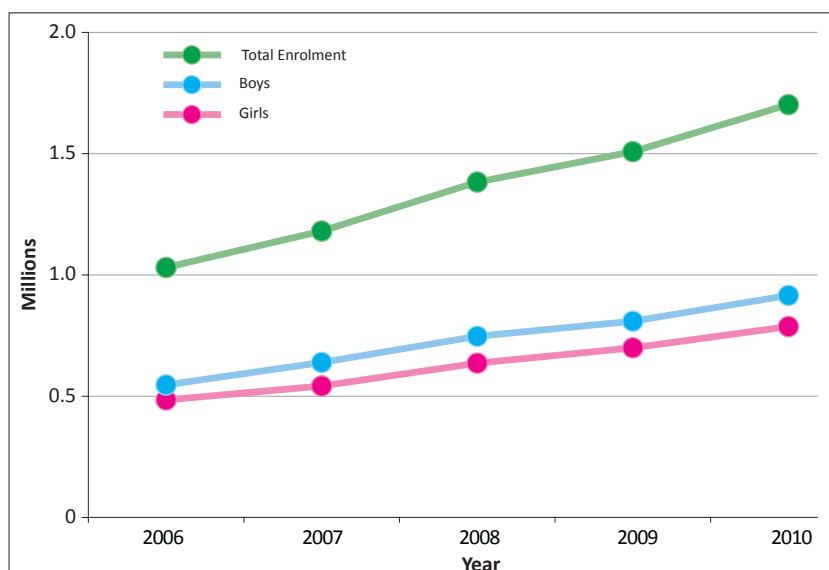


Figure 2.1: Secondary school enrolment by sex, 2006-2010 Source: GoK 2011

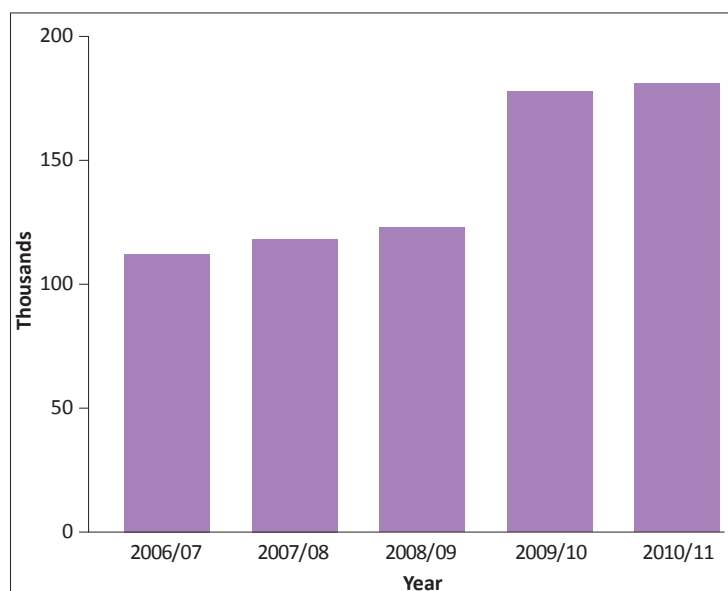


Figure 2.2: University education enrolment, 2006/07-2010/11 Source: GoK 2011

Table 2.2 demonstrates, the number of education institutions has also increased. University education has also recorded higher student enrolments. These rose from 112 229 in the 2006/07 academic year to 118 239 in 2007/08, 122 847 in 2008/09, 177 735 in 2009/10 and 180 078 in the 2010/11 academic year (see Figure 2.2). It is arguable that the 1.3 percent growth in the 2010/11 academic year could have been higher but was limited by university infrastructural constraints and the need to keep student-teacher ratios low particularly following the introduction of module II (parallel) programmes (KIM 2010).

However, although laudable strides have been made in improving primary and secondary school enrolment and retention rates, these figures mask striking gender differences as males

still outnumber females in primary, secondary and university education attendance. The female attendance rate only exceeds that of their male counterparts at the tertiary institution level. For example in 2010, 4 751 900 boys were enrolled in primary school compared to 4 629 300 girls (GoK 2011). The gender disparity is more pronounced at the secondary and university levels and is attributable to the fact that girls carry a heavier work burden than the boys and often have to skip school in order to ensure that all the important domestic chores are completed. Although there are no precise data on this, it is reasonable to expect that girls constitute the majority of the 9.6 percent of the 6-13 year old children who are out of school (GoK 2011).

One of the other reasons that adversely impacts education is poor sanitary facilities. This constraint particularly affects girls and forces them to skip school due to waterborne and sanitary-related diseases, and during their menstrual cycles. Despite the 74 percent level of awareness among pupils and students on the importance of hand washing in preventing diseases, it is not regularly practised in schools due to lack of soap and water (GoK 2010e). However, various institutions have been created to undertake policy, supervision, regulatory and delivery functions in the water sector in line with the Water Act 2002 and these are gradually having a positive impact although these need to be scaled up. These factors highlight the pervasive influence of environmental factors on the level and quality of education attained.

Table 2.2: Number of education institutions by type, 2006-2010 Source: GoK 2011

Category	2006	2007	2008	2009	2010*
<i>Schools</i>					
Pre-Primary	36 121	37 263	37 954	38 247	38 523
Primary	25 929	26 104	26 206	26 667	27 489
Secondary	5 659	6 485	6 566	6 971	7 308
<i>Teacher Training Colleges</i>					
Pre-Primary	30	33	34	71	125
Primary	30	33	96	105	110
Secondary	3	3	2	3	3
<i>TIVET Institutions</i>					
Youth Polytechnics	563	574	654	754	765
Institutes of Technology	22	22	23	24	24
Technical Training Institutes	23	23	24	22	22
National Polytechnics	3	3	3	5	5
Polytechnic University Colleges	-	-	-	2	2
<i>Universities</i>					
Universities	24	28	28	31	32
TOTAL	68 377	70 538	71 556	72 831	74 533

* Provisional

Interlinkages between socioeconomic status, education and environment

There is a correlation between socioeconomic status, the state of the environment and education. Kenyan households which occupy the base of the socioeconomic hierarchy are less likely to employ someone to help with the domestic chores. Children, particularly girls, therefore have to frequently skip school in order to perform these duties. Moreover, the harsher the physical environment, the longer girls have to walk in search of scarce wood fuel and water resources, leaving little or no time to attend school. In Wajir County for example, at least 61 percent of the population has to walk for more than a day in search of water during the dry season (Ibrahim and Jenner 1996). This may explain why the school enrolment rates are quite low in the arid and semi arid North Eastern Province. In 2009 for instance, only 138 172 primary school pupils were enrolled in the province, which was well below the comparable figures for the other provinces (GoK 2010f) and cannot be attributed merely to the fact that the province is sparsely populated. Table 2.3 contains the primary school enrolment by province, 2004-2009. Anecdotal evidence corroborates claims that the school attendance rate is far lower for the girls in the province.

In addition, a number of harmful cultural practises such as early marriage and female genital mutilation conspire to keep the girl child out of school as she approaches adolescence (Mareng 2010 and Ondiek 2010) although these are expressly proscribed by the Children's Act 2001. Fewer girls are therefore able to reach the apex of the education pyramid. As such, as is displayed in Figure 2.3, females only accounted for 39.1 percent of the university student enrolment in the 2006/07, 40.1 percent in the 2007/08 and 2008/09, 37.9 percent in the 2009/10 and 38.6 percent in the 2010/11 academic years (GoK 2011).

In addition, 6.1 million Kenyans, representing 17 percent of the country's population in 2009, have never been to school (GoK 2010c). The latter is an especially disturbing statistic because education isn't just crucial to fostering economic development and improving the life prospects of the marginalized segments of society, there are important interlinkages between education, socioeconomic status and the state

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Source: GoK 2010f

Table 2.3: Primary school enrolment by province, 2004-2009

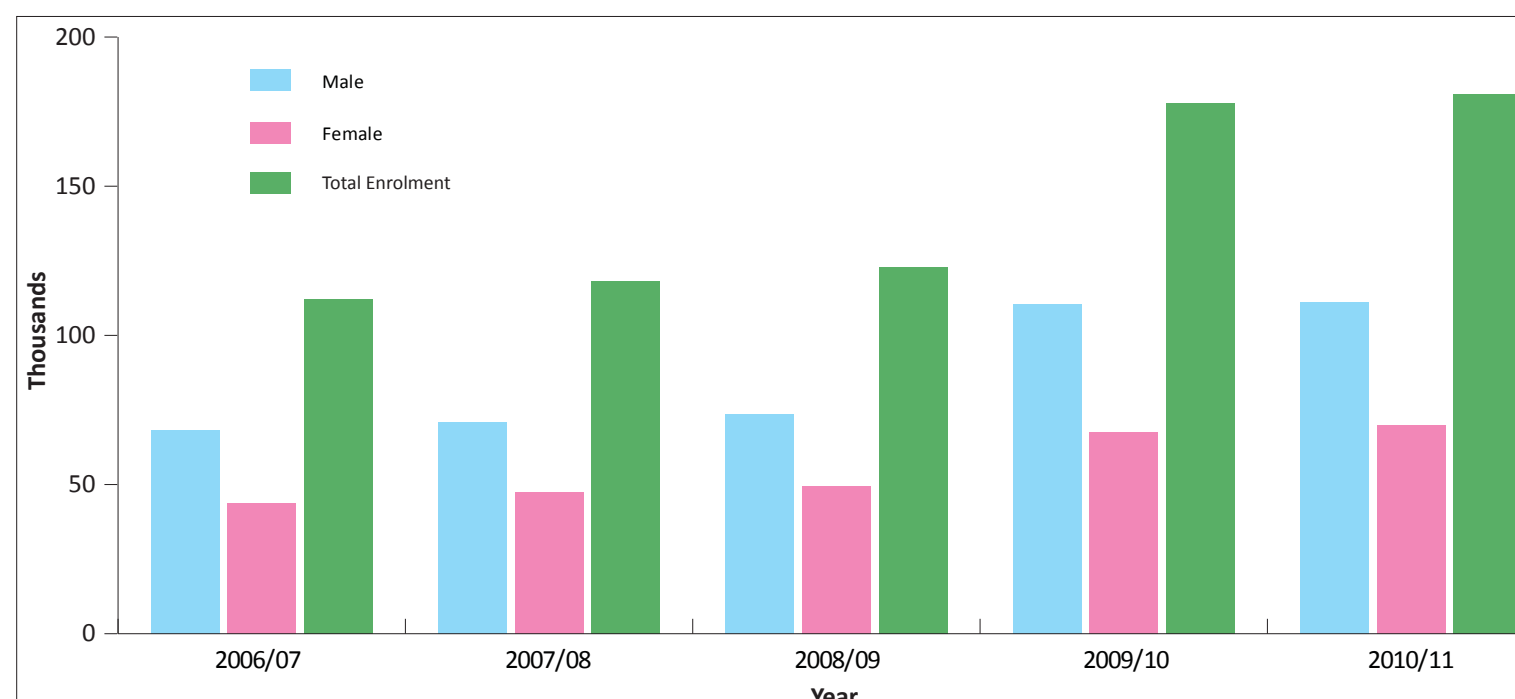
of the environment. Education, for example, provides appropriate manpower training in environmental management and elicits positive mindsets towards environmental conservation and family planning. Environmental conservation has been identified as crucial to the attainment of Vision 2030 while family planning ensures less future population pressure on the environment. The linkages between education and the other social sectors of Vision 2030 are illustrated in Figure 2.4.

