

Earth4All: Kenya

Five turnarounds towards wellbeing
for all within planetary boundaries

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I. Executive Summary

This report applies Earth4All to the local context of Kenya. Earth4All is an international initiative to accelerate the systems-change we need for an equitable future on a finite planet. Building on the legacies of *The Limits to Growth* and the Planetary Boundaries frameworks, the project has brought together economic thinkers, scientists and advocates to explore how to achieve wellbeing for all within planetary boundaries this century. This work climaxed in the book [*Earth for All: A Survival Guide for Humanity*](#) published in 2022 commemorating the 50th anniversary of the 1972 Report to the Club of Rome – *The Limits to Growth*.

Kenya is among the pilot countries selected for an Earth4All national scale initiative. The national engagement work for Kenya was launched at the Africa Climate Week in September 2023 and is led by the [Partnership for Economic Policy](#) (PEP). This report focuses on three deeply intertwined systems: economy, society and the Earth system. It shows how different policies are likely to affect human wellbeing, societies and ecosystems in the short and long term by focusing on two possible scenarios for the country from the current period to 2050:

Too Little Too Late: A scenario that explores the path of economic development and unsustainable consumption, inequality and climate upheaval if we continue the same course.

Giant Leap: A scenario where societies make extraordinary decisions and investments now that enhance social cohesion, build trust, reduce poverty, transform food and energy systems and establish, essentially, an economic system increasing wellbeing for all on a finite planet.

The impact of both scenarios on wellbeing is analysed through four dimensions of Earth4All: Dignity, nature, connection, and fairness. To establish a comprehensive representation of each dimension, two indicators were selected per dimension.

- ▶ **Dignity:** Household access to basic services and the proportion of the population below USD 2.15 per day
- ▶ **Nature:** Total CO2 emissions and domestic material consumption
- ▶ **Connection:** Per capita government expense and total debt-to-GDP ratio
- ▶ **Fairness:** Inequality and income share of the highest quintile.

Achieving the Giant Leap scenario requires a simultaneous activation of policy levers – referred to as five “extraordinary turnarounds”. The extraordinary turnarounds break the trends of the past in substantial ways and have the potential to improve lives and livelihoods, address the polycrisis and prevent ecosystem collapse. The five turnarounds are the elimination of poverty, reduction of inequality, empowerment, the transformation of food systems and transformation of the energy system.

Modelling has shown that enacting the five turnarounds will be instrumental in enabling Kenya to eliminate poverty, enhance community resilience and develop an economy that provides improved wellbeing for both society and the planet. However, the modelling results reveal considerable variations between the Giant Leap and Too Little Too Late scenarios. The Giant Leap results show that a sustainable future for all within the planetary boundaries is possible, and almost all Sustainable Development Goals would be

met. The Too Little Too Late scenario on the other hand paints a grim picture of where the country would lose a significant number of years of development.

The modelling results are summarised for each turnaround as follows:

Table 1: Earth4All Kenya modelling results per turnaround

Turnaround	Giant Leap	Too Little Too Late
POVERTY	Poverty is completely eradicated in Kenya by 2050.	10% of the Kenyan population would still be living below the poverty line in 2050.
INEQUALITY	Inequality is reduced from the current Gini coefficient level of 0.380 to about 0.150 in 2050. The income share of the highest quintile significantly decreases as the income share of the lowest quintile significantly increases.	There is only a slight decline in inequality to about 0.370 with the income shares of the highest quintile and lowest quintile remaining almost unchanged by 2050.
	Access to basic services increases, and by around 2035 there will be complete access to basic services in the country.	Access to basic services improves gradually but more than 15% of the population would still have no access to basic services in 2035.
EMPOWERMENT	The female share in managerial positions significantly increases from the current levels of about 25% to about 45% by 2050.	The female share in managerial positions gradually increases to about 35% by 2050.
	The gender parity index in schooling improves from the current level of 0.9 to full parity by 2050.	Gender parity increases gradually to about 0.94 by 2050.
FOOD	The harvested area under sustainable management will increase significantly from current levels of below 10% to 100% by 2050.	The harvested area sustainably managed will remain below 10% by 2050.
	Fertiliser consumption in the country will increase from about 250,000 tonnes to about 1.5 million tonnes by 2050.	There will be only a slight increase in fertiliser application to about 400,000 tonnes by 2050.

The value of total agricultural production will increase considerably from current levels of about 1.8 trillion to about 3 trillion by 2050.

The total value of agricultural production remains almost unchanged by 2050.

Water use efficiency will rise considerably from about 60 USD17/CM to 600 USD17/CM in 2050.

Water use efficiency will increase gradually to about 75 USD17/CM by 2050.

Waste collected and disposed will increase significantly from the current levels of about 30% to full waste collection and disposal by 2030.

Waste collected and disposed remains almost unchanged by 2050.

ENERGY

Total electricity generation will increase considerably from the current levels of about 0.3 TWh to about 225 TWh by 2050.

There is a gradual increase in electricity generation to about 70 TWh by 2050.

Per capita energy consumption will increase from the current levels of about 15 MJ/person to about 43 MJ/person by 2050 signalling a significant increase in economic activities.

Per capita energy consumption will increase gradually to about 31 MJ/person denoting a gradual improvement in the level of economic activities.

The level of carbon emissions per unit of value added reduces from about 0.105 tCO₂eq/USD17 to slightly below 0.100 tCO₂eq/USD17 by 2050.

There is a considerable increase in carbon emissions per unit of value added to about 0.160 tCO₂eq/USD17 by 2050.

In this report, we propose several policy recommendations in each turnaround to achieve the Giant Leap scenario. Some of these recommendations include:

Poverty and inequality:

- i) Agitation for changes in the global financial architecture to make it more equitable and supportive of the needs of low- and middle-income countries like Kenya, including access to affordable credits and friendly debt management and restructuring mechanisms. Enhancement of transparency in debt management in Kenya, including having a strong debt-to-GDP anchor, and monitoring of the national debt portfolio by an independent oversight body.

- ii) Expanding social protection programs through universalisation of programs beyond universal health care and implementing the International Labor Organization recommended social protection floors. This will cushion not just the poorest segments of Kenyan society, but enhance social protection coverage for all citizens.
- iii) Recognition of unpaid labour such as domestic care work and compensating women to account for their contribution to the country's GDP, which is estimated at between 10 to 39%.

Empowerment:

- i) Implementation of affirmative action: With the guidance of the Kenya Vision 2030, all employers ensure decent work for all, and that all people including women and people living with disabilities have equal chances of securing employment; and support equal employment opportunities for both men and women and equal pay if they perform the same duties.
- ii) An increase in investments towards education scholarships for girls from marginalised counties and an increase in awareness and interest in Science, Technology, Engineering and Mathematics (STEM) by girls from a very early age.

Food:

- i) The introduction of modern agricultural risk management tools for profitability and predictable income, akin to the Guaranteed Minimum Returns (GMR) Scheme of the 1970s.
- ii) The elevation of two million impoverished farmers to surplus producers through input finance and intensive agricultural extension. Set a minimum productivity goal of KES50,000 revenue per acre.
- iii) Government financial support for small-scale irrigation schemes to complement large-scale, capital-intensive schemes, and investment in improving soil and seed quality.
- iv) The government ensures that the proposed establishment of agro and food processing hubs is actualised, including the enactment and legislation of the horticulture crops authority bill, in order to guarantee reduced post-harvest losses.

Energy:

- i) The government to ensure that underserved populations have access to electricity; and consider significantly lowering energy tariffs to promote the adoption of clean cooking energies and products.
- ii) More sensitisation on the advantages of clean cooking energy sources, particularly in rural areas.
- iii) Provide a strong clean energy innovation ecosystem to accelerate the uptake of clean energy technologies, particularly in underserved areas.
- iv) Significant and sustained improvements in energy efficiency across all energy consuming sectors.
- v) Upgrade the existing grid infrastructure to enhance regular and uninterrupted electricity supply.

II. Introduction

Despite unprecedented global wealth, societies remain extremely vulnerable to economic, health, humanitarian, geopolitical, and environmental shocks. We witness that the current configuration of our economies does not deliver wellbeing for people or the planet but drives both social and environmental challenges. We know that the next 10 years are crucial to transforming our economies to avoid long-term existential threats on a scale never experienced.

Where are we headed? This was summed up succinctly by the United Nations Secretary General António Guterres: “Business as usual could result in breakdown of the global order, into a world of perpetual crisis and winner-takes-all... or we could decide to change course, heralding a breakthrough to a greener, better, safer future for all.”

How can we possibly navigate this century as a collective of interlinked, interdependent societies? As a civilisation? Can we upgrade and transform our failing economic operating systems and come out stronger, more resilient than today?

Established in 2020 by The Club of Rome, the BI Norwegian Business School, Stockholm Resilience Centre and the Potsdam Institute for Climate Impact Research, a unique economic foresighting initiative, Earth4All, set out to answer some of these questions. Earth4All is an international initiative to explore how to achieve wellbeing for all within planetary boundaries this century. Earth4All builds on the legacies of The Limits to Growth and the Planetary Boundaries frameworks. It rethinks our economic systems for a safe, secure and prosperous future in the Anthropocene. The full analysis is published in the book *Earth for All: A Survival Guide for Humanity*, September 2022.

Two scenarios

The Earth4All analysis focuses on three deeply intertwined systems: economy, society and the Earth system. At the heart of the analysis are two complementary intellectual engines that have allowed us to explore and develop bold proposals for the 21st century: the Transformational Economics Commission, bringing together leading economic thinkers from across the world, and system dynamic computer models, to show how different policies are likely to affect human wellbeing, societies and ecosystems in the short and long-term.

The analysis focuses on two possible scenarios for the world this century to 2100:

Too Little Too Late: A scenario that explores the path of economic development and unsustainable consumption if we continue the same course. It explores the co-evolution of the global economy and Earth system (1980-2100) assuming political action at similar levels to the past 40 years. The economy will continue to grow, but at the expense of social cohesion, wellbeing and a stable planet. There will be huge regional differences resulting in large-scale regional tensions. Sporadic societal collapses cannot be ruled out.

Left unchecked, rising income inequality in the next 50 years will lead to increasingly dysfunctional societies, making cooperation to deal with existential threats like climate change more difficult.

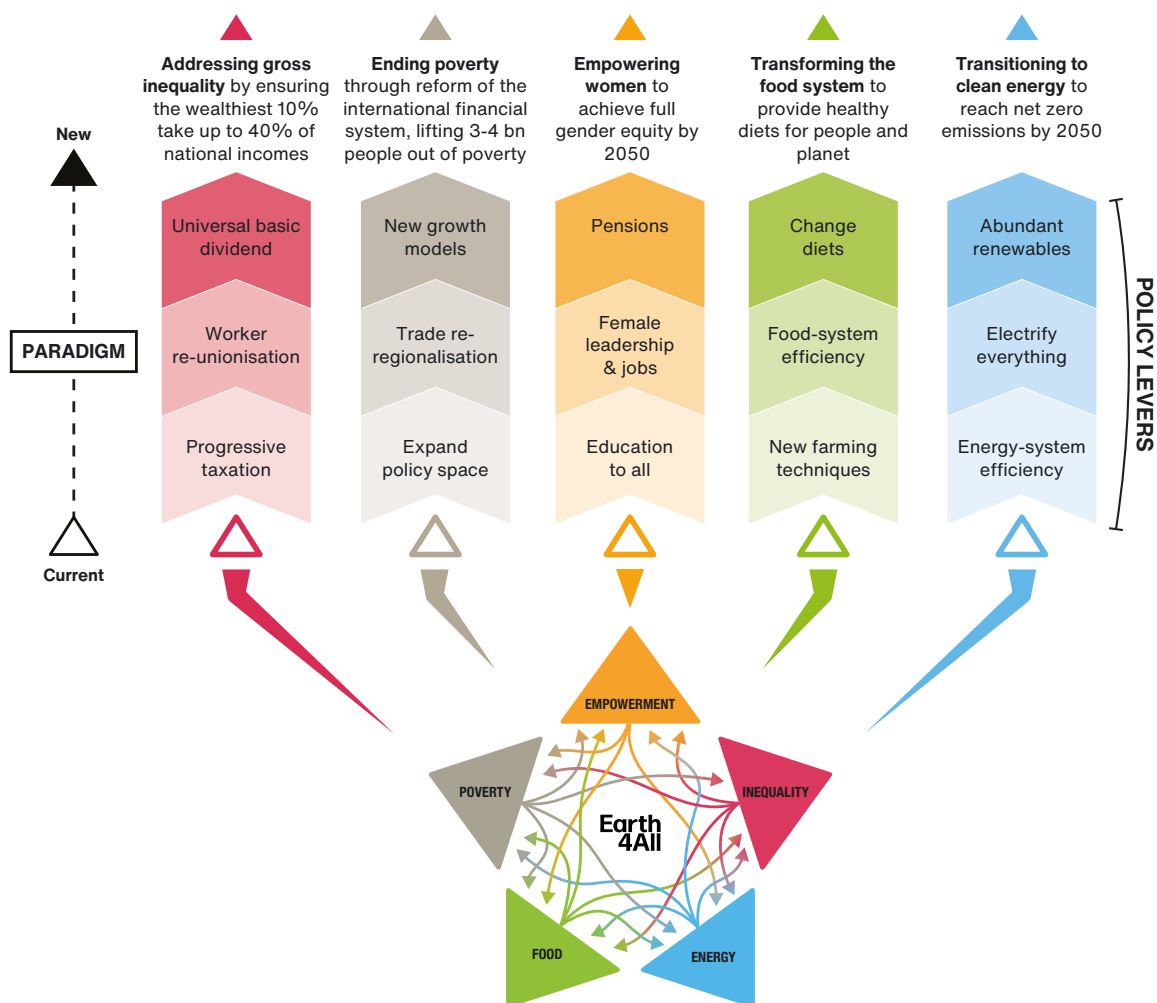
Giant Leap: A scenario that explores a path where societies make extraordinary decisions and investments now that enhance social cohesion, build trust and establish, essentially, an economic system that increases

wellbeing for all on a finite planet. Just like Too Little Too Late, this scenario explores the co-evolution of the global economy and Earth system (1980-2100) but assumes extraordinary cooperation and action, particularly in the years until 2030.

To achieve this Giant Leap, five extraordinary turnarounds are needed to build societal cohesion:

- ▶ **Poverty:** Transform and accelerate human development in low-income countries by reforming the international financial and trade system.
- ▶ **Inequality:** Transform wealth distribution by ensuring the wealthiest 10% have no more than 40% of national income.
- ▶ **Energy:** Transform energy systems to halve emissions of greenhouse gases every decade.
- ▶ **Food:** Transform agriculture and make our food systems regenerative and nature-positive.
- ▶ **Empowerment:** Transform gender power imbalances, empower women and invest in education for all.

Figure 1: The five extraordinary turnarounds and policy levers

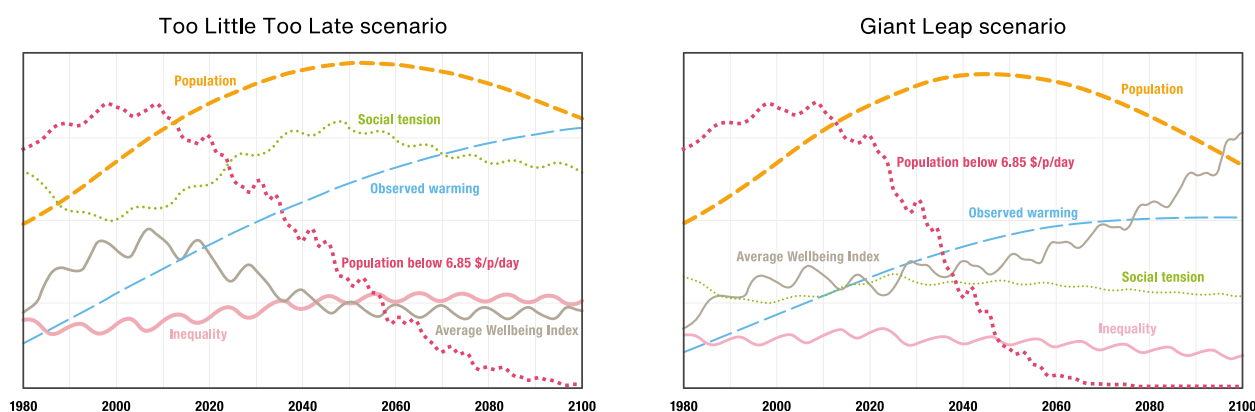


Source: www.earth4all.life

The five extraordinary turnarounds are designed as a systemic framework for a fair, just and affordable action plan for the planet. A systemic approach means that isolated policy proposals are insufficient to achieve the necessary leverage.

If we act now, with the largest effort and investment in this decade, then within a single generation we can achieve many of the sustainable development goals, and we can build societies that respect planetary boundaries. This future will be built on a new social contract between the government and citizens to upgrade the economic system. The world can still stabilise global temperatures below 2°C and eradicate extreme poverty by 2050.

Figure 2: The two Earth4All scenarios



Source: *Earth for all: A Survival Guide for Humanity (2022)* www.earth4all.life

Applying these five extraordinary turnarounds will require governments to take unprecedented measures to transform economies to enable widespread increases in human welfare within Earth's natural boundaries. It will also require massive acceleration in the scale and speed of transformative change if we are to rise to the growing existential threats to humanity and the planet from predicted future shocks and stresses.

Economic systems change

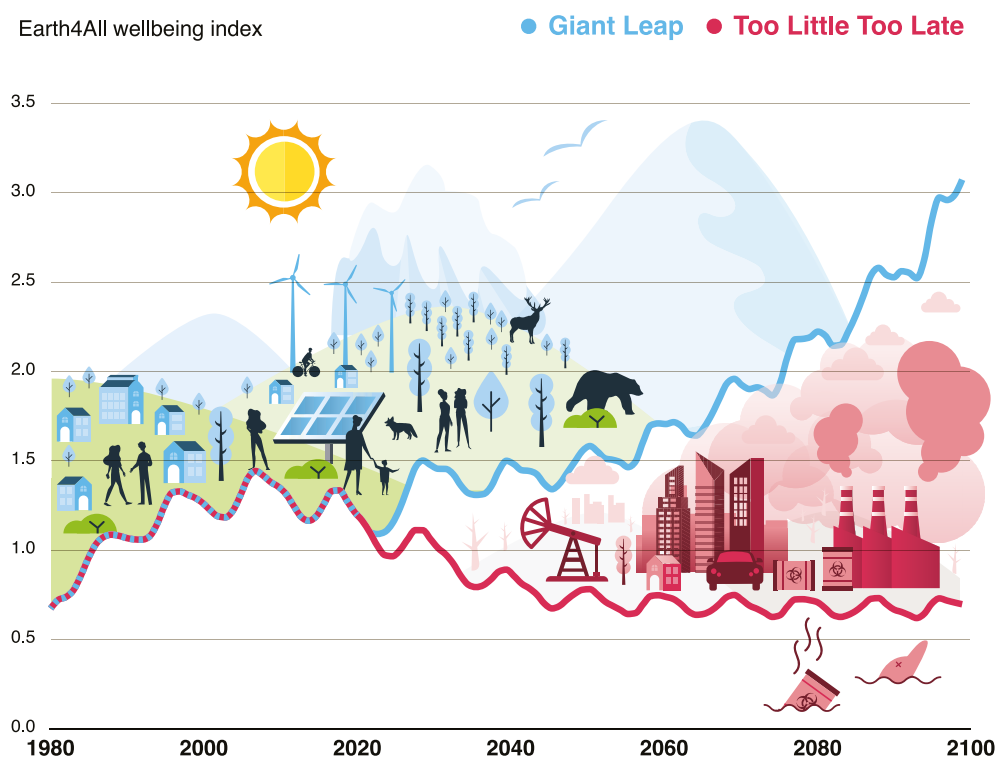
The five extraordinary turnarounds need to be driven by economic systems change. This means moving beyond GDP growth as a guide for a healthy economy.

There are a growing number of new frameworks for organising economies and measuring societal progress. These include concepts like the sharing economy, the circular economy, ecological economics, feminist economics, doughnut economics, green growth, steady state and degrowth. All these ideas articulate new ways of looking at what creates and sustains prosperity while also protecting the planet. These are not just competing buzzwords for the same concept; rather they emphasise different aspects of alternatives to our current linear, neoliberal, growth-at-all-costs economic approach. The transformed economy envisioned by the Earth4All project adopts elements of all these frameworks and aligns with the comprehensive framework known as a "wellbeing economy".

The Wellbeing Economic Alliance (WeAll) describes the wellbeing economy framework as “one that serves people and the planet, rather than people and planet serving the economy”. Earth4All has developed a wellbeing index that is built on the wellbeing framework. The index quantifies wellbeing based on:

- ▶ **Dignity:** worker disposable income after tax
- ▶ **Nature:** climate change (global surface average temperature)
- ▶ **Connection:** government services indicated by spending per person, i.e., to institutions that serve the common good
- ▶ **Fairness:** the ratio of owner income after tax to worker income after tax
- ▶ **Participation:** people’s observed progress (how wellbeing has improved or declined in the previous five years) and labour participation

Figure 3: Achieving wellbeing for all with a Giant Leap



Footnote: The Earth4All wellbeing index is inspired by the Wellbeing Economy Alliance’s framework and includes measurements for dignity, nature, institutions, fairness and inequality, and citizen participation.

Source: *Earth for All: A Survival Guide for Humanity (2022)*
www.earth4all.life

Earth4All on a national scale

The Earth4All analysis concludes there is still time to act to substantially reduce risks to societies and ensure economic security and wellbeing for all.

Recognising that policy solutions must be tailored to the unique circumstances of each country and locality, Earth4All has embarked on national engagement strategies to champion and establish locally relevant policies aligned with its core message. This approach allows for the transformation of ideas into tangible actions.

The strategy involves collaborating closely with local partners who are responsible for the analysis and implementation on the ground. Stakeholders include research institutions, decision-makers, civil society organisations, and well-established think tanks that hold significant influence within their respective communities. The approach places a strong emphasis on amplifying underrepresented voices, ensuring they are not only heard but also actively included in local implementations. Earth4All and its partners focus on a set of specific goals designed to expedite progress across all five turnarounds.

Earth4All at national scale is based on four main pillars:

- ▶ **Research:** analysis to determine the applicability of Earth4All principles within the unique context of each country, identifying opportunities and formulating policy recommendations related to the five turnarounds.
- ▶ **Citizen engagement:** fostering citizen participation in identifying local needs and priorities, forging alliances and cultivating public engagement. This includes conducting surveys, organising citizen assemblies, and hosting workshops to ensure grassroots involvement.
- ▶ **Advocacy:** collaborating closely with decision-makers to champion our proposed policy solutions and actively contribute to their implementation
- ▶ **Public outreach:** launching public campaigns through a blend of digital and offline strategies, encompassing media outreach and social media initiatives.

Earth4All in Kenya

Kenya is among the pilot countries selected for the Earth4All national scale initiative. The national engagement work for Kenya was launched at the Africa Climate Week in September 2023 and is led by the Partnership for Economic Policy (PEP). PEP is a globally recognised southern-led organisation dedicated to supporting development in the Global South by providing high-level, locally generated evidence that informs better decisions in policy and practice.

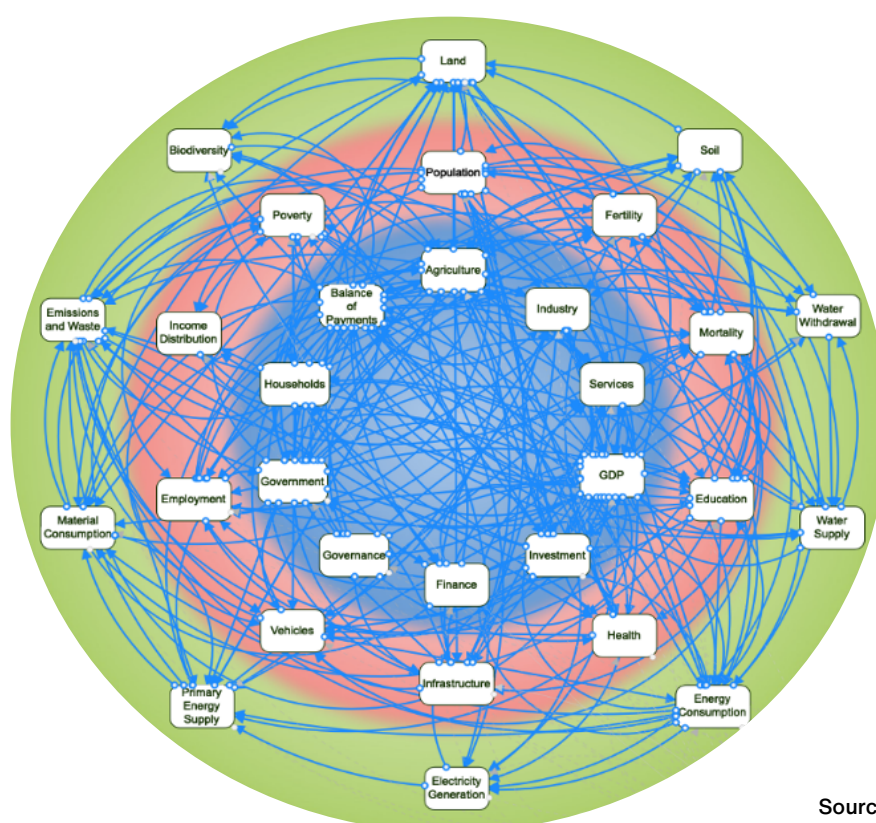
This report applies Earth4All to the local context of Kenya. In collaboration with PEP, the [Kenya Institute for Public Policy Research and Analysis](#) (KIPPRA), the [Millennium Institute](#), the international Earth4All team, and a diverse spectrum of stakeholders this report defines what Earth4All means for Kenya and identifies opportunities and policy recommendations related to the five turnarounds to accelerate progress towards achieving the Sustainable Development Goals (SDGs), the Bottom-up Economic Transformation Agenda and Africa Agenda 2030.

