MINISTRY OF FINANCE AND PLANNING

Second Report on

POVERTY IN KENYA

Volume III: Welfare Indicators Atlas

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MINISTRY OF FINANCE AND PLANNING

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Poverty in Kenya

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A Report prepared jointly by the Central Bureau of Statistics and the Human Resources and Social Services Departments with assistance of
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Foreword

Welfare Monitoring Surveys have been undertaken to determine, among other things, the incidence and depth of poverty and the employment, education, health and nutritional status of households. The first Welfare Monitoring Survey (WMS I) was carried out in 1992, the second (WMS II) in 1994. The third Welfare Monitoring Survey (WMS III) was conducted between February and May, and September and November 1997, and collected information from 44 Districts. The results of is survey have been used to develop this atlas.

The analytical work on the WMS III dataset involved the collaborative efforts of Government officers from both the Central Bureau of Statistics (CBS) and the Human Resources and Social Services Departments (HRSSD) of the Ministry of Finance and Planning.

In addition to the two volumes of detailed poverty analysis (Volume I deals with the Incidence and Depth of Poverty and Volume II: with Poverty and Social Indicators), a Welfare Indicators Atlas was deemed necessary to offer a strong visual presentation of the key elements emerging from the analysis of the Welfare Monitoring Survey. The Atlas depicts the most significant characteristics of the surveyed population (particularly the poor) in 34 maps. It will not only be of much assistance to policy makers but also to other organisations who aim to enhance targeting in their interventions.

Hon. Gideon Ndambuki EGH, MP,
Minister for Planning
Acknowledgement

The completion and analysis of the 1997 Welfare Monitoring Survey was accomplished through the concerted efforts of many organisations, institutions, government departments and individuals who assisted in various ways including preparing, collecting, compiling, processing, analysing and publishing the data and results.

The Ministry of Finance and Planning, and in particular the departments of Human Resources and Social Services (HRSS) and the Central Bureau of Statistics (CBS) wish to thank all who were involved. The Ministry also wishes to thank the World Bank and the agency for German Technical Cooperation (GTZ) for material, financial and technical support at all stages of the analysis and publication of the Welfare Monitoring Survey.
Introduction

It is traditional to present survey results in tables, however the impact and usefulness of these results can greatly be enhanced if they are also presented visually, using maps. This makes it easy for anyone to instantly observe the regional differences that exist in a phenomenon being discussed, particularly valid where the audience may not have the time to calculate and observe trends for themselves.

The atlas has been developed using a Geographic Information Systems (GIS) technique to visually present information at district level. The Atlas contains 34 maps showing the geographic distribution of some selected characteristics of the surveyed population. To supplement the information generated by the WMS III some of the data used in the compilation of the atlas is secondary, particularly that which relates to HIV/Aids.
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Map 1. Administrative Boundaries 1997

The information contained in this Atlas refers to the administrative boundaries as they were when the third welfare monitoring Survey (WMS III) was conducted. WMS III was carried out between the months of February and May, and September and November 1997.

Efforts to cover all the districts during the survey were unsuccessful primarily due to lack of adequate resources and insecurity in most of the northern parts of the country. Thus it was only possible to capture urban clusters in Garissa and Wajir districts of North Eastern province. In Rift Valley, Samburu and Turkana districts were not covered. In Eastern province, rural clusters of Isiolo and Marsabit were also not covered.

Population density is available for all regions of the country. Six categories of population density are shown in map 2. In general the pattern of population density follows either the agricultural potential of an area and the reliability of rainfall, or the availability of other economic activities, like in the big cities of Nairobi and Mombasa. The districts with population densities of over 2,000 persons per square kilometre are Vihiga in Western Province; Nyamira and Kisii districts in Nyanza Province; Nairobi; and Mombasa district in Coast province. The rural districts under this classification have climates that permit the growing of cash crops, such as coffee, tea and sugar in Vihiga; or coffee, tea and pyrethrum in Nyamira and Kisii. The districts receive reliable rainfall in the range of 1,500-2000mm per annum.

