

CREATING A COUNTY DEVELOPMENT INDEX TO IDENTIFY MARGINALISED COUNTIES



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Abbreviations and Acronyms

ASAL	Arid and semi-arid lands
CDI	County Development Index
CRA	Commission on Revenue Allocation
DI	Development Index
EHDI	Extended Human Development Index
GDI	Gender Development Index
HAI	Human Achievement Index
HDI	Human Development Indices
HDR	Human Development Report
HEI	Human Empowerment Index
ICT	Information Communication Technology
KIHBS	Kenya Integrated Household Baseline Survey
KNBS	Kenya National Bureau of Statistics
MDG	Millennium Development Goals
MPI	Multidimensional Poverty Index
RHDI	Regional Human Development Index
SEDI	Social and Economic Development Index
UNDP	United Nations Development Programme
WHO	World Health Organization

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Executive summary

Marginalisation has persisted in some regions of Kenya thanks to aspects of colonial legacy, historical injustices and the uneven allocation of resources since independence. Sessional Paper No. 10 of 1965 was anchored on a strategy of investing resources in high potential areas with high economic returns to attain rapid economic growth. Though the sessional paper also called for people-centred expenditure regimes that would uplift the provision of health care and education in marginalised areas of Kenya, marginalisation has remained malignant in some regions of the country, in spite of the 1965 policy declarations of intent.

In addition, marginalisation in Kenya has been caused by poor governance, limited employment opportunities and general economic underdevelopment. The nature, causes, constitutional references and impacts of marginalisation in Kenya are used as background to generate policy options on the prevention and alleviation of marginalisation in Kenya. County ranking is adopted as the most objective tool to identify counties that are relatively marginalised.

The CRA is required, under Article 216(4) of the Constitution of Kenya 2010, to “determine, publish and regularly review” a policy setting out the criteria by which to identify the marginalised areas in Kenya. The policy proposed herein outlines actions to be undertaken and structures to be put in place to ensure that the quality of life for people who are marginalised, or who live in marginalised areas, is improved. The policy specifies areas that the government should target to bring about sustainable and equitable growth in marginalised areas, without compromising the level of services in the rest of the country.

In this paper, the county was used as the basic unit to assess marginalisation. County Development Indices (CDIs) were determined for all the counties, and the counties were ranked on the basis of their CDI. Counties with low CDI were categorised as marginalised, relative to those counties with a higher CDI. The CDI is a reliable measure of marginalisation since it exposes the relative ease of accessing basic goods and services that are normally used in measuring the quality of life.

The principal socio-economic factors, variables and indices (such as indices on poverty, access to water, education, energy and sanitation, life expectancy, maternal health, disease burden, population demographics, etc.), used in other jurisdictions to characterise marginalised areas and groups, have been identified.

A process of computing the CDI was developed. Values of the various indicators are first converted into the respective indices and percentage weight values are allocated to each indicator and summed up to give CDI. The CDI was used to rank the counties in three categories: most marginalised, moderately marginalised and well off. The data used in determining the CDIs were sourced from the Kenya National Bureau of Statistics (KNBS).



Chapter 1: introduction

1.1: Background

Marginalisation is a multifaceted condition in which a group, a community or an area is considered as being excluded from the dominant majority in a given social, economic or political setting. In the case of groups or communities, the marginalised individuals do not usually have access to a wide range of basic services such as food, water, health care, energy, education and security. They also have limited political participation. A marginalised area, on the other hand, is a region where access to communications and transport, in addition to the above essential basic services, is substantially below the national standard.

The Constitution of Kenya (2010) creates innovative routes for the provision of essential services to all the people of Kenya. The effective and efficient delivery of services to the people is guaranteed through an elaborate Bill of Rights, and the creation of a system of devolved government that provides for two spheres of governance, the county and the national governments.

The assignment of service delivery functions to each sphere of governance is intended to ensure efficient, accessible and timely provisions of basic services to all people. The provision of services under the devolved system of government guarantees recognition of the right of communities to manage their own affairs and to further their development [Article 174 (d)]. It also guarantees protection and promotion of the interests and rights of minorities and marginalised communities [Article 174 (e)].

The constitution refers to marginalised areas, communities and groups in several sections. Marginalised communities are defined as minority or indigenous communities who, for various reasons, have remained outside the socio-economic life enjoyed by the majority of Kenyans. Some pastoral communities and forest dwellers are classified as marginalised. This paper specifically deals with marginalised areas as stipulated in the constitution.

1.2: Preventing and alleviating marginalisation

A 'marginalised group' according to the constitution, is a group of people who were, or are, disadvantaged by discrimination on one or more of the following grounds: race, sex, health status, ethnic or social origin, colour, age, disabilities, religion, conscience, belief, culture, language or birth [Article 27(4)]. A 'marginalised community', on the other hand, is defined under Article 260 as one of the following:

- a) a community that has been unable to fully participate in the integrated social and economic life of Kenya as a whole
- b) a traditional society that has remained outside the integrated social and economic life of Kenya as a whole
- c) an indigenous community that has maintained a traditional lifestyle and livelihood based on a hunter or gatherer community
- d) pastoral persons and communities, whether they are (i) nomadic or (ii) a settled community that has experienced only marginal participation in the integrated social and economic life of Kenya.

Concern for the marginalised, disadvantaged and vulnerable groups in society is raised in various sections of the constitution. Article 10(2) (b) specifies the national values and principles of governance which include conferment of human dignity, non-discrimination and protection of the marginalised members of society. The Bill of Rights provides that all state organs have the duty to address the needs of vulnerable groups within society, including women, children and members of minorities or marginalised communities [Article 21 (3)].