III. Methodology

This analysis was conducted using the iSDG model. Built upon the well-researched, time-tested, and proven Threshold 21 (T21) model, the iSDG model is the result of decades of system dynamics modelling work grounded in the scientific literature (Barney, 2002). Covering all 17 SDGs with 67 quantitative indicators, the iSDG model is considered a large-size model (over 48,000 equations) and is referred to as one of the most relevant models for national development planning (Allen et al., 2016; Pedercini et al., 2020). Since 1993, the T21-iSDG model has been applied to over 40 countries from Mozambique to Australia including China, Nigeria, Ethiopia, and Senegal (Millennium Institute, 2023). It has helped policy makers develop national plans regarding the green economy, sustainable agriculture, renewable energy transitions, and industrial reform (Pedercini et al., 2020).

Given the transparency aspect of the system dynamics method, the software tool used, the user-friendly interface and the potential participative approach of model development, the iSDG model allows policy makers to set the agenda and discuss pragmatically the problems at hand. Indeed, the iSDG model allows policy makers to conduct cross-sector impact analysis for testing policies and their impact within and outside the sector concern of the policy through propagation and feedback loops. Moreover, the iSDG model enables the user to simulate multiple policies individually and in the aggregate, resulting in a better understanding of possible synergies and in quantitative assessment of them (Pedercini et al., 2019). Finally, the iSDG model can assess the performance of a country working towards a certain goal whilst considering the dynamic causal changes (Pedercini et al., 2020). In the model, the 17 SDGs are categorised into 30 sectors displayed within the three dimensions of sustainable development (see Figure 4): environmental (outer ring, in green), social (second ring, in red) and economic (inner ring, in blue). For a sector, a detailed description, a full documentation of the model is published online (Millennium Institute, 2023).

Figure 4: High-level structure diagram of the iSDG model



Source Millennium Institute

To analyse the impact of the five turnarounds, this report focuses on four Earth4all's wellbeing dimensions: **dignity, nature, connection, and fairness**. The participation dimension was not included as no good proxy was agreed upon in this dimension. Given the difference in context between the global analysis made by Earth4All and this report focused on Kenya, a new set of indicators had to be selected (see Table 2). To establish a comprehensive representation of each dimension, two indicators were selected per dimension based on the local context and availability of data. Unlike GDP which was not intended to be a measure of a society's overall wellbeing but only a measure of economic activity, the chosen indicators include the interdependence of human wellbeing and a healthy planet. They indicate a framework that serves people and the planet and not people and the planet serving the economy. This argument for broadening the focus on wellbeing is supported by a survey conducted in Kenya by Ipsos for Earth4All evaluating citizen perceptions of means to improve people's wellbeing and quality of life and respond to global challenges. The survey findings indicate that 80% of the respondents prefer the economic success of a country to be measured by health and wellbeing of its citizens, not how fast the economy is growing.

For dignity, the chosen indicators are **(1) households with access to basic services, and (2) the proportion of the population below 2.15 USD/day**¹. The global model investigated the worker's disposable income, however the choice of indicators for national analysis conserves the notion of integrity associated with monetary needs (through the proportion of the population below 2.15 USD/day) but complements it with a perspective on essential nonmaterial needs (through the access to basic services).

For nature, the chosen indicators are **(1) total CO2 emissions, and (2) domestic material consumption**. Compared to the global analysis which looked at the average surface temperature, the choice for national indicators is justified by the scale at which a country operates. Indeed, as countries have a limited impact on the temperature changes they observe locally, it only makes sense to consider indicators for which domestic actions have a direct impact (like emissions and material consumption).

For connection, the chosen indicators are **(1) per capita government expense, and (2) total debt to GDP ratio**. The first indicator directly aligns itself with the global level directive, while the second one provides an additional insight into where the expenses stand with regard to the level of debt.

For fairness, the chosen indicators are **(1) the Gini coefficient, and (2) the income share of the highest quintile**. In the global analysis, fairness indicators demonstrate the inequality between owners' and workers' income. At the national level, the focus was to investigate commonly used and well-established indicators like the Gini coefficient and the income share of the highest quintile.

Table 2: Indicators chosen for each wellbeing dimension

Dignity	<ul style="list-style-type: none"> ▶ Households with access to basic services ▶ Proportion of population below 2.15 USD/day
Nature	<ul style="list-style-type: none"> ▶ Total CO2 emissions ▶ Total domestic material consumption
Connection	<ul style="list-style-type: none"> ▶ Per capita government expense ▶ Total debt to GDP ratio
Fairness	<ul style="list-style-type: none"> ▶ Gini Coefficient ▶ Income share of highest quintile

IV. Context

This section of the report analyses Kenya's socio-economic and political context using the Earth4All wellbeing dimensions that include dignity; nature; connection; and fairness. This lays a foundation for understanding how the implementation of the national policies and strategies to realise the five turnarounds could either optimise the country's sustainable development goals leading to a Giant Leap, or else, how limited investments in the five turnarounds could slow down efforts to attain sustainable development and human progress in Kenya. **The context is informed by Kenya's Vision 2030, the Bottom-Up Economic Transformation Agenda (BETA), Kenya's commitments to realising the 17 Sustainable Development Goals (SDGs), as well as the African Union Agenda 2063.**

Kenya is classified as a lower middle-income country with a Gross National Income (GNI) Atlas method of USD 2,170 in 2022 (World Bank, 2023a). Guided by Kenya Vision 2030, the country's long-term blueprint for economic, social, and political development, Kenya has made significant progress in attaining sustainable development in the last two decades. Between 2015 and 2019, the country's gross domestic product (GDP) grew by 4.8% per year (World Bank, 2023). In 2020, the GDP shrunk by 0.3% due to the COVID-19 pandemic shocks, which negatively affected economic operations in key sectors like tourism, transport, international trade, and urban development (ibid). However, the agricultural sector showed considerable resilience due to favourable weather conditions in the same period. Importantly, **the GDP growth rate was able to bounce back** to 7.59% in 2021 but declined to 4.85% in 2022 due to drought and other factors that impacted the economy negatively (KIPPRA, 2023a). By the end of 2023, the economy had improved marginally to 5% growth (World Bank, 2023b).

Since 1963, Kenya's political landscape has changed tremendously. First, the governance and democratic practices shifted from a de facto one-party state to a multi-party democracy in the early 1990s. Second, the Constitution (2010) ushered in a devolved system of governance under 47 county governments and effectively transferred power, resources, and decision-making to these devolved units (Republic of Kenya, 2010). Along with this are requirements to embed representation, inclusion, fairness, and public participation in all matters that affect citizens' lives including the allocation of resources at national and county levels, elections, and development of policy and legislation among others in line with Articles 1, 10, 35, 118, 119, 201, 221 and 232 of the **Constitution of Kenya, 2010 (ibid)**. The constitution also emphasises the rule of law and respect for human rights, which is in variance with the country's human rights track record in the 1990s.

BETA is a cornerstone for the upcoming Medium-Term Plan IV (MTPIV) (2023-2027) (Republic of Kenya, 2024) and implements the last five years of Kenya Vision 2030- the country's long term development blueprint. It emphasises inclusive growth by empowering those at the bottom of the pyramid in transforming Kenya into a middle-income country. The BETA is operationalised through 5 pillars and 12 enablers (Parliamentary Budget Office, 2023). The five pillars are Agricultural Transformation; Micro, Small and Medium Enterprise (MSME) Economy; Healthcare; Housing and Settlement; and Digital Superhighway and Creative Industry. The key enablers are Blue Economy; Education and Training; Environment and Climate Change; Foreign Policy and Regional Integration; Governance; Infrastructure; Manufacturing; Service Economy; Women Agenda; Social Protection; Sports, Culture and Arts; and Youth Empowerment and Development Agenda. By focusing on agriculture, MSME development, affordable housing, ICT, and universal healthcare, BETA addresses some of the key economic and social challenges and **empowers individuals and businesses to contribute to the nation's economic prosperity**. Moreover, successful

implementation of BETA will require sustained government commitment, collaboration with stakeholders, and ongoing monitoring and evaluation to ensure progress and impact. In a scenario where all the enablers are actualised, the BETA agenda is expected to be transformative to the economy leading to a giant leap, especially through the MSMEs sector. This sector is projected to grow the Kenyan economy by 60% which translates to KES 6 trillion (Kenya Kwanza Manifesto, 2022)². It will also improve the standards of living through better housing and healthcare, and overall lower the cost of living. However, if the BETA agenda is not actualised, it will have ramifications for the country's economic outlook with about 10 million people (85%) of the Kenyan workforce stuck in the informal sector jobs where earnings are low. The consequence is that of deepened inequalities and exclusion of a large proportion of Kenyans from participating in nation-building.

At the **regional level**, the BETA also reflects Kenya's commitments to the African Union Agenda 2063³ which seeks to promote continental integration and sustainable development. The AU Agenda 2063 fosters collaboration among African nations to address common challenges and achieve shared goals, contributing to regional stability and prosperity.

Contextualising Kenya's socio-economic and political environment through the Earth4All wellbeing dimensions

Dignity

The indicators for human dignity are access to basic services and the proportion of the population below 2.15 USD/day. World Bank data shows that the percentage of Kenya's population using safely managed sanitation services increased from 24.5% to 31.5% between the year 2000 to 2022 (World Bank, 2022)⁴. In addition, the proportion of the rural population with access to improved sanitation services increased from 25.5 to 33.0% in the same period (Ibid). There seem to be greater improvements in rural areas compared to urban areas with an average national improvement of only 8% in two decades (Ibid). In terms of access to clean drinking water, 47.5% of the total Kenyan population had access in 2000, which increased to 62.9% in 2022 (Ibid). Concomitantly, the proportion of the population accessing basic drinking water services in urban areas reduced from 87.8% in 2000 to 86.4% in 2022, while there was an improvement in rural areas from 37.5% to 53.3%. These figures indicate a significant deterioration in the quality of services in urban areas while registering improvements in the rural areas. Another important component of basic services is the proportion of the rural population living within a two kilometres radius of an all-season road. In 2009, the rural access index was 56%, but there was a marked improvement within a decade, rising to 70% in 2018 (World Bank, 2023⁵).

The Government is committed to enhancing the dignity of individuals through its Kenya Vision 2030, the Bottom-up Economic Transformation Agenda and African Union Agenda 2063 commitments. BETA underscores the intrinsic connection between dignity and human wellbeing, by placing significant emphasis on the principles of social justice, inclusivity, and empowerment. A key focus of this agenda is promoting inclusive economic growth and reducing poverty through the empowerment of local communities. As stated earlier, priority is given to smallholder farmers and medium small and micro enterprises (MSMEs). MSME initiatives like microfinance programs are instrumental in providing communities with financial resources as well as capacity development opportunities and tools needed to actively participate in economic activities. Beyond the immediate economic benefits, these efforts contribute to job creation, income generation, and, importantly, the enhancement of individuals' sense of dignity by fostering self-

reliance and independence at the grassroots level. In addition, both Vision 2030 and BETA recognise the vulnerability of certain populations and incorporate social protection programs. Currently, Kenya has several social assistance programs in the form of cash transfers that target support to orphans and vulnerable children; older persons; and persons with disabilities; and a hunger and safety net program for vulnerable households in Arid and Semi-Arid Lands (ASAL). These programs, combined with empowerment strategies, are designed to safeguard the dignity of individuals by addressing their basic needs and reducing the impact of economic shocks. By prioritising the most marginalised groups, the agenda actively fosters a more inclusive and dignified society.

The country has also prioritised investments in three other key sectors including health, education, and economic development for poverty alleviation in its development plans. Increased investments in health, education, and social protection with the overarching aim of improving the overall wellbeing and dignity of the population. The Vision's "Social Pillar" emphasises the importance of quality healthcare services, accessible education, and targeted poverty reduction initiatives. The government has made concerted efforts in education by investing in free primary and day secondary education. Consequently, the country is on track towards the attainment of the SDG target on expanding access to quality education at all levels, but there is a need to address inequalities and enhance investment across all education and training levels by both public and private sectors. It will also be paramount to ensure the effective implementation of the new competency-based education system of 2-6-6-3 (since 2017) and support equitable access to education for all school-going children in all counties without leaving anyone one behind.

Regarding health, the social pillar identified specific goals related to health with the overall goal being the realisation of universal health coverage. However, the expectation is that this ambitious goal will be realised incrementally in line with a raft of four key legislations enacted in October 2023. The four include the Digital Health Care Act, 2023 recognising the role of mobile phones and internet connection in the field of telemedicine; the Primary Health Care Act 2023 which focuses on preventive health at the community level; and the Facility Improvements Financing Act, 2023 which prioritises investments to expand and improve the capacity of public health facilities. Finally, the Social Health Insurance Act 2023 aims to make health care accessible and affordable to all, but more so for the most vulnerable people through public financing⁶.

Furthermore, the Constitution of Kenya (2010) envisions an accountable, transparent and value-driven nation where every citizen and institution is guided by National Values and Principles of Governance for the common good of all citizens. In the richness of Kenya's diverse society, the promotion of national values and the enhancement of social accountability have proved to be pivotal foundations for fostering inclusivity, good governance and sustainable development, and human dignity is one of these values. The seventeen National Values and Principles of Governance are patriotism, national unity, sharing and devolution of power, rule of law, democracy and participation of people, human dignity, social justice, inclusiveness, equality, human rights, non-discrimination, protection of the marginalised, good governance, integrity, transparency, accountability, and sustainable development.

Importantly, Kenya's commitments to universal health coverage, access to quality education and ending poverty align with SDG 3 on ensuring healthy lives and promoting wellbeing; SDG 4 on quality education; and SDG 1 on ending poverty. Similarly, the country is also committed to realising the development aspirations encapsulated in the African Union Agenda 2063. Specifically in line with the indicator discussed in this section, there is a strong focus on human dignity with a continental emphasis on social



inclusion, empowerment, and human rights. Specific sections within Agenda 2063 documents, such as Aspiration 3 and Aspiration 6, highlight the importance of inclusive development, gender equality, and the protection of human rights. These aspirations reinforce the commitment to fostering a dignified and equitable society across the African continent.

At the global level, the indicators can be compared to the Human Development Index (HDI) which tracks the achievement of various human development indicators. Kenya's 2021 HDI indicators suggest an upward trend over the past 30 years although the increment is not significant enough to result in a society-wide transformation. In 1990 Kenya recorded an HDI of 0.47, which shows low human development, and 0.58 by 2021, indicating medium human development.⁷

Nature

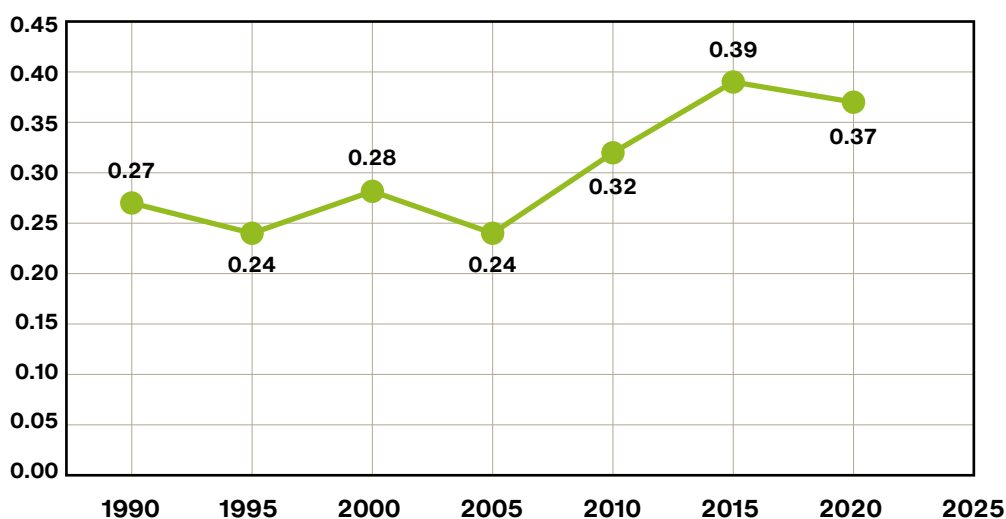
Carbon emission levels in Africa are generally low at an average of 4% of the global average, representing 1.45 billion tonnes (Global Carbon Budget, 2023)⁸. Emissions are greatest among the most industrialised and high-income countries with high GDP growth rates as Table 3 indicates.

Table 3: Emission contributions by high-income countries

	Top 10 global pollution ranking	Greenhouse gas (GHG) total emissions (MtCO ₂ e)	Global percentage contribution to GHG emissions
	1 China	12,295.62 Mt	25.88%
	2. USA	5,289.13 Mt	11.13%
	3. India	3,166.95 Mt	6.67%
	4. European Union	2.96 Gt Mt	6.22%
	5. Russia	1,799.98 Mt	3.79%
	6. Indonesia	1,475.83 Mt	3.11%
	7. Brazil	1,469.64 Mt	3.09%
	8. Japan	1,062.78 Mt	2.24%
	9. Iran	844.71 Mt	1.78%
	10. South Korea	613.54 Mt	1.29%

Source: Global GHG Emissions 2020. Climate Watch Data.org

Based on per capita emissions, Africa's emissions are a mere one tonne of carbon dioxide annually per individual compared to 10.3 tonnes per American and Australian (ibid). Overall, Kenya's emission levels remain relatively low at 17.414 metric tonnes in 2021 which translates to 0.1% of the global share, and a global ranking of 88 out of 147 countries⁹. Despite the minimal contribution to global warming, Kenya's overall carbon emission levels have been growing both in terms of the total annual emissions and per capita levels since the 1960s (RoK, 2018). As Figure 5 X shows, the per capita emission levels increased from 0.24 metric tonnes in 2005 to 0.37 metric tonnes by 2020 (World Bank, 2020). In 2021 alone, Kenya emitted a total of 19,875,402 metric tonnes of carbon dioxide, with a significant rise to 24.6 million metric tonnes in 2022¹⁰. The main source of carbon emission is fossil fuels (ibid).

Figure 5: CO2 emissions (metric tonnes per capita) in Kenya (1990-2020)

Source: World Bank (2020)

Despite low emission levels, Kenya is heavily impacted by adverse weather events such as flooding and cyclic droughts which signal growing climate variability and huge disruptions to close to five million people's livelihoods (Njogu, 2020; UNDP, 2022).

The country's commitments as defined in the Bottom-up Economic Transformation Agenda demonstrate a forward-looking commitment to environmental sustainability, acknowledging the interconnectedness of economic development and ecological wellbeing. This agenda not only prioritises economic growth but also integrates green practices and initiatives that aim to foster sustainability across sectors. Specifically, it places a strong emphasis on green growth initiatives and sustainable practices. This includes promoting environmentally friendly technologies and sustainable agricultural practices. For instance, initiatives encouraging the adoption of renewable energy sources such as solar and wind power demonstrate a commitment to reducing the environmental impact of economic activities. Additionally, sustainable agricultural practices focus on soil conservation, water management, and biodiversity preservation, aligning economic development with environmental stewardship. These initiatives align with citizen perceptions of environment and climate change policies. Findings from a recent survey conducted by Ipsos for Earth4All indicate that 90% of the respondents are optimistic that addressing climate change and environmental damage can bring many benefits to Kenya. Given this, 86% of the respondents are of the view that the country should start addressing climate change and environmental damage immediately.

The African Union's Agenda 2063 equally places a significant emphasis on environmental conservation. The agenda highlights the importance of climate action and sets ambitious goals for conservation efforts. Specific sections within Agenda 2063 documents outline the commitment to addressing environmental challenges, emphasising the role of sustainable development in ensuring the continent's ecological integrity. Kenya, like most African countries, has committed to and established a climate fund. The allocation of climate funds is part of critical global efforts to combat climate change. Article 9 of the Paris Agreement (2015) obligates high-income countries to support low-income countries by mobilising and contributing to climate finance from all sources possible. As part of the agreement high-income countries

are required to mobilise USD 100 billion per year towards climate change mitigation. However, this target is yet to be met and may be in the realm of 'too little too late', given its limited realisation to date. This shortfall in meeting the pledged amount adversely constrains the availability and accessibility of funds directed toward climate-related initiatives, particularly in developing nations and interventions targeting the youth. For example, from all the 55 African countries that submitted their Nationally Determined Commitments (NDCs), the associated implementation costs totalled to USD 2.8 trillion from 2020-2030¹¹. However, Africa's annual climate finance flows stand at only USD 30 billion; and hence climate financing remains a critical area of focus in managing greenhouse gas emissions.

In terms of the material consumption indicator, the agriculture sector is the main contributor of GHG emissions in Kenya with 62.8% of emissions, followed by the energy sector which contributes 31.2%¹². The main component of energy emissions is due to biomass which is the main source of energy utilised by the Kenyan population for domestic use¹³. The government has put in place strategies such as the Kenya Sustainable Energy for All (SEforAll) Action Agenda to achieve 100% transformation to clean energy by 2028¹⁴. The agenda was launched in 2011. The main objective is to improve access to modernised energy and enable the country to realise its socio-economic ambitions. The initiative is geared towards realising modern bioenergy systems by 2030. However, while Kenya is making significant progress in the reduction of GHGs, the push to achieve sustainable economic growth may compromise efforts to reduce the use of non-renewable energy.

The simulation suggests that Kenya's material consumption trends need to be maintained at the Too Little Too Late scenario to avoid a catastrophic situation by 2050. The forecasts related to water efficiency and irrigation show positive outcomes - although the country has experienced natural resource conflicts related to access to water and pasture especially in nomadic communities, the simulations show that there will be a decline in water vulnerability, converse to what would have been historically expected.

Connection

The indicators for the wellbeing dimension of connection are per capita government expenditure and total debt-to-GDP ratio. Considerable efforts have been put into expanding healthcare insurance coverage in Kenya, improving healthcare facilities at the county level including enhancing referral processes to national-level hospitals and equipping county-level hospitals with specialised equipment and services to treat illnesses such as cancer. The government's health expenditure per capita has risen exponentially over the last two decades. Data from the World Bank indicates that by 2000 the per capita expenditure stood at USD 21.40, but the figure more than doubled in 2010 to USD 58.93. There was a further rise to USD 83.40 by 2020. Despite the rise in real expenditure amounts, as a percentage of the GDP, the increments are minimal, with the highest percentage of 55.39% only reached in 2010. The proportion soon declined to 3.99% by 2016. It rose again marginally between 2017 to 2020 to 4.29% (ibid). Contrary to expectations that increments in both per capita and percentage of GDP would positively impact per capita out-of-pocket expenditure on health, this does not seem to be supported by evidence. Overall, out-of-pocket per capita expenditure remains quite high in Kenya, with an all-time high of USD 21.81 in 2013, USD 15.55 in 2017 and upwards to USD 20.07 in 2020, possibly due to COVID-19-related expenses as demand for healthcare services rose. In a country where nearly half of the population lives on USD 2.15 a day, any additional costs beyond survival put the welfare of individuals and household in jeopardy. The historical data also suggest that even with a tripling of the current per capita expenditure, Kenya would likely remain in the Too Little Too Late scenario and only very ambitious investments with

a significant proportion of the GDP would realise the Giant Leap and have a positive impact on poverty reduction. This is particularly important because higher out-of-pocket expenditures have been shown to deepen poverty and exclusion of the most vulnerable social groups¹⁵.