Districts with a population density of between one and five persons per square kilometre include: Turkana and Samburu in the northern part of Rift Valley Province, Marsabit and Isiolo in Eastern Province, Mandera, Wajir and Garissa in North Eastern Province, and Tana River in Coast Province. These seven districts lie in the arid and semi-arid parts of the country and are much larger in size than the more densely populated areas; they comprise over half the country’s land area. Rainfall in these districts is in the range of 120-430mm per annum, and is erratic and unreliable and cannot support perennial agriculture. The districts are mainly rangelands and primarily support livestock production. Drought often affects this source of livelihood resulting in frequent famine as a result of the loss of livestock. The inhabitants of these districts are mainly nomadic pastoralists.
Map 3. Distribution of Individuals by Food Poverty

In 1997 the food poverty line was estimated at KShs 927 per month per adult equivalent for rural Kenya and KShs 1,254 for urban areas. This is the amount of expenditure that would, on average, meet the recommended daily energy allowance of 2250 calories per adult. A household with food expenditure of less than this amount per equivalent adult per month was therefore deemed to be food poor.

In the areas that were covered in WMS III Makueni district had over 70 per cent of the people falling below the food poverty line. The second worst affected areas were Machakos, Kitui, Taita Taveta Kilifi, Bomet, Nyamira, Homa Bay, Busia and West Pokot. In these districts, between 61 and 70 per cent of the population fell below the food poverty line. Central province had the least percentage of food poor people.

Map 4. Distribution of households by food Poverty

Based on the food poverty line discussed in Map 3 above, over half of the households in West Pokot, Busia, Vihiga, Kisumu, Homa Bay, Nyamira, Bomet, Machakos, Makueni, Kitui and Taita Taveta fell below the food poverty line. However Kiambu district had only 18 per cent of its households falling below the food poverty line. The pattern of household poverty among the districts follows closely the pattern observed in Map 3. The incidence of household poverty is highest in the western parts of the country and in some districts of Eastern province.

In rural areas 43 per cent of the households fell below the food poverty line. Over half the households in Western (53 per cent), Nyanza (51 per cent) and Eastern (51 per cent) provinces were below the poverty line. Central (23 percent) and Rift Valley (41 per cent) provinces had below average percentages of households living under the food poverty line in rural areas.

Map 5. **Distribution of Individuals by Absolute Poverty**

The absolute (overall) poverty line was estimated at KShs 1,239 per adult equivalent per month in rural areas and at KShs 2,648 for urban areas. The absolute poverty line is the minimum amount of money necessary to afford an adult equivalent their basic minimum food and non-food requirements.

Homa Bay district had the highest proportion of its people in absolute poverty (77 per cent). In the west of the country, the Nyanza Province districts of Nyamira, Kisumu and (as previously mentioned) Homa Bay, the Western Province district of Busia, and Rift Valley district of West Pokot, all have more than 65 per cent of the population in absolute poverty. Other districts such as Bungoma, Bomet and Transmara, also display above average numbers living in absolute poverty.

The districts in Central province, along with Laikipia, Baringo and Kajiado (Rift Valley Province), and Meru (Eastern Province) form a swathe in the middle of the country where absolute poverty is less prevalent. To the east of this area poverty is again in general above 55 per cent, except in the coastal districts of Tana River and Lamu and the city of Mombasa.

Map 6. Distribution of households by Absolute poverty

The pattern of distribution of households in total poverty follows that of the previous map. Again, in western parts of the country (including West Pokot, Busia, Vihiga, Kisumu, Homabay, Nyamira and Bomet), in the southern Coast province (Taita Taveta, Kilifi and Kwale) and in the southern part of Eastern province (mainly Machakos, Kitui and Makueni) the highest proportion (between 50 to 73 per cent) of households in absolute poverty are to be found.

The eastern part of Rift valley and the northwestern part of Eastern province form a second group with between 30 and 50 per cent of households in absolute poverty.

The third group comprises most districts in Central province Nairobi, Kajiado in the southern parts of Rift Valley and Tana River and Lamu in the northern parts of Coast province, where the proportion of the households in absolute poverty was between 20 and 30 per cent.