To ensure implementation of the basic rights and fundamental freedoms specified in Article 21 (3) of the constitution, all state organs and public officers are required to address the basic needs of vulnerable groups within society, including "members of minority or marginalised communities". This obligates the state to use available resources to ensure that the rights of the people of Kenya are guaranteed, protected and respected.



The constitution further obligates the state to ensure that the prevailing socio-economic conditions, including the vulnerability of particular groups or individuals [Article 20 (5) (b)], are considered and given appropriate priority during the sharing of national resources.

The right to freedom from discrimination is guaranteed by the constitution to all citizens. To effect this fundamental right, the state is required to take legislative measures to redress any disadvantage suffered by individuals or groups due to historical injustices and discrimination. Such measures may include affirmative action programmes and policies, [Article 27 (6)].

Among the economic and social rights to which every Kenyan is entitled are the following, shown under Article 43 (a)-(f]):

- the right to the highest attainable standards of health
- the right to accessible and adequate housing and reasonable standards of sanitation
- the right to adequate food of acceptable quality
- the right to clean and safe water in adequate quantities
- the right to social security
- the right to education.

Indeed, the state is specifically obligated by Article 56 (a) to (e) of the constitution to put in place affirmative action programmes to ensure that minorities and marginalised groups participate in all spheres of governance, and are accorded special opportunities in education and economic fields, including access to employment. In addition, they will be facilitated to have reasonable access to water, health services and infrastructure and to develop their cultural values, languages, art, indigenous technologies and other traditional practices.

The provision of public participation in decision making, highlighted in the constitution, is premised on the belief that the full potential of individuals is only unlocked when their human dignity is acknowledged and respected. Article 28 specifies that every person has inherent dignity and has the right to have that dignity respected and protected. To the extent that marginalised individuals are deprived of their human

dignity, society is generally the loser when the potential of these individuals is not unlocked and used for the public good.

The above constitutional requirements are partially met by the establishment of the Equalisation Fund under Article 204. In addition to grants from the Equalization Fund, marginalised areas, communities or groups may also benefit from additional consequential allocations from the national government's share of national revenue through conditional or unconditional grants [Article 202(2)].

It is anticipated that the quality of services to be extended to marginalised areas will be commensurate with the rest of the nation within the projected first phase of the 20 year life span of the Equalisation Fund. This fund is intended to bring marginalised areas up to par with the rest of the country. Regional disparities caused by imbalance in natural resource endowment, historical injustices, insecurity, hierarchical social structure and contrasts have led to regional marginalisation. Disparities occur in access to basic services such as education, health, food and infrastructure. It is important therefore, to improve not only on the delivery of these services but also to reduce the disparities among counties. The effectiveness of the Equalisation Fund is to reduce the inequality of basic service delivery in marginalised areas by ensuring that there is at least an average service provision attained. The Equalisation Fund will enable marginalised areas to acquire basic services comparable to other areas. The fund is justified on the basis of fostering horizontal equity in counties. It will ensure improved quality of life for the people in marginal areas by enabling them to acquire first growth in economic and infrastructure development, and other social economic factors.



1.3: The mandate of the CRA

Appropriation of any funds from the Equalisation Fund by Parliament for the sole purposes of upgrading the scheduled basic services in marginalised areas, is subject to recommendations by the CRA. The CRA is therefore expected to develop allocative criteria to be used to make appropriate recommendations to Parliament.

In respect of marginalisation, the CRA is required, under Article 216(4) of the constitution, to “determine, publish and regularly review” a policy setting out the criteria by which to identify the marginalised areas in Kenya. The policy should specify objective ways of distinguishing disadvantaged areas. A viable and objective set of criteria will prevent arbitrary classification of areas as marginalised, or the omission of truly marginalised and deserving areas.

In discharging its mandate, the CRA is guided by the principle that: “Public Finances in the Republic are expected to promote an equitable society, and in particular, expenditure should promote the equitable development of the country, including making special provision for marginalised groups and areas” [Article 201(b) (iii)].

Many marginalised areas in Kenya are endowed with mineral and other resources that have not been exploited. The “special provisions” clause in Article 201 should therefore encompass deliberate efforts to enhance revenue in the marginalised areas by facilitating the identification and exploitation of natural resources located in these areas.

Chapter 2: Literature review

2.1: Nature, causes and impacts of marginalisation

2.1.1: Characteristics of marginalisation

Developing a viable and sustainable policy on the prevention and alleviation of marginalisation should be premised on understanding its nature and causes, and why it is essential to eliminate the phenomenon in society. Its causes include historical, cultural and colonial legacies, poor governance, limited employment opportunities and economic underdevelopment.

Marginalisation has persisted in some regions of Kenya since independence due to the underlying resource allocation policy imbedded in Sessional Paper No. 10 of 1965. The allocation policy was based on a strategy of channeling resources to areas of high returns in order to attain rapid economic growth. The sessional paper also targeted marginal areas by calling for people-centred expenditure regimes to uplift the provision of health care and education in marginalised areas. Marginalisation has, however, remained malignant in some regions of Kenya, in spite of the 1965 policy declarations of intent.

Marginalised areas are usually cut off from the national axis of growth because of distance and inaccessibility. They have poor road networks and poor, if any access to electricity for household or industrial usage. The availability of basic services, water quality, sanitation and security – all core to economic growth – are limited in these areas. Marginalised areas therefore, lack the infrastructure and gravitas to attract potential investors and tourists.