Evidence from UNESCO shows that Kenya's public expenditure on education ranges from between 3.93% of its GDP which was at its lowest in 1971, to 7.34% in 2005 at the height of implementing free primary education¹⁶. The average is 5.36% of the GDP but by 2022 it was 4.08% against a world average of 3.80%, based on data from 83 countries (ibid). Furthermore, World Bank data shows that the government spent nearly a fifth (17.9%) of its total budgetary expenditure on education in 2020¹⁷. The increment in expenditure in this sector seems to be informed by population changes (growing enrolment rates) rather than the need to invest more per capita.

Over and above these two indicators, Kenya is also committed to deepening citizen participation as a way of entrenching democratic governance and improving state-citizen connections. More specifically, BETA is distinctive in its commitment to community engagement, grassroots participation, and cultural preservation. With a focus on inclusive development, Kenya Vision 2030 and Agenda 2063 complement these efforts by promoting social cohesion, celebrating cultural diversity, and fostering connections within both the national and pan-African contexts. The integration of these principles into development frameworks underscores a commitment to holistic and community-centric progress. Public participation remains the hallmark of devolution in Kenya as enshrined in the Constitution (2010). The Constitution seeks to involve citizens in governance through inclusive decision-making, planning, budgeting and project monitoring and implementation. Meaningful citizen participation in governance is critical in fully operationalising and enjoying the main provisions of the Constitution of Kenya 2010. The various pieces of legislation anchoring devolution highlight the principles of citizen participation such as the County Governments Act No. 17 of 2012. Together, these constitutional and legislative provisions avail various platforms for citizen participation in devolved governance. Citizen participation is one of the national values and is also one of the principles of public service as articulated in the Constitution in Articles 10 (2, a) and Article 232 (1).

Fairness

BETA actively addresses economic disparities by implementing strategies for equitable resource distribution. Kenya Vision 2030 and Agenda 2063 complement these efforts by emphasising a commitment to addressing historical injustices, promoting gender equality, and fostering social justice. The integration of these principles into development frameworks underscores a dedication to creating an economically inclusive and just society in Kenya and across the African continent. One key focus of the Bottom-up Economic Transformation Agenda is the implementation of strategies that ensure the equitable distribution of resources.

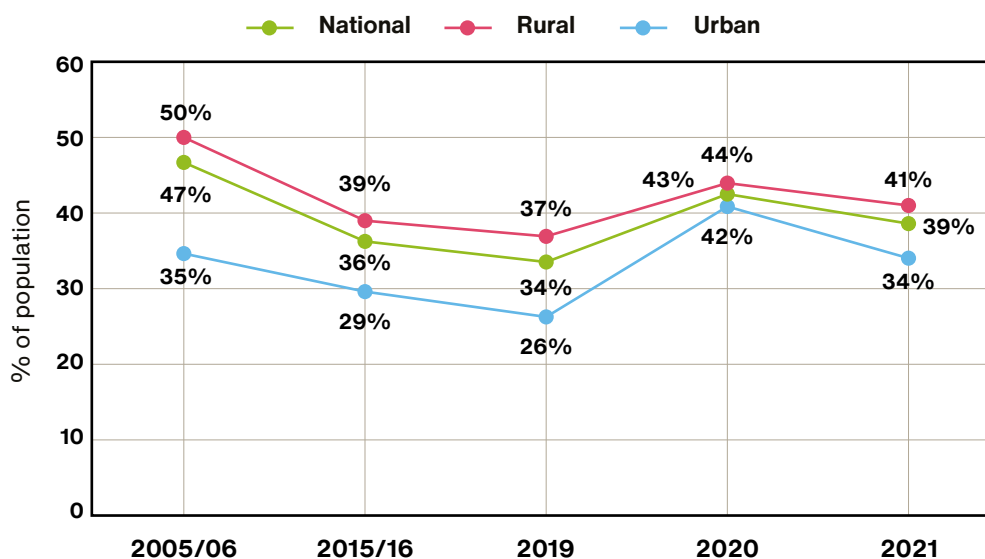
The BETA is based on the Kenya Vision 2030 aspirations of solidifying the foundations of economic transformation; enhancing productivity of the targeted sources of growth; improving social welfare; and strengthening governance. It is designed around five pillars including Agriculture which seeks to improve food security in the country; Micro, Small and Medium Enterprise (MSME) economy seeking to promote business start-ups, innovations and entrepreneurship; Housing and Settlement seeking to Provide affordable housing across the country; Healthcare aiming at ensuring the public has access to affordable and quality health care; and Digital Superhighway and Creative Economy which will provide opportunities for the youth in developing online business, employment and creative art. The pillars

support investments in the five sectors of the Financial and Production Economy; Infrastructure; Land and Natural Resources; Social sector; Governance and Public administration.

Kenya Vision 2030, as a strategic development framework, reinforces the commitment to addressing historical injustices and economic disparities. Vision 2030 highlights specific initiatives focused on gender equality, human rights, and broader social justice considerations. The Vision also outline strategies for empowering historically marginalised groups, promoting gender inclusivity, and fostering an environment that prioritises social justice. Similarly, Agenda 2063 of the African Union also informs Kenya's efforts in the pursuit of inclusive development and social justice. It emphasises the need for equitable development across the African continent, recognising that addressing economic disparities is essential for building a prosperous and united Africa. One of the specific goals in Agenda 2063 is to promote fairness and ensure that the benefits of development are shared equitably among diverse population. In this regard, the Constitution of Kenya (2010) envisions a more accountable, transparent and value-driven nation where every citizen and institution is guided by National Values and Principles of Governance for the common good of all citizens. In the rich tapestry of the country's diverse society, the promotion of national values and the enhancement of social accountability have proved to be pivotal foundations for fostering inclusivity, good governance and sustainable development and human dignity is one of the values. The National Values and principles of governance are patriotism and national unity; sharing and devolution of power; rule of law; democracy and participation of people. Others include human dignity; social justice; inclusiveness; equality; human rights; non-discrimination; protection of the marginalized; good governance; integrity; transparency; accountability; and sustainable development.

In 2013 as part of Kenya's affirmative action plan, the government launched the Access to Government Procurement Opportunities (AGPO) program targeted at the disadvantaged groups of women, youth, and persons with disabilities. The program requires that women, youth, and persons with disabilities access at least 30% of the value of government procurement opportunities, with at least 2% reserved for persons with disabilities. The legal underpinning for the program includes Article 227 and Article 55 of the Constitution of Kenya, 2010 and the Public Procurement and Assets Disposal Act, 2015. AGPO aims to address economic inequalities while promoting human dignity. The Public Procurement and Assets Disposal Act, of 2015 explicitly defines the preference and reserved groups. The Act defines disability as captured in the Persons with Disabilities Act, of 2003. It defines a person living with a disability as 'a person with a physical, sensory, and mental or other impairment including any visual, hearing, learning and physical incapability, which impacts adversely on social, economic, or environmental participation'. Unlike youth and women, persons with disabilities seeking preference in government procurement are required to register with the National Council for Persons with Disabilities (NCPWD). Data from the Kenya National Bureau of Statistics (KNBS) 2022 economic survey shows that the number and value of tenders awarded under AGPO by public procuring entities stood at KES 42.49 billion and KES 44.63 billion respectively for the financial years 2019/20 and 2021/22 (Republic of Kenya, 2022).

Evidence shows that poverty levels in Kenya declined from 46.1% in 2005/06 and 36.1% in 2015/16 to 27.2% in 2019 measured at USD 2.15 poverty line (ibid). Figure 6 shows changes in absolute poverty rates between 2005/6 and 2021/22.

Figure 6: Absolute poverty rate, 2005/06 – 2021

Source: Kenya Economic Update (World Bank, 2023:4)

However, despite the concerted efforts to bring headcount poverty levels down, the country still struggles with high levels of inequality, multidimensional poverty, unemployment, adverse effects of climate change, low health insurance coverage and low quality of education.

To address poverty the Government of Kenya has been at the forefront of implementing social protection schemes. The Kenya National Social Protection Policy of 2011 is a major milestone by the government towards alleviating poverty and reducing the vulnerability of the population to economic, natural, and social shocks. The policy aims to fulfil the constitutional provision of every Kenyan's right to a life of dignity and every fundamental right recognised in national and international statutes. This policy aims to ensure that all Kenyans have the necessary financial buffer to sustain decent living inclusive of access to healthcare, income security through household and child benefits to access healthcare, education, nutrition, and social assistance for persons with disabilities, the elderly and those unable to earn sufficient income. Along with development partners, the Government of Kenya implements various cash transfer programmes. These include Cash Transfer for Orphans and Vulnerable Children (CT-OVC), Older Persons Cash Transfers (OPCT) targeting poor and vulnerable older persons, and the Hunger Safety Net Programme (HSNP) aimed at alleviating extreme hunger in households that cannot meet basic needs, especially food in eight ASAL counties in the country, and Cash Transfer for Persons with Severe Disability (PWSD-CT). The Urban Food Subsidy Programme was implemented in Mombasa, Kisumu and Nairobi in March 2012 as a cash transfer programme to help the urban poor meet food needs, but has since been discontinued. The Hunger Safety Net Programme (HSNP) is a cash transfer programme implemented in the four poorest and arid counties of Turkana, Wajir, Mandera and Marsabit, with plans to expand to more counties including Garissa, Tana River, Isiolo and Samburu. This programme is implemented by the National Drought Management Authority (NDMA). The main objective of the NDMA is to ensure effective, financially secure and well-targeted use of safety net and cash transfer to support some of the most vulnerable and poor in Kenya and to implement a scaled-up, integrated, effective government-led and financed safety net programme.

Recent interventions have shifted from poverty-targeted approaches to a life cycle approach, where the policy focus is to map the existing cash transfer programmes to life cycle risks, starting with childhood while incorporating pregnant women, school-going children, youth and the elderly, including those with disability. Another recent programme is the Kenya Social and Economic Inclusion Project. The project was implemented in specific counties and was intended to improve social and economic inclusion in the country. It had three major components: to strengthen social protection delivery systems, increase access to social and economic inclusion interventions, and improve the shock-responsiveness of the social protection system (KNBS, 2018).

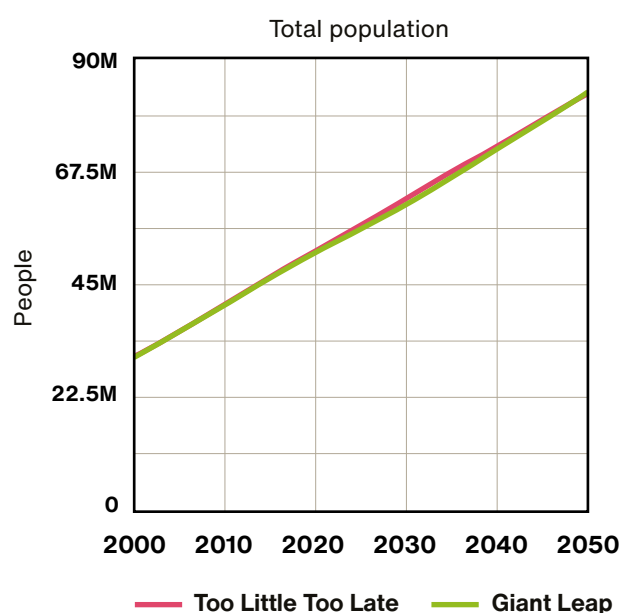
V. Scenario Analysis

This chapter analyses the different development trajectories that can unfold, given the various policy choices adopted at the national level. First, a macro-level impact analysis of the Giant Leap policies on wellbeing indicators is described and compared to the Too Little Too Late scenario. Second, a deep dive impact analysis of each turnaround on another set of relevant indicators is illustrated through graphs and causal explanation of behaviour.

Too Little Too Late and Giant Leap scenarios

This section analyses the impact of the Giant Leap scenarios on wellbeing indicators. These indicators are analysed through the four dimensions of Earth4All: dignity, nature, connection, and fairness. The scenarios entail the demographic projections illustrated in Figure 7. As can be observed, the development of the population in the Too Little Too Late scenario is similar to the one in the Giant Leap. Even though the Giant Leap scenario entails major changes in fertility due to the empowerment of women, it also entails major improvements in health care services, nourishment, and overall life expectancy. Both effects counteract each other and maintain the current population growth pattern. They also lead to a shift upwards in the population pyramid as the old population grows faster in the Giant Leap scenario compared to the Too Little Too Late scenario.

Figure 7: Development of total population



Dignity

To analyse dignity, the chosen indicators are (1) the proportion of households with access to basic services and (2) the proportion of the population below USD 2.15 per day. The proportion of households with access to basic services is based on average access to safely managed water sources and sanitation facilities, rural access index, the proportion of urban waste collected and disposed, average access to basic health care, and primary enrolment rate. As can be observed in Figure 8, both indicators perform significantly

better in the Giant Leap scenario. As observed in chapter 3, evidence shows that the proportion of Kenya's population using safely managed sanitation services increased from 24.5% to 31.5% between 2000 and 2022 (World Bank, 2022)¹⁸. In addition, the proportion of the rural population accessing improved sanitation services increased from 25.5% to 33% in the same period (Ibid). This data suggests greater improvements are occurring in rural areas compared to urban areas with an average national improvement of 8 percentage points in two decades (Ibid). The government will need to make massive investments into basic services provision to realise the Giant Leap and for a significant transformation to occur. Improved sanitation services also contribute greatly to positive preventive and primary healthcare outcomes, saving on public health expenditures.

Concerning access to basic services, the Too Little Too Late scenario undergoes moderate improvements, mainly due to improvements in primary enrolment, rural access index and access to basic health care. These improvements are respectively driven by persistent investment in education, continuous increase in road infrastructure and overall economic production which enables higher national income. As indicated in section 4.1, it is evident that access to clean drinking water in urban areas is becoming a challenge. There are notable reductions in the proportion of those accessing the service by 2022, while there was an increase of the proportion of people accessing water services in rural areas from 37.5% to 53.3%. Similarly, rural access has greatly improved in the last decade from a rural access index of 56% to 70% by 2018 (World Bank, 2023¹⁹). These trends support projections on both the Too Little Too Late scenario as well as the Giant Leap. If current investment levels in basic services are maintained, the chances are that there will be a closing of the gap between rural and urban areas in terms of access. This scenario is quite likely in the context of devolved governance which aims to bring services closer to the people, and as people advocate for better services through citizen participation efforts. However, the catch-up is likely to have a net effect of equalising urban and rural areas but not necessarily be transformative. A transformative scenario would require not only a rural access index of 100%, but that the access is modernised to ensure efficiency and open rural areas for economic investments similar to those in urban areas, hence facilitating a Giant Leap.

The government has actively prioritised education, evident in investments toward free primary and day secondary school education. While significant progress has been made in aligning the country with the SDGs for expanding access to quality education, there remains a crucial imperative to tackle disparities across all education levels. Budget data on expenditure on primary education in Kenya from the fiscal years 2013/2014 to 2022/2023 shows fluctuations over the years. There is a general increasing trend from 2013/2014 to 2016/2017, followed by a decline in expenditure in the subsequent years until 2019/2020. From 2019/2020 onwards, there is a slight increase in expenditure, but it remains lower compared to the earlier years. The highest expenditure is observed in 2015/2016 (KES 36.3 billion) followed closely by 2016/2017 (KES 36.2 billion). The lowest expenditure is seen in 2018/2019 (KES 20.5 billion), which represents a significant drop compared to the previous years. The 2024 Budget Policy Statement (GOK, 2024)²⁰ indicates a substantial increase in medium-term expenditures for primary education, projecting a 16% growth from KES 37 billion in 2023/24 to KES 43 billion in 2026/27.

Budget data for the period between 2013/2014 and 2024/2025 suggests a commitment by the Kenyan government to prioritise infrastructure development, particularly in road construction and maintenance, which is crucial for economic growth, connectivity, and mobility within the country. From the fiscal year 2013/2014 to 2018/2019, there was a notable rise in investment from KES 101 billion to KES 181 billion. Subsequently, from 2018/2019 to 2022/2023, there was a further increase to KES 211 billion,

demonstrating a continuous upward trend in investment, albeit at a slightly slower pace compared to the previous period. Road infrastructure investments are expected to increase by 10% between the financial years 2023/24 and 2026/27 from KES 233 billion to KES 257 billion. The consistent increase in investment reflects the government's recognition of the importance of a well-developed road network for enhancing transportation efficiency, stimulating trade, attracting investment, and fostering overall socio-economic development. Within the framework of BETA, health, a fundamental pillar, is also set to benefit from heightened public investments and the implementation of a comprehensive social health insurance program covering all citizens. Consequently, health expenditure is anticipated to surge by 20%, ascending from KES 110 billion in 2023/24 to KES 132 billion in 2026/27.

According to the National Solid Waste Management Strategy (GOK, 2014)²¹, major cities such as Nairobi, Mombasa, Eldoret, and Kisumu generate daily solid waste quantities of 2,400, 2,200, 600, and 400 tons, respectively. However, a significant challenge arises in waste management as 20-45% of this waste remains uncollected due to issues like inadequate servicing of waste collection vehicles, suboptimal infrastructure conditions, and insufficient funding. In the Too Little Too Late scenario, no significant improvements are observed when it comes to the proportion of urban waste collected and disposed of due to the widening gap between the increase in waste generation and the budget allocated to their treatment. In the Giant Leap scenario, the trajectory breaks the trend to reach complete access to basic services for all. This rapid change is achieved through the poverty, inequality and empowerment turnarounds. Indeed, the combined effect of debt relief, increased governmental expenditures and income redistribution enables greater economic outputs, expansion of public infrastructure (road, schools, water network), and redistribution of wealth. In turn, giving a larger share of the population means to benefit from water, sanitation, mobility, health care, and education.

The Too Little Too Late scenario sees significant improvements regarding the population below the international poverty line, mainly due to the continuous economic growth pattern driven by the rise in service and industrial production. With a greater quantity of wealth generated, the share of the population below USD 2.15 per day gradually goes down, but only decreases to 10%. Without changes in fiscal policy and distribution of subsidies, the proportion of the population below the international poverty line has a hard time continuing its decrease even though economic growth continues. In contrast, the Giant Leap scenario shows a faster decrease, and poverty is completely eradicated by 2050. This development is caused by the economic stimulus that the turnarounds entail but would not be possible without the taxation of the rich, social transfers to the poorest, reduction of the earnings gap, and women's empowerment.

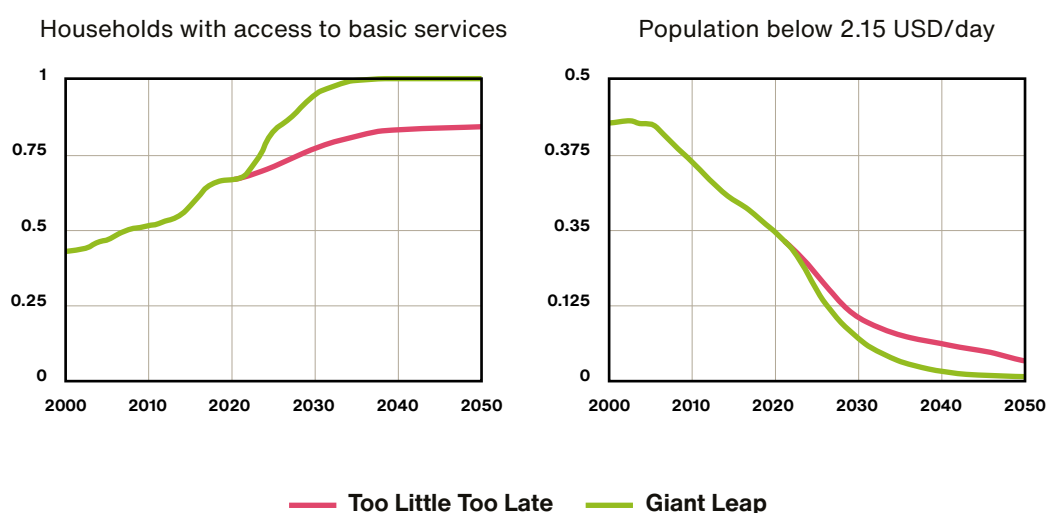
Kenya has a graduated taxation system which is based on both direct and indirect taxes. Since coming to power in 2022, the current government has made several changes to the tax regime targeting the highest income earners. The new policy will expand the tax base to enhance fairness and equity in the tax system, implement international best practices in tax administration, and create predictability of tax rates and tax bases, as well as enhance tax compliance. Current uncertainties in taxation and revenue collection emanate from the fact that the economy is overly reliant on the informal sector which is difficult to tax. One way of targeting the informal sectors is through direct taxes but the tax rates must be reasonable so as not to increase the cost of living to untenable levels. Unfortunately, the recent tax rate changes have sparked debates on the high cost of living especially during the post-COVID-19 recovery period.

All the same, higher taxation rates on the rich promise to create a more equitable society where the state also increases social expenditure on the poor. So far, there have been several attempts to redistribute wealth through government subsidies and tax relief efforts. At the height of the COVID-19 pandemic,

the government suspended income tax for several months to ease the disease burden and economic constraints on citizens. Equally, what continues to hold promise and perhaps encourage greater compliance is the national health insurance tax which is expected to bolster universal health care efforts and reduce out-of-pocket expenditure by the poor. The government has also provided fertiliser at a subsidised cost to farmers to boost food production and enhance food security efforts.

Education is also tightly linked to dignity, but, notably, the Giant Leap scenario doesn't show significant advancement in the average years of schooling. The reason behind this development is that the education system inherits major delays. Indeed, even though public spending in education allows enrolment rates to increase and for dropout rates to decrease, it takes time for the young population to go through all stages of education, integrate into the labour force and for the populations with higher education attainment to become a significant share of the population.

Figure 8: Development of dignity indicators



Nature

To analyse nature, the chosen indicators are (1) total CO₂ emissions and (2) domestic material consumption. One can observe that material consumption is much higher in the Giant Leap than in the Too Little Too Late scenario. The reason behind this is that Kenya has yet to reach a certain level of material and social development and until these levels are reached it remains a difficult task to reduce material consumption. The per capita levels of consumption that are reached in 2050 remain lower than the levels that high-income countries are at in 2020. While the findings project higher levels of material consumption in the Giant Leap compared to the Too Little Too Late scenario, there are indications that the government is putting efforts into restoring the material consumed. For instance, the government is currently running a campaign to plant trees across the country with a target of 15 billion trees by 2032. This will not only help address deforestation and climate change but also protect biodiversity, offer forest conservation jobs to local communities and generate other Non-Timber Forest Products (NTFP) (Zhu and Lo, 2021) used as food, fibres, medicinal, cosmetic, income generation and cultural activities.

Similar to material consumption and for the same reasons, emissions are higher in the Giant Leap than in the Too Little Too Late scenario. Because of the much-needed economic development and the overlooked increase in fossil fuel-based transportation, greenhouse gas emissions rise exponentially. Just like material

consumption, looking at the per capita carbon emissions one can observe that even though it rises to unprecedented levels it remains lower than the current levels of per capita emission in high-income countries. Even though CO₂ emissions increase at a sharp pace, given the economic growth and the energy consumption it requires, the CO₂ emissions per unit of value-added do not increase to alarming levels. However, better results would be achieved with a shift to more conscious production, and the use of less energy.

Transforming the transport sector is one of the key approaches Kenya could use to reduce carbon emissions. The most recent statistics from the World Development Indicators (WDI) show that on average, the transport sector in Kenya contributed about 53% of the total carbon emissions²². One way to address the heavy carbon footprint in the transport sector is to adopt large-capacity public transport, especially in urban areas where a large section of the population commutes to work using private cars or minibuses. On average, 48% of urban residents use minibuses to commute while 5% use private cars, and the rest use other commuting means (Salon and Gulyani, 2019).

The heavy reliance on minibuses and private cars makes Kenya one of the countries with the heaviest traffic congestion in Africa. Nairobi, for example, is among the most congested cities in the world with an average commuting time of 53 minutes based on the global traffic index²³. Adopting mass transport systems such as commuter trains and large-capacity buses will not only cut carbon emissions but also reduce commuting time and the economic costs of commuting. Another way to transform the transport sector is to electrify motor vehicles and the railway transport system. The Energy and Petroleum Regulatory Authority (EPRA) estimates that only about 350 electric cars are registered in Kenya out of 3.5 million registered cars²⁴. The railway system completely runs on diesel engines. Electrifying the transport system not only reduces carbon emissions but would also provide a high-performance transport system in terms of speed and reliability. In addition, electric vehicles could be regularly upgraded. Finally, in transforming the transport system, there is a need to adopt smaller private vehicles as their rate of energy consumption is relatively low.

