Population Action
INTERNATIONAL
HEALTHY FAMILIES HEALTHY PLANET

POPULATION DYNAMICS, ENVIRONMENT, AND SUSTAINABLE DEVELOPMENT IN
MAKUENI COUNTY

M akueni County is characterized by a rapidly growing population, water scarcity, falling food production, and low resilience to climate change. The combined effects of climate change and rapid population growth are increasing food insecurity, environmental degradation, and poverty levels in the county.

Makueni County's Integrated Development Plan (CIDP) identifies population dynamics, environmental degradation, and climate change as key development challenges. These issues need to be linked in county policies and programs to ensure that projects that address them are implemented jointly. Addressing population growth, environmental degradation, and climate change together should be a top priority if Makueni County is to achieve sustainable development. The county government, donors, and program implementers should develop policies and implement programs that integrate population dynamics, environment/climate change, and development.

Population Dynamics

Located in the lowlands of southeastern Kenya, Makueni County is home to 874,323 people.

The population has been growing rapidly. This growth is largely a result of high fertility, which is currently 5.1 children per woman, compared to a national average of 4.6 children per woman. There
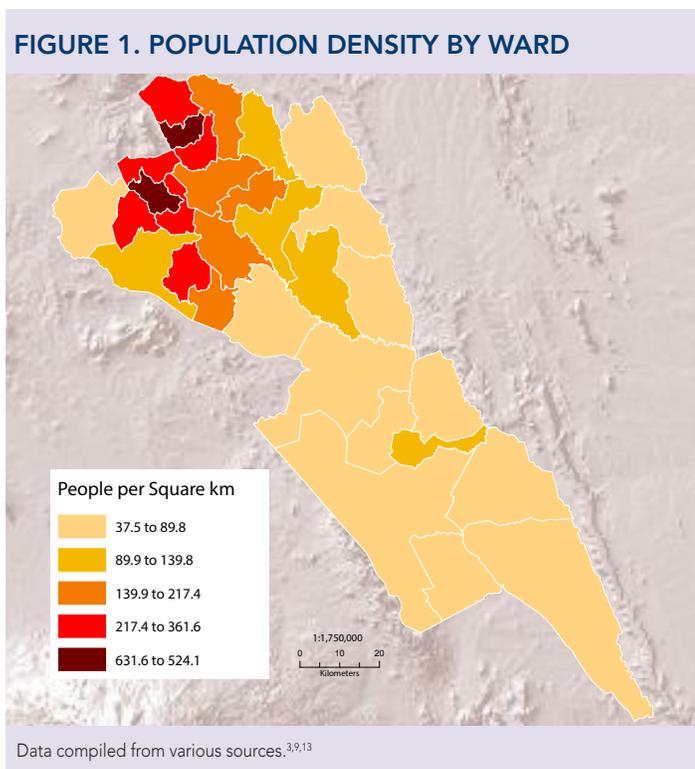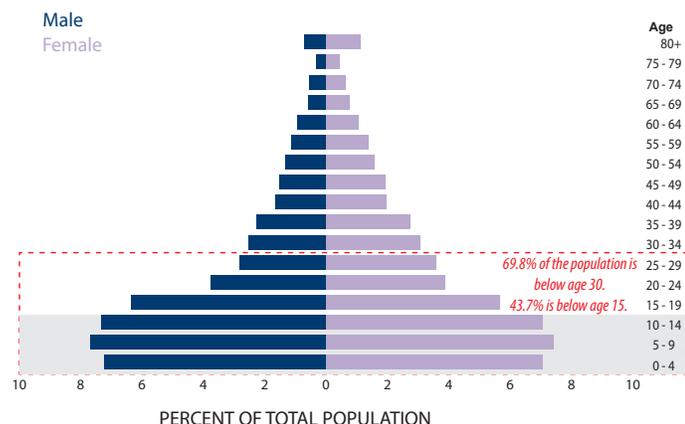
TABLE 1.	MAKUENI	KENYA
Current Population	874,323	37,919,647
Current Population Density	109.2	65.3
Projected Population (2017)	989,050	No Data
Projected Population Density (2017)	123.5	No Data
Total Fertility Rate	5.1	4.6
Contraceptive Prevalence Rate	37.1%	39.4%
Unmet Need for Family Planning	25.7%	25.6%

Data compiled from various sources.[1,3,7,8,9,10]

FIGURE 1. POPULATION DENSITY BY WARD

People per Square km

- 37.5 to 89.8
- 89.9 to 139.8
- 139.9 to 217.4
- 217.4 to 361.6
- 631.6 to 524.1

1:1,750,000

0   10   20
Kilometers

Data compiled from various sources.[3,9,13]

is increasing demand for smaller families and use of modern contraception among women in Makueni, and addressing barriers to access and use of family planning would further reduce fertility. In 2011, about one in four married women who wanted to postpone their next birth or stop childbearing altogether were not using any method of contraception.