2.1.2: Impacts of marginalisation

There are three main reasons why a nation should be concerned with marginalisation within its borders. First, marginalisation entrenches inequality in society, dampening poverty alleviation efforts. Second, the phenomenon pulls apart communities within society, thus creating tension and lowering growth and investment potential (Kiringai, 2006). Finally, it is much harder to alleviate poverty and promote economic growth in communities with excessive social disparities and wide economic gaps.

Marginalised groups are often excluded from the main decision-making and economic activities in society and are therefore unable to access the full complement of formal government services and social support. They also find it difficult to access information, to enjoy their fundamental rights, and to participate in political and economic activities.

Unchecked marginalisation tends to entrench inequalities when sharing resources and opportunities. This leads to social tensions, which if unchecked, will endanger national cohesion, possibly leading to violence and insecurity, and will threaten economic development in the long term.

The national expenditure on major roads in Kenya between 1990 and 2000 illustrates the inequity in resource allocation that can lead to marginalisation (Table 1). The table reveals that Nyanza and Western regions were minor beneficiaries in road infrastructure development for the above decade, while North Eastern, Eastern, Coast and Rift Valley have even less road densities. Marginalisation arises from historical factors, natural resource endowments, cultural effects and policy choices. The national expenditure on the provision of piped water (2004) in Kenya further illustrates the skewed pattern of resource allocation in favour of some regions in Kenya, as shown in the same table.

TABLE 1: National expenditure on major roads in Kenya (1990/2000)

Region	10 ⁶ Kes	%	Road density(Km/Km ²) ^a	People using piped water (%) ^b
Rift Valley	3,148	27	0.34	24
Coast	2,747	23	0.26	53
Central	2,090	18	2.01	30
Eastern	1,970	17	0.25	27
Nyanza	1,067	09	1.82	09
Western	697	06	1.43	10
N. Eastern	17	0.1	0.10	07

Source: Republic of Kenya (1999), Kenya Population Census, Republic of Kenya (2004), Statistical Abstracts.

In order to ensure balanced socio-economic development, society must deliberately work to eliminate marginalisation and all forms of inequalities. This can be done most sustainably by creating and implementing appropriate inclusive, empowering and enabling policies that will alleviate marginalisation.



2.2: Examples of nations and regions adapting the human development approach to inform policy formulation

Human Development Reports (HDRs) utilise the human development approach to demonstrate the multiple facets of national development challenges. Bangladesh was the first country to publish a national HDR in 1992, with more than 650 other national and sub-national HDRs, and 37 regional HDRs (from other regions). However, the human development index (HDI) has been criticised for the fact that its indicators do not take into account inequalities within countries. This has necessitated that the HDI be modified to suit local needs.

The HDI is extensively used to determine the level of development both nationally and at regional level. The human development approach reinforces the importance of multidimensional assessment and analysis leading to policy formulation and revision, and fund allocation for human needs (Pangliani, 2010). The use of HDI in assessing levels of development has brought to light disparities and broadened policy discussions by bringing in traditionally excluded perspectives (such as those of women, the poor, ethnic minorities, and people living with HIV/AIDS or with disabilities). HDRs have brought life and additional credibility to the human development approach by adapting analytical and methodological tools to local circumstances. Many prominent national scholars and thinkers have been engaged in the application of the human development paradigm to local development challenges, especially in developing countries, with the support of UNDP. HDR innovations have contributed to the formulation of national human development policies. Examples of regional and national HDRs that have advanced the application of the human development approach in their respective domains include those discussed below.

- a) The Dominican Republic used 52 indicators to measure social, political and economic empowerment in terms of health and ICT. They developed a human empowerment index (HEI) with two sub-indices (one for individual and one for collective empowerment). The index was disaggregated at the regional and district level to identify areas which lacked access to power and decision making. They recognised that social, economic and institutional inequalities in the country conditioned the enlargement of people's opportunities to one's individual or personal affiliation (Dominican Republic HDR, 2008).

- b) Mongolia analysed how topography, climate and geography can lead to striking development inequalities (Mongolia HDR, 2003). It developed an HDI by urban and rural residency, and by provinces and cities. The report's recommendations were incorporated in the Mongolia State Population Development Policy, which led to increased support to regional centres and the promotion of intensive livestock herding. Following the report, an amendment of the employment promotion law was prepared and the Parliament of Mongolia approved a law on vocational training in May 2009.
- c) India modified the HDI indicators used in developing its DI in order to access starvation in Bankura district, (Bankura HDR, 2007). They adopted the concept of human development radar, (HDR), to measure eight human development indicators that compare attainments in different areas.
- d) Mexico adopted the HDI so that it could access inequality levels in the country and the region (Mexico HDR, 2002). It designed a HDI that is sensitive to inequalities in income, education and health. The index considered development changes if equality in only one dimension increases and the total human development gains from improvement among target group of individuals. In later applications, municipal data allowed decomposition of inequality indices to identify sources and regions contributing to overall HDI inequality. Other innovations introduced by the Mexico HDR team to enhance human development measurement include: adjusting the HDI for internal migration, local crime and violence against women; and redistributing oil revenues from producing regions to the rest of the country following national redistribution policy patterns, instead of computing oil revenues in the producing regions' GDP as per official statistics. This gave a better picture of available resources in each region.
- e) In Chile a team of human development experts measured human development trends at the communal level, and calculated the HDI for the Mapuche populations to determine inter- and intra-ethnic inequalities. The analysis revealed important insights on sub-national circumstances, with a focus on indigenous populations, informing diagnostics and planning at the regional level, (De la Torre and Moreno, 2009).
- f) Central America developed a HDI that looked at the incidence of violence and criminality in seven Central American countries: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. The results were used to make comparative policy analysis and recommendations, (Central America HDR, 2009).
- g) Asia Pacific applied the human development approach to corruption, providing an alternative perspective to studies focused on the 'business' aspect of corruption (Asia Pacific HDR, 2008).
- h) Turkey applied the economic and social development indicators to examining the problem of regional disparities. Social and economic development index (SEDI) rankings have contributed to filling the gap in this field by providing considerable data to development and planning initiatives conducted in Turkey, on the basis of territories of various scales, (districts, provinces, geographical regions). They used 58 variables selected from social (demographic, employment, education, health, infrastructure, other welfare) and economic (manufacturing,



construction, agriculture, financial) spheres.