Another approach to cutting carbon emissions is to enhance energy efficiency in the production systems. This calls for the adoption of modern production techniques that use lower amounts of energy to produce the same level of output or a shift to electric-powered production systems. Energy efficiency measures can be implemented in manufacturing firms, buildings, agriculture, households, transport, and power utilities due to their high energy demand and potential energy saving. In Kenya, efforts to enhance energy efficiency have been more pronounced in the manufacturing sector. The government through the Ministry of Energy and Petroleum Development in collaboration with the Kenya Association of Manufacturers (KAM) established a Center for Energy Efficiency and Conservation (CEEC) in 2006 (Macharia et al., 2022).

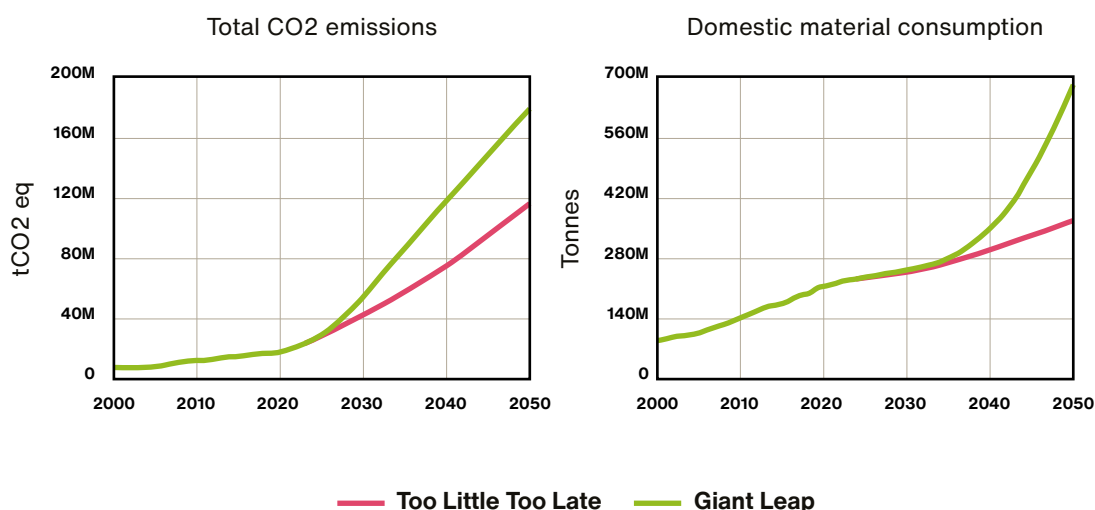
The Center is charged with developing energy efficiency and conservation programmes to help manufacturing firms identify energy wastage and provide recommendations to be executed. For instance, through energy audits, the CEEC seeks to help firms cut about 20 % of their fuel consumption. It is only recently that efforts on energy efficiency have been extended to other sectors with the establishment of the Kenya National Energy Efficiency and Conservation Strategy (NEECS). NEECS has set energy efficiency targets for the various energy-consuming sectors to be achieved by 2025 with 2019 as the baseline year (Republic of Kenya, 2020). These include the adoption of improved efficient biomass cookstoves by about 50% of all households using biomass cookstoves, a 10% share of newly built floors compliant with energy efficiency requirements in the total number of buildings from a baseline of zero, and an increase in the number of energy audits from 1,800 to 4000. Others include an increase in

electric cars by 5% and an increase in the number of passengers using commuter trains from 116,000 to 150,000 per day. Nevertheless, there is a need to continue strengthening energy efficiency measures to optimise energy savings. Currently, energy efficiency enhancements are suboptimal as they suffer from limited information across energy users and limited expertise and finance to adopt recent energy-efficient technologies (Republic of Kenya, 2020).

The adoption of renewable energy is another measure that can go a long way in cutting carbon emissions. Given its geographical location, Kenya can reap huge benefits from solar, wind, hydro, and geothermal energy. Creating a favourable environment such as the removal of barriers to renewable energy is important in increasing the uptake of renewable energy by families, communities, and commercial entities. The good news is that Kenya is already on the verge of fully generating electricity using renewable energy. Recent data shows that by 2022, renewable energy sources accounted for about 87.5% of the total electricity generated in the country with only 12.5% being generated from thermal energy (Republic of Kenya, 2023a). This makes Kenya one of the few countries with a high proportion of renewable energy in electricity generation in the region. However, concerted efforts to completely get rid of thermal energy in electricity generation are important not only for cutting carbon emissions but also to address high electricity costs resulting from high fuel prices and uncertainties in the exchange rate following huge fossil fuel import bills. Looking at the overall performance of climate actions, climate change adaptation measures counterbalance the negative effects shown in the two indicators shown above. Indeed, as international grants are also used to invest in adaptation infrastructure, Kenya can avoid the negative impacts of climate change by leveraging international grants.

Beyond the two nature indicators shown here, interventions to improve water efficiency and scale up irrigation also led to very positive outcomes as (1) the water withdrawal per unit of GDP decreases and (2) water vulnerability slowly decreases instead of continuing its historical trend upwards. Moreover, we see a major shift in behaviour concerning the needed collection of urban waste which currently makes Kenyan cities pollution hotspots. The increase in public expenditure on waste management enables the abolition of urban waste dumpsters. Dealing with this long-lasting issue is much needed, firstly given sustained economic growth and the increase of generated waste that comes from it and secondly, given the health, social, and environmental impacts it currently entails.

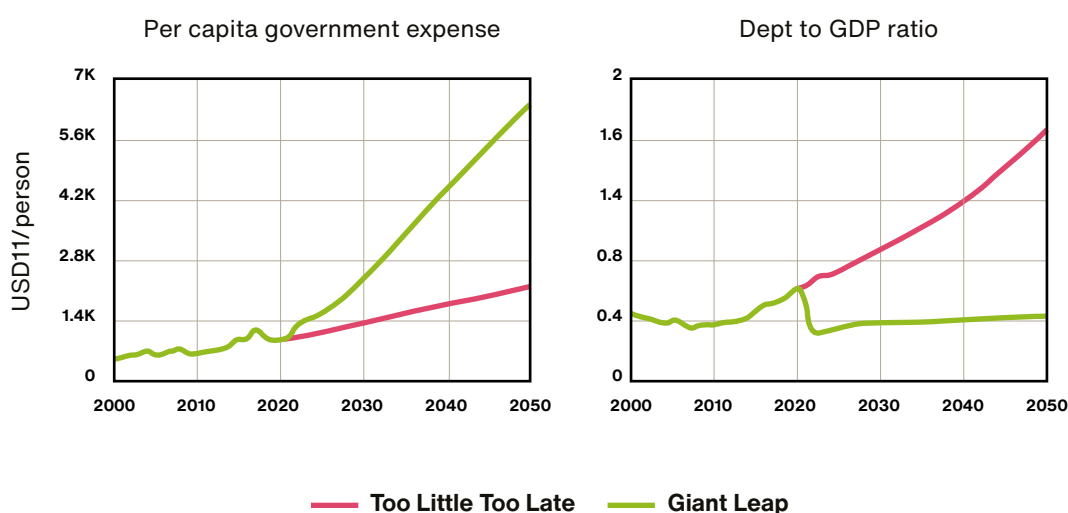
Figure 9: Development of nature indicators



Connection

Under the Giant Leap scenario, public institutions see a radical change in their means given the cancellation of foreign debt and the inflow of international grants. Debt cancellation would free up fiscal space as the government no longer needs to allocate funds for debt servicing. This allows for increased spending on social programs, infrastructure, and development projects. In addition, positive news of debt cancellation could improve investor confidence, leading to increased foreign direct investment and a boost in domestic investments. Grants provide an immediate capital injection into the economy, supporting government expenditure without increasing debt levels. Increased government spending can stimulate economic growth, especially if the funds are directed towards productive sectors like infrastructure and education. Coupled with a shift in governance, the means are put to good use. Indeed, as bribery incidence goes down and overall governance effectiveness goes up, this allows the population to benefit from well-placed and larger expenses.

Figure 10: Development of connection indicators



Kenya's lobbying for debt forgiveness has been a recurring theme over the years, particularly in the context of its efforts to manage its debt burden and promote economic development. Kenya, like many other low-income countries, faced a significant debt crisis during the 1980s due to a combination of factors such as high borrowing, falling commodity prices, and economic mismanagement. This led to Kenya seeking debt relief and restructuring from international financial institutions and creditor nations. In 1990, Kenya successfully negotiated a debt rescheduling agreement with the Paris Club, a group of major creditor countries. This agreement provided Kenya with temporary relief by stretching out its debt repayments over a longer period. In 2004, Kenya benefited from the Multilateral Debt Relief Initiative (MDRI), an effort led by the International Monetary Fund (IMF), the World Bank, and other creditors to provide debt relief to heavily indebted poor countries. This initiative provided Kenya with substantial debt relief, reducing its external debt burden. Throughout the 2010s, Kenya maintained its focus on managing its debt and seeking further relief. In 2011, Kenya secured additional debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative, another international effort aimed at reducing the debt burden of qualifying low-income countries. Currently, Kenya's debt situation remains concerning, with

the country continuing to seek strategies for managing its debt burden. In the wake of the COVID-19 pandemic, there have been renewed calls for debt relief for low-income countries, including Kenya, to help mitigate the economic impacts of the crisis.

The history of debt forgiveness in Kenya seems to suggest that the probability of debt cancellation is slim, hence justifying the Too Little Too Late scenario. The Too Little Too Late scenario is characterised by a consistent rise in the debt-to-GDP ratio, whereas the Giant Leap scenario results in debt cancellation and an influx of international grants. According to medium-term projections from the IMF, Kenya's debt-to-GDP ratio is anticipated to decrease by 7.5 percentage points, dropping from 70.2% in 2023 to 62.7% in 2028 (IMF, 2023a)²⁵. However, a public debt sustainability analysis conducted by the IMF, calculated based on the present value of debt, indicates that the country's public debt will persist above the 55% sustainability threshold from 2023 to 2026. Notably, in 2027, the present value of the debt-to-GDP ratio is projected to be 56.6% (IMF, 2023b)²⁶. Debt management is the process of establishing and executing a strategy for managing the government's debt to raise the required amount of funding and achieve its risk and cost objectives as defined by the IMF²⁷.

The IMF proposes solutions to address the looming debt crisis in Sub-Saharan Africa which include re-anchoring fiscal policies through a credible medium-term strategy, undertaking fiscal adjustment to bring debt back to a safer level, mobilising more domestic revenue, strengthening budget institutions to improve the implementation of fiscal plans and finally, anticipating public resistance to reforms²⁸.

Kenya's public debt management is guided by the Medium-Term Debt Management Strategy (MTDS) published every year. There exists a sound legal and institutional framework for public debt management outlined in the Constitution of Kenya 2010, the Public Finance Management (PFM) Act 2012 and PFM Regulations 2016 as well as the annual Medium-Term Debt Management Strategy (MTDS). These legal frameworks detail the various aspects of public debt, including the purpose of borrowing, management of the public debt portfolio and debt sustainability. Additionally, the county government borrowing framework is stipulated in the Constitution of Kenya 2010, the PFM Act 2012, and the County Governments Act, 2012. This debt management strategy was established to minimise the cost and risk of borrowing in the long run and deepen the domestic market for government securities. It thus ensures consistency with both fiscal and monetary policy objectives²⁹.

In addition, Kenya has a Public Debt and Borrowing Policy that guides on raising resources through borrowing to finance the budget and managing debt portfolio at minimum cost whilst ensuring that public debt remains within sustainable levels. The policy underscores the need to adhere to the laws and regulations governing public debt management (ibid).

Establishing prudent debt management practices and adherence to fiscal discipline is therefore crucial in ensuring the sustainability of these borrowings and mitigating potential risks associated with currency fluctuations and refinancing pressures. But for debt management to be more effective, it needs to be supported by sound fiscal and monetary policies.

Fairness

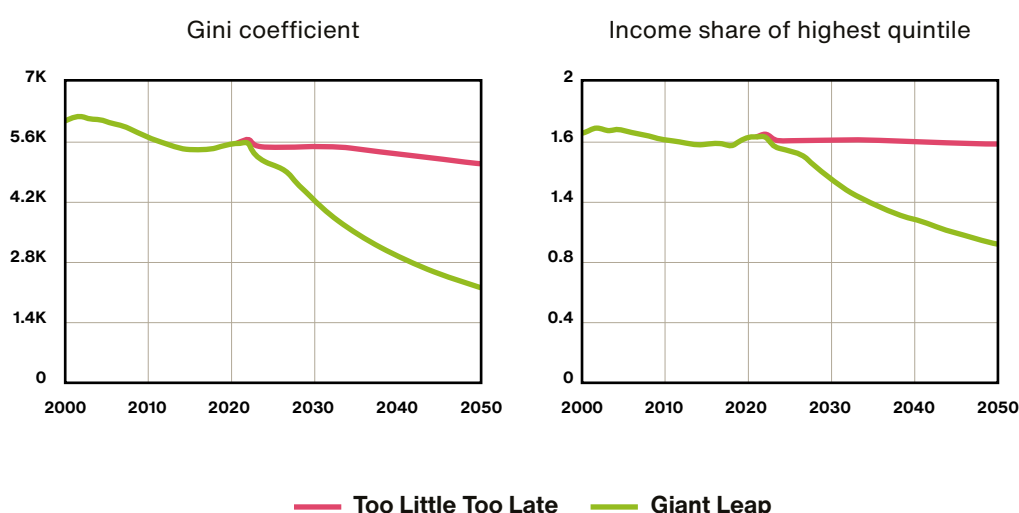
Before analysing the indicators that were chosen to represent fairness, it is important to note that the Giant Leap scenario provides remarkable achievements on economic growth. The GDP's exponential curve is stimulated to such a point that by 2050 it reaches levels that are seven times higher than those

of 2020. The reasons behind this generation of wealth majorly come from debt cancellation and foreign grants. As mentioned previously, foreign debt cancellation/restructuring allows both public and private investors to further invest in capital instead of on debt interests. This investment in capital creates job opportunities which causes the unemployment rate of the labour force to drop significantly and further increase the production. Moreover, the well-placed expenditure in education and infrastructure along with the governance improvements allows the overall productivity of all economic sectors to increase at a rapid pace.

The Giant Leap scenario and the intervention it entails leads to significant improvement in the distribution of wealth. Indeed, adopting a progressive taxation policy and providing more social benefits to the poor leads to a complete shift in the distribution by 2050, whereas see the situation worsen in the Too Little Too Late scenario (the Gini coefficient increases). Moreover, the redistribution of wealth is much needed as the overall wealth generated by the economy gets larger. As redistribution takes place the wealth reaches classes of the population that would never have directly benefited from the economic development of the country. In the Giant Leap scenario, by 2050 the income share of the highest income (top quintile) will significantly decrease as they capture a little more than a quarter of gross national income. On the other hand, the income share of the lowest incomes (bottom quintile) significantly increases as they capture more than 12% (compared to 5% in 2020) of gross national income.

In addition, by changing the social and market conditions for a gender-inclusive economy coupled with efforts targeted at the betterment of female attainment in education, the Giant Leap results enable the female share of employment in managerial positions to radically change from the Too Little Too Late trajectory and reach close to perfect parity by 2050. One can imagine that behind this indicator lies a positive dynamic of re-distribution of income towards women. Moreover, Kenya's economy and political sphere see the role of females enhanced.

Figure 11: Development of fairness indicators



Overall trajectories

Figure 12: Too Little Too Late trajectories

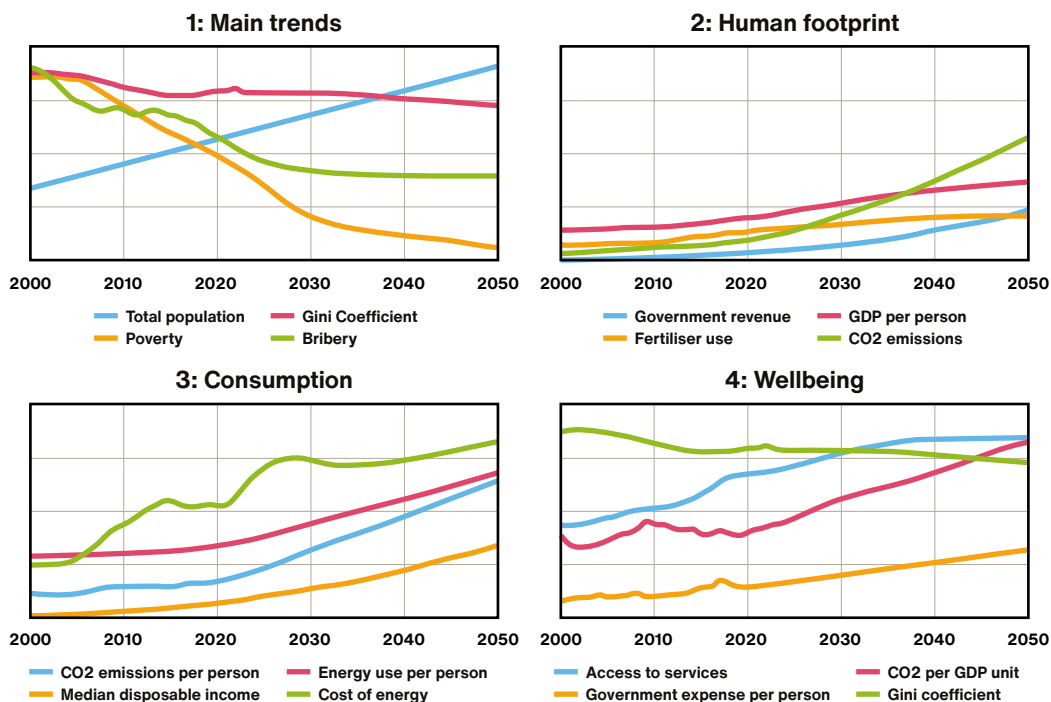
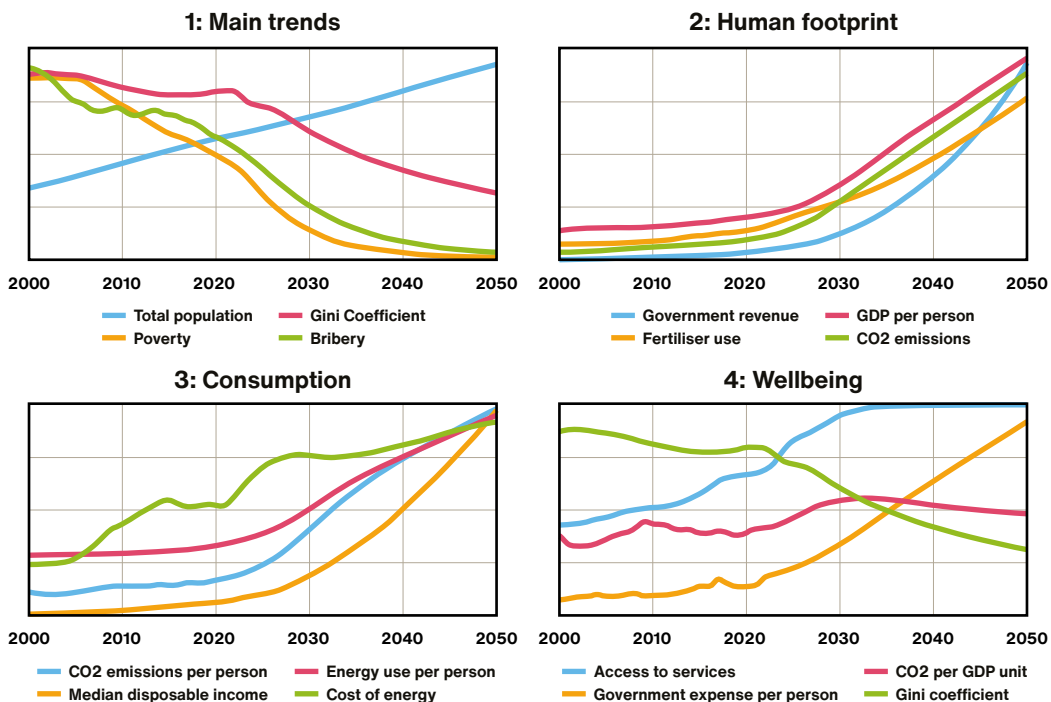


Figure 13: Giant Leap trajectories



The five turnarounds

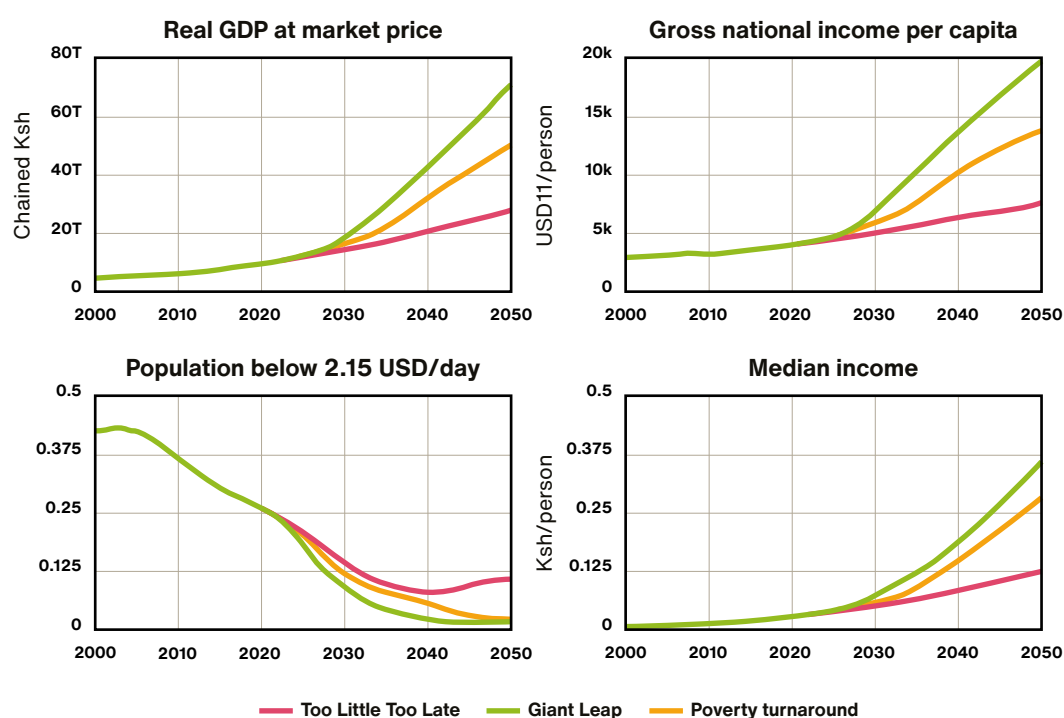
Turnaround 1: Eliminate poverty

- ▶ One of the steps to achieve full-scale economic transformation is through cancelling the debt of low-income countries by high-income countries. In countries like Kenya, that seek to build up, this is the spark that triggers a positive dynamic for private and public entities to increase expenditure in productivity amplifiers like economic capital, public services such as health and education, and transport infrastructure. Debt cancellation for low-income countries like Kenya has been advocated by various international organisations and scholars to stimulate economic growth and development. For example, in 2021, the United Nations Conference on Trade and Development (UNCTAD) emphasised the importance of debt relief for low-income countries to mitigate the socio-economic impacts of the COVID-19 pandemic. Debt cancellation can free up fiscal space, allowing governments to allocate resources towards critical sectors such as health, education, and infrastructure, thereby spurring economic growth. In the Kenyan context, debt relief initiatives have played a significant role in enabling the government to invest in key development priorities. For instance, under the Enhanced HIPC Initiative, Kenya benefited from debt relief amounting to approximately USD 2.7 billion between 2001 and 2010. These resources were redirected towards poverty reduction programs, infrastructure projects, and social services, contributing to improved living standards and economic resilience.
- ▶ While debt cancellation is an option that highly indebted and poor countries (HIPC) can and do often pursue for their public debt management, this option may no longer be viable for Kenya since the country became a lower-middle income country in 2014. Kenya would have to pursue other debt management options along the lines of debt restructuring including debt-for-equity swap, loan modification or entering loan repayment agreements. Effective debt restructuring can only be achieved through ensuring that creditor and debtor countries have properly established debt restructuring mechanisms and internationally approved frameworks like the G20 Common Framework. This will enhance coordination and assure confidence in the creditor countries. In addition, having transparent debt management systems at the national level is key to monitoring public debt and keeping it at manageable levels. Ultimately the country will need to design fiscal and monetary policies that spur growth and attract international investments.
- ▶ Reducing the public debt portfolio creates opportunities to direct higher investments to development programs versus recurrent expenditure. It also enhances investor confidence and attracts private-sector investment, leading to increased economic activity and job creation. By alleviating the burden of debt servicing, Kenya can attract more domestic and foreign investments, particularly in sectors with high growth potential such as manufacturing, agriculture, and technology.
- ▶ To keep this debate alive over the upcoming decades, transfers from high-income countries to low-income countries are necessary. This way domestic debt is kept at a sustainable level whilst keeping high economic development through the new growth model.
- ▶ Overall, the national-level interventions (detailed below) yield highly positive economic outputs. Indeed, economic production transitions from a significant agricultural sector towards a rapidly growing service and industrial sectors. The fast-paced growth leads to greater outputs and wealth generation which promotes employment creation and access to higher income for the lower socio-economic classes as we see that the median income increases significantly.