In addition, education improves the recipients' employment and business prospects and concomitantly makes them less directly reliant on the environment and thereby prevents its overexploitation. The educated are also better able to appreciate contemporary environmental problems such as climate change, to internalize and apply environmental ethics and to be more attuned to environmental considerations when weighing the pros and cons of operational options. However, the state of the environment also affects education. Indeed, a barren and harsh environment implies that children, particularly girls have to walk long distances in search of scarce natural resources, leaving little or no time to attend school. Samburu girls, for instance, have to walk for more than 15 km a day in search of drinking water (MNSF 2011). And, without a decent education, these girls are unable to improve their socioeconomic status.

Moreover, while Kenya has made tremendous strides in the education field, it is becoming increasingly clear that the country's education-related challenges go beyond just providing a pool of literate

Figure 2.3: University education enrolment by sex, 2006-2010

Source: GoK 2011



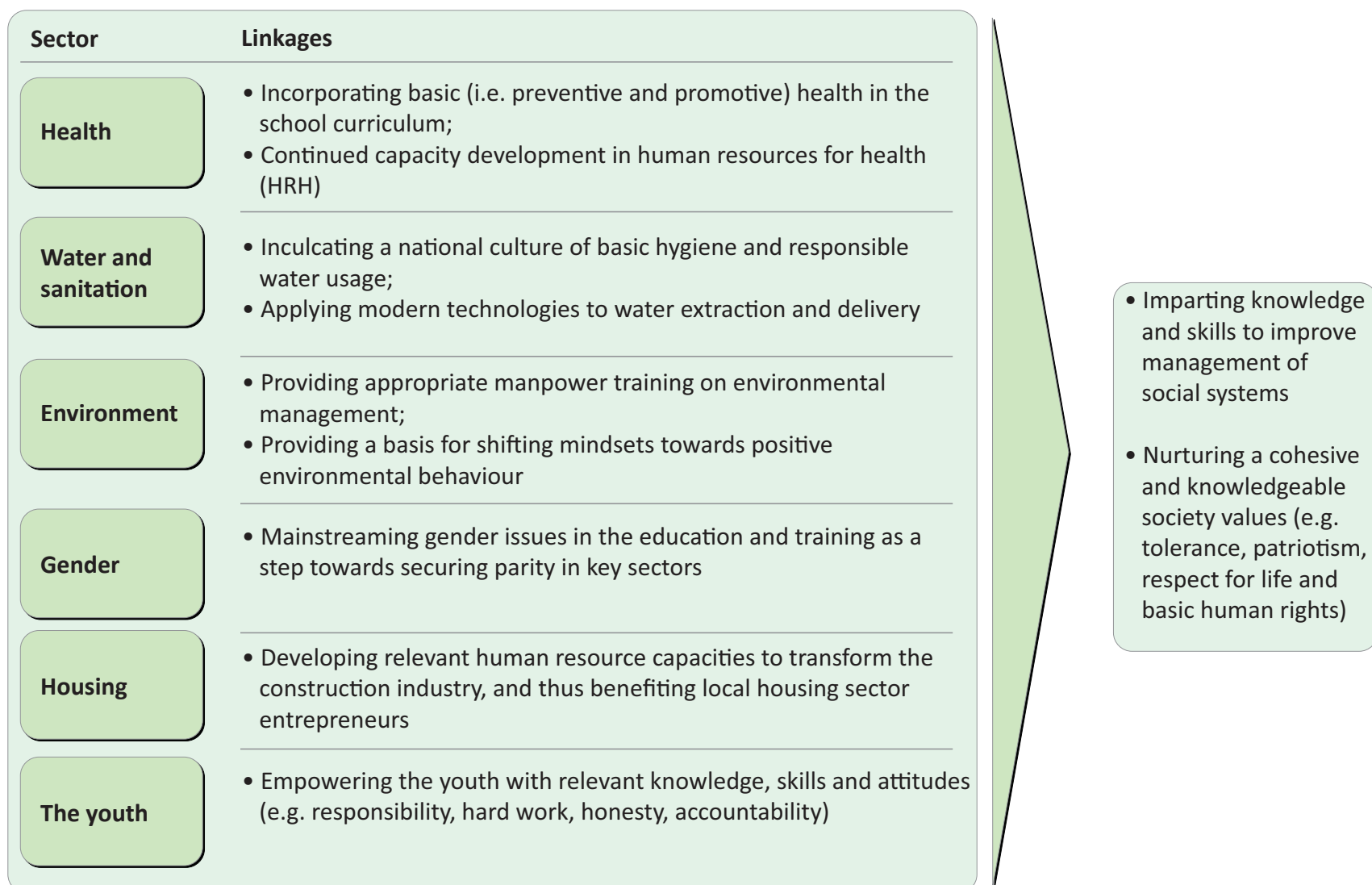


Figure 2.4: Linkages between education and other social sectors

Source: GoK 2007

individuals. Indeed, in today's fiercely competitive world, the need for employers and employees to frequently undertake retraining in the fast-evolving information technology as well as in state-of-the-art and best practises in product and service delivery cannot be underestimated. The challenge, however, will be to infuse these refresher courses' curricula with a range of environmental norms so that the economic transformation that results from the cutting-edge knowledge and from re-aligning Kenya's education system to the supply and demand dynamics for human resources as envisaged by Vision 2030 is not achieved at the expense of the environment.

Economic activity

State of economic activity in Kenya

In 2009, the percentage of the economically active population aged 5 and above was 58 percent compared to 66 percent a decade earlier. Males accounted for 53 percent of the economically active population (GoK 2010c). If the drop in the percentage of the economically active is not due to increased enrolment of children in school following the introduction of the Free Primary Education (FPE) programme in 2003, the statistics are worrying for two reasons. First, the declining percentage of the population engaged in gainful employment or business implies that the growing number of persons without reliable sources of income overexploit the country's environmental assets as this is the only livelihood means they have access to. Second, because the category of females without a steady source of income exceeds that of males, the former are more likely to eke a living out of the country's open access natural resources because these have little or no effective regulation. The pressure that a rising population exerts on a dwindling

absolute and per capita resource base chains off a vicious cycle where the worsening environmental degradation gradually erodes the economic base of the formal and informal sectors of the economy. This in turn forces a sizeable proportion of the economically active population out of work and business, effectively coercing them to join the multitudes that are solely dependent on, and overexploit the natural environment. These are likely to reverse the gains made in poverty alleviation and economic development rather than contribute to the attainment of the Vision 2030 goals.

Fifty seven (57) percent of Kenya's women and 86 percent of men aged 15 to 49 years are currently employed (GoK 2010d). Women from Central and Nyanza provinces stand the highest chance of finding jobs with an employment chance of 66 percent while their counterparts from North Eastern province are least likely to be employed with an employment probability of 19 percent. This skewed pattern probably reflects the uneven development of the country but also the societal attitudes towards women's employment and involvement in the public arena. Another underlying factor for these employment opportunity disparities could be the fact that the country's arid and semi-arid lands (ASALs)—which encompass North Eastern Province—present entrepreneurs with much more austere physical and operating environments with only a few businesses opening and even fewer operating profitably. This is a demonstration of the positive correlation that exists between the state of the environment and economic opportunities for women. Reversing environmental degradation will therefore be crucial to attaining gender equity in the economic sphere which is often a precondition to achieving gender parity in the social and political spheres as well.

Interlinkages between socioeconomic status, economic activity and environment

Because low socioeconomic status Kenyans are generally not well-educated and they are not the beneficiaries of patronage, they are less likely to be engaged in economic activity as either employees or entrepreneurs. When they are engaged in economic activity, it tends to be in the *jua kali* (informal sector) where jobs are characterized by low earnings and poor working conditions (Fashoyin 2001). As such, those who are not engaged in any economic activity or are employed in the *jua kali* sector are likely to rely on the natural environment for food, water, wood fuel and medicinal herbs with the likelihood that they will overexploit the few natural resources they have access to and bear the brunt of environmental catastrophes. Kenyan women fare particularly badly because they wield little socio-economic power, have much fewer economic opportunities than their male counterparts and are largely excluded from even the *jua kali* sector because men are perceived as being better able to carry out the associated manual tasks.

Thirty nine (39) percent of working women and men in the 15-49 age bracket are engaged in agricultural occupations although 10 percent less women and 3 percent less men are dependent on the sector than they were in 2003 (GoK 2010d). Nevertheless, the fact that the sector provided the largest proportion of employment opportunities highlights its importance in the Kenyan economy and with it, the potential to influence both economic growth and the state of the environment. With respect to the former, halting land degradation by instituting measures to increase crop and livestock yields, overhauling the regulatory and institutional framework, expanding the irrigable land, encouraging value addition and improving market access—as outlined in Vision 2030—would certainly edge the country's annual

economic growth towards the desired 10 percent mark. Equally, painstakingly mainstreaming ecological concerns into each of the above measures would ensure that the desired growth rate is achieved without sacrificing environmental imperatives.

Employee performance appraisal systems provide a unique opportunity to mainstream the environment within business operations and to improve the environmental performance of enterprises' products and operations. Individual and departmental targets for reducing energy consumption, emissions of greenhouse gases (GHGs) and other air pollutants, effluent discharge and waste generation while increasing recycling rates would help to ensure that the increased economic activity that is expected to undergird Vision 2030's economic pillar delivers positive environmental externalities. For this initiative to be effective however, there would be need for the departmental and individual performance targets to cascade from wider organizational goals that commit to continual environmental improvement and place these goals on the same pedestal as improving the bottom line and shareholder value which are often regarded as commercial enterprises' foremost objectives.