Map 7. Distribution of Individuals by Hard-Core Poverty

The hard-core poor are defined as those who would not meet the minimum food calorie requirements even if they concentrated all their spending on food. In this case the rural hard-core poor are those whose total expenditure is less than KShs 927 per equivalent adult per month.

Districts with over half of their people living in hard-core poverty include West Pokot, Busia, Vihiga, Kisumu, Homa Bay, Nyamira, Bomet, Embu, Machakos, Kitui, Taita Taveta, Kwale and Kilifi. Hard-core poverty was minimal (less than 10 per cent) in the major urban areas except in Kisumu. Amongst the rural areas Kiambu district also had very few hard-core poor.

MAP8: Distribution of households by Hard-core poverty
Map 8.  Distribution of households by Hard-Core poverty

West Pokot district was the only district with over 50 per cent of households under the hard-core poverty line. A number of districts have between 40 and 50 per cent of households living in this type of poverty (Busia, Vihiga, Kisumu, Homa Bay, Nyamira, Makueni, Kitui and Taita Taveta). Districts with less than 10 per cent of households below the hard-core poverty line were the two major cities of Nairobi and Mombasa, and the rural districts of Kiambu and Tana River districts. Districts with between 10 and 20 per cent of households in hardcore poverty were mainly in Central province, Baringo, Uasin Gishu and Kajiado in Rift Valley and Lamu in Coast province.

Map 9.  Distribution of poor households by shares of Own Produce and Purchased Foods

Purchased food takes the lion’s share of the total food budget in almost all the districts. The urban areas depict what one would expect – a low share of own produced food and a very high share of purchased food. The rural districts do not however show what one would expect - a high share of own produced food and a relatively low share of purchases. Only households in Meru and West Pokot districts have own produced food shares of over 50 per cent of total food consumption; Kisii follows them closely with 49 per cent. On average the share of own produced food in rural areas was 32 per cent of the total food budget. The same pattern was observed among the rural non-poor.

MAP10: Distribution of Poor Households by Food and Non-food Expenditure Shares

Percent distribution

- Share of food in total expenditure
- Share of non-food in total expenditure

District Boundary
Province Boundary

Kilometers
Map 10. Distribution of poor households by food and non-food expenditure shares

Food share takes over 80 per cent of the total household budget among the rural poor. The share of non-food expenditures in the household budget does increase (to 36 per cent) in the urban areas. While the pattern among the rural non-poor is similar to that of the rural poor, with expenditure on food taking around 70 per cent, the urban non-poor allocate around 58 per cent of their total household budget to non-food items. Tana River is the only rural district where the poor allocate more than one quarter of their expenditure to non-food items.

Map 11. **Food expenditure pattern in poor households by Gender of Household Head**

There is a big difference in food expenditure levels in rural areas when examined by the gender of the household head. Female-headed households spend on average 25 per cent less than male-headed households. In Nyambene district, Female-headed households spend about 55 per cent less than their male counterparts. It is only in three districts where food expenditure among female-headed households exceeds that of male-headed households. These districts are: Mombasa, Kwale and Tranzoia. Provincially, Nyanza shows the widest female-male gap in food (64 per cent), non-food (57 per cent) and total expenditure (63 per cent). The three districts contributing most to this low expenditure among female-headed households are Siaya, Homa Bay and Migori.

Map 12. Non-Food expenditure in poor households by Gender of Household Head

Non-food expenditure among female-headed households exceeded that of males in only four rural and one urban district, namely Kwale (164 per cent), Kitui (105 per cent), Machakos (120 per cent), Narok (124 per cent) and Nairobi (104 per cent). In some districts, like Migori (25.3 per cent), Homa Bay (53.3 per cent), Siaya (43.5 per cent), Bomet (45.3 per cent) and Kiambu (40.9 per cent), the expenditure of female-headed households on non-food items was very low compared to their male counterparts.