Currently, the county's population is dominated by young people who need to be supported by those in the workforce. About 70 percent of the population is under 30 years old and 44 percent is under 15 years. The CIDP identifies the young population and high unemployment as threats to development. Makueni County's young age structure also means that the population will continue to grow for several generations. However, if birth rates were to decline rapidly, the age structure of the population would shift and there would be more working-age adults relative to children. Consequently the county could benefit from what is called the "demographic dividend" – economic growth resulting from increased productivity and greater savings due to a lower number of dependents. Benefits of the demographic dividend are optimized when accompanied by investments in health and education, and pro-growth, job-creating economic reforms.

FIGURE 2. MAKUENI 2009

Male
Female

69.8% of the population is below age 30.
43.7% is below age 15.

PERCENT OF TOTAL POPULATION

Data from KNBS[5]

FIGURE 3. EMPLOYMENT BY EDUCATION LEVEL IN MALE VS. FEMALE HEADED HOUSEHOLDS
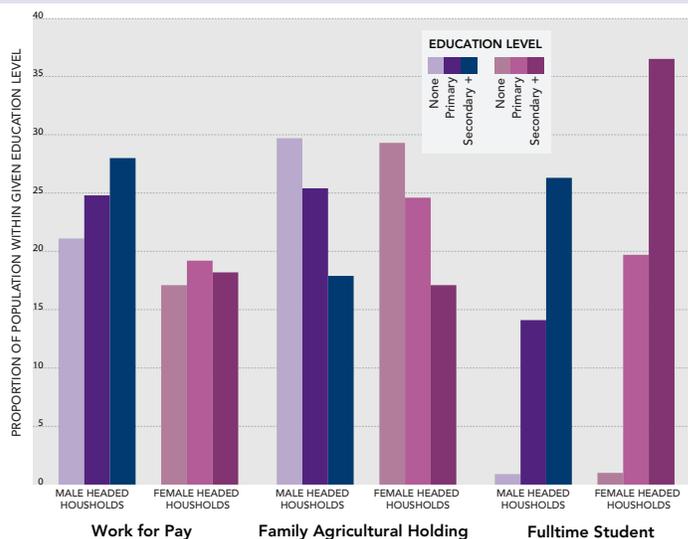

Data from KNBS/SID[9]

Development

Makueni County performs poorly on most socio-economic indicators. The county scores a 0.56 on the Human Development Index (HDI)—a composite measure of development that combines indicators of life expectancy, educational attainment and income. This is on par with the national average. Poverty is prevalent in the county and manifests itself in other socio-economic outcomes such as poor nutrition, health, and education, as well as a lack of access to basic services. Unemployment is a major challenge in the county, especially among youth. The majority of the population is employed in agricultural activities, with limited opportunities in commercial ventures and public service. As more young people enter the workforce due to rapid population change, the pressure on available employment opportunities is expected to grow.