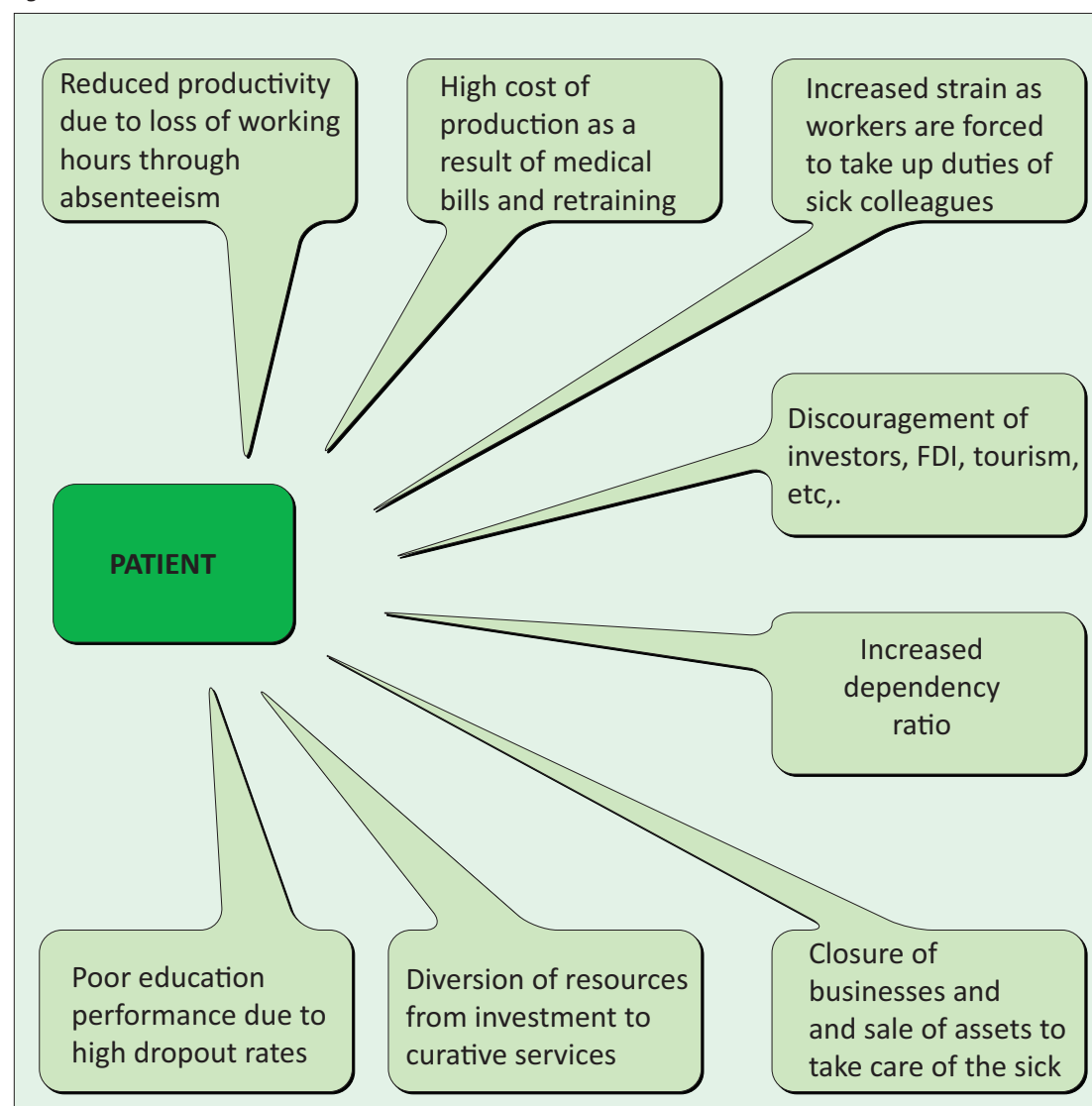
Health

Role of health in the attainment of Vision 2030 and key health determinants in Kenya

Good health is expected to play an important role in boosting economic growth, poverty reduction and the realization of social and economic goals of Vision 2030. The burden of ill-health continues to be a threat to the overall economic and social development of Kenya and undermines the physical, emotional and psychological well-being of individuals as illustrated in Figure 2.5.

Figure 2.5: The burden of ill-health on the nation

Source: GoK 2007



The array of health determinants in Kenya include fertility levels, marriage, sexual activity, fertility preferences, awareness and use of family planning methods, breastfeeding practises, nutritional status of women and young children, childhood and maternal mortality, maternal and child health, malaria, domestic violence, HIV prevalence among adults, awareness and behaviour regarding HIV/AIDS and other sexually transmitted infections (STIs) (GoK 2010d). This information influences the planning, implementation, monitoring, and evaluation of population and health programmes in Kenya. Vision 2030 envisages equitable and affordable healthcare at the highest affordable standard for citizens. Environmental risk factors that adversely affect Kenyans' health include unsafe water, sanitation and hygiene, urban air pollution, indoor smoke from solid fuels, lead exposure (Najam et al 2006). Selected determinants of health are discussed below.

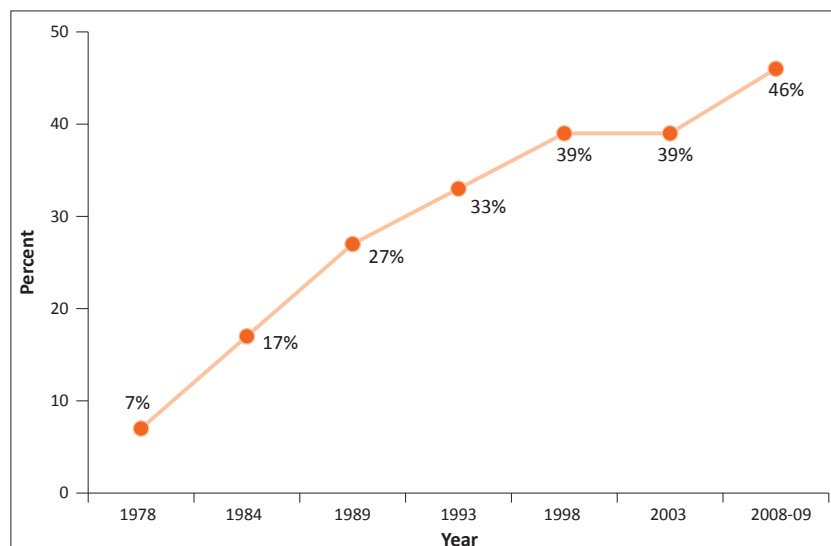


Figure 2.6: Trend in contraceptive use by married women, 1978-2008 Source: GoK 2010d

Family planning and the environment

Government has prioritized reduction in fertility rates as one of the key interventions to attain a balance between available resources and the population. To this end, the country's population policies promote family planning as an entitlement that is based on informed and voluntary choice. The proportion of women using a family planning method is increasing and as is depicted in Figure 2.6, contraception use rose from 7 percent in 1978 to 46 percent in 2008. The sustained increase in the use of family planning services was a major factor in fertility transition, providing women and couples with the means to plan pregnancies and the size of their families. As a result, the fertility rate declined from 8.1 children per woman in 1977 to 6.7 in 1989, 4.7 in 1998 and 4.6 in 2008 (GoK 2009c). However, although the fertility rate has drastically declined since the 1970s, it is still high and the country's 2.9 percent annual population growth (GoK 2010c) is exerting tremendous pressure on the country's natural resources and in many instances, outstripping their renewal rates.

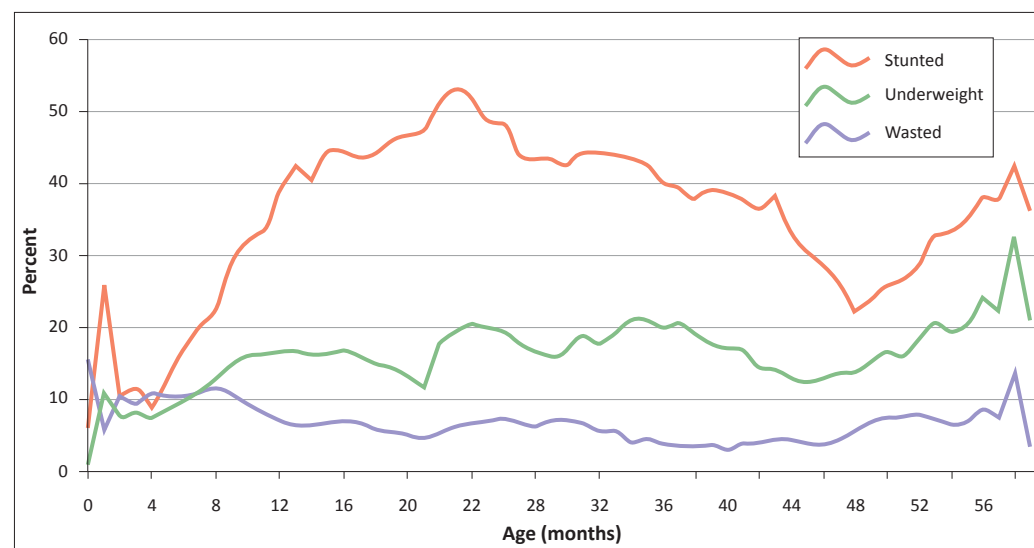
Maternal and child health and the environment

Another key indicator is maternal and child health in Kenya. Women's nutritional status has important implications for them and their children. Malnutrition in women results in reduced productivity, increased susceptibility to infections, slow recovery from illness, and heightened risks of adverse pregnancy outcomes (GoK 2010d). Food security and

nutritional status are closely linked to socioeconomic status, education, incomes and diets which are in turn related to food production and distribution practises in the country. Environmental disturbances and degradation negatively affect crop and livestock production, which in turn impacts the nutritional status of communities, leading to ill-health, stunting, wasting and underweight conditions in children (GoK 2010d). In particular, the reliance of the majority of Kenyans on a narrow range of foods such as maize and rice which are extremely climate-sensitive exacerbates food insecurity. The country would be well-advised to diversify the main staples from maize to drought-resistant crops such as millet and sorghum. If children are well nourished and cared for, the first five MDGs that include eradication of extreme poverty and hunger will be met. However, if current levels of stunting which are illustrated in Figure 2.7 remain unchanged, the present value of productivity losses in the country for 2007-2015 is estimated at KSh 80 billion (UNICEF 2009). Moreover, when children are undernourished, they fail to achieve their full academic potential, and are thus unable to climb the socioeconomic ladder. Further, without a proper education, they cannot attain optimum productivity at the workplace and the goals under the Vision 2030 economic pillar will prove more elusive.

On the other hand, environmental degradation, particularly of water resources, affects availability and accessibility of clean water and good sanitary conditions leading to a high incidence of diarrhoea and outbreaks of cholera and other waterborne diseases. This is a major concern given that only 57 percent of households in Kenya derive water from sources that are considered safe (GoK 2007). Dehydration caused by severe diarrhoea is a major cause of morbidity and mortality among young children (GoK (2010d) particularly those whose mothers occupy the bottom rung of the socioeconomic ladder with the result that they don't even have the confidence or the financial means to seek medical help before the medical condition deteriorates irreversibly.

Figure 2.7: Nutritional status of children by age Source: GoK 2010d



Malaria and the environment

Malaria remains the leading cause of morbidity and mortality in Kenya (GoK 2010d) and is a major challenge to attainment of the goals enunciated under the economic, social and political pillars of Vision 2030. The incidence of malaria is closely linked to poor environmental management that encourages the formation of large pools of stagnant water. It has been found that changes in local temperature partly attributable to climate change and land use changes contribute to the expansion of the malaria zone into hitherto malaria-free areas such as

Box 2.1 Malaria prevention and control measures

The National Malaria Strategy (NMS) aims to achieve national and international malaria control targets through a set of core interventions including:

- Vector control using insecticide-treated nets (ITNs) and indoor residual spraying (IRS)
- Case management (using Artemisinin-based combination therapies (ACTs) and improved laboratory diagnosis)
- Management of malaria in pregnancy
- Epidemic preparedness and response
- Cross-cutting strategies including information, education, and communication for behaviour change, as well as effective monitoring and evaluation.

Adapted from the National Malaria Strategy and the National Health Sector Strategic Plan 2005-2010

the country's highlands (Minakawa et al 2006). Malaria is however more than just a health issue as it is also a major driver of poverty. Box 2.1 contains the malaria prevention and control measures recommended by the National Malaria Strategy (NMS) and the National Health Sector Strategic Plan 2005-2010. Kenyans with a low socioeconomic status live in unsanitary conditions where stagnant pools are more likely to occur. They are also less likely to sleep under insecticide treated mosquito nets (ITNs), to seek early medical care or to afford complete doses of medicine (Zucker et al 1996) and are therefore disproportionately affected by the disease.