- i) Indonesia applied the HDI to determining inconsistency in regional development after the financial crisis prompted by decentralisation led to increased levels of local corruption. The GDP per capita and HDI at a provincial level were used to investigate regional disparities across the country, while the poverty rate and poverty line marked intra-province inequalities.
- j) Argentina developed the extended human development index (EHDI), broadening the HDI with the quantitative measurements of infant mortality, unemployment and education quality, revealing overlooked social and geographical differences through new provincial statistics (HDR, 2002).
- k) Latin America used the HDI to assess conflict and violence across various sub-national departments. Local authorities in Medellin, Antioquia and Meta adopted the recommendations emanating from the analysis for the prevention of guerrilla recruitment, mine action and the strengthening of local institutions (Colombia HDR, 2003).
- l) Beyond adaptation of the HDI, some national HDRs developed new indices to measure additional dimensions of human development. The Nepal HDR 2004 pioneered a human empowerment index (HEI) before the Dominican Republic (Nepal HDR, 2004). Nepal HEI is composed of eight indicators reflecting education, health, information and participation in social organisations. The index is intended to provide governments and development partners with a tool to address economic, social and political exclusion in areas of concentrated poverty and vulnerability.
- m) The Thailand HDR, 2003 focused on community empowerment by establishing a collaboration between the National Economic and Social Development Board and community leaders from four regions (Thailand HDR, 2003). The report proposed a human achievement index (HAI), which combined indicators on eight components of human development (health, education, employment, income, housing and living conditions, family and community life, transportation and communication, and participation) to provide a more nuanced picture of disparities among Thailand's provinces than traditional poverty assessments could do.
- n) Australia applied the gender development index, (GDI) in addressing regional gender disparities in eight states and territories, (Saswati and Parikshit, 2002), while Europe developed a regional human development index (RHDI) to assess disparities in the regions, (Bubbico & Dijkstra 2011). The RHDI was created using the following indicators: years of healthy life expectancy, net adjusted disposable household income per capita (as an index of EU-27 average) and low and high educational attainment for people aged 25-64 (% of population 25-64 with high education attainment).
- o) Portugal, a country marked by regional asymmetries, needed better governance and mechanism and policies, so it developed a regional human development index (RHDI) that would assess regional disparities. In addition to the indicators used in determining the HDI, they used governance and environment dimensions, (Silva & Ferreira, 2012).

2.3: Measuring levels of marginalisation

Several approaches may be adopted when developing an evidence-based policy on marginalisation. All of them start by first generating consensus on which indicators to use in defining the condition, and assigning standards to them. The criteria to measure the level of marginalisation should consist of indicators that are measurable over time (Pangliani, 2010). This will provide for efficient monitoring and evaluation of the policy being implemented. These criteria mirror those used to measure socio-economic development as well. Some of the examples used by UNDP in measuring quality of life through a HDI are illustrated below.



2.4: Marginalisation criteria based on quality of life

The UN uses human development indices (HDI) to rank the socio-economic development of countries (WB report, 2010). The HDIs are calculated based on life expectancy, adult literacy and per capita income. These indicators correlate positively with access to people's basic needs of food, water, healthcare, education and information. Table 2 gives the HDIs for selected countries (UNDP HDR, 2012), and gives the values of two criteria, in addition to income, that are commonly used in determining HDI.

The higher the HDI, the better the quality of life in a country. The objective of development is therefore to increase the quality of life of the people by raising the HDI to as close to 1.0 as possible (indicative of many developed countries). The information in table 2 reveals that the quality of life in sub-Saharan African countries is substantially lower than in developed countries. The data show that Africa is globally marginalised since the HDIs for most African countries are generally below 0.5. Kenya has a HDI of 0.509, while Seychelles is at the top of the scale with an HDI of 0.773 (HDI Report 2012).

TABLE 2: Human Development Index (HDI) in selected sub-Saharan countries

Country	Mean years of Schooling	Life expectancy at birth	HDI
Seychelles	9.4	73.6	0.773
Mauritius	7.2	73.4	0.728
Gabon	7.5	62.7	0.674
Botswana	8.9	53.2	0.633
Namibia	7.4	62.5	0.625
South Africa	8.5	52.8	0.619
Cape Verde	3.5	74.2	0.568
Ghana	7.1	64.2	0.541
Equatorial Guinea	5.4	51.1	0.537
Congo, Republic of	5.9	57.4	0.533
Swaziland	7.1	48.7	0.522
Kenya	7	57.1	0.509
Sao Tome Principe	4.2	64.7	0.509