Environment and Climate Change

The livelihoods of most county residents depend on rain-fed small-scale farming, a practice that is highly vulnerable to the effects of climate change and environmental degradation. Rapid population growth places enormous pressure on natural and environmental resources such as forests, water, and land. Already scarce resources such as arable farmland must be subdivided among more people, resulting in over-exploitation and low productivity. As the county's population increases, these pressures on resources will be magnified.
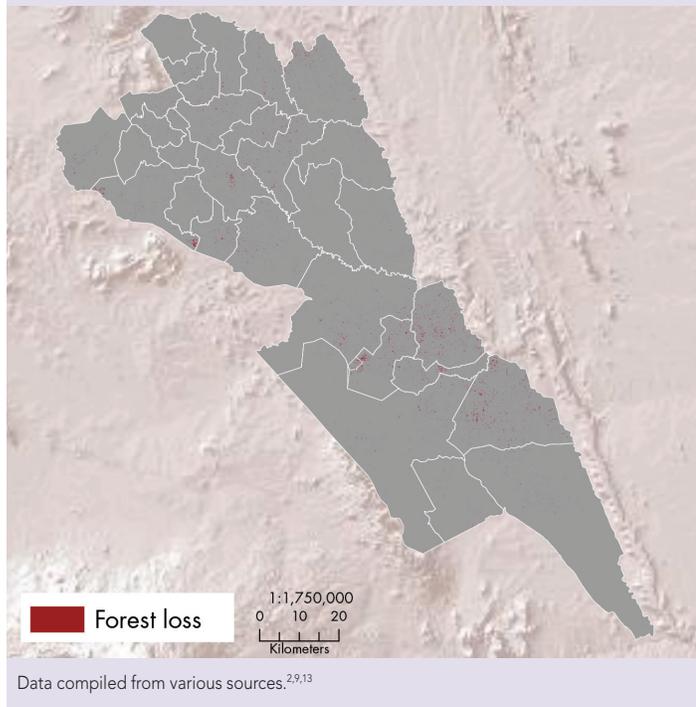
Makueni County is faced with serious water scarcity challenges. Recurring droughts have diminished water supply, rendering many rivers seasonal, and drying them completely. High rates of deforestation have made the problem worse by severely reducing water catchment capacity. As its population grows and climate change compounds water shortages, the county's water demands will increasingly exceed freshwater sources. Degradation

TABLE 2.	INDICATOR	MAKUENI	KENYA
Human Development and Gender Inequality	Human Development Index (HDI)	.56	.56
	Gender Development Index (GDI)	.48	.49
Poverty	Proportion of Population Below the Poverty Line	61%	45%
Education	Primary School Pupil/Teacher Ratio	37:1	52:1
	Secondary School Pupil/Teacher Ratio	33:1	31:1
Health	Average Distance to Health Facility (km)	6	No Data
	Doctor/Population Ratio	1:22,712	1:5,678
	Nurse/Population Ratio	1:1,932	1:1,431
	Infant Mortality	45 per 1,000 live births	49 per 1,000 live births
	Under-five Mortality	56 per 1,000 live births	73 per 1,000 live births
	Skilled Attendant at Delivery	36%	44%

Compiled from various sources.[4,6,7,9,10,11,12]

of upstream catchment (land area where water collects and flows into water bodies), mainly due to agricultural expansion associated with population growth, is impacting water availability.

Destruction of forests in the county, and the resultant biodiversity loss, is also a key environmental challenge. Population growth, agricultural expansion, over-dependence on wood fuels, and low levels of afforestation have accelerated deforestation. Forest loss can have consequences for ecosystems and food security.

FIGURE 4. FOREST LOSS 2000-2012

Forest loss

1:1,750,000
0   10   20
Kilometers

Data compiled from various sources.[2,9,13]

FIGURE 5. MAIN SOURCE OF COOKING FUEL BY WARD

FIREWOOD

Accounts for 41.3% to 54.6%
Accounts for 54.7% to 72.4%
Accounts for 72.5% to 85.8%
Accounts for 85.9% to 92.5%
Accounts for 92.6% to 96.9%

● Ward with population density >100 people per square km

1:1,750,000
0   10   20
Kilometers

Data compiled from various sources.[3,9,13]

The majority of Makueni County's population depends on wood fuel for cooking. With estimates that 96 percent of households use firewood or charcoal for cooking and heating, population growth and associated increases in demand for farming and residential land will undoubtedly accelerate deforestation and exacerbate the effects of climate change in the county.
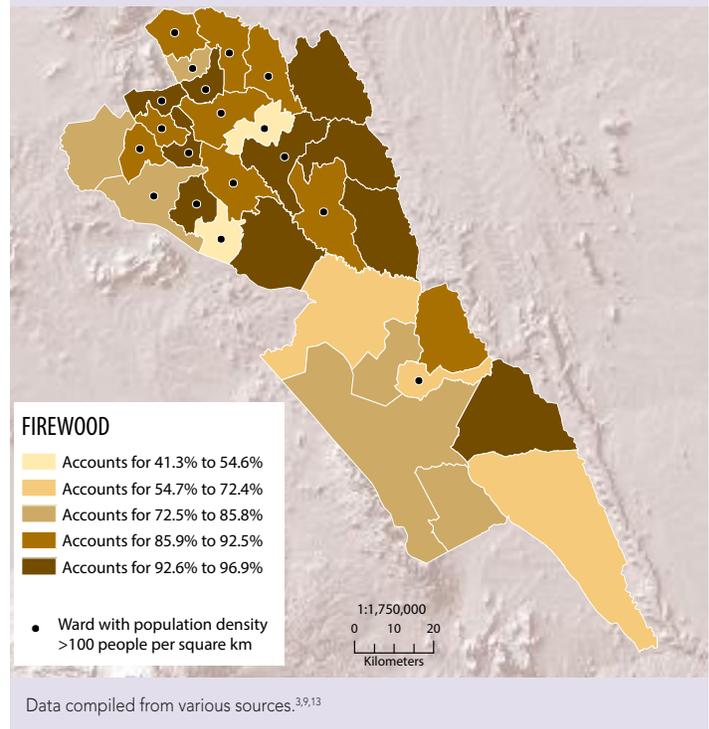
Policy Framework for Linking Population, Environment and Development