HIV/AIDS and the environment

Another health condition with far reaching impacts on the social and economic development in Kenya is HIV/AIDS. HIV/AIDS shows regional heterogeneity in the country with Nyanza province being the worst affected with an overall prevalence rate of 14 percent. The prevalence rates for Nairobi and Western provinces stand at 7 percent each. All the other provinces have prevalence levels of 3-5 percent except North Eastern province where the prevalence rate is about 1 percent, the lowest in the country. While individuals of low and high socioeconomic standing are equally susceptible to HIV infection, the richer ones are better able to stave off full blown AIDS because they can afford the costly anti retroviral drugs (ARVs) and to take the balanced diet that is vital for maintaining the body's immunity to opportunistic diseases. There is also a gender dimension to HIV/AIDS as prevalence of the condition is highest among women who are widowed (43 percent), with divorced or separated women and men also having relatively high HIV prevalence rates of 17 percent and 10 percent respectively. Figure 2.8 depicts the HIV/AIDS prevalence rates by age group and sex.

There are a number of interlinkages between HIV/AIDS and the environment. Although the disease is primarily spread through sexual intercourse, poor management of healthcare waste—such as pathological waste and contaminated needles—and its careless disposal into the environment exposes garbage salvagers to HIV infection. In addition, because AIDS-related illnesses often cause the death of both spouses who are often a family's bread winners, it is associated with immense social stigma and consigns affected families to poverty and the bottom of the socio-economic hierarchy where

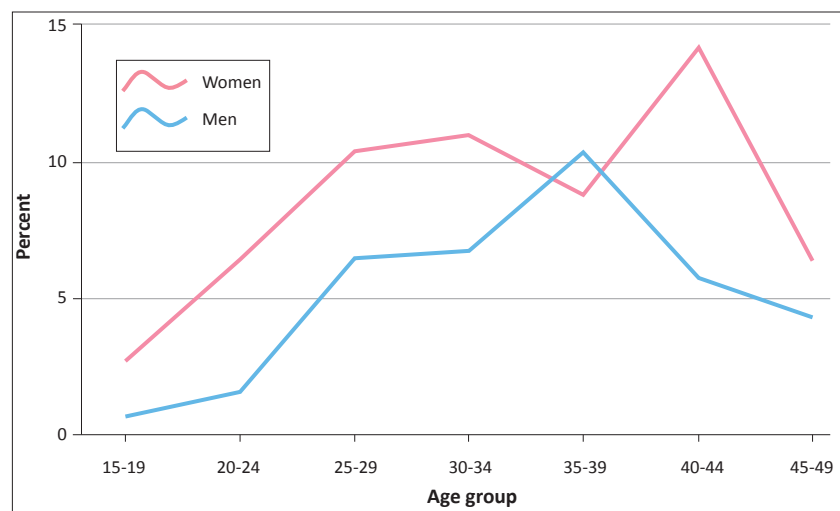


Figure 2.8: HIV/AIDS prevalence rates for men and women by age group Source: GoK 2010d

they live on marginal lands or in unsanitary informal settlements and are disproportionately impacted by ecological crises such as floods and drought.

Gender based violence and environment

Gender based violence, a proximate determinant of health, is also a common feature in Kenyan society. 39 percent of women have experienced some form of gender based violence since they were 15 years old (GoK 2010d). The main perpetrators are husbands, teachers, mothers, fathers, and brothers. Marital violence is considerable, with 30 percent of the women who have ever been married reporting emotional violence by husbands while 37 percent reported physical violence, and 17 percent reported sexual violence. The prolonged treatment for physical and emotional trauma imposes additional demands on the already limited women's resources or those of the national healthcare system. Less personal and public finances are channelled to the productive sectors of the economy and to instituting measures to stem environmental catastrophes. On the other hand, environmental crises such as floods that result in the displacement of people aggravate gender violence because the inadequate resources and limited access to basic services create despondency, predisposing the displaced women to higher than-average levels of violence as their spouses use this as a form of catharsis. The fact that victims are often in uncharted territories means that they do not know where to turn for help and often have to endure months or years of gender based violence before they can get help.

Vision 2030 undertakes to revitalize health infrastructure, strengthen health service delivery and develop equitable healthcare financing mechanisms (GoK 2007). The Kenya Health Policy Framework seeks to ensure equitable allocation of resources in order to reduce disparities in healthcare, increase cost-effectiveness and resource use efficiency and manage population growth. The framework also seeks to enhance government's regulatory role in healthcare provision and to create an enabling environment for increased private sector and community involvement in service provision and financing (GoK 2010d). It is envisaged that these initiatives will more than pay for themselves by leading to a healthier and more productive population that will better contribute to the delivery of Vision 2030. Because of the correlation between health and the environment, these initiatives will also have positive impacts on the country's environment.

Housing Component	Material type	Percent		
		1989	1999	2009
Roofing	Corrugated iron sheet	52	63	73
	Grass	*	23	14
Wall	Stone		12	17
	Brick/block	12	14	17
	Mud/wood	57	47	37
	Mud/cement		7	8
	Wood	10	11	11
Floor	Cement	27	35	41
	Earth	70	63	57
Number of households		4 352 751	6 371 370	8 738 097

Table 2.4: Percentage of households by housing materials

Source: GoK 2007

House construction materials

House construction materials are considered to be a good indication of a household's wellbeing and this was one of the socioeconomic indicators surveyed in past population and housing censuses. Use of corrugated iron sheets stood at 73 percent in 2009, up from 63 percent in 1999 and 52 percent in 1989. Use of stone walls rose 5 percent from 12 percent in 1999 to 17 percent in 2009 while the use of brick walls rose slightly from 12 percent in 1989 to 14 percent in 1999 and 17 percent in 2009. Table 2.4 contains the percentage of the households enumerated by housing material.

Typical wood and wattle house on the plain, Village 2, Solio Settlement, Central Kenya.

Houses constructed with permanent materials are a sign of affluence and rising percentages of these are an indication that many Kenyans are becoming wealthier and correlate with the gradual drops in poverty rates. However, mud huts are increasingly seen as more environmentally sustainable because they blend with the surroundings. In contrast, disused and unfilled stone, sand and limestone quarries which provide construction materials for the modern houses scar landscapes, are a human and animal safety hazard, a breeding ground for waterborne disease vectors such as mosquitoes and snails and are used to illegally dump domestic and industrial waste (Oloo 2010). However, because of their inherently porous nature, mud houses are also more susceptible to rodent burrowing and tick infestations (Nordstrand et al 2007) which are themselves associated with a range of ailments such as relapsing fever and plague. Because it is difficult to diagnose and treat these diseases, this affects the health of the manpower and puts a strain on the country's health facilities, negatively impacting Vision 2030. Mud huts are also less able to withstand environmental catastrophes such as landslides and severe flooding. Because these mud huts are invariably occupied by the poor and the socioeconomically vulnerable segments of society, they help to highlight the relationship between socioeconomic status and vulnerability to environmental crises.



Poverty and the environment

Definition, statistics and causes/manifestations of poverty in Kenya

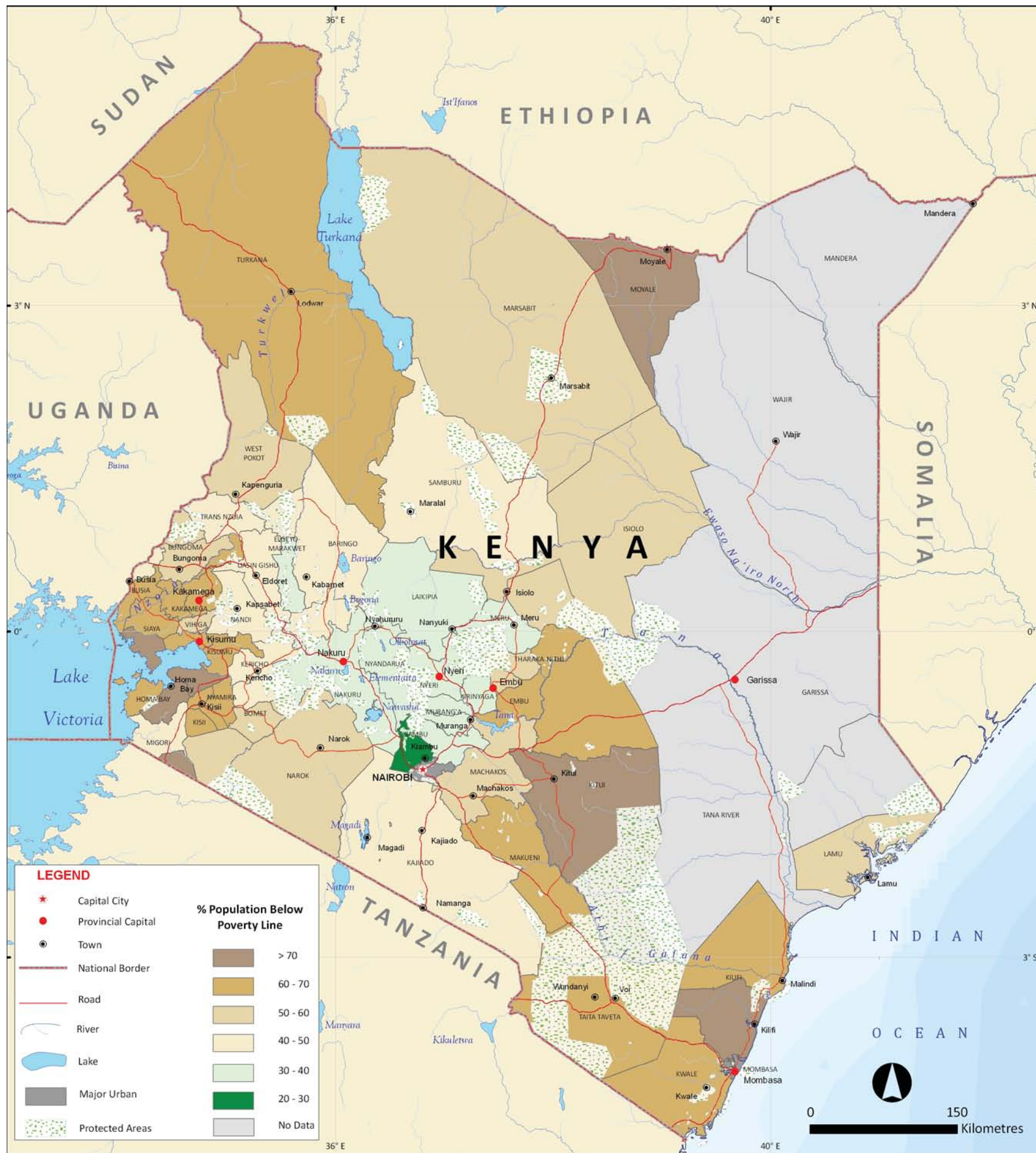
Income, consumption and human welfare indicators are largely used to define poverty (Wagle 2002) although in its broader definition, poverty transcends nonmonetary aspects and encompasses ill health, illiteracy, social exclusion, insecurity, powerlessness, lack of access to information and governance failures (WRI et al 2005). Chronic poverty typically persists for years or lifetimes and may beget intergenerational

transmission that makes it difficult for subsequent generations to escape the poverty trap. Transitory poverty, on the other hand, is temporary and largely arises from transient shocks to individual assets (Barrett and McPeak 2004). Figure 2.9 maps out the percentage of the population living below the national poverty line.