Country	Mean years of Schooling	Life expectancy at birth	HDI
Angola	4.4	51.1	0.486
Cameroon	5.9	51.6	0.482
Madagascar	5.2	66.7	0.48
United Republic of Tanzania,	5.1	58.2	0.466
Sub- Saharan Africa	4.5	54.4	0.463
Nigeria	5	51.9	0.459
Senegal	4.5	59.3	0.459
Mauritania	3.7	58.6	0.453
Lesotho	5.9	48.2	0.45
Uganda	4.7	54.1	0.446
Togo	5.3	57.7	0.435
Comoros	2.8	61.1	0.433
Zambia	6.5	49	0.43
Rwanda	3.3	55.4	0.429
Benin	3.3	56.1	0.427
Gambia	2.8	58.5	0.42
Cote d'Ivoire	3.3	55.4	0.4
Malawi	4.2	54.2	0.4
Zimbabwe	7.2	51.4	0.376
Ethiopia	1.5	59.3	0.363
Mali	2	51.4	0.359
Guinea- Bissau	2.3	48.1	0.353
Eritrea	3.4	61.6	0.349
Guinea	1.6	54.1	0.344
Central African Republic	3.5	48.4	0.343
Sierra Leone	2.9	47.8	0.336
Burkina Faso	1.3	55.4	0.331
Liberia	3.9	56.8	0.329
Chad	1.5	49.6	0.328
Mozambique	1.2	50.2	0.322
Burundi	2.7	50.4	0.316
Niger	1.4	54.7	0.295
Democratic Republic of Congo	3.5	48.4	0.286

Source HDI report 2012



2.5: Use of indices to determine marginalisation in university education in Kenya

In the past, similar approaches have been used to generate objective evidence for policy formulation (Pangliani, 2010). In Kenya for example, composite indices were used to develop criteria for affirmative action in university admissions. Opportunity (access) indices, which were developed in the early 1990s, correlate well with current government classifications of disadvantaged or hardship areas, as well as poverty rates.

The classification of disadvantaged districts shown in table 3 below (1999) correlates with current literacy and poverty indices. The current poverty levels (2009) for Garissa, Narok, Lamu and Kajiado are disproportionately low compared to the statistically computed education opportunity indices, while current literacy indices still remain below the national average (0.66).

TABLE 3: Education opportunity indices for disadvantaged districts

	District	Opportunity Index (1999)	Literacy Index (2009)	Poverty Index (2009)
1.	Marsabit	0.019	0.26	79.3
2.	Turkana	0.024	0.18	92.9
3.	Wajir	0.024	0.26	84.4
4.	Mandera	0.053	0.10	85.7
5.	Garissa	0.056	0.52	54.5
6.	Tana River	0.199	0.50	75.4
7.	Samburu	0.599	0.29	77.7
8.	Narok	0.893	0.41	33.7
9.	West Pokot	1.111	0.47	68.7
10.	Isiolo	1.155	0.60	63.1
11.	Lamu	5.014	0.73	30.6
12.	Kajiado	6.720	0.55	12.1
13.	Kitui	8.426	0.64	62.5
14.	Kilifi	8.889	0.68	66.9
15.	Kwale	10.322	0.67	72.9

Source: Report of the sub-committee of the admission board of the University of Nairobi on disadvantaged districts (1989).

The policy on marginalisation in Kenya is patterned on the quality of life approach used to derive HDIs. The most developed counties rank close to 1.0, while the least developed counties will have a CDI of much lower than 1.0.

In this work we developed a composite indicator, similar to the HDI for each county and used the methodology to come up with criteria that measure the level of development in the 47 counties. The indicators which were used to compute the county development index (CDI), included poverty, water, roads, electricity, sanitation, immunisation, birth deliveries with qualified medical personnel, secondary education and literacy level. The CDI developed was then used to compare counties in terms of human development and the level of marginalisation. Counties with low CDI value were considered as less developed (not enjoying basic services) while those with high CDI value were considered to be more developed. Then counties were ranked according to the level of marginalisation.



CHAPTER 3: COUNTY DEVELOPMENT INDEX (CDI)

As Article 204 (2) of the constitution called for the Equalisation Fund to provide basic services to marginalised communities there was a need to identify marginalised areas using the county as the basic unit.. The CDI is a reliable measure of marginalisation since it exposes the relative ease of accessing basic goods and services, normally used in measuring the quality of life. County development indices (CDIs) were determined for all 47 counties, which were then ranked on the basis of their CDI. Counties with a relatively low CDI compared to the determined national average, were categorized as marginalised.

Developing a CDI

The level of county development can be determined by comparing the disparities between various regions using standard indicators, such as life expectancy, infant and maternal mortality and literacy levels. The criteria for identifying marginalised areas or groups could be based on relevant socio-economic and environmental indicators such as:

- Poverty index
- Life expectancy
- Access to energy
- Educational attainment, completion and dropout rates, adult literacy
- Sanitation and water
- Disease burden
- Aridity index
- Agriculture/livestock productivity
- Environmental conditions
- Demographics based on the ratio of dependent to employed population
- Political participation
- Socio-economic and employment opportunities.

The actual set of criteria used was identified and clustered on the basis of objective and measurable indicators and was then used to establish the comparative level of development for different counties. The criteria are shown below, and indices values for each county are shown in Annexes 1.

Data

Official data used was from Kenya National Bureau of Statistics (KNBS) which is the official body mandated to collect data. The data used are from the national census survey of 2009 and the Kenya Integrated Household Budget Survey 2005/06 (KIHBS). The selected indicators are as stipulated in Article 204 (2):

“The national government shall use the Equalisation Fund only to provide basic services including **water, roads, health facilities and electricity** to marginalised areas to the extent necessary to bring the quality of those services in those areas to the level generally enjoyed by the rest of the nation, so far as possible”.

To the above mentioned indicators, poverty was added. Like health, it is considered important as a composite measure of deprivation, (a healthy society is an economically productive society).

