Summary Report

GREEN GROWTH INDEX 2023 KENYA

NOVEMBER 2023

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The National Treasury & Economic Planning
The National Treasury
REPUBLIC OF KENYA

Harambee Avenue, Treasury Building,
P.O Box 30007-00100
Nairobi, Kenya

GGGI

The Global Green Growth Institute
19F Jeongdong Building, 21-15, Jeongdong-gil, Jung-gu,
Seoul, Korea

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PREFACE

Kenya is transitioning into a green model of economic growth and development. In pursuit of this transition, it has adopted a development pathway that seeks to deliver economic growth that is both environmentally sustainable and socially inclusive. Kenya's Vision 2030 aims to transform the country into an industrialized middle-income country offering its entire citizens a high quality of life in a clean and secure environment.

As part of the transition to the green economy, the Kenya government through the implementation of the Green Economy Strategy and Implementation Plan (GESIP) is transitioning the country's socio-economic landscape into one characterized by low carbon emissions, resource efficiency, equity, and inclusivity. The GESIP guides Kenya's economic growth towards a trajectory that is resource-efficient, low-carbon, climate-resilient, and socially inclusive. Additionally, the green economy has been mainstreamed in the Fourth Medium Term Plan (MTP IV) 2023 – 2027 which transitions the country to the next long-term development plan.

I am, therefore, delighted to present the Kenya Green Growth Index, which will act as an evidence-based tool for assessing the impacts of green growth policy implementation and investments in Kenya and for comparing green growth performance against top-performing developing countries. The Green Growth Index has four (4) dimensions according to the pillars of green growth, namely: efficient and sustainable resource use; natural capital protection; green economic opportunities; and social inclusion. Additionally, to ensure ease of comparison of performance, the Green Growth Index has been developed using global sustainability indicators that are policy relevant and contextualized to Kenya and which are drawn from the Sustainable Development Goals (SDGs), the Paris Agreement, and the Aichi biodiversity targets. The Green Growth Index will be periodically improved as data on indicators is developed and becomes available in Kenya and as the implementation of the Kenya's Green Economy Strategy unfolds.

Kenya's overall score is 47.95 for the Green Growth Index in 2023, entailing that the green growth performance was only moderate and about halfway to achieve the sustainability targets. There is, therefore, window of opportunity to improve green growth performance by pursuing the development priorities, including economic transformation, environmental sustainability, which offer huge opportunities in greening Kenya's economy.

Dr. Chris Kiptoo, CBS
Principal Secretary
National Treasury
NAIROBI

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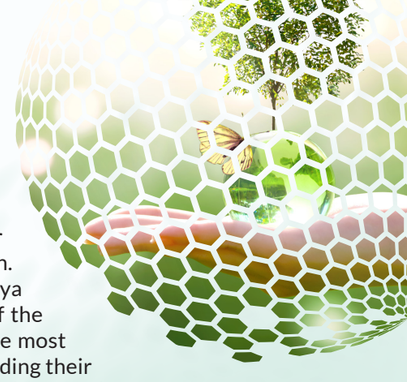
HIGHLIGHTS



As Kenya aspires to transition into a green model of economic growth and development, the Green Growth Index offers the country a policy tool for measuring its green growth performance and tracking its green growth transition. The participatory approach and rigorous methods for developing the first Kenya Green Growth Index steered the National Treasury and Economic Planning of the Republic of Kenya in mobilizing national experts to participate in selecting the most policy-relevant indicators and the Global Green Growth Institute (GGGI) in building their capacity to assess the country's challenges and opportunities to green growth transition. Under the guidance of the National Treasury and Economic Planning, the green growth indicators in the Green Growth Index will be updated to replace the proxy variables and close the data gaps. Moreover, the national experts can contribute to disseminating the Kenya Green Growth Index and sharing experiences in its development in other African countries and beyond.

1 Kenya developed its first Green Growth Index through a participative and rigorous process that is concept-driven, expert-guided, and policy-relevant

The Kenya Green Growth Index was developed through the participation of more than 50 experts from 24 institutions. National experts systematically selected the 80 green growth indicators for the Green Growth Index using online surveys, participatory workshops, and targeted consultations. They covered Kenya's key environmental, economic, and social sectors and were aligned with the country's development priorities including promoting sustainable infrastructure, building resilience, enhancing of resource efficiency, and ensuring social inclusion and sustainable livelihoods.