Because 46.6 percent of Kenya's population lives below the national poverty line (UNDP 2010), poverty in the country remains widespread and poses a range of development challenges. The poverty incidence however, displays extremely skewed distribution in the country. Poverty is more prevalent in rural than urban Kenya and in

Figure 2.9: Percentage of population living below the national poverty line

Source: World Bank not dated



Box 2.2 Determinants of poverty in Kenya

The Poverty Reduction Strategy Paper 2001 catalogues the following determinants of poverty in Kenya:

- *National income*: Slow per capita income growth in the agricultural sector on which many poor people depend.
- *Income distribution*: A high level of inequality—both income and regional inequality—has a negative relationship on growth and poverty reduction. There is considerable heterogeneity in poverty levels between and within the country's regions. Rural households are more deprived than urban households and are less able to earn a decent income, and to access productive resources such as land and credit.
- *Unemployment*: Few jobs have been created and unemployment (including underemployment) continues to act as a major determinant and characteristic of poverty. This is compounded by low wages and earnings especially in the informal sector.
- *Other socioeconomic factors*: Poverty has many facets and can manifest itself as the inability to meet basic needs such as food and proper housing and limited social, economic, cultural and human rights.
- *HIV/AIDS*: HIV/AIDS contributes to poverty by reducing the productive capacity of ill persons, loss of income through the illness and death of productive household members.
- *Environment and poverty*: Poor people depend more on natural resources for their livelihoods and they are more likely to engage in destructive extractive activities.
- *Insecurity and poverty*: Poverty leads to inadequate consumption, education and health. The poor lack resources and services which manifests itself in illness, crime, domestic violence, harvest failure, malnutrition and lack of social security in old age.
- *Corruption and poverty*: Corruption increases poverty because it results in unfair distribution of income and inefficient use of resources. Corruption deepens poverty, exacerbates inequalities and skews the structure of the economy, breeds impunity, undermines vital governance institutions and undermines the principles of honesty and hard-work (ACEG 2000).
- *Governance and poverty*: Poor governance that promotes exclusion, isolation and lack of trust in public agencies causes poverty. On the contrary, governance that promotes the collective public good creates impetus for poverty alleviation initiatives through enforcement of law and order, revenue collection, equitable allocation of resources, provision of infrastructure and promotion of human rights. Good governance also enhances public participation, accountability, citizenship rights (both political and economic) and political inclusion (Nyong'o 2001).
- *Women and poverty*: Gender equity is essential for eradication of poverty because there are gender gaps in all the core dimensions of wealth—opportunities, capabilities, empowerment and security (Mukui 2005) which are often enhanced through education. However, the education dynamics are such that girls are less likely to make the transition from primary school to secondary school compared to boys and more girls fall out of secondary school prior to completion.

Source: Poverty Reduction Strategy Paper 2001

some regions, poverty rates are lower than 30 percent while they are particularly high in the ASALs where they average 80-90 percent. The interrelated causes and effects of poverty are an exponential population growth rate, insecure land tenure, poorly planned urbanization, political marginalization, high levels of illiteracy, unemployment and underemployment as well as income inequality. The non-economic aspects of deprivation include lack of access to basic services such as primary healthcare, education, clean and potable water as well as adequate housing and sanitation (GoK 2007). These have recently been compounded by the post election that followed the 2007 general elections, the global financial meltdown and skyrocketing fuel and food prices in the wake of the political upheavals in the Arab world that have raised the cost of living well beyond the means of the average Kenyan. The Poverty Reduction Strategy Paper 2001 catalogues the determinants of poverty in the country and these are summarized in Box 2.2.

Interlinkages between poverty and environmental degradation

How poverty exacerbates environmental degradation

Poverty in Kenya exacerbates environmental degradation in a number of ways. It forces poor people to overexploit open access or under-regulated natural resources such as forests because to them, "nature

is a daily lifeline" (WRI et al 2005). For example, the country's growing households predominantly rely on the dwindling forests for their wood fuel as well as wood carving, homestead fencing and construction timber, honey and herbal medicine needs. Encroachment into all of Kenya's five 'water towers' namely the Mau Forest Complex, Aberdare range, Mount Kenya, Mount Elgon and the Cherengani Hills has aggravated their degradation. This has lent credence to the assertion that in Kenya as elsewhere in Africa, felled trees are valued far more than standing ones. In addition, the overreliance by the burgeoning curio industry on the country's granite and soap stone quarries for sculpting and on the wetlands' clay for pottery and reeds for basket, mat and furniture making have despoiled these important ecosystems.

Forests and rangelands are also important sources of traditional herbal medicine for the poor. The rich biodiversity in these ecosystems has maintained traditional healers' services for generations. However, some of the herbal medicine species such as the *Asystasia schimperi*, *Carissa edulis* and *Toddalia asiatica* species which occur in South Nandi district are threatened with extinction due to overharvesting (Jeruto et al 2010). Similarly, the rate of wood fuel harvesting from the Marsabit forest in northern Kenya stands at an unsustainable 56 000 tonnes per year which is primarily responsible for the annual deforestation of approximately 1.6 ha per year (Kirubi et al 2000).



An open air handicraft market in Nairobi.

In addition, continued use of rudimentary technology due to poverty contributes to environmental degradation. For example, use of fire as a tool for lighting, honey harvesting, game hunting, defence against wildlife predation and clearing agricultural land for subsistence farming has largely been responsible for accidental fires that lead to loss of biodiversity in the country's forests and rangelands. Frequent occurrences of fires lead to loss of ground cover and make the land more prone to desertification and soil erosion. In the ASALs, environmental degradation takes the form of sheet and gully soil erosion due to the fragile ecosystems and livestock overstocking although it also occurs in the arable lands where inappropriate agricultural techniques are used. This degradation reduces soil fertility and has negative implications on land productivity, livestock carrying capacity, water quantity and quality and wood fuel availability. The related national economic costs are estimated at US\$ 390 million annually which amounts to about 3 percent of GDP (GoK 2008).

Because poor Kenyans don't enjoy secure land rights, they are forced to cultivate ecologically fragile landscapes such as forests, wetlands, lakeshores and hillsides with catastrophic consequences for themselves, biodiversity, ecosystems and the general environment. Large-scale encroachment into the Mau Forest Complex for agriculture, settlement, charcoal production and illegal logging is, along with forest excisions, primarily responsible for destruction of 25 percent of its forest cover in a span of only 15 years (GoK 2009). In addition, Yala Swamp—Kenya's third largest wetland—is densely populated and the rising human population continues to exert tremendous pressure on its fish, floral and faunal resources and to reclaim portions of the wetland for agriculture (Schuyt 2005). It is therefore hardly surprising that poverty indices have tended to confirm the contention that some of the Victoria lakeshore districts have the highest incidences of poverty in the country. In addition, because they lack security of tenure, the poor often risk predation to occupy wildlife dispersal areas and migration corridors consequently degrading and constricting the wildlife's potential breeding and feeding grounds and rendering threatened species extinct (Okello et al 2011) with negative impacts on the country's tourism sector and indeed Vision 2030.

Poverty-driven environmental degradation has been exacerbated by the erosion of traditional knowledge caused by Westernization.

Traditionally, cultural norms and practises regarding respect of taboos and totems, reverence of sacred sites, ritual regulation of resource harvests and buffer zone maintenance were used to ensure sustainable use of valuable plant and animal species for the common good of entire communities (CBK 2008). Some of the forests considered sacred in Kenya include the Kaya forest in Coast Province, the Njuri Njeke site in Meru, and the Mukurwe wa Nyagathanga in Murang'a. In addition, herd diversity practised by the pastoralist Rendille and Maasai communities ensured affordable and sustainable livestock production. The Maasai also traditionally relied on the emurua (*Cynodon dactylon*) and orpalakai (*Panicum maximum*) grass species for fodder as these were known to boost milk production. Other species such as oltarakwai (*Juniperus procera*), oloirien (*Olea europea ssp. africana*), olkiroriti (*Acacia nilotica*) and ololiondoi (*Olea capensis*) were used for fencing due to their resistance to termite infestation (Barrow et al 2007). The Rendille also regularly used indigenous knowledge on the suitability of tree species for livestock kraal construction (Warui and Kshatriya 2009). Further, farmers in western Kenya used indigenous knowledge on gauging crop yields, poor crop growth vigour, the presence of specific weeds and soil colour as evidence of declining soil fertility (Odendo et al 2010). Traditional knowledge should therefore be preserved by creating viable linkages between this knowledge and biodiversity management in line with the provisions of the Convention for Biological Diversity (CBD) which Kenya ratified in 1994. As the principal reference centre for biodiversity research and heritage conservation in the country, the National Museums of Kenya (NMK) is in a unique position to ensure that this indigenous knowledge that is vital to maintaining the country's rich biodiversity is not lost. Moreover, showcasing Kenyan cultures that are environment-friendly could be one of the ways of reviving the threatened cultures and positioning cultural tourism as a niche product in line with Vision 2030's aspirations on the sector.

Poverty also constrains developing country governments such as Kenya to favour short-term economic growth over long-term environmental concerns. This is often coupled with fears that formulating and enforcing stringent environmental standards will render Kenyan products uncompetitive in the global market place and that Kenya will lose her comparative advantage to her regional neighbours.



The Dandora dumpsite as viewed from space: the surrounding estates are mainly inhabited by poor people.

Source: SPOT

How environmental degradation exacerbates poverty

Environmental degradation aggravates poverty in a number of ways. Disadvantaged sections of society are forced to occupy marginal lands or hazardous urban neighbourhoods such as those adjacent to the Dandora waste dump in Nairobi and are exposed to much higher levels of pollution than the average $42\mu\text{g}/\text{m}^3$ (GoK 2010e) that pertains in Nairobi. For example, blood samples taken from children who live near the open Dandora waste dump exhibited unusually high levels of heavy metals (such as lead, mercury and cadmium) and persistent organic pollutants which are toxic in minuscule doses and whose negative health effects include renal failure, gastro-intestinal disorders and respiratory tract irritations such as asthma and bronchitis (Kimani

2007). These are in addition to established health effects associated with living near landfills such as leukaemia and organ cancers and negative pregnancy outcomes such as terminated pregnancies, stillbirths and low birth weights (Vrijheid 2000).

In addition, environmental degradation disproportionately impacts the health and general well-being of the poor and exacerbates their vulnerability to natural disasters because they already live in extreme deprivation and only possess a limited gamut of coping mechanisms. For example in 2010, El Niño-induced floods ravaged Narok, Moyale and Magarini. Further, mudslides buried 14 people alive in Marakwet district in 2010 and wrecked havoc in Icanjeru near Murang'a (Ng'etich 2010, Ngunjiri and Njagi 2010). In addition, in



Michael Mwangi

The Mathare informal settlement in Nairobi.

October 2009, nearly 20,000 people who live in the Nairobi's Mukuru-Magarini informal settlement had to be temporarily relocated to higher, safer ground ahead of the El Nino rains. The low income cohorts in urban areas of course live in congested and low quality dwellings, typified by poor sanitary conditions (GoK 2010e) and infrastructure and are particularly affected by natural disasters as these cement their poverty.