The CDI has four categories/dimensions with nine indicators, namely:

1. Health category/dimension
 - Percent of births assisted by qualified medical personnel, based on the 2009 census
 - Percent of immunised children age 12-23 months, based on 2009 census
 - Percent of the population with improved sanitation, based on census, 2009
2. Education category/dimension
 - Percent of population who can read and write, based on 2009 census
 - Percent of population with secondary education, based on 2009 census
3. Infrastructure category/dimension
 - Percent of tarmacked roads, based on 2009 census
 - Percent of population with electricity, based on 2009 census
 - Percent of population with access to clean water, based on 2009 census
4. Poverty category/dimension
 - Percent of people below the poverty line, based on KIHBS, 2005/06



Weight allocation to various categories/ dimensions and indicators

The assignment of weights was done at two levels, namely category/dimension and individual indicator level. The categories/dimensions used in the computation of the CDI are health, education, infrastructure, and poverty. The allocation of weights for both the category/dimension and individual indicators are as shown below:

TABLE 4: Weight allocation

Category/Dimensions		Weight (%)	Indicator		Weight (%)
1)	Poverty gap	16	i.	Poverty	16
2)	Infrastructure	28	i.	Roads	9.33
			ii.	Electricity	9.33
			iii.	Water	9.33
3)	Health	28	i.	Immunisation	9.33
			ii.	Sanitation	9.33
			iii.	Deliveries in health facilities	9.33
4)	Education	28	i.	Literacy	14
			ii.	Secondary education	14
Total		100			100

3.1: The rationale behind selected indicators

The indicators used were in line with what is stipulated in Article 204 (2) of the constitution. Poverty was added because it is a multidimensional measure of deprivation. As there is a definite link between marginalisation and deprivation a consideration of multiple deprivation gives an indication on marginalisation.

Poverty is characterised by the inability of households to meet basic needs and enjoy fundamental rights and by limited access to opportunities to fully participate in the economy. It is measured by the ability to feed oneself, to access quality housing, to attain quality health and to educate children. Poverty is also reflected through inadequate access to infrastructure and social services. Poverty was used as one of the indicators because of its bearing on county development. Most marginalised counties are poor, this is seen through inadequate access to basic services. A poor person is incapable of enjoying a quality life. Using poverty as an indicator helps to identify those areas not enjoying basic services.

The development of infrastructure leads to job creation and access to goods, services and markets. It also leads to the rejuvenation of rural villages and towns and transforms them into centres of economic growth through innovative planning. Water was selected because it is cross-cutting, with multiplier effects that penetrate into the health, sanitation, environment, transport, agriculture and manufacturing sectors. Direct intervention to improve the provision of reliable clean water to marginalised areas will be the largest impact intervention designed to alleviate marginalisation.

A healthy society is an economically productive society. The health category/dimension is key because a healthy society ensures adequate manpower and increased productivity. Both immunisation and birth delivery with the help of a medical practitioner have a bearing on the health of the community .



3.2: Methodology

Before calculating the CDI, an index needed to be calculated for each of the dimensions/indicators. This was done by first reducing the data between 0 and 1. The values were in percentage and therefore the maximum value was 100% and minimum 0%. The following general formula was applied:

$$\text{Indicator index} = \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

The CDI was derived by using the categories/dimensions comprised of various indicators as illustrated in figure 1.

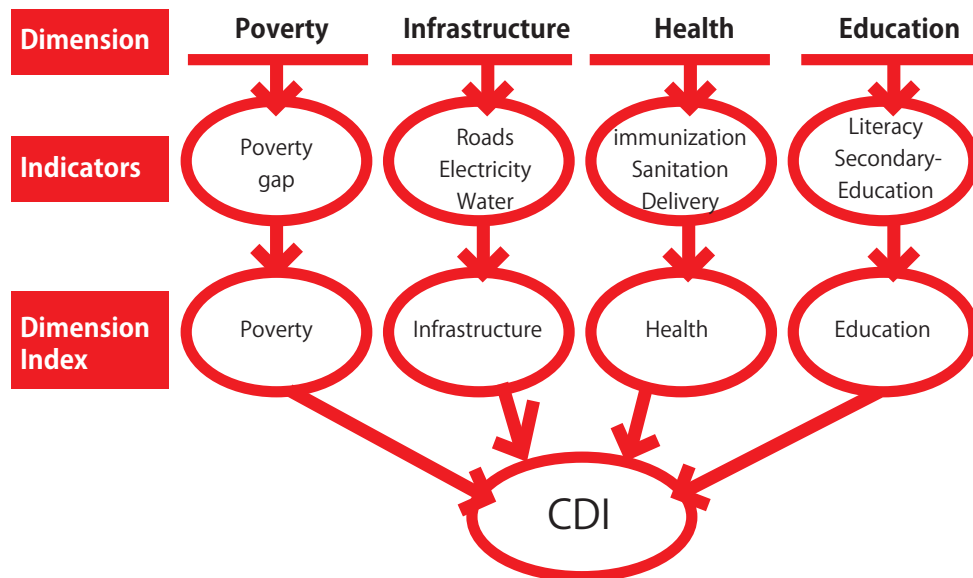


Figure 1: Calculating a CDI

The calculated indices were assigned respective weights (Table 4) and then summed up to give the CDI as shown in table 5.

Chapter 4: Results

4.1 Ranking of counties using CDI

The data for the nine indicators shown in table 4, used in computing the CDI are as shown in Annex 1. The component indices used in the derivation of the CDI were classified into four categories as shown in table 5. The highlighted indices fall below the computed average for each category. The sums for all the indicators in each county (the consolidated CDIs) are given in the last column. The computed consolidated CDIs were used to rank the counties on the basis of their relative level of development. Table 5 reveals that 20 counties lie below the computed national average of 0.520, while 27 counties lie above it. It was also noted that the computed national average (simple average for all the counties using all the nine indicators) is 0.520, which correlates with the HDI figure for Kenya of 0.509 given by the UNDP report in 2012.