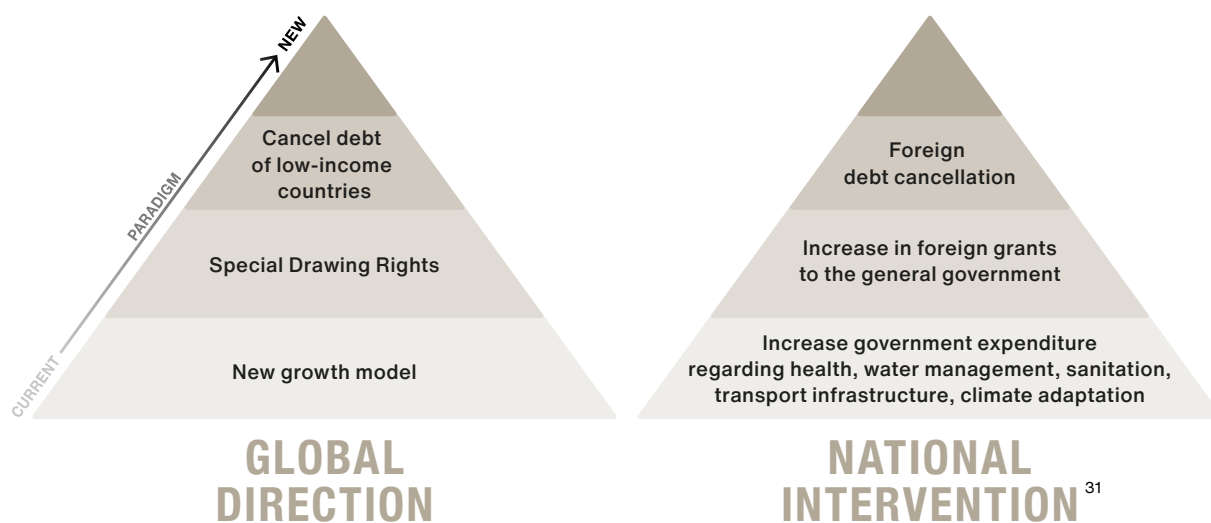
Turnaround 1: Eliminate poverty

- ▶ These interventions, coupled with the other turnarounds, allow a country that is building up to fully eradicate poverty by 2050, provide basic services to all households, and prevent climate change effects from affecting the poorest.
- ▶ The growth in urban population through increased rural-urban migration will continue to increase, and continually pose a challenge for urban solid waste management. The Kenya Health Demographic Survey of 2022 indicates that the Kenyan proportion with basic drinking water services stands at 68%, 91% being at the urban centres while 56% are in the rural areas. Those who have access to basic sanitation services are 41%, 47% and 38% in national, urban, and rural areas respectively. This can, however, be improved with proper planning and integration of policies centred around proper water management.
- ▶ The government's plan to tackle waste management under the Fourth Medium Term Plan (MTP IV) is to establish 100 waste material recovery centres in all counties and formalise water collectors to participate in a circular economy. Besides that, there is a plan to link 94 waste cooperatives to secondary markets. Additionally, there was the enforcement of a plastic ban in 2017 with the goal of reducing plastic pollution in the environment.
- ▶ The Kenyan economy has shown resilience given that the country's GDP bounced back immediately after the COVID-19 shock. But even with this, the government has put in place the economy recovery agenda through BETA and the "Hustler" fund to help reduce the impact of such uncertainties. Through the BETA agenda, the government aims to explore avenues for inclusive growth such as creating employment through increasing agro-processing for export³⁰.

Figure 14: Development of poverty indicators



Turnaround 1: Eliminate poverty

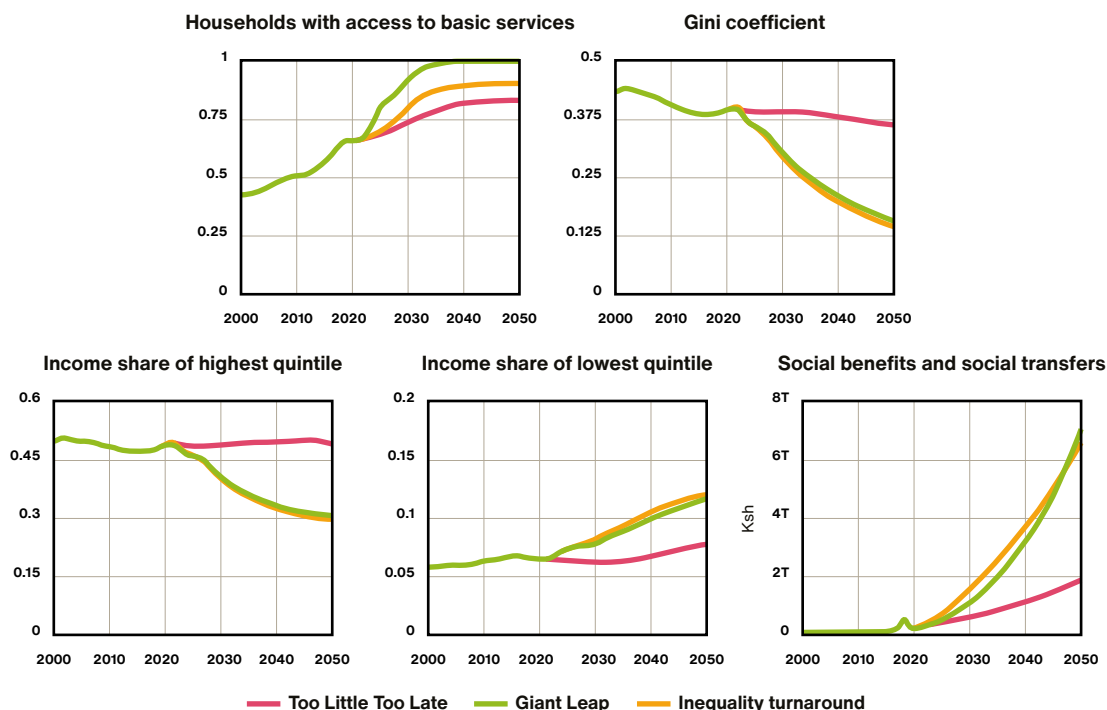


Turnaround 2: Reduce inequality

- ▶ Generating more wealth in an economy has the potential to increase inequality if that wealth goes to the richest. However, coupled with a progressive taxation system it allows the government to increase its revenue and redistribute the additional wealth created to the bottom quintile. This redistribution may take the form of direct subsidies and transfers to those with lower salaries and wages, but also in long-term policies regarding the difference between minimum and average salary in the market framework. The result of such policies can be seen through Figure 15 where the income share of the highest quintile decreases significantly and the income share of the lowest quintile increases significantly.
- ▶ Stimulating key economic growth sectors including agriculture, construction, digital and creative economies, blue economy, manufacturing and service sectors will spur economic growth in the country and ultimately contribute to reducing poverty and inequality.
- ▶ In a country that is building up, the sooner the wealth inequality is dealt with, the higher the chances of avoiding other forms of inequality become. Wealth inequality is often accompanied by other inequalities such as unequal access to opportunities such as education, employment, nourishment, health care, water, and sanitation. Indeed, as can be seen in Figure 15 the decrease in inequality indicators is coupled with an increase of households with access to basic services. Therefore, dealing with wealth inequality represents a high leverage point to maintain social cohesion and long-term democratic stability.

Turnaround 2: Reduce inequality

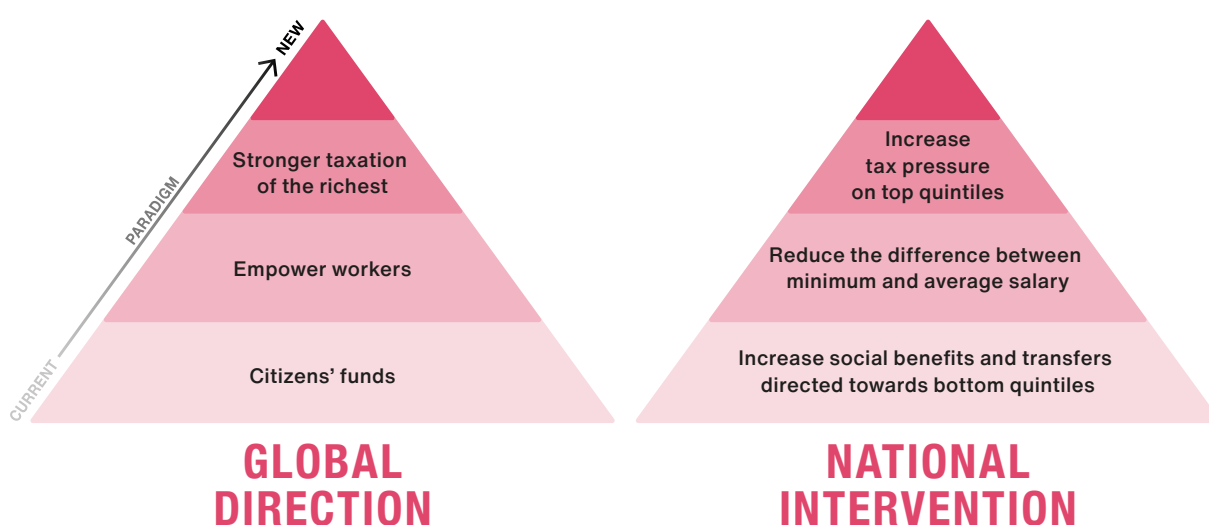
Figure 15: Development of inequality indicators



- ▶ In recent years, Kenya has introduced various tax reforms aimed at increasing revenue and promoting equity. These reforms include a progressive taxation system. Additionally, the government has implemented measures to broaden the tax base and improve tax compliance, such as the introduction of digital tax platforms to capture informal sector transactions.
- ▶ Tax revenue redistribution occurs through social spending and as noted earlier, Kenya has implemented several social protection programs aimed at providing direct subsidies and transfers to low-income households. For instance, the Inua Jamii program provides cash transfers to vulnerable groups, including the elderly, persons with disabilities, and orphaned and vulnerable children. These transfers help to alleviate poverty and reduce inequality by providing much-needed support to those at the bottom of the income distribution. Long-term policies regarding the minimum wage and labour market regulations also play a role in reducing income inequality. By ensuring that workers receive fair wages and benefits, the government can help narrow the gap between the lowest and highest earners in the economy.
- ▶ Higher tax revenues are possible when there is growth in the economy. The government's BETA agenda has a strong focus on stimulating higher levels of agricultural production through increased participation in the agri-business value chain, as well as greater support and investments in the MSME sector. While these are among the county's traditional sectors that drive the country's economy, there is an equally high level of commitment to expand non-traditional sectors such as the creative and digital economy where youth have the potential to drive higher earnings and greater labour participation. However, as growth occurs there is a need to put in place policies that guarantee equity.

Turnaround 2: Reduce inequality

- ▶ Currently, there are concerns regarding Kenya's poverty reduction efforts as growing evidence shows that economic growth is not commensurate with positive improvements in citizens' wellbeing particularly among the most vulnerable groups such as residents in ASAL regions of North and North-Eastern Kenya and refugees (World Bank, 2023). Hence, there are growing calls for Kenya to embrace policies that are more pro-poor and foster inclusive growth. The recommendation is for Kenya to adopt a three-pronged approach to achieve inclusive growth by: a) Ensuring economic growth directly impacts poverty reduction efforts so that no one is left behind or excluded from labour market participation; b) Stimulating growth through a wider-sector approach that goes beyond the traditional sectors of the economy; c) Strengthening household resilience to extreme shocks, particularly those caused by climate change and inflation (ibid). For ASAL regions where climate shocks can be extreme and cause livelihood devastation, the government needs to review the effectiveness of the current social protection programs and targeting mechanisms. The aim should be to re-design to deepen the impact and expand coverage to make them population-wide since over 60% of the residents in some of the Northern Frontier counties like Garissa, Tana River and Madera are classified as poor.
- ▶ Social insurance schemes must be expanded to protect pastoralists from extreme climate-related shocks and vulnerabilities which devastate their livelihoods. For instance, between 2008 and 2011 alone, livestock losses accounted for over 70% of the total drought-related damages in Kenya, estimated at KES 12.1 billion. It is for this reason that the Kenya Livestock Insurance Program – a social insurance scheme established in 2015 – has been gradually expanded to cover the whole country in partnership with private insurance companies³². For herders registered under the Hunger and Safety Net Program in ASALs, the government subsidises the insurance cost but only covers five animals per household. To realise a Giant Leap in protecting citizens from shocks, consideration should be made to expand the number of animals since most pastoralists need huge herds of cattle and goats for survival and protection against losses because subsidising insurance costs for only five animals has a limited positive impact.



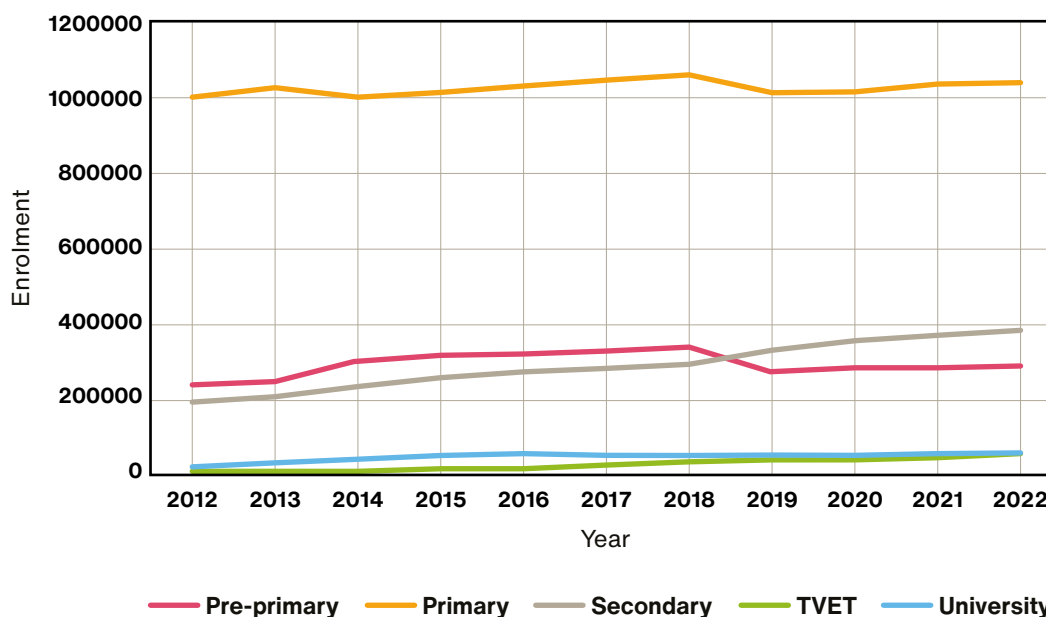
Turnaround 3: Empowerment

- ▶ For one to reach their full potential, one needs to be rightfully empowered. Empowerment has the objective of equipping one with skills, knowledge and the capabilities to take control of one's life in order to realise development in various dimensions—including economic, political, social and cultural. Different social groups experience empowerment opportunities differently leading to inequalities, the most pronounced being among women and girls, persons living with disabilities, and marginalised communities. Given the current situation in countries that are building up, empowerment has a lot to do with the unequal access to education, and economic and social rights of women. An increase in government expenditure on education with specific attention to women allows significant improvements in female employment and the share of women in managerial positions.
- ▶ The World Bank Human Opportunity Index measures how individual circumstances such as the place of residence, gender, and education attainment of the household head affect access and utilisation of certain bundles of essential services such as water, health and sanitation, housing, and education by considering the extent of service coverage as well as distribution of inequality in access. For children living in marginalised communities and locales, the challenge of limited access to education and health care can lay the foundation for generational inequalities. This calls for transformative approaches that empower and address historical and systemic exclusions. For instance, correcting investments in pastoral and nomadic communities and increasing awareness of women's rights in regions where women and girls still face exclusion from education, participation in formal labour markets and leadership.
- ▶ The Kenyan government has made strides in increasing access to education for girls through initiatives such as the Free Primary Education program launched in 2003 and the *Elimu Tuitakayo* program aimed at improving access to secondary education. These efforts have contributed to a significant increase in female enrolment rates at both primary and secondary levels. Additionally, organisations like the Forum for African Women Educationalists (FAWE) have worked to address barriers to girls' education by providing scholarships, mentorship programs, and advocating for policy change. Other initiatives include the *Jielimisha* GEC project implemented by Women Educational Researchers of Kenya (WERK) from 2013-2017. The project was funded by the UK government through the former Department for International Development (DfID) with the objectives of encouraging teenage mothers from marginalised communities to return to school after dropping out due to motherhood; changing cultural attitudes and practices towards girls' education in marginalised communities, and inspiring girls to stay in school and complete the basic education cycle³³.
- ▶ Related to increased opportunities for all, greater attention is now being directed to the vocational and technical education and training (TVET) sector which previously received insufficient financial, programmatic and policy attention. A decade ago, investments in tertiary-level training were directed at higher education (universities), and consequently, the overall result of this policy has been historically low transition rates from high school to training and preparation of learners for transitioning into the labour market. Several reforms focusing on relevance, greater linkages with the labour market demands, infrastructure development, and a more robust funding framework have seen exponential growth in the technical and vocational training and education sector in the last 10 years. Consequently, the Presidential Working Party on Education Reforms (PWPER, 2023) noted that the number of TVET institutions increased from 705 in 2012 to 2,401 in 2022, while student enrolment grew from 127,691

Turnaround 3: Empowerment

in 2012 to 562,499 in 2022 (ibid:9). At the same time, the number of public and private universities increased from 35 in 2012 to 78 in 2022 (ibid). Figure 16 shows growth in enrolment rates in the various education levels.

Figure 16: National enrolment trends 2012-2021 in various education levels



Source: KNBS, 2023

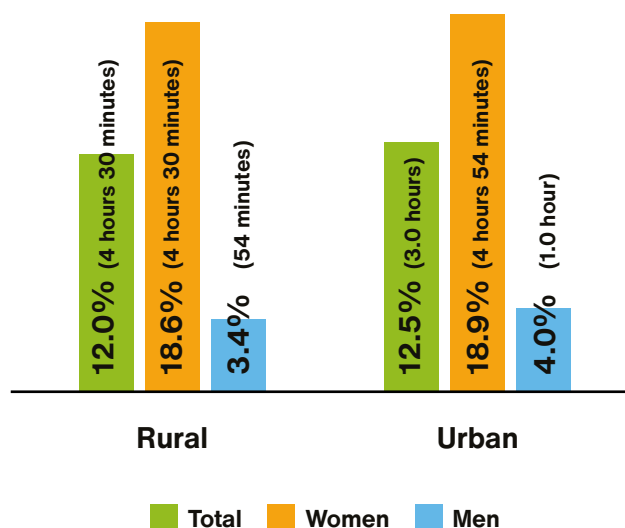
- ▶ As the country moves towards a 100% transition from primary to secondary and tertiary levels, concerns remain over the quality of education. Improvements in the delivery of quality education will focus more on curriculum delivery and teacher training. In addition, the recent policy framework on recognition of prior learning (RPL)³⁴ will ensure those who drop out of school and develop skills through apprenticeships are recognised, while also encouraging continuing and lifelong learning. Recognition and certification of informal training pathways will bring more people into the formal labour market and ensure that their participation is not only accounted for but also empowers them to negotiate for better earnings given their skills and experience.
- ▶ Besides empowerment through education, the constitution of Kenya 2010 made provisions for an Equalization Fund, under Article 204 as an affirmative strategy that aims at correcting historical marginalisation of certain communities and areas over a period of 20 years. The fund sets aside 0.5% of the national government revenue for use by county governments that cover the 1,424 marginalised areas that were identified by the Commission for Revenue Allocation (CRA). Unfortunately, only about 50% of the KES 54 billion expected since the establishment of the fund has so far been approved by parliament with a remaining KES 28 billion yet to be provided, which has meant that marginalised areas continue to lag in terms of essential services such as access roads, water supply, and provision of electricity³⁵.

Turnaround 3: Empowerment

- ▶ More specific to women's empowerment, the two-thirds gender rule provided for in the constitution aims to increase the representation of both men and women in leadership and other related decision-making platforms especially in the public sector. Similarly, Sessional Paper No. 2 of 2019 on National Policy on Gender and Development created clear strategies for realising key constitutional provisions of non-discrimination, equity, inclusion, and participation of all citizens, to achieve gender equity and women's empowerment. To this end, the last decade has seen greater participation and representation of women and persons with disabilities in the National Assembly and the Senate. However, as noted in the policy document "progressive provisions in the law have not delivered gender equality in practice" (Gok, 2019:9). For instance, out of 47 county governor positions in Kenya, only seven are held by women, while 115 members of county assembly (MCA) out of 1450 elected MCAs are women and a further 612 out of 772 are nominated, which translates to about 35% (725 women MCAs) representation at the county level (KNBS, 2023; UN Women 2022)³⁶. Participation in female leadership and political candidature is hampered by financial limitations, pressure from competing reproductive roles, as well as higher levels of gender-based violence as most female candidates report experiencing direct as well as threats to physical, verbal, emotional, as well as sexual abuse. More intentional gender mainstreaming efforts are needed along with stronger monitoring of progress. A progressive initiative would be for political parties to increase funding for women vying for political seats, as well as increase funding of civic education programs to positively influence attitudes towards women's leadership and participation in politics.
- ▶ Women's contribution to GDP is mostly indirect through informal sector activities such as MSMEs, participation in family-based agricultural production, as well as unpaid care and domestic work, most of which is rarely or marginally recognised and accounted for in the national accounts. The 2021 Kenya Time Use Survey by KNBS³⁷ shows that overall, women spend approximately 7 times more time on unpaid care work (2.4%) than men (0.4%) and about 5 times more (16.3%) on unpaid domestic work than their male counterparts (3.2%) (KNBS, 2021). Moreover, the burden of unpaid work is greatest among nomadic and pastoralist communities in Northern Kenya (ibid). But even when women participate in the formal economy, their earnings tend to be below those of men, despite working for longer hours (12.9 hours) compared to men (8.2 hours) (GoK, 2019). This phenomenon also plays out at the global level, making the realisation of SDG 5 on gender equality and target 5.4.1 which advocates for the recognition and valuing of care and domestic work an important development agenda. To address concerns of unpaid care and domestic work, the KNBS report makes some important recommendations including further analysis and mainstreaming of collection of the time-use data to inform a national care policy and response strategies, and the development of a household satellite account to measure unpaid domestic and care work and its contribution to the GDP (ibid).

Turnaround 3: Empowerment

Figure 17: Proportion of time spent per day on unpaid care and domestic work by sex and area of residence



Source: Findings of The National Time Use Survey (KNBS, 2021)

- ▶ Additionally, increasing female representation in the workforce and leadership positions has been a focus area for promoting empowerment in the private sector as well. Organisations like the Kenya Association of Women Business Owners (KAWBO) and the Federation of Women Lawyers in Kenya (FIDA Kenya) have been instrumental in providing support, training, and networking opportunities for women entrepreneurs and professionals. Furthermore, initiatives such as the Women Enterprise Fund and the Affirmative Action Fund provide financial support and capacity-building programs for women-owned businesses.
- ▶ At a more personal level, women's and girls' greater enjoyment of reproductive health rights, economic progress and social equity are closely tied to higher educational attainment. It is also closely linked to a strong synergy with family planning policies. Indeed, the socio-economic conditions of women of all ages are still impacted by their predetermined social roles when it comes to factors such as pregnancy and childcare. Increasing family planning expenditures mitigates this gender difference by empowering more women in their pregnancy choices.
- ▶ In the attempt to attain the desired healthcare outcomes under the third Medium Term Plan (MTP III) (Republic of Kenya, 2018), the government focused on capacity building of healthcare workers and initiatives such as Linda Mama and Beyond Zero campaigns to reduce maternal and infant mortality rates. Table 4 shows a slow but steady reduction of infant mortality rates per 1,000 live births in Kenya over time.