Opportunities and challenges for tackling poverty in Vision 2030

In order to tackle poverty and inequality in the medium term (2008-12), key targets to be achieved include raising the average annual incomes per person from an estimated US\$ 650 in 2006 to above US\$ 992 by 2012; reducing poverty levels by around 18 percent to 28 percent by 2012; reducing rural and urban inequality from the current levels of 0.38 and 0.45 to 0.34 and 0.41 respectively by 2012; and raising the level of Human Development Index (HDI) for Kenya from 0.53 in 2007 to between 0.6 and 0.7 by 2012. The HDI is a composite index that measures average achievement in three basic dimensions of

human development namely; life expectancy, education and per capita GDP (UNDP 2010). The government also aims to accelerate the achievement of the MDGs during this medium term period by redirecting spending to high priority areas (GoK 2007). The opportunities and challenges for environmental management within Vision 2030 are detailed in Box 2.3

In order to achieve these targets, there are a number of flagship projects proposed for implementation. These include profiling the poor and their needs, comprehensively studying and analyzing poverty reduction initiatives and promoting pro-poor growth through targeted poverty programmes and projects. These include the Social Protection Policy which encompasses the cash transfer programme; free primary education; subsidized secondary education, food subsidies, subsidized agricultural inputs, disability fund and free healthcare for the under-fives, public works programmes (Kazi Kwa Vijana), waivers and exemptions, price subsidies, school-feeding programmes and free food distribution. In addition, micro-finance programmes such as the Women Enterprise Development Fund and the Youth Fund seek to empower some of the most marginalized segments of the population.

Box 2.3 Opportunities and challenges for environmental management within Vision 2030

The core sectors of socio-economic change as outlined in the Vision 2030 provide both challenges and opportunities for environmental management:

- The first National Spatial Plan intended to guide physical development activities over the next 50 years provides opportunities for mainstreaming environmental planning in national development. Similarly, the 50-year integrated national transport master plan, aimed at developing a light rail for Nairobi and its suburbs will help to decongest the city and reduce emissions from fossil fuels-run motor vehicles. However, the implementation of the project to increase energy security including coal supply for both domestic and industrial use will likely have negative environmental consequences including loss of biodiversity at the supply points and increased carbon emissions.
- Modernization of Kenya's meteorological systems and information and wider use of communication technologies will improve disaster preparedness and promote public education and awareness on the environment issues among vulnerable communities and decision makers.
- The planned land reforms, including the sustainable land use reforms, provide an opportunity for the government to engage in sustainable ecological management.
- Plans to transform Kenya into a knowledge economy will increase use of science and technology related environmental management practises.

- The envisioned improvement of the security situation in the country will discourage environmental crime such as dumping of raw sewage into water systems or dumping of hazardous wastes.
- Reforming the public service to strengthen linkages between planning, budgeting, programme implementation and coordination will ensure results-based management of resources (including environmental resources).
- Differentiating the tourism product (the coast, safari, niche, and conference and business tourism products) will increase boost international tourist arrivals. This process will in turn grow demand for accommodation and other services, with positive or negative impacts on the environment.
- Increased agricultural activities will increase demand for fertilizer and chemicals and could eventually have a negative impact on the environment if not well managed.
- Creating a globally competitive and adaptive human resource base through education and training will create a community that is better able to ensure sustainable management of the environment.
- Improvements to the health sector will support the economy by reducing health expenditure and the burden of disease (UNEP 2007) and the time saved will be expended on productive activities.
- Increasing opportunities for empowerment of the youth, women and the disabled will reduce their vulnerabilities and serve to bridge the existing gender and income inequalities.

Source: Kenya Vision 2030

The government has also increased allocation of resources directly to the districts and constituencies through the Constituency Development Fund (CDF), District Roads Fund, Constituency AIDS Fund, the Local Authorities Transfer Fund (LATF) and the Constituency Bursary Fund.

Further, the Kenya Slum Upgrading Programme (KENSUP) seeks to provide better housing and sanitation for those who live in the country's informal settlements. Table 2.5 contains the proportion of the urban population that lives in the informal settlements. The overarching aim of KENSUP is to improve the overall livelihoods of the people who live and work in informal settlements through targeted interventions to address shelter, infrastructural, land tenure and employment issues as well as the impact of HIV/AIDS. The programme has yielded positive environmental gains by improving access to safe water and in providing adequate sanitation to thousands of low-income urban dwellers.

	Years					
	1999	2001	2005	2006	2007	2008
National population (m)	29.5	31.3	35.1	36.1	37.2	38.3
Urban population (m)	10	11	13	15	15	14
Slum population (m)	7	8	9	9	10	10
Percent urban population	34	34	36	36.1	38	35
Share of slum population in total urban population	70	71	71	60	67	71
Urban population with access to water	75	87	59		37	
Urban population with access to improved sanitation	32	53	42	45	30	50
Urban population with access to durable housing	88	80	80	80	80	81

Table 2.5: Percentage of Kenya's urban population that lives in slums

Source: GoK 2010e

KENSUP has also improved the awareness of the urban stakeholders and of the informal settlement dwellers themselves, on their role in environmental management.

Gender and the environment

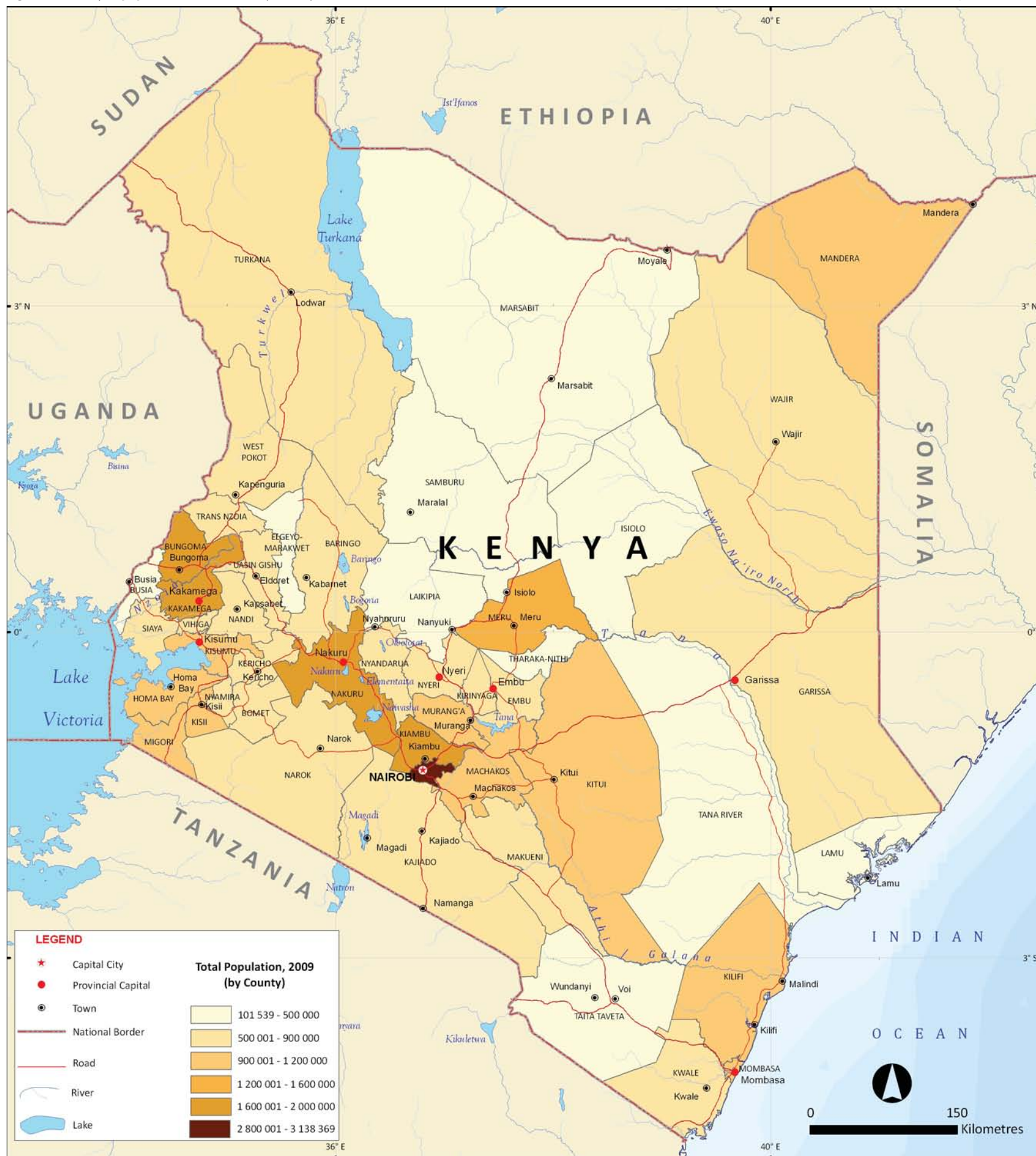
Gender definition, and gender roles in Kenya

While sex refers to those roles and relationships that are biologically determined, gender denotes the range of socially constructed roles of men and women as well as the relationships between them. As is evident from Table 2.6 detailing Kenya's 2009 population by province and gender, women comprise 50.3 percent of Kenya's population. Figure 2.10 details Kenya's population distribution by County in 2009.

Domestic roles and responsibilities as well as access to and control of natural resources are inseparably linked to the positioning of people not only by race, ethnicity and class but by gender as well (Thomas-Slayer and Rocheleau 1995). Traditionally, women are the gatherers of food, fuel, fodder and medicinal herbs and collectors of water. Because of different pre-defined gender roles, men and women often undertake different productive and reproductive roles in the natural resources' realm. Thus the term 'feminization of agriculture' was coined to reflect African women's increasingly dominant role in subsistence

Figure 2.10: Kenya's population distribution by County, 2009

Source: Adapted from GoK 2010b



Province	Total	Female	Female %	Male	Male %
Nairobi	3 138 369	1 533 139	48.85	1 605 230	51.15
Central	4 383 743	2 230 760	50.89	2 152 983	49.11
Coast	3 325 307	1 668 628	50.18	1 656 679	49.82
Eastern	5 668 123	2 884 776	50.89	2 783 347	49.11
North Eastern	2 310 757	1 052 109	45.53	1 258 648	54.47
Nyanza	5 442 711	2 824 977	51.90	2 617 734	48.10
Rift Valley	10 006 805	4 980 343	49.77	5 026 462	50.23
Western	4 334 282	2 242 907	51.75	2 091 375	48.25
TOTAL	38 610 097	19 417 639	50.29	19 192 458	49.71

Table 2.6: Population of Kenya by province and sex

Source: GoK 2010a

agricultural production as they comprise a growing proportion of households heads in light of the rising levels of rural-urban migration of men in search of more lucrative economic opportunities (FAO 1998). The remaining men who derive their livelihood from the sector tend to dominate commercial agriculture. Women and men also articulate different relationships with forest resources. While women typically gather wild foods, wood fuel and medicinal herbs and possess intimate knowledge of these resources and their ecological processes, men outnumber women in harvesting timber and other forest products for commercial purposes.