Map 14. Overall Primary school Gross Enrolment Rates (GER) by Poverty

This is the ratio of children of all ages enrolled in primary school to the population of children of primary school age. The relevant age group for primary school is 6 to 13 years. The map shows that in some districts GER for children from the poor households exceed that of the non-poor. In most districts, GER for the two poverty categories were almost the same. The GER of the children of the poor in Kwale, Kilifi, Mombasa and Lamu fell far below those from non-poor households.

MAP15: Primary School Gross Enrollment Rates of Poor Households by sex
Map 15. Primary school Gross Enrolment Rates (GER) of Poor households by sex

Nationally the primary school GER by sex shows a balanced picture. However, some districts like Tana River and Lamu there are big disparities, with the GER for males being lower than those of females. In Kilifi, Kajiado and West Pokot the GER for males are higher than those of females.

MAP16: Primary School Net Enrollment Rates of Poor Households by sex

NER (%)
Map 16. Primary school Net Enrolment Rates (NER) of Poor households by sex

Net Enrolment Rate measures the proportion of children enrolled in a schooling level that belongs to the relevant age group (6 to 13 years of age), expressed as a percentage of the total number of children in that age group. There was not much of a gender difference in net enrolment at primary level in most districts. However, in West Pokot, Laikipia, Kilifi and Narok the NER for males exceed that of females, whereas in Tana River, Lamu, Kitui, Machakos, Nyambene, Baringo, Kisii Nyamira, Siaya, Kericho, Trans Nzoia and Elgeyo Maarakwet, the NER for girls exceed that of boys.

Map 17. Secondary school Gross Enrolment Rate (GER) by sex

Secondary school GER is the ratio of children of all ages enrolled in secondary school to the population of children of secondary school age. The relevant age group for secondary school is 14 to 17 years. At the national level the number of children enrolled in secondary school compared to the population of children of secondary age was very low for both sexes (17.6 per cent males and 14.2 per cent for females). The highest recorded secondary GER was amongst the females in Kisii (47.3 per cent) followed by Nyamira (39 per cent), while amongst the males, Tana River was highest with 46 per cent, followed by Vihiga (43 percent).

Map 18. Secondary school Net Enrolment Rates (NER) of poor households by sex

Net Enrolment Rate measures the proportion of children enrolled in a schooling level that belongs to the relevant age group (14 to 17), expressed as a percentage of the total number of children in that age group. NER in secondary schools was very low for both sexes in most districts except in Central province, and parts of Western and Nyanza province. In most districts, males NER rates were higher than those of females. Areas where female NER exceeded that of males included Kisii, Nyandarua, Meru and Kajiado

Map 19: Literacy rate of poor households

Literacy rate refers to the percentage of people aged 15 and above who have the ability to read and write a short simple statement in whatever language. The literacy rate in most districts was over 50 per cent. Households in Nairobi and the Central province districts of Kiambu, Nyeri and Nyandarua had literacy rates of over 80 per cent. Not many districts had literacy rates as lows as between 40 and 50 per cent; they were Transmara, Kajiado, Kwale, and Kilifi. Only households in West Pokot had a literacy rate in the lowest category of between 30 and 40 per cent.

MAP20: Literacy Rate of Poor Households by sex
Map 20.  Literacy rate of poor households by sex

In all districts men have a higher literacy level than women. Nairobi and Central provinces have the highest literacy rates for both sexes. West Pokot has the lowest literacy rate (39.2 per cent) followed by Kwale (45.6 per cent), Kajiado (44.6 per cent) and Lamu (56.5 per cent).

MAP21: Time taken by the Poor to reach nearest Dispensary

- Percentage distribution
  - 100
  - 50
  - 10
  - <10 Minutes
  - 10 - 30 Minutes
  - 30 - 60 Minutes
  - Over 60 Minutes

- District Boundary
- Province Boundary

Kilometers
Map 21.  Time taken by the poor to reach the nearest dispensary

The time taken to reach a health facility is considered an important indicator of accessibility to health services and has implications for the level of development. Most poor households took over 60 minutes to reach the nearest dispensary although in quite a number of districts a large number of households reported taking between 10 and 30 minutes. In urban centres, almost all households reported taking between 10 and 30 minutes.