The 47 counties were arranged in order of their increasing CDI, which is the decreasing order of marginalisation. The first 21 counties in table 5 have CDIs ranging from a low of 0.27 for Turkana to a high of 0.518 for Migori. These counties are marginalised, since their CDIs are below the national average.



TABLE 5: County CDI and the component indices

KEY

P - POVERTY

I - INFRASTRUCTURE

H - HEALTH

E - EDUCATION

Note: Three or more highlighted boxes indicate a marginalised county.

COUNTY		COMPONENT INDICES				CDI
		P	I	H	E	
1	TURKANA	0.3250	0.4540	0.1853	0.1380	0.2697
2	MANDERA	0.5430	0.2767	0.3317	0.1910	0.3107
3	WAJIR	0.6190	0.3693	0.2917	0.1760	0.3334
4	MARSABIT	0.5780	0.4017	0.3970	0.1755	0.3652
5	SAMBURU	0.5760	0.4483	0.3953	0.1770	0.3779
6	WEST POKOT	0.7420	0.3263	0.3457	0.2655	0.3812
7	TANA RIVER	0.7010	0.3337	0.3747	0.2765	0.3879
8	NAROK	0.8980	0.2690	0.5380	0.2430	0.4377
9	BARINGO	0.7840	0.3310	0.4110	0.3950	0.4438
10	KWALE	0.7160	0.3830	0.4623	0.3640	0.4532
11	KITUI	0.7780	0.3183	0.5110	0.3690	0.4600
12	GARISSA	0.7970	0.4717	0.4373	0.3100	0.4688
13	HOMA BAY	0.8480	0.2827	0.4970	0.4255	0.4731
14	THARAKA NITHI	0.8800	0.2277	0.5760	0.4090	0.4803
15	TRANS NZOIA	0.8490	0.4520	0.5080	0.3125	0.4921
16	KILIFI	0.7420	0.4447	0.5230	0.3765	0.4951
17	BUSIA	0.7320	0.4917	0.5840	0.3330	0.5115
18	TAITA TAVETA	0.8240	0.4487	0.6290	0.2870	0.5139
19	BOMET	0.8780	0.2823	0.6220	0.4305	0.5142
20	MIGORI	0.8100	0.3603	0.5997	0.4275	0.5181
21	ISIOLO	0.7160	0.5687	0.5380	0.3475	0.5217
22	KAJIADO	0.9750	0.5017	0.4830	0.3395	0.5268
23	KISUMU	0.8580	0.3880	0.6350	0.3940	0.5340
24	ELGEYO MARAKWET	0.8340	0.3740	0.6247	0.4410	0.5365
25	MACHAKOS	0.8020	0.3400	0.6110	0.5130	0.5382
26	MAKUENI	0.7780	0.3797	0.5710	0.5305	0.5392
27	SIAYA	0.8820	0.3383	0.7210	0.3850	0.5455
28	NANDI	0.8630	0.3803	0.6513	0.4260	0.5462
29	MERU	0.9380	0.3500	0.7130	0.3615	0.5489
30	BUNGOMA	0.8230	0.4670	0.6790	0.3575	0.5527
31	LAMU	0.9370	0.4937	0.5710	0.4145	0.5641

COUNTY		COMPONENT INDICES				CDI
		P	I	H	E	
32	LAIKIPIA	0.8590	0.4187	0.6457	0.4640	0.5654
33	VIHIGA	0.8810	0.4793	0.6330	0.4145	0.5685
34	KAKAMEGA	0.8260	0.4527	0.6907	0.4185	0.5695
35	KERICHO	0.8850	0.4213	0.6553	0.4520	0.5696
36	EMBU	0.8580	0.3690	0.6470	0.5410	0.5732
37	MURANGA	0.8930	0.3667	0.6700	0.5030	0.5740
38	NYANDARUA	0.8250	0.3790	0.7880	0.4480	0.5842
39	KIRINYAGA	0.9410	0.3940	0.7920	0.4325	0.6037
40	NAKURU	0.8790	0.4383	0.7333	0.4830	0.6039
41	KISII	0.7830	0.4143	0.7970	0.5190	0.6098
42	NYAMIRA	0.8570	0.4653	0.6793	0.5825	0.6207
43	UASIN GISHU	0.8860	0.5580	0.6823	0.4730	0.6215
44	NYERI	0.8840	0.4543	0.7663	0.5635	0.6410
45	MOMBASA	0.9130	0.5533	0.8077	0.5055	0.6687
46	KIAMBU	0.9350	0.5863	0.7760	0.5235	0.6776
47	NAIROBI CITY	0.9310	0.7683	0.8573	0.5790	0.7663
AVERAGE		0.8098	0.414326	0.5881	0.3935	0.5204

From the CDI ranking above, counties with a CDI below the national average of 0.520 were classified as the most marginalised, counties with a CDI between 0.521 and 0.51 are moderately marginalised and counties with a CDI ≥ 0.6 are those enjoying better services (Table 6 shows the counties as they have been classified).