Relationship between gender and access to and control of natural resources

Despite their important role in ensuring food security, women paradoxically have little access to and control over land and own a paltry 5 percent of the registered land in Kenya (KLA 2004). Although women enjoy some customary usufruct rights on communal and male relatives' land, these are often limited to less valued resources such as leaves and twigs as opposed to the treasured timber, for example (Dankelman and Davidson 1988). This sorry state of affairs is partly attributable to the fact that customary inheritance law—which in practise supersedes the Succession Act (Cap. 160) which grants a married woman the right to inherit her husband's property and accords female and male, married or unmarried children equal property sharing rights where their father dies intestate—bestows land inheritance rights only on the male progeny. This serves to highlight the contradiction between women as producers and non-owners and men as non-producers and owners (Thomas-Slayter and Rocheleau 1995). These oppressive cultural norms transcend the inheritance sphere and also play out in the education, employment and health sectors which are also replete with gross gender disparities and also ensure that women are stuck on the bottom rung of each of these.

Interlinkages between gender inequities and the environment

There are a number of intricate relationships between gender and the environment. On the causal front, lack of legal land tenure and other income streams often forces Kenyan women to engage in harmful environmental practises such as slash and burn agriculture in the country's water towers and to cook illegally poached game meat from the country's national parks. From the effect perspective, because of their biological reproductive role, women's bodies are able to exhibit signs of environmental trauma, such as miscarriages and stillbirths, in ways that men's bodies cannot. For example, soon after a yellow liquid chemical with noxious fumes was dumped in Kipevu, Mombasa in

2008, several women unexpectedly experienced miscarriages (BBC 2008). In addition, felling trees for tobacco curing in Mbeere led to soil erosion that washed away minerals such as iron and iodine which are vital to women's health, occasioning several miscarriages, stillbirths and the birth of babies with congenital defects (Wangari et al 2010). The degradation of land, forests, wetlands, lakeshores and riverbanks also has a profound and disproportionate effect on women because they are highly dependent on these natural resources. Television footage of emaciated women, together with their children is the ubiquitous face of the recurrent, prolonged drought in northern Kenya. Women

and girls are also particularly affected by deforestation because it is they who have to walk farther in search of wood fuel, wild foods and medicinal herbs. Searching for increasingly scarce resources also squeezes out the time for other pursuits such as education, business and leisure by women and girls, cementing their position at the bottom of the societal hierarchy.

Opportunities for gender to enhance environmental sustainability

Kenyan women are not just victims of environmental degradation as they can effect an attitudinal change in environmental management. As the experiences of the Green Belt Movement demonstrate, women can be at the forefront of preventing and reversing environmental degradation. Founded by Nobel Peace laureate Prof. Wangari Maathai, the Green Belt Movement is credited with thwarting then influential politicians' attempts to grab Uhuru Park in order to construct a 62-storey building, and the Nairobi city's Karura Forest (Maathai 2004). The Green Belt Movement has also planted more than 40 million trees since its formation in 1977.

Another example where gender roles have been harnessed to contribute to conservation is the Kiunga Marine National Reserve Conservation and Development Project in the Lamu Archipelago which combines health programmes with livelihood efforts in order to meet its twin goals of improving the local community's welfare and conserving the marine environment. By creating and selling handicrafts from slippers washed ashore, the women's eco-friendly handicraft project is both a source of income and ensures better survival rates for the endangered Green Sea turtles as slippers hamper the emergent turtle hatchlings' movement to the Indian Ocean waters. In addition, the Kiunga men are also taught sustainable fishing practises that reduce turtle bycatch and ensure that the fishing rate does not outstrip the regeneration rate (WWF undated). Further, Kenya Water for Health Organization (KWAHO) which provides sustainable water and sanitation for disadvantaged communities in the Nairobi, Coast, Nyanza and Western Provinces encourages women to get actively involved in the management and operational activities of community projects.

It appears evident that environmental degradation in Kenya is partly due to the pressure exerted by the unsustainably high annual population growth rate of 2.9 percent (GoK 2010a). It has, for example, been argued that the high population growth rate results in high demand for wood fuel, which in turn causes deforestation (Sunny 1992). Table 2.7 shows the trends of selected demographic indicators. The pressures of an increasing population on the environment are exacerbated by the high percentage of a young population as shown

in Figure 2.11. Therefore, the demand for resources is expected to continue to rise in the foreseeable future.

The rapid population growth is reinforced by the cultural practise of having a large family. This cultural norm is driven by the desire for male descendants, for the gild child who is regarded as a source of bridal wealth, old age security and the desire to have many children as a kind of insurance against the pertaining high infant mortality rates. Therefore, addressing the latter through providing basic healthcare facilities (including national and targeted immunization programmes) would be an important first step. Given their biological role as child bearers, women can play a role in reversing this degradation by bearing fewer children that they are able to adequately care for. This would gradually bring the fertility rate down from the current 4.6 as already seen. North Eastern province which has an actual and wanted fertility rate of 5.9 (GoK 2010d) would require special interventions aimed at reducing both child mortality and fertility rates. This would entail educating women about the advantages of family planning and the range of contraception options available to them, “enabling them” to make informed reproductive choices. Of course, society would also need to be disabused of the perception that virility is measured by the number of children a man has. Therefore, taking a holistic, gender

approach would be important if Kenya is to sufficiently rein in the high population growth rate and ensure that the goals of the Vision 2030 social pillar do not recede beyond reach.

Intersectionality of low socioeconomic status, poverty and gender; and environmental degradation

Intersectionality and multiple exclusions in Kenya

The concept of intersectionality seeks to examine the ways multiple marginalized identities of an individual consisting of socially constructed categories such as gender and class interact on several and simultaneous levels to produce systemic oppression and social prejudice. In the specific context of this SoE report, intersectionality denotes the different ways in which low socioeconomic class, poverty and a weak gender position interact to shape Kenyan women’s environmental experiences. The section is borne out of the realization that treating these categories as if they were mutually exclusive fails to sufficiently interrogate the complex interplay among the identity markers and masks the cumulative effects of multiple inequalities and the impact of these on Kenya’s environment.

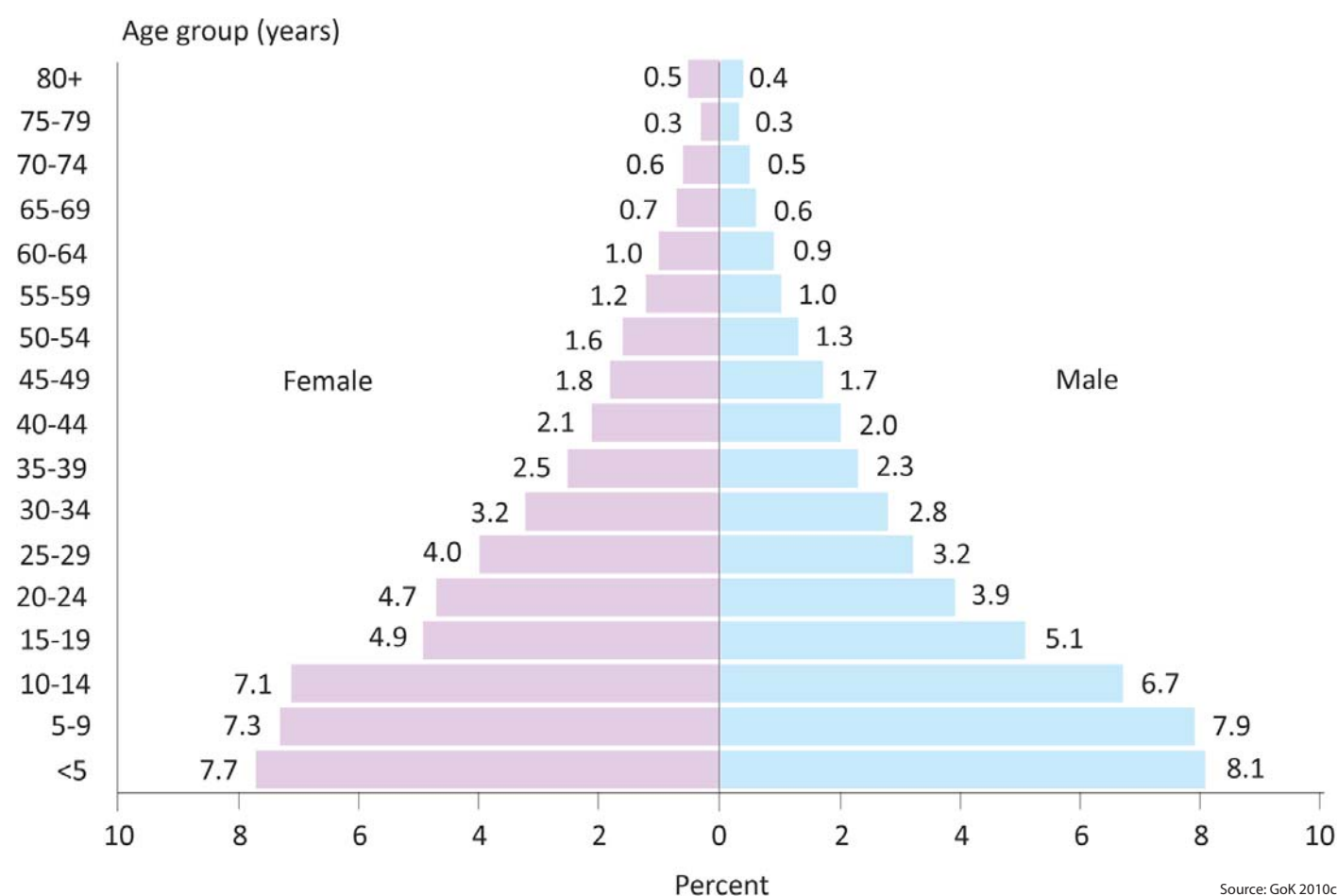
Women and men in Kenya are ostensibly juridically equal with the concept of legal equality being entrenched in Article 27 of the Constitution. However, owing to the prevailing patriarchal norms, poverty and a low socioeconomic status are more prevalent among Kenyan women than men. Indeed, 60.2 percent of Kenya’s women fall within the lowest and second lowest wealth quintile (GoK 2010d). And, because poverty and the stratification of domestic chores along gender lines bring women into close contact with the environment, it is reasonable to expect them to exert considerable pressure on the country’s natural resources, fuelling their degradation. This degradation is aggravated despite the fact that women possess a wealth of indigenous knowledge and experience.

Basic demographic indicators					
Indicator	1969	1979	1989	1999	2009
Population (millions)	10.9	16.2	23.2	28.7	39.4
Density (pop./km ²)	190	27.0	27.0	49.0	67.7
Percent urban	9.9	15.1	18.1	19.4	21.0
Crude birth rate	50.0	54.0	48.0	41.3	34.8
Crude death rate	17.0	14.0	11.0	11.7	-
Inter-censal growth rate	3.3	3.8	3.4	2.9	2.8
Total fertility rate	7.6	7.8	6.7	5.0	4.6
Infant mortality rate (per 1,000 births)	119.0	88.0	66.0	77.3	52.0
Life expectancy at birth	50.0	54.0	60.0	56.6	58.9

Table 2.7: Selected demographic indicators for Kenya in the censal years

Source: GoK 2010d

Figure 2.11: Kenya’s population pyramid, 2008-2009



Source: GoK 2010c

This is because, owing to the multiple exclusions they are subjected to, this knowledge remains largely unacknowledged and excluded from decision making (Aguilar and Blanco 2004) and is not reflected in relevant environmental laws and policies. Therefore, the multiple exclusions these Kenyan women are subjected to amplify environmental degradation which, in turn, reinforces these exclusions. Because pastoralist Samburu women and Nubian women of the Kibera informal settlement are some of the Kenyans who face multiple exclusions and live at the intersection of low socio-economic class, poverty and gender inequality, they are disproportionately impacted by environmental degradation. Each of their situations is discussed below.