MAP22: Time taken by the Poor to reach the nearest Hospital
Map 22. Time taken by the poor to reach the nearest hospital

It is evident from the map that most poor households take over one hour to reach the nearest hospital. Only in the major urban centres of Nairobi and Mombasa were there a sizable number of households that took between 10 and 30 minutes to reach the nearest hospital.

MAP23: Distribution of the Poor by Reasons why they do not use Medical care while sick
Map 23. Distribution of the poor by reason why they do not use medical care while sick

In the WMS III survey households were asked about the reason for not using medical care while sick over the previous four weeks. Affordability, Minor illness and Self-treatment stand out in many districts as the main reasons that the respondents stated for not having used medical care while sick. However, it appears that only in Baringo district ‘Too far’ was a major factor. In Kwale Mombasa and Nakuru, over half of the respondents stated Self-treatment as the main reason.

‘Other reasons’ also feature high in some districts like Tharaka Nithi, Nyeri and Kilifi; future research will need to ascertain what these ‘other reasons’ could be.

Map 24. Distribution of Non-poor by reason by reason why they do not use medical care while sick

‘Minor illness’ was given in many districts as the main reason for the non-poor not having sought medical care while sick in the past four weeks. The non-poor in Homa Bay, and Migori reported ‘Too expensive’ as the only reason for not having sought medical care while sick. ‘Self-treatment’ also featured high in a number of districts like Mombasa, Nyeri, Nakuru, Kisumu and Elgeyo Marakwet.

‘Other reasons’ also feature high in Machakos and Kilifi, future research will need to ascertain what these ‘other reasons’ could be.

MAP25: Distribution of the Poor by who attended them while sick
Map 25. Distribution of the poor by who attended them while sick

Visiting a public dispensary is the most common form of treatment amongst the poor in almost all the districts when they are sick. Buying drugs over the counter (in a pharmacy or chemist) was also very common across the country. A significant proportion also visited private doctors/dispensaries. What was not common among the poor is seeking treatment in private hospitals, which is where the largest proportion of non-poor households sought treatment.

MAP26: Distribution of HIV Positive cases 1980 - 1998

HIV Cases (Numbers)

- 164,000 to 188,000
- 137,000 to 163,999
- 110,000 to 138,999
- 83,000 to 109,999
- 56,000 to 82,999
- 29,000 to 55,999
- 2,000 to 28,999

(Source: NASCOP, 1999)

The map shows that South Nyanza and Nairobi reported the highest number (between 164,000 to 188,000) of HIV positive cases between 1980-1998. Kiambu district followed in the second highest bracket while Kisumu, Nakuru, Meru and Machakos fall into the third group. Siaya, Kakamega and Kisii reported between 83,000 and 109,999 HIV positive cases in the reference period.


Throughout the reference period, the HIV prevalence was highest amongst urban adults although the prevalence amongst rural adults was also quite high (equivalent to a rate of almost 90 per cent of the urban adult figures). By 1998, both the urban and the rural prevalence were more than double the prevalence recorded in 1990. The bars show a progressive trend throughout the period.

MAP28: Distribution of Poor Households by main source of drinking water during dry season

- Piped water in compound
- Public outdoor tap/borehole
- Protected well
- Un-protected well/rain water
- River/lake/pond
- Vendor/truck
- Other

Percentage distribution

100
50
10

District Boundary
Province Boundary

Kilometers
Map 28. Distribution of poor households by main source of drinking water during dry season.

In most of the districts, River/Lake/Pond was reported as the major source of drinking water for poor households in dry season. Protected wells feature prominently in Nyanza, Western, parts of Rift Valley and Coast provinces. Piped water in compound featured prominently in Central, Nairobi and parts of eastern province like Embu and Tharaka Nithi. A corridor that is dependent on public outdoor tap/borehole is seen along the lower part of the country, extending from Kilifi and Mombasa along the Kenya-Tanzania border and up to Nairobi before moving into Eastern province as far as Nyambene district. Unprotected well/rain water is important in a number of districts like Migori, Nyamira, Narok Lamu and Makueni. Purchasing water from a vendor/truck is used in small proportion in a few districts like Nairobi, Kajiado, Mombasa, Kwale and Kilifi.