Turnaround 3: Empowerment

Table 4: Indicators for reduced child mortality

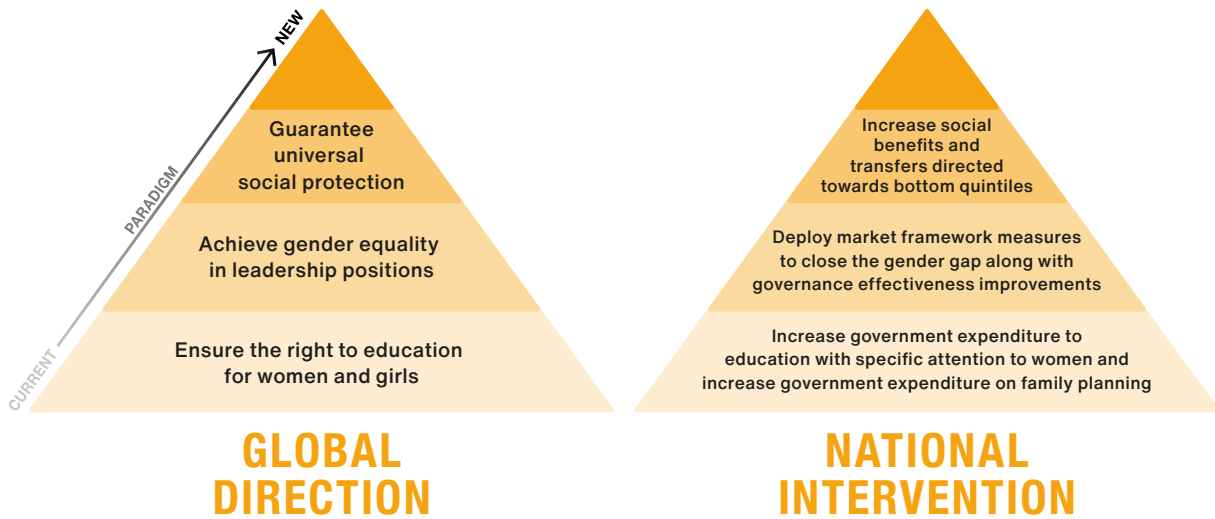
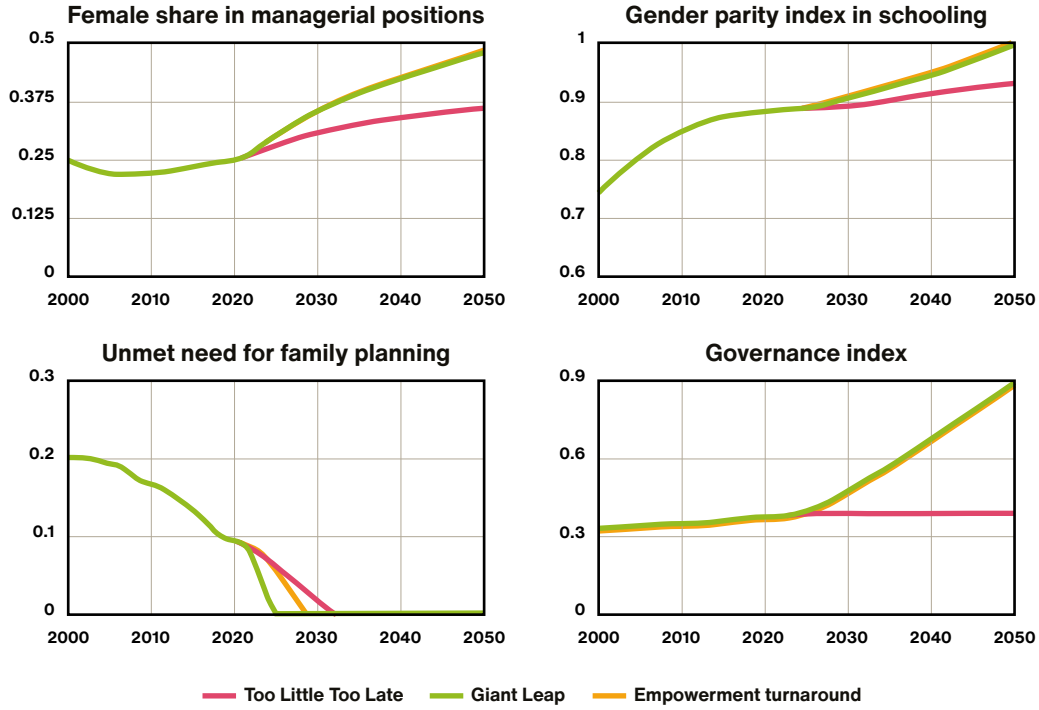
Indicators for reduced child mortality	2019	2020	2021	2022
Under-5 mortality rate per 1,000 live births	52	45	43	41
Infant mortality rate per 1,000 live births	39	30	32	32
Neonatal mortality rate (per 1,000 live births)	22	20	21	21
DPT/Hib/Heb (Penta3) Coverage (%)	80	88	82.5	79
Proportion of under 1-year-old children fully immunized (%)	89	90	85.7	89.2
The proportion of births attended by skilled health personnel (%)	65	78	72.9	89.3
4th Antenatal Care (ANC) coverage (%)	55.1	50.4	52.2	66

Source: MTP IV page 67, Republic of Kenya (2024)

- ▶ It was estimated that as of 2022, 18% of children under 5 years old had stunted growth. To ensure food and nutrition security, the government under MTP IV will be implementing transformative practices in agriculture such as moving from rain-dependent practices to irrigation to ensure continued food productivity.
- ▶ Furthermore, the government's recent policy on universal health care will go a long way in ensuring that health care is more affordable, especially among indigent households, which will minimise out-of-pocket spending. The fund will ensure inclusive, effective, and accessible healthcare to all Kenyans. Assessments show that only 25% of the Kenyan population have a form of health insurance scheme, whether private, public or community-based³⁸, meaning that the country has high inequalities in terms of access to healthcare. Hence, the recently launched National Social Health Insurance Fund as well as the Kenya Universal Health Coverage (UHC) policy 2020-2023 will go a long way to ensure inclusive, effective, and accessible healthcare to all Kenyans, as they overhaul the health system in the country. The policy will guide the implementation of the country's health plan which includes improved infrastructure, adequate and timely financing, adequate human capital, technological advancement, effective governance, and an enabling legislative environment. At the same time, the government has also prioritised preventive health care by deploying more community health workers to counties to promote positive primary health care practices including growth monitoring, nutrition education, family planning and expanded immunisation coverage.
- ▶ Finally, governance has a strong role to play in empowering all gender groups. Deploying market framework measures to close the gender gap along with higher effectiveness of governance further enables women to reach full equity in society.

Turnaround 3: Empowerment

Figure 18: Development of empowerment indicators



Turnaround 4: Transforming the food system

- ▶ Positive socio-economic conditions can only be maintained if planetary boundaries are respected. Countries that are building up economic power can benefit greatly from a shift to regenerative and sustainable food systems. Indeed, with an increase in expenditures regarding sustainable practices for agriculture, the soil can provide higher outputs for less inputs. Accompanied by spending on sustainable water irrigation and efficient use measures, risks associated with climate change and a growing population are mitigated.
- ▶ The advent of a devolved government in Kenya in 2013 saw an increase in internal migration, especially rural-urban migration which is the major form of migration in Kenya³⁹. This in turn influences food security as it reduces the number of those practising farming of whatever form. A reduced agricultural output directly translates to rising food prices and unprecedented poor economic performance⁴⁰, thus affecting the optimal nutritional outcomes of the population. Additionally, rural-urban migration reduces food production since the more youthful population is prone to migration in pursuit of better earning and education opportunities. Consequently, food supply is reduced by this kind of migration as it is noted that most cities and towns are established on arable lands, thus the need to create more space to accommodate the growing population. For instance, the expansion of the city of Nairobi has led to the reduction of areas under farming in neighbouring counties like Kiambu, Machakos and Kajiado. Subsequently, the growing population is often competing for water which is a scarce commodity hence less water for irrigation (ibid) and ultimately, reduced agricultural productivity.
- ▶ Additionally, the World Bank food security update report of 2024⁴¹ indicates that geopolitical instability, like the Russian-Ukraine war, will continue to impact global agricultural markets. It is in light of this that many policies in the country have centred around promoting productivity and incomes, especially for many smallholders, to address food insecurity and inequity⁴². In its recently launched Fourth Medium-Term Plan (MTP IV), the government of Kenya is cognisant of the need for irrigation as a tool to increase agricultural productivity and is committed to transforming agriculture and promoting inclusive growth. In its quest to increase irrigation projects and enhance efficient water use, the government in its MTP IV intends to construct 200 small dams and an additional 1,000 water pans as well as support 1,150 water harvesting projects in 23 ASAL counties. Additionally, there is a plan to construct 3,000 water pans that will see ASALs supplied with 298 million cubic meters of water and expand the current existing irrigation schemes. There are also plans to expand the Galana-Kulalu to cover an additional 20,000 acres and 350,000 acres under maize production and irrigation respectively. The Tana Delta and Turkana are also intended to cover an additional 74,000 and 1,200,000 acres under irrigation respectively⁴³.
- ▶ In Kenya, initiatives such as the National Climate Smart Agriculture Strategy (NCSAS) aim to promote sustainable agricultural practices across the country. This strategy includes measures to improve soil health, enhance water management, and promote climate-resilient crop varieties. For example, the Kenya Climate Smart Agriculture Project, supported by the World Bank, focuses on promoting climate-smart agricultural practices among smallholder farmers to increase productivity and resilience to climate change.
- ▶ The Kenya government has invested in sustainable water management practices, such as rainwater harvesting, drip irrigation systems, and water conservation measures. The National Irrigation

Turnaround 4: Transforming the food system

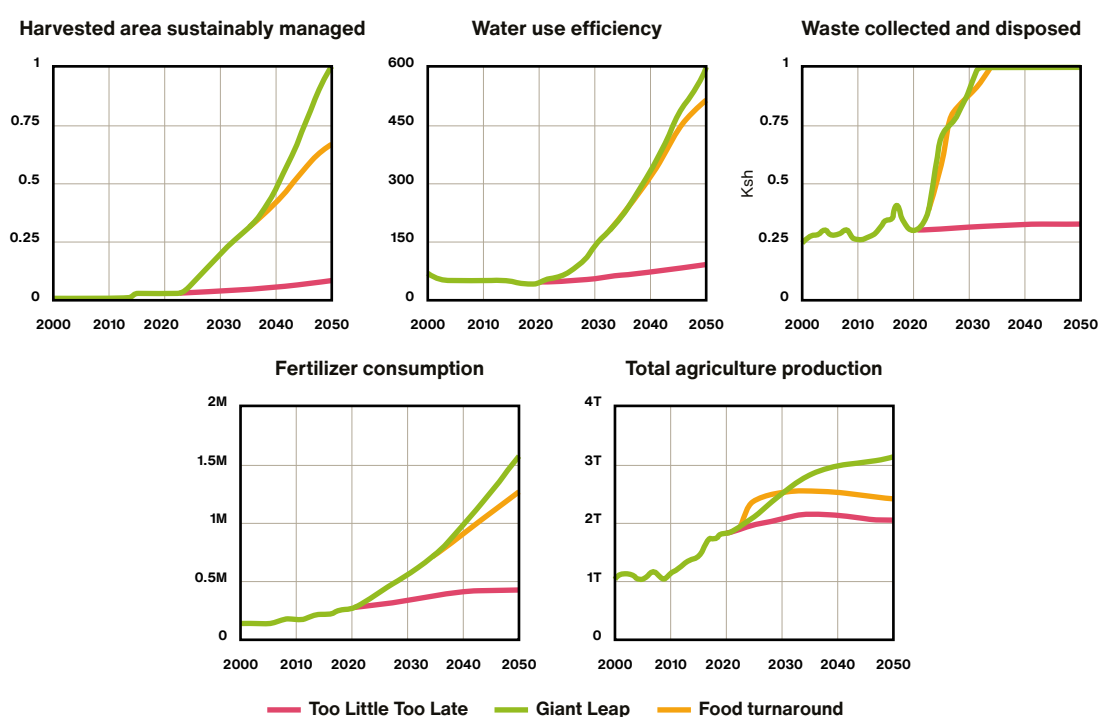
Acceleration Platform (NIAP) aims to expand irrigated agriculture sustainably, enhancing water use efficiency and reducing dependence on rainfall-dependent agriculture. To achieve this, the government through IDA funding from the World Bank is keen to strengthen and expand an irrigation channel system in Kenya that will see farmers efficiently use water from the Nzoia River to enhance their agricultural productivity⁴⁴. In addition to that, it intends to construct 100 large dams to provide 1.5 billion cubic meters of water for irrigation. Additionally, the MTP IV plans to expand the existing irrigation schemes by an additional 200,000 acres, which is equivalent to an annual irrigation of 40,000 acres (ibid).

- ▶ Kenya's Nationally Determined Contribution (NDC) under the Paris Agreement outlines commitments to mitigate climate change impacts, including in the agriculture sector. The government has prioritised adaptation and resilience-building measures, such as promoting agroforestry, conservation agriculture, and sustainable land management practices. These efforts contribute to reducing the vulnerability of rural communities to climate-related risks while enhancing agricultural productivity and sustainability.
- ▶ For Kenya, planetary boundaries are at risk of being overshoot when it comes to material consumption and the waste generation that comes with it. The economic build-up leads to higher wealth, and this wealth eventually increases private consumption which in turn increases material consumption and footprint but also waste. Touching that point, increasing investment in waste management infrastructure is the first step towards sustainable production and consumption. Once more, if not dealt with early in the build-up process, the nation will be at risk of facing other issues related to waste or material consumption.
- ▶ Food loss, which is defined as the decrease in the quantity or quality of food resulting from decisions and actions by food suppliers in the chain excluding retail, food service providers and consumers⁴⁵, is also a challenge. It is estimated that about 14%⁴⁶. Addressing food loss and waste will not only go a long way to the realisation of SDG 2, achieving zero hunger, but also, a means of achieving other SDGs. It is in line with this that the United Nations and the G20 put food loss and food waste on the global agenda in 2015 (ibid) and made it a target (12.3) of SDG 12, related to agrifood systems. Though it is not clear where the highest magnitude⁴⁷. Some of the main causes of post-harvest food loss include but are not limited to; mechanisation and technology, as well as storage and transport. Significant food losses occur at the storage level, where food is stored for a long period^{48, 49}. On the other hand, mechanisation rates in the country remain low, and this is partially attributed to the fact that a larger portion⁵⁰.
- ▶ Globally, it is estimated that 13% of the total food produced is lost between the harvest and retail stages, and an additional 17% is wasted at the household level⁵¹. A report by AGRA⁵² indicates that approximately one-third of the world's food production goes to waste, equating to an estimated economic loss of USD 1 trillion, annually, with Sub-Saharan Africa alone, facing a 37% food loss and waste. Furthermore, these losses greatly contribute to the continent's annual carbon emissions, amounting to an estimated 8-10%. It is intended that global food waste and loss will be halved by 2030 under SDG 12, target 12.3.

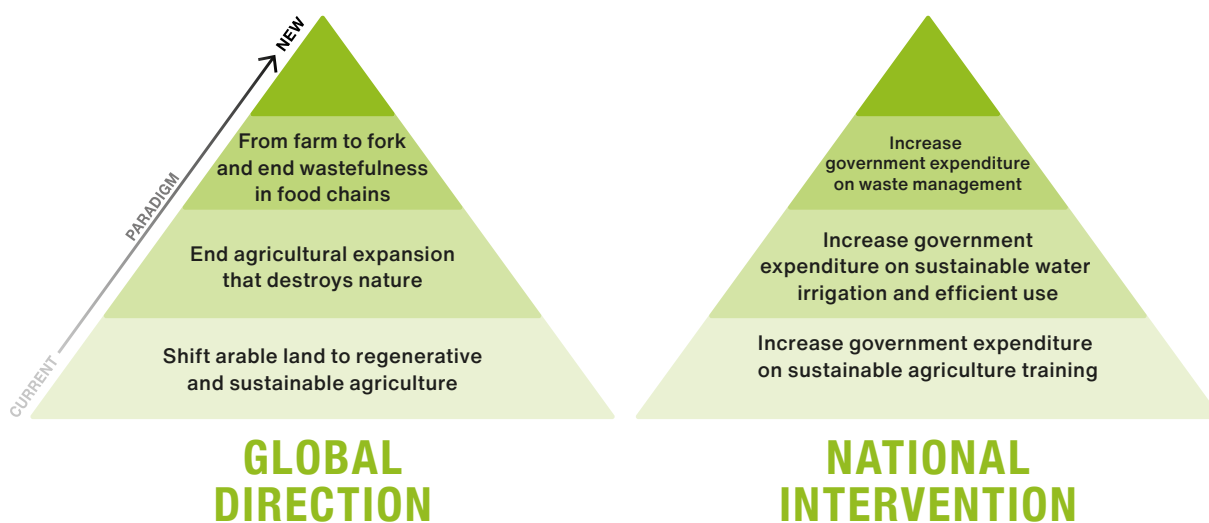
Turnaround 4: Transforming the food system

- ▶ Addressing food loss, therefore, will not only help in sufficiently and sustainably meeting our population's nutritional needs, but also significantly contribute to the reduction of our environmental footprint. By 2025, the African Union Commission's postharvest management strategy of August 2018 intended that all African Union Member states will have reduced their post-harvest losses by 50% (ibid). Under the Kenya Food Systems and Land Use System Action Plan 2024-2030, the three identified major components include the development of a practice that accurately captures food loss and waste and their sources, reformation of existing food safety laws and regulations to address challenges and addressing behaviour change in food consumption patterns, and finally to enhance market infrastructure that will guarantee the efficiency of agricultural produce marketing (ibid).
- ▶ Through efforts of distributing and installing processor facilities at the county level and encouraging the use of a biopesticide (Aflasafe), the government was able to realise a decline in maize post-harvest losses between 2018 and 2022 (ibid).
- ▶ Subsequently, to reduce food wastage, the government intends to construct agro-processing plants, establish agro- and food-processing hubs through a rapid Public-Private-Partnership (PPP) process, and establish county aggregation and industrial parks⁵³. Through the Fresh Produce Exporters Association of Kenya, there are remarkable efforts by the government to reduce loss by establishing green channels at border points and weighbridges, to prioritise and facilitate the movement of fresh produce across the East Africa Community. There is also the establishment of cold-chain business models through the "From Loss to Value Creation (L2V): Reducing Food Loss through Partnerships in Green Cold Storage Solutions in Kenya, under the DANIDA Green Business Partnership"⁵⁴.
- ▶ Additionally, fast-tracking of the legislation and enactment of the horticulture crops authority bill to enable better management and support to the industry as requested by the Fresh Produce Exporters Association of Kenya will be critical.

Figure 19: Development of food indicators



Turnaround 4: Transforming the food system



Turnaround 5: Transforming the energy system

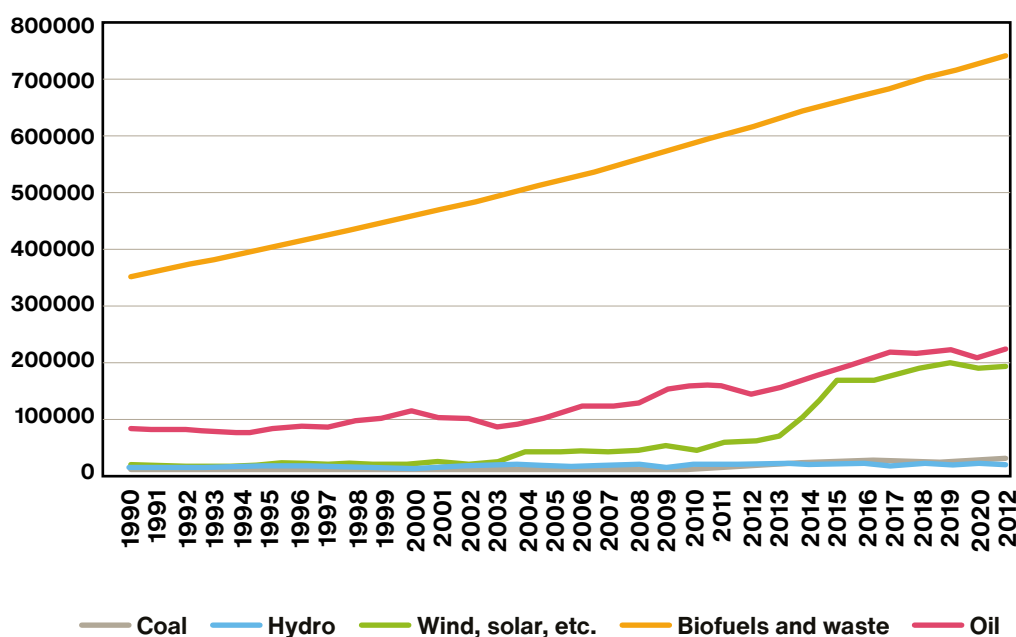
- ▶ As the backbone of any physical transformation, energy plays a special role in building up a new economic nation. To remain within planetary boundaries the possible trajectories are limited and require a conscious choice of building towards a complete renewable mix. This decisive choice benefits developing nations in two major ways: (1) short to medium-term benefits of the decentralised nature of renewables giving electricity access to a large share of the population, and (2) avoiding the local consequences of inefficient fossil energy systems.
- ▶ Kenya's Vision 2030 outlines ambitious goals for expanding renewable energy capacity. The country has tapped into its abundant renewable resources, particularly geothermal, hydroelectric, wind, and solar energy. For example, the Lake Turkana Wind Power project, one of the largest wind farms in Africa, has added substantial clean energy capacity to the national grid, contributing to reduced reliance on fossil fuels.
- ▶ Renewable energy plays a crucial role in expanding access to electricity, especially in rural and remote areas. The government's Last Mile Connectivity Project aims to increase electricity access across the country, with a focus on off-grid and underserved communities. Initiatives such as the Kenya Off-Grid Solar Access Project (KOSAP) provide funding for off-grid solar solutions to households and institutions in remote areas, improving energy access and socio-economic development. With this, the project hopes to facilitate the sale of 60,000 clean cooking stoves in target counties. Additionally, under its MTP IV, the government aims at connecting an additional 2.3 million households in the country with electricity. This will promote the realisation of the government's commitment to providing universal access to modern energy services for cooking by 2028 and access to electricity in Kenya by 2030 (ibid).
- ▶ Kenya faces environmental challenges associated with traditional fossil fuel energy systems, including air pollution and deforestation. By transitioning to renewable energy, the country can mitigate these local consequences while also contributing to global efforts to combat climate change. For instance,

Turnaround 5: Transforming the energy system

the adoption of clean cooking technologies, such as biogas and improved cookstoves, reduces reliance on biomass fuels, improving indoor air quality and reducing deforestation pressures.

- ▶ Besides the production of energy, the consumption mix is also to be redefined. This is (once again) an opportunity to cease dirty energy consumption at an early stage in development given the delays involved in changing at a later stage the energy consumption patterns. In that regard, Kenya has a large and growing share of the energy consumption that comes from transport.

Figure 20: Total energy supply by source – Kenya



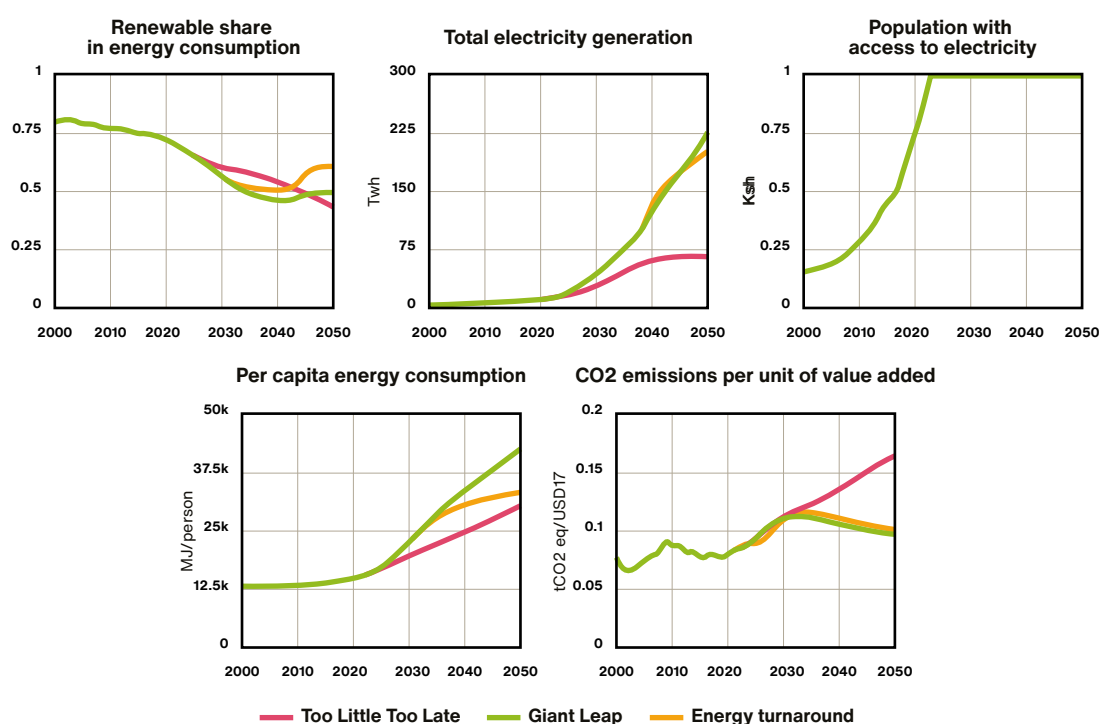
Source: IEA World Energy Balances

- ▶ The Least Cost Power Development Plan, whose projections are from 2022 to 2041, primarily aims at developing a capacity expansion plan to meet the projected demand at minimal cost. In one of its four outputs, the plan reckons a decrease in the total greenhouse gas (GHG) emissions to below 10 MtCO₂e from 2022. This is attributed to the promotion of renewable energy use and a phasing out of medium-speed diesel plants. This is also in line with the national target of dwindling GHG emissions by 32% by 2030, as contained in the updated Nationally Determined Contribution (NDC)⁵⁵.
- ▶ At the national level, this latter is dominated by fossil fuels which has devastating consequences on the quality of the air. In the case of Kenya, which already benefits from large hydropower and geothermal capacity, the energy challenge lies in the sharp increase in fossil-based vehicles. Indeed, as economic development enables higher incomes, this rise in income causes the demand for vehicles to increase. Without rapid and radical investment towards electrification of the vehicle fleet, nations like Kenya see their share of renewable energy decrease at a rapid pace even with ambitious energy efficiency measures.