Given the strong links between population dynamics, environment, and climate change, integrated policy and program responses to addressing them would make sense and offer combined benefits for sustainable development in Makueni County. The CIPD recognizes population dynamics as key challenges for development.

The following recommendations will help integrate policies and programs on population, environment, and climate change in the context of sustainable development:

1. Incorporate and prioritize population dynamics in county policies and strategies. These include the County Integrated Development Plan (CIDP) and sectoral policies that are being developed in the county. In addition, planning for overall development and sectoral strategies such as food security, health, education, water and sanitation facilities and services must be informed by systematic use of population data and projections.

2. Mainstream population issues within other development sectors, including public health, education, environment and climate change. The government should also address population issues such as urban planning, infrastructure development, and safeguarding the lives of the rural and urban poor against effects of climate change.

3. Secure financial resources from the county government, development partners, and non-governmental sources to fund programs that integrate population, environment/climate change and development.

4. Prioritize meeting women's and their partners' needs for family planning. Family planning is a win-win intervention that can help reduce unplanned births, improve health outcomes for women and children, and slow population growth. It would help ease pressure on the environment and natural resources, strengthen resilience to climate change, and enhance county economic growth by empowering women.

5. Optimize the county's potential to benefit from the demographic dividend by enhancing investments in public health, education and empowerment of women, and by adopting pro-growth, job-creating economic reforms.

6. Enhance the design and implementation of programs that integrate population, environment/climate change, and development. These programs could include diversification of food crops and alternative energy sources, reforestation, water conservation and recycling, modernization of agricultural production and fisheries, and expansion of agricultural land under irrigation.

ENDNOTES

1.   Ettarh, R. R. (2011). *Spatial Analysis of Contraceptive Use and Unmet Need in Kenya.* Chapel Hill: MEASURE Evaluation PRH.

2.   Hansen, M. C., Potapov, P. V., Moore, R., Hancher, M., Turubanova, S. A., Tyukavina , A., et al. (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. *Science*, 850-53.

3.   Infotrack East Africa Ltd. (2014, January 15). Kenya Counties. Nairobi, Kenya.

4.   Kenya National Bureau of Statistics (KNBS). (2010). *Kenya Economic Survey 2010 Highlights.* Nairobi: KNBS.

5.   Kenya National Bureau of Statistics (KNBS). (2011). *2009 Kenya Population and Housing Census.* Nairobi: KNBS.

6.   Kenya National Bureau of Statistics (KNBS). (2012). *Statistical Abstract 2011.* Nairobi: KNBS.

7.   Kenya National Bureau of Statistics (KNBS) and United Nations Children's Fund (UNICEF). (2009). *Makueni District Multiple Indicator Cluster Survey 2008.* Nairobi: KNBS and UNICEF.

8.   Kenya National Bureau of Statistics (KNBS) and ICF Macro. (2010). *Kenya Demographic and Health Survey 2008-09.* Calverton: KNBS and ICF Macro.

9.   Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID). (2013). *Exploring Kenya's Inequality: Pulling Apart or Pooling Together.* Nairobi: KNBS and SID.

10. Makueni County Government. (2013). *Makueni County Integrated Development Plan (CIDP).* Makueni: Makueni County Government.

11. United Nations. (2013). *Millennium Development Goals Indicators.* Rome: UN.

12. United Nations Development Programme, UNDP Kenya. (2010). *Kenya National Human Development Report 2009.* Nairobi: UNDP Kenya.

13. Upande Ltd. (2011). *Kenya Human Population, 1999.* Retrieved August 2, 2013, from Virtual Kenya: http://maps.virtualkenya.org/data/geonode:KenPop99