TABLE 6: County classification

Most Marginalised (0.27-0.518)		Moderately Marginalised (0.519-0.584)		Well off Above 0.6
TURKANA	MIGORI	ISIOLO	NYANDARUA	NAKURU
WAJIR	BOMET	KAJIADO	MURANGA	KIRINYAGA
MANDERA	TAITA TAVETA	KISUMU	EMBU	KISII
MARSABIT	BUSIA	ELGEYO MARAKWET	KERICHO	NYAMIRA
SAMBURU	KILIFI	MACHAKOS	KAKAMEGA	UASIN GISHU
WEST POKOT	TRANS NZOIA	MAKUENI	VIHIGA	NYERI
TANA RIVER	THARAKA NITHI	NANDI	LAIKIPIA	MOMBASA
NAROK	HOMA BAY	SIAYA	LAMU	KIAMBU
BARINGO	GARISSA	MERU	BUNGOMA	NAIROBI CITY
KWALE	KITUI			





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ANNEX 1: Indicator's data used in deriving the CDI

COUNTY	Pv	El	tRoads	Water	San	Del	Imm	Sec	Lit
Turkana	32.5	2.4	59.5	74.3	17.8	6.9	30.9	9.5	18.1
Mandera	54.3	2.5	28.6	51.9	33.9	11.3	54.3	9.6	28.6
Wajir	61.9	3.4	33.9	73.5	13.3	5.4	68.8	9	26.2
Marsabit	57.8	7.5	35.4	77.6	35.4	17.4	66.3	8.9	26.2
Samburu	57.6	6.2	60.5	67.8	26.5	19	73.1	6.5	28.9
West Pokot	74.2	2.6	58.1	37.2	32.8	16.9	54	6.2	46.9
Tana River	70.1	2.5	42.1	55.5	29.3	20.4	62.7	5.5	49.8
Narok	89.8	5.9	41.2	33.6	70.9	18.9	71.6	7.2	41.4
Baringo	78.4	9.6	54.6	35.1	57	33.6	32.7	11.7	67.3
Kwale	71.6	10.6	38.5	65.8	48.6	22	68.1	6.3	66.5
Kitui	77.8	4.8	39.9	50.8	69.1	24.4	59.8	10	63.8
Garissa	79.7	11.6	54.1	75.8	51.5	23.9	55.8	9.6	52.4
Homa Bay	84.8	3.3	42.9	38.6	61.4	37	50.7	11.8	73.3
Tharaka Nithi	88	3	24.9	40.4	90.6	28.9	53.3	10.4	71.4
Trans Nzoia	84.9	8.9	50	76.7	96	20.7	35.7	10.9	51.6
Kilifi	74.2	16.7	40.8	75.9	65.5	13.4	78	7.1	68.2
Busia	73.2	6	58.6	82.9	92	25.1	58.1	9.9	56.7
Taita Taveta	82.4	15	49.6	70	94.3	43.2	51.2	12.1	45.3
Bomet	87.8	4.3	39.6	40.8	94.9	38.5	53.2	11.4	74.7
Migori	81	5.3	55	47.8	66.8	35.1	78	10.3	75.2
Isiolo	71.6	18.5	67.5	84.6	55.7	27.9	77.8	9.7	59.8
Kajiado	97.5	39.8	38.4	72.3	74.2	39.8	30.9	12.5	55.4
Kisumu	85.8	18.3	38	60.1	87.4	46.1	57	13	65.8
Elgeyo Marakwet	83.4	7.2	60.8	44.2	81.2	35.4	70.8	10.6	77.6
Machakos	80.2	17	26.9	58.1	97	32	54.3	14.6	88
Makueni	77.8	5.9	51.1	56.9	97.9	22.1	51.3	14.7	91.4
Nandi	86.3	6.4	51.5	56.2	84.4	48.6	62.4	10.7	74.5
Siaya	88.2	4.3	50.5	46.7	82.7	52	81.6	10.8	66.2
Meru	93.8	13.1	26.9	65	97.6	69.4	46.9	12.6	59.7
Bungoma	82.3	4.5	46.7	88.9	96.6	14.7	92.4	11	60.5
Lamu	93.7	17	41.8	89.3	77.5	27.2	66.6	9.7	73.2
Laikipia	85.9	17.7	45.2	62.7	88.6	29.8	75.3	13.9	78.9
Vihiga	88.1	7	60.4	76.4	99.1	25.8	65	12.7	70.2
Kakamega	82.6	5.6	54.1	76.1	98.4	32	76.8	11	72.7
Kericho	88.5	11.8	58.5	56.1	91.9	45.6	59.1	11.4	79
Embu	85.8	14.9	33.7	62.1	98.2	62.5	33.4	15.5	92.7
Muranga	89.3	14	45	51	99.7	54.7	46.6	17.7	82.9
Nyandarua	82.5	10.5	35.2	68	99.7	66.4	70.3	14.2	75.4
Nakuru	87.9	34	31.1	66.4	97	50.5	72.5	13.4	83.2
Kirinyaga	94.1	16.4	45	56.8	99.2	87.4	51	16.1	70.4
Kisii	78.3	7.8	48.6	67.9	99.2	55.3	84.6	17.3	86.5
Nyamira	85.7	6.1	64.9	68.6	99.4	54.6	49.8	17.7	98.8
Uasin Gishu	88.6	27.9	50.6	88.9	98	30.5	76.2	13.1	81.5
Nyeri	88.4	26.3	40.7	69.3	99.6	84	46.3	19.8	92.9
Mombasa	91.3	59	32	75	96.6	73.2	72.5	15.3	85.8
Kiambu	93.5	53	44.8	78.1	99.6	68.4	64.8	17.3	87.4
Nairobi City	93.1	72.4	75	83.1	98.7	71.7	86.8	18.1	97.7

Key

Pv	Poverty inverse	Water	water	Imm	Immunisation
El	Electricity	San	Sanitation	Sec	Secondary education
tRoad	Tarmacked Roads	Del	Deliveries	Lit	Literacy



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