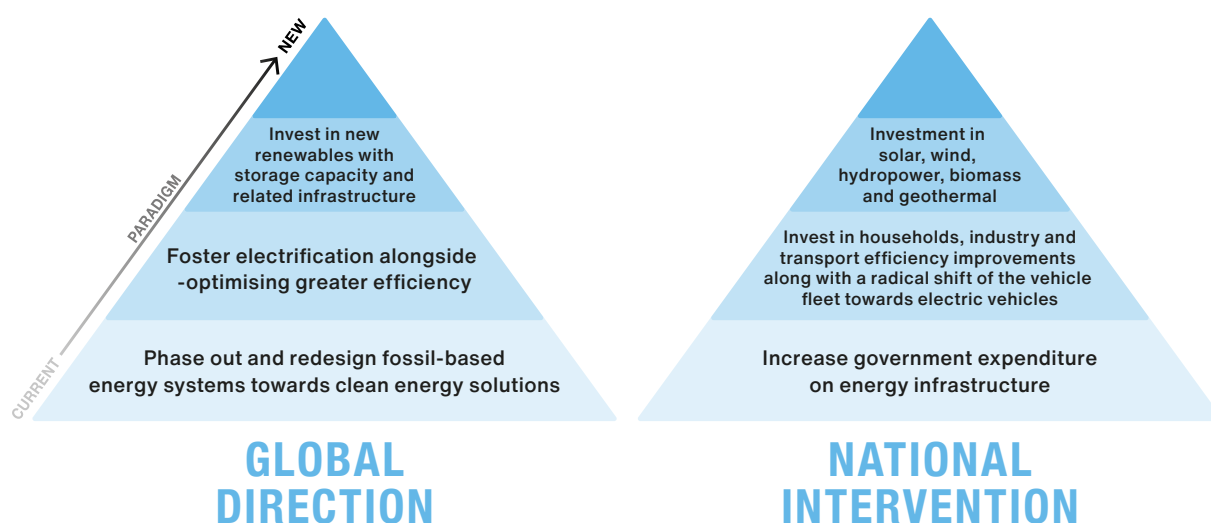
Turnaround 5: Transforming the energy system

- ▶ The United Nations stipulates that the attainment of SDG 7 on ensuring access to affordable, reliable, sustainable, and modern energy is an essential prerequisite to achieving economic wellbeing⁵⁶. According to the Bioenergy strategy of 2020, 74.7% of Kenyans are still reliant on biomass as their primary source of cooking energy⁵⁷ despite 68.2% of Kenya's population having access to electricity by the year 2021⁵⁸. A report by the Kenya Demographic and Health Survey of 2022 shows that only 21% of the Kenyan household population relies on clean fuels/technologies for cooking, space heating, and lighting with a coverage rate of 53% in urban areas and only 5% in rural areas⁵⁹. This shows that those that are heavily reliant on biomass are based in rural areas. Not only does biomass use jeopardise the population's health (with an estimated 21,560 annual deaths largely associated with exposure to household fuel emissions(ibid)) but it also increases the country's carbon emissions. In 2021, Kenya's largest source of energy (at 62%) was from biofuels and waste, while wind/solar, hydro, oil and coal stood at 15.8%, 1.1%, 18.5% and 2.1% respectively. At the domestic energy production level, biofuels and waste remained the largest domestic energy source in Kenya, at 79%, in the same year⁶⁰. This biomass reliance is greatly attributed to its accessibility, affordability and reliability compared to clean sources/of electricity.
- ▶ There is a need to develop a national framework for implementation and transition to clean cooking, anticipated to minimise adverse health impacts attributed to biomass use.
- ▶ Clean cooking methods should be incentivised by significantly reducing the costs of electricity and promoting the use of other clean sources like solar energy in the country through reduced VAT, on clean cooking solutions.

Figure 21: Development of energy indicators



Turnaround 5: Transforming the energy system



Accelerators, synergies and trade-offs

In this section, we delve into a comprehensive analysis of diverse policy scenarios, examining their respective impacts on the four critical dimensions of wellbeing: Dignity, nature, connection, and fairness. Within the scope of this examination, we unravel the complexities of policy performance, elucidate their roles as catalysts or accelerators, facilitators of synergy and sources of competing interests to find out where trade-offs can be established. The quantitative results that the analysis refers to are shown in Figures 22 to 26.

In the context of our analysis regarding dignity, the food turnaround emerges as the most influential among the various turnarounds in promoting access to basic services within the Kenyan context. This phenomenon can be primarily attributed to the strategic investments made in waste management infrastructure, which not only enhance the quality of life but also foster access to clean urban environments. Following closely in terms of impact is the empowerment turnaround, characterised by more efficient public investment driven by governance improvements. This heightened efficiency yields substantial benefits in the form of improved healthcare services, expanded access to safely managed water and sanitation facilities, as well as enhanced waste management. The remaining three turnarounds, namely poverty, inequality, and energy, exhibit the capacity to extend access to basic services to an additional 5-6% of households when compared to the Too Little Too Late scenario. However, the breadth of their influence is somewhat constrained, primarily emanating from increased economic production that subsequently elevates income levels, thereby enhancing access to basic services. When evaluating the proportion of the population living below the USD 2.15 per day threshold, our analysis underscores the preeminent role of redistributive policy interventions, as defined within the framework of the inequality turnaround. While augmenting economic growth through other turnarounds does contribute to a reduction in the proportion of the population below the specified income threshold, the most expedient and resource-efficient approach revolves around fiscal policy restructuring and the recalibration of social transfer mechanisms. These interventions prove to be the swiftest means of achieving tangible improvements in income distribution and poverty alleviation.

With respect to the nature dimension of wellbeing, it is apparent in Giant Leap scenario that all turnarounds have a detrimental effect on the environment. However, it is crucial to interpret this undesired outcome as a transitional phase toward long-term economic, social, and environmental sustainability. Despite the emissions and domestic material consumption trajectories not aligning with desired trends, they still fall within an acceptable range for a country of Kenya's population and economic scale. Notably, additional graphs examining emissions and material consumption per unit of value added and per capita (as shown in Figure 26) reveal that these levels remain relatively lower than the historical and current levels of many high-income countries. When scrutinising the drivers of these trends, the energy turnaround emerges as a pivotal player in the intervention package. Transforming the energy consumption mix effectively mitigates the adverse environmental impacts stemming from the other turnarounds, impacting both emissions and material consumption. In essence, this highlights that without changes in energy usage, the process of economic development would exacerbate its environmental consequences.

For the connection dimension of wellbeing, all turnarounds give rise to higher spending per person. In turn, as more importance and resources are given to the population's needs and aspirations, the increase in spending fuels a sense of belonging in society. In terms of magnitude of expense, the turnarounds can be ordered as follows (from least to most costly): inequality, food, poverty, energy, and empowerment. This order is justified by the fact that quality education requires significant resources even though the economic effect of this allocation maybe be delayed. As previously mentioned, the inequality turnaround represents a less resource-intensive measure but plays a pivotal role in fostering social cohesion, which holds paramount significance in the context of connection. Looking at whether the government will be able to serve the common good over the long term, the debt-to-GDP ratio indicates that without the combined effect of the poverty and inequality turnarounds, future generations will have to bear the burden of mounting debt. The empowerment, food and energy turnarounds expenses increase rapidly, creating a dent in the overall balance as the government revenue does not increase equally. However, this deficit is filled by (1) the increase in high income taxes, (2) the cancellation of foreign debt, and (3) incoming foreign grants. Note that, if we consider the inequality turnaround alone, it leads to a rapid decline in the debt-to-GDP ratio. This dynamic is attributed to the fact that the inequality turnaround does not entail significant expenditure increases but instead signifies substantial revenue enhancements, largely due to increased taxation on high-income individuals.

Finally, regarding the fairness component of wellbeing, all turnarounds enable greater fairness within society. Indeed, as can be observed in Figure 25, the Gini coefficient and the income share of the highest quintile both significantly decrease. The major reason for these decreases is the positive effect the policies have on employment. As employment increases, the proportion of adults not receiving salaries and wages decreases. In turn, this leads to overall economic production to be shared among an increasing number of actors. The second observation that our analysis suggests is that economic growth, underpinned by the poverty, food, energy and empowerment turnarounds is not enough to achieve a true feeling of fairness within society. Indeed, it is only with a direct restructuring of taxes and social transfers (implemented through the inequality turnaround) that the Kenyan population will be able to benefit from the economic transformation that the Giant Leap seeks to achieve. In other words, the inequality turnaround serves as a great accelerator in the pursuit of fairness and the other turnarounds merge into synergetic policy package to drive economic production and overall wealth.

To encapsulate the key findings derived from the analysis and the graphs concerned (Figures 22-26), the primary takeaways are as follows:

- ▶ **Balancing wellbeing, material conditions and the environment:** In the pursuit of elevating living standards for its population by providing access to essential services and substantially reducing the proportion of people living below the poverty line, Kenya inevitably faces significant environmental consequences. While dignity is primarily regarded as a human emotion and a matter of intrinsic value, it necessitates specific material prerequisites to be truly realised. At the national level, these material prerequisites manifest as infrastructure requirements, which, given the scale of change required, lead to increased energy and material consumption. To mitigate the environmental impacts of this heightened consumption, our analysis suggests that the energy turnaround represents the most promising strategy for minimising adverse externalities. Considering Kenya's electricity generation mix, which incorporates clean energy sources, the most effective means of achieving the necessary mitigation involves altering energy consumption patterns. In essence, this transformation centres around interventions in two key areas: (1) the transportation sector, through partial electrification of the vehicle fleet, and (2) enhancements in energy efficiency for residential and industrial energy consumption, which have the most substantial impact on reducing the nation's environmental footprint. To completely reverse the trend of increasing environmental impact, additional measures targeting industrial efficiency and material use must be implemented.
- ▶ **Financial sustainability and the path to enhanced wellbeing:** The achievement of wellbeing is underpinned by the need for substantial adjustments in financial resource allocation, as the current trajectory threatens to be derailed by mounting debt levels. Nevertheless, there is hope on the horizon, as a strategic combination of debt cancellation, incoming foreign grants, and an increase in high-income taxation can engender a positive synergy that propels dignity, connection, and fairness to new achievement levels. Within the scope of dignity, the key imperative is to broaden access to essential services, encompassing safely managed water sources, sanitation facilities, healthcare, transportation, and education, a mission that necessitates augmented public investment. Failing to facilitate these financial inflows may result in delayed progress, leaving younger generations deprived of the prospect of attaining decent living standards. In parallel, the realm of fairness benefits from the economic dividends generated by transformative initiatives, which, over time, translate into tangible social advantages. The convergence of these economic gains with targeted measures of social redistribution contributes to fostering social cohesion and equity. This, overall, spurs a reconsideration and reconfiguration of financial resources, establishing a more equitable financial landscape conducive to holistic wellbeing enhancement and sustainable development.

Figure 22: Development of dignity indicators for all turnarounds

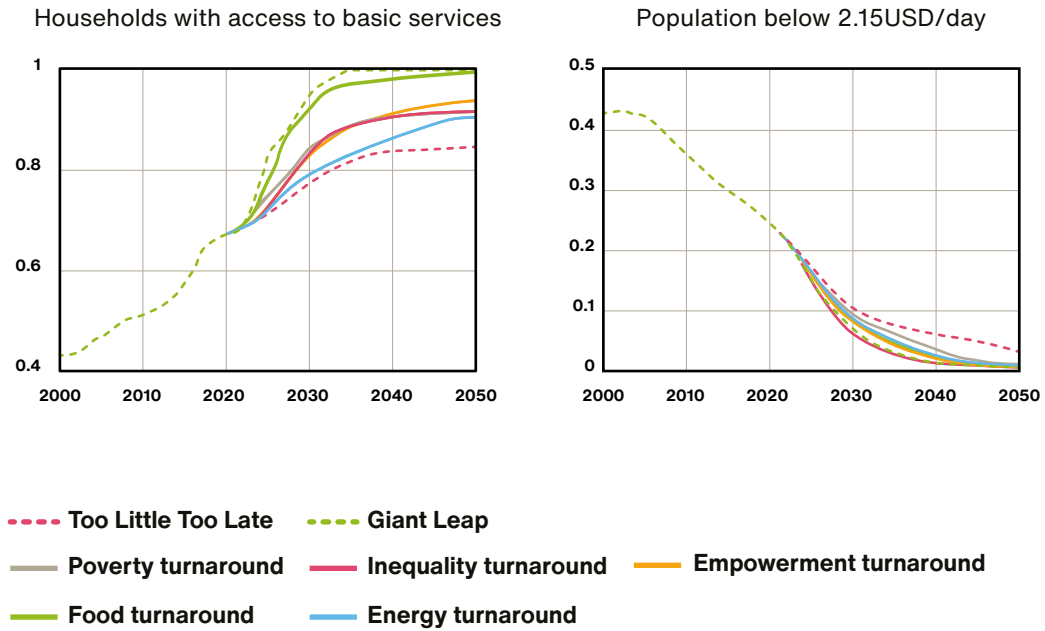


Figure 22: Development of dignity indicators for all turnarounds

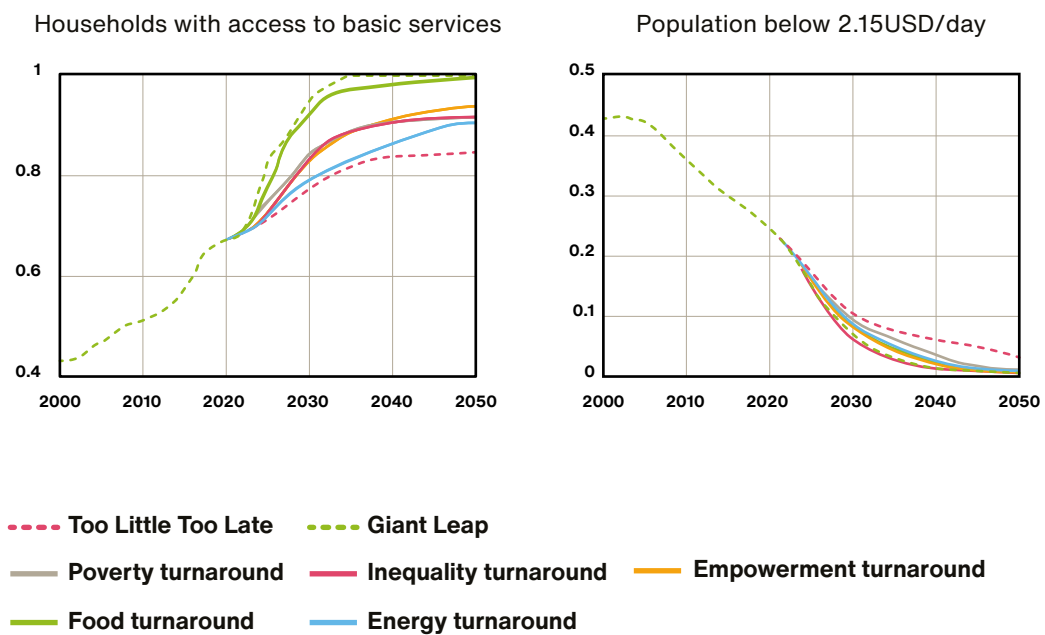


Figure 23: Development of nature indicators for all turnarounds

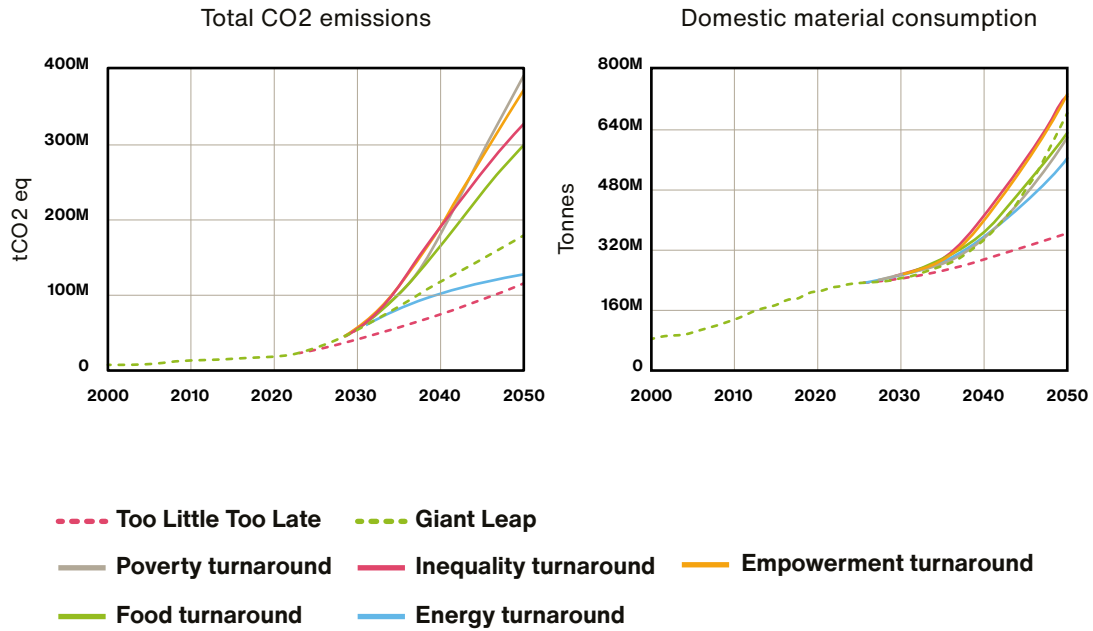


Figure 24: Development of connection indicators for all turnarounds

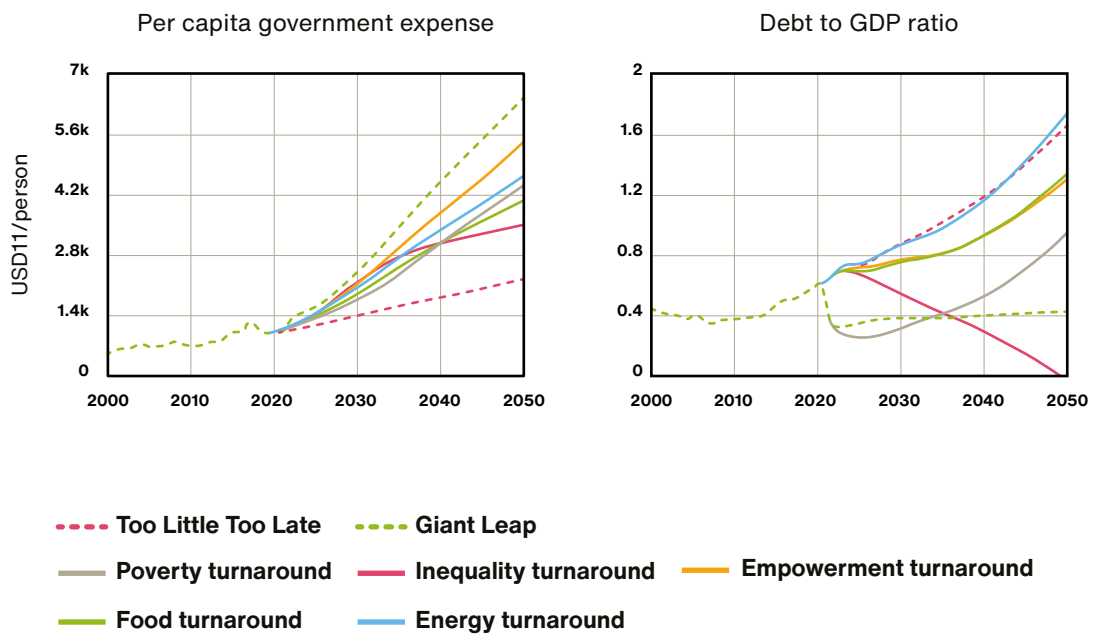


Figure 25: Development of fairness indicators for all turnarounds

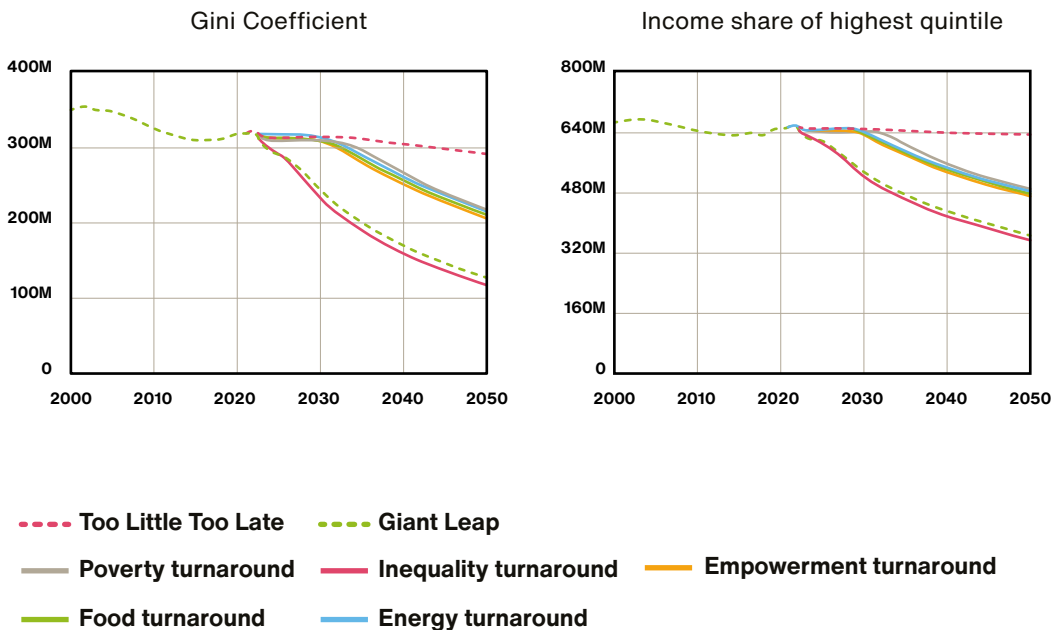
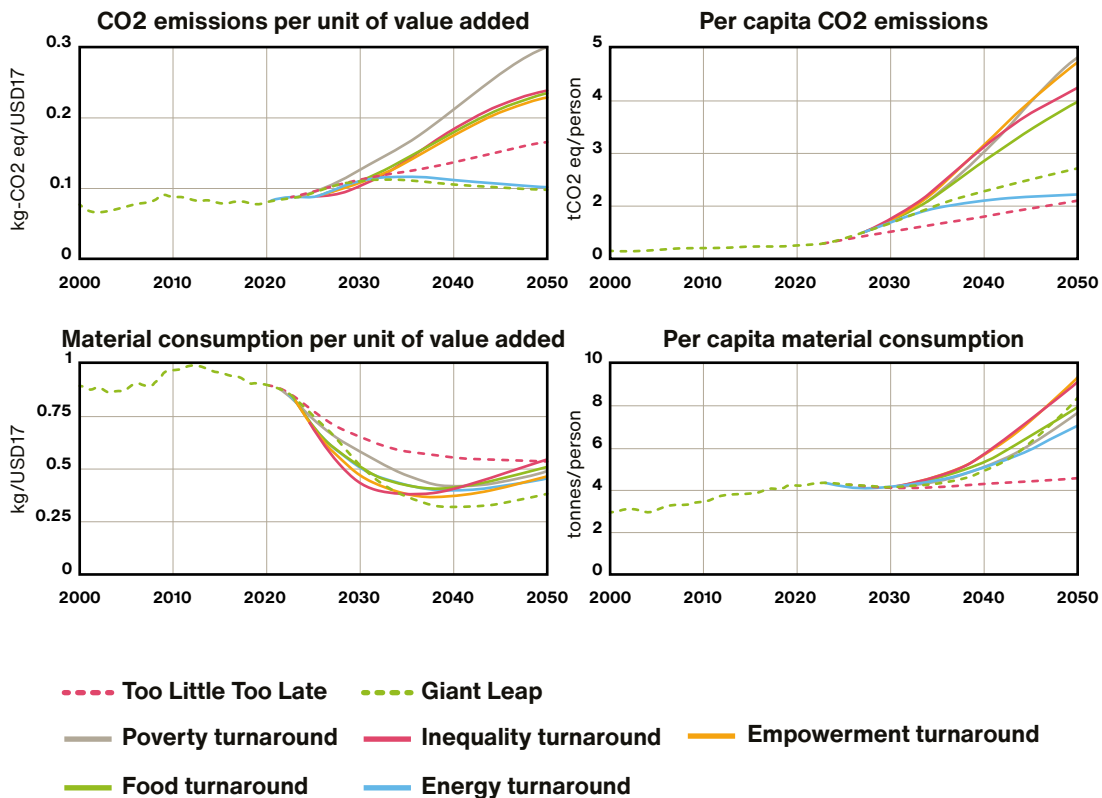


Figure 26: Development of other environmental indicators



VI. Policy Implications

Key policy recommendations

To improve wellbeing for all within planetary boundaries the Earth4All study calls for tectonic shifts from the current economic arrangements where GDP growth driven by expenditure is prioritised over other equally important, qualitative, and non-economic growth dimensions. The Earth4All model shows that without critical transformation, GDP growth would continue to depict an upward trajectory for the next 50 years, but alongside it would be exponential inequality, intensification of adverse climatic events, and increased social tensions due to lack of trust which undermines democratic actions and collective responses to common challenges. Consequently, the Too Little Too Late scenario means increased local, regional, and international conflicts, along with the emergence of extremist political parties and movements which will likely increase political and social tensions across all continents. It is these ramifications that create an imperative for a Giant Leap to ensure the continued survival of humanity.