29: Distribution of Poor Households with access to safe water during dry season
Map 29. Distribution of poor households with access to safe water during dry season

This is linked to the trends seen in Map 28. Over 93% of households in Mombasa and Nairobi have access to safe water during dry season. Between 51-92 percent of households in Western province, Kajido, Kiambu, Meru, Taita Taveta, Kilifi, Kisii and Uasin Gishu also have access to safe water at this time of the year. Districts where only less than 20 per cent of households have access to safe water include Kitui and Makueni in Eastern province; Kirinyaga in central; Laikipia, Narok, Transmara, Elgeyo-Marakwet and West Pokot in Rift Valley; and Homa Bay and Migori in Nyanza.

MAP30: Distribution of Poor Households by main source of drinking water during wet season

- Piped water in compound
- Public outdoor tap/borehole
- Protected well
- Un-protected well/rain water
- River/lake/pond
- Vendor/truck
- Other

Percentage distribution

Kilometers

District Boundary
Province Boundary
Map 30. Distribution of poor households by main source of drinking water during wet season

Overall, the map depicts a situation where the main source of drinking water for most poor households during wet season is river/lake/pond; unprotected well/rain water also figure prominently. Similar to the dry season Coast and Nairobi provinces have more than 30% of their households using public outdoor tap/borehole. Other districts with significant households in this category include Nyambene, Kajiando and Busia. Piped water in compound is an important source of drinking water in Central and Nairobi provinces and parts of Eastern province bordering Central province. Protected wells are commonly used in Western province, parts of Coast province and Rift Valley province.

MAP31: Distribution of Poor Households with access to safe water during wet season
Map 31. Distribution of poor households with access to safe water during wet season

According to this map, it is only in Mombasa, Taita Taveta, Nairobi, Meru, Kisii, and the whole of Western province where more than half of the households have access to safe water during wet season. Less than 35 per cent of the households have the access to safe water in provinces like Nyanza, Rift Valley, Central, most parts of Eastern and Coast province.

MAP32: Distribution of Poor Households by Time taken to collect Water during Wet season
Map 32. Distribution of poor household by time taken to collect water during wet season

The map shows that poor households in Central, Nairobi and part of Rift Valley province take less time (less than 10 minutes) on average to fetch water during wet season than the rest of the country. Mombasa district has the highest percentage of households taking the least time to fetch water followed by Nairobi, Nyandarua, Nyeri, Bomet, Murang’a and Kiambu. The overall picture is that most poor households take between 10 and 29 minutes to collect water during wet season. Districts like Migori, Kitui, Kajiado, Makueni, Lamu, Kilifi and Machakos have some households (though not many) that take over one hour to collect water.

MAP33: Distribution of Economically Active Poor population by Type of Industry during the past 12 months
Map 33. Distribution of economically active poor population by Type of Industry during the past 12 months

The economically active population is defined as those who take part in the production of goods and services in a specific age range. While there is no international consensus on the age limits the WMS III used ages 5 and above. The map clearly shows that the active population who were not engaged in any activity is overwhelming in all districts. Many districts have over 50% of their active poor population idle, and of the active poor population a large number are found in the agriculture sector in all areas except Nairobi province and Mombasa district where the major economic activity is sales. For example Narok and Nyandarua have over 75 per cent of its active population in the agriculture sector. Over 90% of the active population’s activities are concentrated in the agriculture and sales sectors; all the other sectors play insignificant roles.

Map 34.  Distribution of Cattle in poor households

The map shows that most households had no cattle. Districts like Migori, Transmara, Narok, Kajiado, Uasin Gishu, Baringo Elgeyo Marakwet and West Pokot had almost a quarter of the households with between six and 15 heads of cattle. More than a quarter of the households in most districts reported owning between two and five cattle. Those with over 16 cattle were mainly found in Kajiado and parts of Central and eastern province.