Samburu women

Although the sparsely populated ASALs, which are predominantly occupied by the country's pastoral communities, host the overwhelming majority of the country's livestock and wildlife, pastoralist women such as the Samburu are socially, economically and politically marginalized. Samburu women face two-pronged discrimination. First, they suffer marginalization inflicted on their communities primarily because they are a numeric minority and because pastoralism is generally perceived as incompatible with modernity as it is regarded as the cause of overgrazing, drought and desertification (Kipuri and Ridgewell 2008). Second, due to the deeply entrenched gender-based division of labour, Samburu women suffer further marginalization as they bear an inordinately heavier workload than their male counterparts. Besides nurturing the children, women are responsible for tending the livestock, gathering wood fuels, collecting water and constructing houses.

These pastoralist women are considerably poorer than their male counterparts because they are commoditized and primarily valued as a potential source of bride price. And, the increasing economization of items such as milk, ghee, gum resins and beeswax which were entirely the women's domain has eroded their access to these items and resulted in more malnutrition for women and their children and eroded the little power women hitherto wielded.

These women's acute poverty implies that first, they are pushed to overexploit communal natural resources which are their lifeline. Second, due to poverty and powerlessness, these women have a diminished capacity to withstand environmental shocks such as climate change and variability. Third, because environmental degradation leads to scarcer natural resources, Samburu women are forced to walk farther from home in search of these resources. As a result, they are exposed to wildlife predation and sexual crimes by British soldiers carrying out military exercises in the area as detailed in Box 2.3.

The scarcer natural resources in Samburu District also foment human-wildlife conflicts which often manifest themselves in the form of encroachment, poaching, excessive use of the protected areas' resources (Eriksen et al 1996) and outright sabotage such as spearing and poisoning of elephants (Okello 2005). Thus most of the local communities view wildlife as an inordinate burden placed on them by the state and from which they reap no benefits (Kameri-Mbote 2002). The animal component of wildlife 'retaliates' through crop-raiding, killing humans and domestic animals, transmitting diseases and competing for scarce pasture and water with livestock which in turn increases the women's work burden. The dwindling resources also instigate inter-clan resource conflicts which women are sucked into and exposed to risks of violent crimes such as abduction, rape and

Box 2.3 Alleged abuses encountered by Samburu women at the hands of British soldiers

In 2004, over 600 Samburu women who were allegedly raped by British soldiers carrying out military exercises in Northern Kenya brought a class action lawsuit against the British government in the UK. These women were allegedly raped while fetching water, collecting wood fuel or herding livestock far away from home around Archer's Post in Samburu District. Medical and police records, mixed race children and confirmation by the local chief corroborate these women's claims.

The petition is the latest in a string of claims against the British government. In 2002 and 2003, in an out of court settlement, Britain paid US\$ 7 844 155 to Samburu herdsmen who lost limbs and to those whose relatives were killed by live munitions and explosives left behind by the British troops.

The British army has a longstanding military pact with the Kenya government which allows it to use Archer's Post in Samburu and Dol Dol in Laikipia districts as military training grounds. Nearly 3 000 British soldiers go to these training grounds each year.

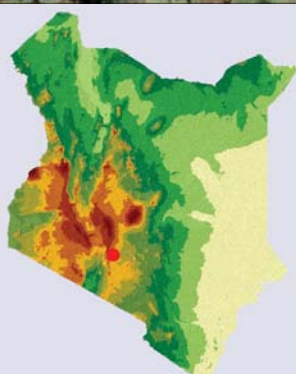
This case illustrates the adverse effects scarcity of environmental resources can have on enjoyment of other fundamental human rights such as the right to bodily integrity. Because the Samburu have only a few water points, they have to walk all day, often up to 32 km away from home in search of water. It is therefore clear that if appropriate technologies are used to harness the groundwater sources of the Ewaso Ng'iro River basin (that encompasses the Samburu area) which are vastly untapped as detailed in Chapter 7, these Samburu women will not be exposed to gross human rights violations.

Adapted from Day and Patterson (2003), Muyilwijk (2008) and The Samburu Water Project (2010)

murder, which are often committed with impunity. In addition, efforts to stem the rapid desertification of Northern Kenya led to the introduction of *Prosopis juliflora* (mesquite) in the rangelands in the 1980s (Mwangi and Brent 2005), an invasive alien species which is a threat to biodiversity and whose thorns pose health risks to human beings, particularly women, and livestock.

The Nubian women of Kibera

The Nubians of the Kibera informal settlement are considered stateless and are treated as foreigners in a country they have occupied for more than a century. Their ancestors were enlisted in the British Empire's colonial army in the 1800s and many helped to open up the East African hinterland to British colonial occupation. Many Nubians were recruited into the King's African Rifles when it was formed in the early 1900s and they fought alongside the British in the First and Second World Wars. In Kenya, these soldiers were settled in a number of locations including Kibera. Unlike the Ugandan Nubians who have been recognized as a citizen tribe, in Kenya, they are discriminated against as foreigners and largely live in squalor although a few of them have benefited from better housing under the Kenya Slum Upgrading Programme (KENSUP) which is a joint initiative by the government and UN-Habitat. As such, Nubian women who have not yet benefitted from KENSUP continue



Nairobi River Clean Up – The Nairobi River Basin comprises a complex of streams that flow eastwards. The Nairobi River, which flows through the Central Business District, is the basin’s main river while the Ngong and Mathare Rivers are its main tributaries. This river basin is faced with a myriad of environmental problems which include rapid urbanization, industrialization, poor urban planning and weak enforcement of environmental

laws. As such, untreated effluent, raw sewage and solid waste from industrial and domestic sources drain into the river, causing serious environmental degradation.

In a bid to reverse the above environmental problems, the Government of Kenya created the Nairobi River Basin Programme that aims to enhance the ecological integrity and socio-economic value of the



river basin. The Programme interventions focus on four key themes namely: environmental education, awareness creation and public communication; conservation of the riparian reserve; integrated waste management; and the restoration of the Nairobi Dam.

has been physically removed from the area marked with yellow arrows and the section converted to a public recreation park. It is envisaged that such success stories will be gradually replicated throughout the river basin.

These two images show the section of the Nairobi River between Kijabe Street and the Globe Cinema roundabout. Waste

to grapple with poverty, polluted water and deplorable sanitary conditions. This is because they are the providers of water for their families and are responsible for keeping their houses clean. The latter has forced Nubian women and other Kibera residents to find alternative means of faecal disposal such as plastic bags (Omambia 2010) which are then disposed of into drains or flung as far as possible, a practise which is euphemistically referred to as 'flying toilets.' These contaminate surface and groundwater and are a health hazard to the Kibera residents, leading to frequent outbreaks of waterborne diseases. Nubian women are disproportionately affected because owing to their political and other exclusions, they can neither vote nor influence enactment of environment-conscious laws. Yet despite their political exclusion, many of them ironically bore the brunt of the 2008 post-election violence. In addition, as a disenfranchised segment of society, their voices are muted in the community and national environmental discourses. And, as women they are the traditional caregivers for sick family members so a degraded environment appreciably increases their workload.

Conclusion and recommendations

There are intricate relationships between socioeconomic status, poverty and gender on the one hand and environment on the other. The multiple exclusions many Kenyans suffer on account of these variables compound their marginalization and their propensity to degrade the environment. The following recommendations should be instituted in order to address these exclusions and to thwart degradation of the country's environment:

- **Gender mainstream plans, policies, laws and activities.**

Gender mainstreaming is the holistic process of institutionalizing gender analysis and equity principles in problem identification, planning and implementation of development plans and laws for the benefit of girls, boys, women and men and other disadvantaged groups with a view to attaining gender equality and equity (GoK et al 2005). Gender mainstreaming would help to alleviate the harmful environmental and health conditions under which women live and work and would increase their capacity to fight environmental degradation. For example, the Agriculture Act should be reviewed to address the users (women) rather than the owners (men) of land.

- **Mainstream poverty-environment interlinkages into national and county development planning, policymaking, budgeting, programme implementation and monitoring** through financial and technical assistance (Drakenberg et al 2009) and step up the capacity of public institutions to address detrimental manifestations of the nexus between the two variables. An important vehicle for this would be to finalize the formulation of a national environment policy on which all sectoral environmental laws would be anchored.

- **Education of the poor, socio-economically disadvantaged girl child.** It is important to provide equitable education opportunities for Kenya's socio-economically disadvantaged, the poor and the girl child. The Free Primary Education programme (FPE) and the Free Tuition Secondary Education (FTSE) are important first steps although other issues, such as

onerous domestic chores and cultural practises such as FGM and early child marriages continue to conspire to keep girls out of school. In promoting the education of the girl child, particular emphasis should be placed on drafting in minority communities such as the Samburu, Nubian and forest-dependent communities such as the Ogiek. However, because the socio-cultural impediments continue to militate against girls' education, affirmative action should be introduced to remedy these injustices.

- **Increase marginalized sections' access to resources.** It has been seen that women continue to be marginalized partly because they do not own the conventional factors of production. There is need to support policies and laws that increase women's economic opportunities, including credit so that women can acquire land (Kane 2005) and harness appropriate technology such as ploughs, rain-harvesting water tanks, boreholes and solar power. Several microfinance institutions (MFIs) specifically targeting women such as Kenya Women Finance Trust have recorded high success rates and present a unique opportunity for women to utilize the facilities offered to drastically lessen their work burden and then progressively better their lot. This can lead to reduced dependency on practises that degrade the environment out of desperation as all other potential livelihood sources are cut off.

- **Upscale implementation of innovative poverty-alleviation mechanisms.** Upscale implementation of innovative poverty alleviation schemes. Some of the initiatives that can be upscaled are Women Enterprise Development Fund, Youth Fund, Constituency Development Fund (CDF), District Roads Fund, Constituency Aids Fund, the Local Authorities Transfer Fund (LATF) and the Constituency Bursary Fund. There is also need to accelerate the KENSUP upgrade of Kibera and to upscale it to other informal settlements as it can lead to provision of safe water and adequate sanitation to low-income urban dwellers. This will in turn make them less susceptible to environmentally-mediated diseases and natural disasters.

- **Sensitize men and women on gender and environmental issues.** The oppression of women is so deeply embedded in our societies and psyches that it continues to be invisible. Gender stereotypical roles are enforced through familial, religious, economic and educational institutions. There is therefore need to raise the consciousness of both men and women on the need to promote a more egalitarian society as true development suffers where half the population is shut out of the formal economy. Carrying out environment- and gender-sensitivity training for women and men particularly policymakers, politicians and institutional leaders (Thrupp and Green 1995) will help them discard their stereotypical perceptions of the environment and women as well as retrogressive cultural practises that are implicated in the degradation of the environment and in consigning sections of society which suffer multiple exclusions to the poverty trap.

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