The magnitude and impact of the extraordinary efforts and investments should result in a turnaround of the current planetary threats within one generation (30-40 years). However, for the Giant Leap to come to fruition as the book *Earth for All* noted, a completely new social contract between states and citizens is imperative. At the core of the new contract is a new economic model - wellbeing economies, which prioritises fairness, accountability, and long-term prosperity whose development is anchored on trust and democratic values that foster sustainable lives.

This section of the report explores key policies that are supportive of transformative changes that would see major turnarounds in the areas of poverty, inequality, empowerment, food and energy. The turnarounds aim at inspiring social and political change that is founded on the principles of dignity; focus on nature; connection; and fairness towards a sustainable future we all long for.

Eliminate poverty

The first of 17 SDGs is “No Poverty” and seeks to end poverty in all its forms everywhere (UNSTATS, 2023)⁶¹. So far efforts to end poverty in Kenya have been hampered by the sustained high cost of living, high population growth, persistent inequalities, and climatic shocks resulting from climate change (ibid). Hence, to eliminate poverty, the country needs to accelerate its social and economic growth programmes. Generally, economic growth in Kenya is majorly driven by the service industry in various sectors of the economy (Dikawar & Shepherd, 2018)⁶². However, agriculture which has traditionally boosted the economic growth of the country is now faced by challenges like land fragmentation, institutional weakness, poor infrastructure in the rural areas as well as adverse climate-related changes, all of which have seriously weakened the sector. The tourism sector as the second major GDP contributor has also been impacted by climate change and is yet to fully recover from the consequences of COVID-19. These challenges will significantly impede Kenya’s aspiration under the economic pillar of Vision 2030 to achieve a sustainable average economic growth rate of 10% per annum until the year 2030. In addition, the service sector relies heavily on skilled human capital, yet most of the jobs created in Kenya are in the low-productivity services, particularly in the informal economy⁶³.

Another drawback to Kenya’s economic growth is the national debt level. By March 2023, Kenya’s debt stood at USD 6.3 billion, of which 64% was a bilateral external debt to China, 17% was external public debt, while the World Bank is the main multi-lateral creditor to Kenya⁶⁴. A big proportion of the Chinese

debt went to the construction of the standard gauge railway connecting Kenya's two main cities of Mombasa and Nairobi with the ultimate objective being to bolster international trade. This translated into a public debt of 67.3% of GDP in 2021/22, which combines internal and external debt⁶⁵. Like most developing countries, by servicing such a huge debt portfolio Kenya cannot adequately invest in critical social services for its citizens. The debt burden starves the county of important resources for development, stifling economic growth which would deepen poverty rates among the most vulnerable with irregular incomes. For the Giant Leap scenario to realise a debt-to-GDP ratio of below 40% and a steady per capita income growth of USD 15,000 per year by 2050, the following policy options recommended by Ngugi et al. (2023)⁶⁶ should be considered.

- i) Agitation for changes in the global financial architecture to make it more equitable and supportive of the needs of low- and middle-income countries like Kenya, including access to affordable credits and friendly debt management and restructuring mechanisms.
- ii) Enhance transparency in debt management in the country, including having debt-to-GDP debt anchor, and monitoring of the national debt portfolio by an independent oversight body.
- iii) Expanding social protection programs through universalisation of programs beyond universal health care and implementing the International Labour Organization (ILO) recommended social protection floors. This will cushion not just the poorest segments of Kenya's society, but overall enhance social protection coverage for all citizens.

Further analysis of this area is needed to make projections of the anticipated proportional change likely to occur at varied investment levels.

Additionally, by reducing inequalities, the country can also reduce poverty, particularly by targeting income inequality. The multi-dimensional inequality is caused by differences in income levels, gender preferences, disability, race, ethnicity, and marginalised groups. To address an increasing divide between social groups, there are specific measures that can be implemented including ensuring equitable distribution of resources, investing in human capital (education and skill development, health, poverty eradication), implementing universal social protection measures, expanding universal health care coverage, and ensuring equal access to opportunities and countries. More specifically, Kenya should consider the following policies:

- i) Increasing investment in public education and high technology skills development for high human capital development. Diversification of training will bridge skills gaps in the job market, create new job opportunities and high-end adoption of technologies by encouraging uptake of STEM courses which show promise for reducing the gender pay gap.
- ii) Recognition of unpaid labour such as domestic care work and compensating women to account for their contribution to the country's GDP which is estimated at between 10 to 39%.
- iii) To eradicate poverty and combat social inequality, it is important that the ILO social protection floors are adopted. With this, all the needy members of the community will have access to the basic income security, which guarantees access to basic services such as clean water and sanitation, essential healthcare, and basic nutrition. Social protection floors offer a minimum guarantee of social security and basic services that are considered essential at the national level and provided over the life cycle rather than only during vulnerable life phases such as old age. National social protection floors are anchored on four main social guarantees which include access to basic healthcare for all, basic income

security for the active ages that are not able to earn enough, basic security for children through proper nutrition, education and other services and lastly, income security for the older generation in the community. Overall, expanding social protection programs through universalisation will cushion the poorest segments of Kenya's society and secure the welfare of all citizens.

Empower women

Women empowerment benefits society as a whole as it is estimated that women spend 80% of their gains on the wellbeing of their families⁶⁷. The gender wage gap between men and women is evident as women tend to earn less than men⁶⁸ irrespective of the sector they work in (KIPPRA 2021)⁶⁹. Women are less productive which could be attributed to the care work burden that is not normally rated as work, yet it is estimated that women spend 16 billion hours performing various activities that contribute to the growth of an economy(ibid). The following policies can enhance gender equity and empower women.

- i) Supporting women-owned businesses through government catalytic funds to increase their productivity and enhance their presence in the economic arena.
- ii) Implementation of Affirmative Action: With the guidance of Kenya Vision 2030, all employers to ensure that all people including women and people living with disabilities have equal chances of securing employment; and support equal employment opportunities for both men and women and equal pay if they perform the same duties.
- iii) Specific to the marginalised groups and empowerment, increase investments towards education scholarships for girls from marginalised counties and increase awareness and interest in Science, Technology, Engineering and Mathematics (STEM) by girls from a very early age. STEM-based careers have been shown to close the gender income gap.

Transforming food systems

Ensuring sustainable and equitable food systems will contribute to the attainment of SDG 2, whose overall aim is to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”. SDG 2 also contributes to achieving most of the other goals. Under the BETA agenda, the government of Kenya currently seeks to ensure food security in the country through investments in agricultural transformation and inclusive growth. The government adopted a value chain approach and committed to supporting key value chains such as dairy products, tea, and edible and crop oils. At the national level, focus is on livestock and crop development and agricultural research. The two thematic areas of focus received an allocation of KES 18.35 billion and KES 46.303 billion respectively in the financial year 2023/24 (PBO,2023)⁷⁰. In the same financial year, a significant allocation was given to agricultural extension and advisory services, which are critical in modernising and transforming the agricultural sector, as they provide farmers with the necessary information to support and increase their agricultural food production.

Agricultural production remains challenging for communities in ASAL which constitute 80% of Kenya's landmass, and which are adversely affected by climate change. Conflicts around water are emerging as a concern in areas affected by drought and water as a resource in agricultural productivity also remains a challenge to farmers, especially small-scale farmers as most irrigation initiatives tend to be concentrated on large-scale schemes. Enhancing irrigation therefore is a strategy to improve livelihoods and transform food systems in the county, in addition to improving the soil quality, capitalising on micro-irrigation schemes, improving seed quality, and establishing fertiliser manufacturing and blending plants (Kenya

Kwanza, 2022; Moyi,2023)⁷¹.

The following strategies are suggested to transform Kenya's food systems.

- i) Investing in regenerative agriculture: This involves sustainable agricultural practices like recycling farm waste, substituting fertiliser with composted material, and using other practices like significantly reducing the use of pesticides and synthetic fertilisers, practising agroforestry, permaculture, and agroecology to guarantee restoration of degraded soils, topsoil regeneration, supporting carbon sequestration and enhanced biodiversity. The implementation of carbon sequestration-focused practices and regenerative agriculture can play a significant role in combating climate change. Transitioning to regenerative agriculture may be costly for smallholder farmers but the government can consider offering incentives like technical assistance, financial incentives, market support and regular farm policy reforms accompanied with education outreach.
- ii) Encouraging collaborations between farmers, research institutions, and NGOs to encourage co-creation of a knowledge pool on agricultural production, land use, local knowledge on climate mitigation strategies. This will provide farmers with resources and expertise needed to implement sustainable agriculture.
- iii) Introduce modern agricultural risk management tools for profitability and predictable income, akin to the Guaranteed Minimum Returns (GMR) Scheme of the 1970s.
- iv) An establishment of a clear link between food to other thematic economic drivers like infrastructure should encourage the government to increase public investment in rural infrastructure (roads) to significantly discourage food loss, in terms of the time taken from farm to market and encourage modern storage facilities like refrigerators, hermetic bags and silos to mitigate risks of post-harvest food losses.

Enhancing food production efforts and efficiency:

- v) Promote climate-smart agriculture: Increase support for research and extension services for technologies like drought-tolerant crops, water-efficient irrigation, artificial intelligence and soil management to increase productivity and resilience to climate change.
- vi) Invest in rural infrastructure: Upgrade storage facilities, transportation networks, and market access in rural areas to reduce post-harvest losses and effectively connect farmers to markets. The government needs to fast-track the proposed establishment of agro and food processing hubs in counties and enactment and legislation of the horticulture crops authority bill, which will ultimately guarantee reduced post-harvest losses.
- vii) Empower smallholder farmers: Smallholder farmers are crucial for food security, and they need access to credit, training programs, and affordable farm inputs (seeds, fertilisers).
- viii) Encourage diversification: Promote the farming of a wider variety of crops, including indigenous and drought-tolerant varieties, to improve dietary diversity and reduce dependence on a few staple foods.

Strengthening food value chains:

- ix) Identify food crops and agricultural produce with high potential to increase productivity in the value chains and increase both infrastructure-related investments as well as research and development efforts with the aim of accelerating expansion.
- x) Reduce food waste: Implement policies and invest in technology to minimise food waste at all stages of the food chain, from harvest to consumption.
- xi) Improve food safety standards: Enforce stricter food safety regulations to ensure the quality and safety of food products for consumers.
- xii) Promote investment in food processing: Incentivise private sector investment in food processing facilities to add value to agricultural products, extend shelf life, and create jobs.

Enhancing nutrition security:

- xiii) Nutrition education programs: Implement public education campaigns to promote healthy eating habits and raise awareness about proper nutrition, especially for children and pregnant women.
- xiv) School feeding programs: Expand school feeding programs to ensure access to nutritious meals for children, improving their health and learning outcomes.
- xv) Support for local food markets: Provide support for farmers' markets and local food systems to increase access to fresh, locally produced, and affordable nutritious food.

Transforming the energy system

Transitioning to 50% renewable sources of energy out of the total energy consumption is an important pathway to the Giant Leap, as is achieving 100% population coverage of connectivity to the national electricity grid. Such efforts will vastly reduce dependence on fossils and wood fuel and in that sense enhance the country's conservation efforts and cut back its carbon emissions. So far, Kenya has a fair mix of green and clean energy sources that include solar, wind, hydroelectric and geothermal power. Clean cooking energy is also encouraged and is a government priority. At the same time, as part of Kenya Vision 2030, there is a commitment to ensure 100% electricity coverage which currently stands at about 80%. Recent efforts to introduce electric cars as well as Bus Transit Services in the capital city of Nairobi will also go a long way in enhancing Kenya's energy transition and decarbonising efforts, as will policies such as promoting the use of electric public vehicles and promoting the use of alternative energy sources such as biogas. The overall transformation of energy sector will however require the development and implementation of relevant policies. The next section focuses on the application of the proposed policies at the national level.

- i) The government should ensure that the underserved population has access to electricity and consider a significant lowering of energy tariffs which would promote the adoption of clean cooking energies.
- ii) More sensitisation on the advantages of clean cooking energy sources should also be done.
- iii) Provide a strong clean energy innovation ecosystem to accelerate the uptake of clean energy technologies, particularly in the underserved areas.

- iv) Significant and sustained improvements in energy efficiency across all energy consuming sectors.
- v) Upgrade the existing grid infrastructure to enhance regular and uninterrupted electricity supply.
- vi) Kenya can consider the adoption of key guidelines by the African Association of Public Transport (UAPT) and Climate and Clean Air Coalition (CCAC), which promote adoption of E-mobility strategies in African cities thus reducing carbon emissions and reducing associated human health risks. This will also go a long way towards delivering a reliable and speedy transport system for its population (Naikumi and Moyi, 2023).
- vii) The government should also adapt stringent measures to address poor fuel quality imported into the Kenyan markets. Poor quality fuels (often associated with high sulphur content) negatively impact on the quality of air and contribute to higher carbon emissions in the county. Regular mandatory roadworthy emission tests can help curb high carbon emissions by the transport sector. The government can consider establishing a monitoring framework for the above recommendations and build the capacity of regulatory agencies to effectively monitor and enforce fuel quality standards.

Application of policies at the national level

For poverty-related policies, since the focus is on the wellbeing of economies, Kenya's commitment should be directed at drastically shifting from over-reliance on traditional economic sectors like agriculture and tourism that are highly vulnerable to climate change and threatened by declining natural resources. Higher investments and expansion of its green economy including renewable energy exploitation, clean production systems and carbon trading could be new revenue sources for the country which can spur GDP growth in a sustainable way. Additional revenue could be generated by building the capacities and productivity of service sectors like the creative sector which includes digital content creation, E-commerce and entertainment.

On policies dealing with inequality, the country has realised the importance of leaving no one behind by putting in place policies that ensure social protection for women, youth, children, people living with disabilities and marginalised communities. This is the direction that the country should take.

On policies focusing on women empowerment, the government has adopted funds accessible to women such as the Women Enterprise Fund, Uwezo Fund and Hustler Fund (financial inclusion fund) that have promoted women's access to capital, thus promoting empowerment.

Regarding food systems transformation, the government's priority should be to enhance food security and ensure sustainable food production while cushioning small-scale farmers against the vagaries of climate change effects. The provision of quality seed and fertiliser subsidies have the potential to also increase food production.

International implications/needs from the international level

Poverty eradication: In 2024 approximately 719 million people in the world and 397.4 million people in Sub-Saharan Africa live below the global poverty line (USD 2.15 per day)⁷². Agitating for debt cancellation, changing the global financial debt structure in favour of the developing countries, and putting in place debt ceiling regulations will enhance the realisation of SDG 1 on "poverty eradication" and propel African countries forward in their efforts to realise the African 2063 Agenda through improving standard of living

for citizens⁷³. Furthermore, Africa is promoting the implementation of the African Continental Free Trade Agreement (AfCFTA) that aims to increase intra-African trade by reducing trade barriers and promoting economic integration between African countries. The framework encourages local and international investors to take risks to invest within a thriving African economy. One of the intended benefits of AfCFTA is increased job creation and poverty reduction through trade and investment opportunities.

Women empowerment: Between 2020 to 2022, the majority of the countries in Sub-Saharan Africa have made significant efforts to reduce gender inequality and enhance their participation in economic development⁷⁴ through the implementation of the African Charter and Maputo Protocol. Even with these efforts, it is notable that women and girls in the region continue to face gender-related challenges such as gender violence and limited access to financing which could be attributed to the governments not upholding their responsibility in enhancing legislative measures that ensure steady security structures that protects women even during uncertain times such as the COVID-19 pandemic⁷⁵. Implementation of **gender equality policies** will fast-track the achievement of the SDG on *gender equality and empowerment of all women and girls* and the African Agenda 2063 on *Full Gender Equality in All Spheres of Life*. Since empowerment of women is a key outcome area of Africa 2063, it is imperative to integrate in the list of flagship projects, a cross-country initiative to promote women's education and leadership in the continent.

Reduce inequality: There is a need to invest in human capital through training and increasing access to information through technological advancement to achieve the African 2063 agenda on "*Well Educated Citizens and Skills revolution underpinned by Science, Technology and Innovation*" and ensure no one is left behind as stipulated in the SDGs. Assessing unpaid care work in terms of monetary value is critical since it is estimated that it contributes to 9% of the global GDP⁷⁶. Half of the global population⁷⁷ and less than half of Africa's citizens have access to quality healthcare⁷⁸. Investment in healthcare services is important in improving the life expectancy and the general wellbeing of citizens.

Food security: Under the African Agenda 2063, Africa aspires to prosperity, based on inclusive growth and sustainable development. One of the key goals in the attainment of this mandate is the promotion and adoption of modern agriculture for increased productivity and production, besides ensuring healthy and well-nourished citizens⁷⁹. By 2030, the continent envisions an efficient and sustainable water use where 90% of domestic wastewater will be recycled to supplement water in the industrial and agricultural sectors.

To achieve these goals, it is imperative that the continent considers a shift from its conventional food systems to climate smart agriculture options. This calls for substantial financial investments which include mechanised farming, promoting water security and encouraging irrigation at a small-scale level, provision of subsidies and increased access to production inputs and encouraging varied production as well as value addition. This will increase competitiveness, allow the African continent to achieve self-financing/reliance in agriculture, and produce a surplus, thus increasing its exporting capacity which directly translates to a notable growth in its overall GDP. Africa should stick to the commitment to allocate at least 10% of national budgets to agriculture and rural development in order to realise agricultural growth rates of at least 6% per annum as espoused in the Africa agenda 2063. Measures should be undertaken to enhance resilience to climate variability through development of disaster preparedness policies and early warning response systems and social safety nets. It is also important to improve rural infrastructure and trade-related capacities for market access.

Energy: The African Continent under the African Agenda 2063 envisions Pan-Africanism under its second aspiration whose ideals would include enhanced connectivity through the adoption of newer and bolder infrastructure initiatives that will connect the continent (ibid). Promoting the use of electric rails and public vehicles will not only contribute to its achievement but will also reduce the continent's vulnerability to climate change and its carbon emissions. Encouraging a transition to sustainable renewable energy will also spur economic growth among nations and ultimately contribute to the attainment of the SDG 7, which calls for affordable and clean energy (ibid).

Kenya should also consider expanding the already available off-grid energy solutions, such as solar mini-grids and renewable energy systems to rural agricultural communities that are not connected to the main electricity grid.

VII. Conclusion

Conclusion

This report employs the iSDG model, a comprehensive model derived from the well-established T21 model. The model, applied globally since 1993 and widely regarded for national development planning, facilitates cross-sector impact analysis, policy testing, and performance assessment, allowing policymakers to engage in pragmatic discussions regarding national agendas. The model integrates 67 quantitative indicators across all 17 SDGs for Kenya. These indicators are all anchored in Kenya's Vision 2030, the Bottom-Up Economic Transformation Agenda (BETA), as well as the African Union Agenda 2063. For the analysis of the five turnarounds' impact, indicators were selected to represent Earth4All's wellbeing dimensions, including dignity, nature, connection, and fairness, aiming to provide a comprehensive understanding of national dynamics and facilitate informed decision-making processes.

The scenario analysis involved evaluating the development trajectories based on policy choices, comparing the impacts of the Giant Leap and Too Little Too Late scenarios on wellbeing indicators. It illustrates the implications of these scenarios through macro-level impact analysis and a deep dive into the five turnarounds, while highlighting the potential accelerators, synergies, and trade-offs of high-level policies, indicating the importance of addressing debt sustainability concerns in Kenya's economic planning.

The policy recommendations outlined in the Earth4All study address five crucial dimensions—eliminating poverty, reducing inequality, empowering women, transforming food systems, and transitioning to sustainable energy. At the national level, the application of these policies requires a comprehensive re-evaluation of economic priorities. Countries like Kenya, for instance, are urged to diversify their economic base, invest in green sectors, and explore new revenue streams such as the creative sector. Similarly, addressing inequality involves ensuring social protection for marginalised groups and investing in human capital development.

Furthermore, Earth for All emphasises the applicability of these policies at the regional and international levels. Poverty eradication measures, including debt restructuring, have far-reaching implications for the entire African continent. Similarly, efforts to empower women, reduce inequality, ensure food security, and transition to sustainable energy align with broader regional and global development agendas. Earth for All not only highlights the urgent need for change but also provides concrete policy recommendations to guide nations towards a more sustainable and equitable future. Implementing these recommendations at various levels—national, regional, and international—are crucial for overcoming challenges of the Anthropocene and ensuring the wellbeing of current and future generations.

Next steps

After the launch and dissemination of this report within Kenya and beyond, we anticipate that country-level engagement will foster multilateral, regional, and international cooperation, guiding humanity towards a sustainable future. The Earth4All national engagement partners in Kenya are already collaborating and sharing lessons learned with other Earth4All national engagement partners, such as Austria, Germany, and Argentina. Earth4All intends to use the Kenyan initiative to upscale and replicate this engagement in other African countries.

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The Club of Rome is a platform of diverse thought leaders who identify holistic solutions to complex global issues and promote policy initiatives and action to enable humanity to emerge from multiple planetary emergencies. The organisation has prioritised five key areas of impact: Emerging New Civilisations; Planetary Emergency; Reframing Economics; Rethinking Finance; and Youth Leadership and Intergenerational Dialogues.



The Millennium Institute (MI) is a non-governmental organization dedicated to empowering governments and organizations to design effective strategies for achieving measurable progress in wellbeing and sustainability transitions. At the heart of MI's approach are customizable, innovative modeling technologies. These models translate frameworks like the Sustainable Development Goals, the Paris Agreement on Climate Change, and Planetary Boundaries, into practical tools for analyzing policy interventions, understanding their impacts, and monitoring progress against set targets. MI works closely with stakeholders to tailor these frameworks to their specific needs, thereby empowering decision-makers to make informed choices that advance their sustainability goals.

Earth4All is an international initiative to accelerate the systems changes we need for an equitable future on a finite planet. Combining the best available science with new economic thinking, Earth4All was designed to identify the transformations we need to create prosperity for all. Earth4All was initiated by [The Club of Rome](#), the [Potsdam Institute for Climate Impact Research](#), the [Stockholm Resilience Centre](#) and the [Norwegian Business School](#). It builds on the legacies of [The Limits to Growth](#) and the [planetary boundaries frameworks](#).

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