2 Kenya's Green Growth Index score of 47.95 represented a moderate performance level in 2022 but showed a continual improvement since 2010

Improving the scores in green economic opportunities, particularly in green innovation and trade, will allow Kenya to improve its green growth performance at a higher level. Social inclusion scores showed the most significant improvement, contributing to the improvement in Kenya's Green Growth Index scores in the last decade. Nonetheless, among the four dimensions, natural capital protection has the highest number of green growth indicators with very high scores. However, these scores were pulled down by very low scores in many green economic opportunities indicators.

3 Forty-seven (47) SDG indicators are represented in Kenya's Green Growth Index, but data availability for many green growth indicators poses a challenge

The SDG indicators in the Green Growth Index allow for measuring Kenya's performance in achieving sustainability targets. Other non-SDG indicators contribute to the SDGs, the Paris Climate Agreement, and Aichi Biodiversity Targets. Many indicators lack data, particularly environmental quality, green innovation, and social protection pillars. The data gaps will need to be addressed to make the Green Growth Index a precise tool for assessing Kenya's green growth transition.

4 Sharing experiences in developing the Green Growth Index with experts in Africa and beyond advocates knowledge on green growth transition

Sharing experiences in developing the Green Growth Index and knowledge gained through it is valuable to increase awareness of its relevance for green growth transition policy and planning. The Kenyan experts benefitted from the experiences shared by the Zambian Government on its national Green Growth Index. The dissemination of the Kenya Green Growth Index in global conferences informs experts outside Africa on the country's green growth aspirations.

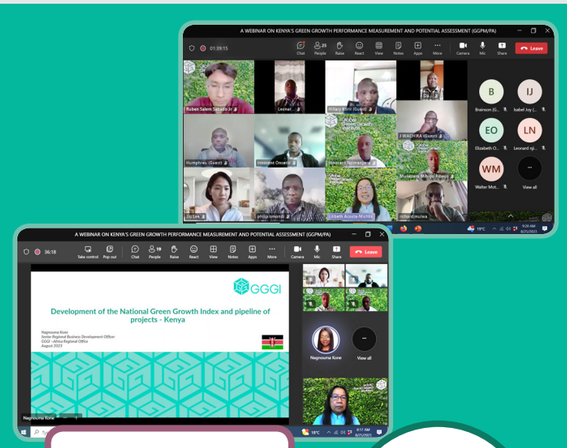
5 Close collaboration of the National Treasury and Economic Planning and GGGI with the national experts enabled the prompt completion of the Kenya Green Growth Index in 2023

The interdisciplinary competence of the national experts from various institutions allowed the selection of 80 indicators most relevant to efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion. The close collaboration of the National Treasury and Economic Planning and the GGGI with the national experts provides an enabling environment for implementing a consultative and systematic approach to developing the Kenya Green Growth Index.

1 Kenya developed its first Green Growth Index through a participative and rigorous process that is concept-driven, expert-guided, and policy-relevant

1.1 Design process for the Kenya Green Growth Index

Through the leadership of the National Treasury and Economic Planning, more than 50 experts from 24 institutions participated in developing the Green Growth Index in Kenya from August 2023. The national experts selected 80 green growth indicators and assessed the performance scores for the Green Growth Index through a systematic approach using online surveys, participatory workshops, and targeted consultations. Under GGGI's technical support, the design process of the Kenya Green Growth Index forged partnerships and capacity building among experts in assessing the policy relevance of the green growth indicators and the country's green growth transition priorities. The National Treasury and Economic Planning actively disseminates the Kenya Green Growth Index and the experience in its development during the Global Green Growth Week 2023 and COP28.



Webinar 1
Inform about green growth framework
(25 August)

1st Online survey with the national experts (Initial list of indicators)

Webinar 2
Follow-up consultations on selected indicators
(20 September)

Dissemination
Global Green Growth Week 2023
(23–27 October)

2nd Participatory workshop
Interpret results of the Green Growth Index
(6–10 November)

COP28
Inform about the Kenya Green Growth Index
(30 November - 12 December)

2nd Online survey with the international experts (Indicators/ Proxies)

August | September | October | November | December

1st Participatory workshop
Select green growth indicators
(29–30 August)

Review report
Draft Kenya Green Growth Index
(December)

Review/Publish Report & Website
Final Kenya Green Growth Index

Targeted Consultations
Validation of the selected indicators with national experts
(16–24 October)

Consultations with other institutions

Sustainable Energy for All (SEforALL)
16 October 2023, Deliberation on the development of the Green Growth Plan for Kenya through the Office of the President, focusing on potential areas for synergy with the GGGI Team.

Kenya Private Sector Alliance (KEPSA)
18 October 2023, Examination of pertinent policy issues and programs aimed at fostering social and economic development in Kenya.

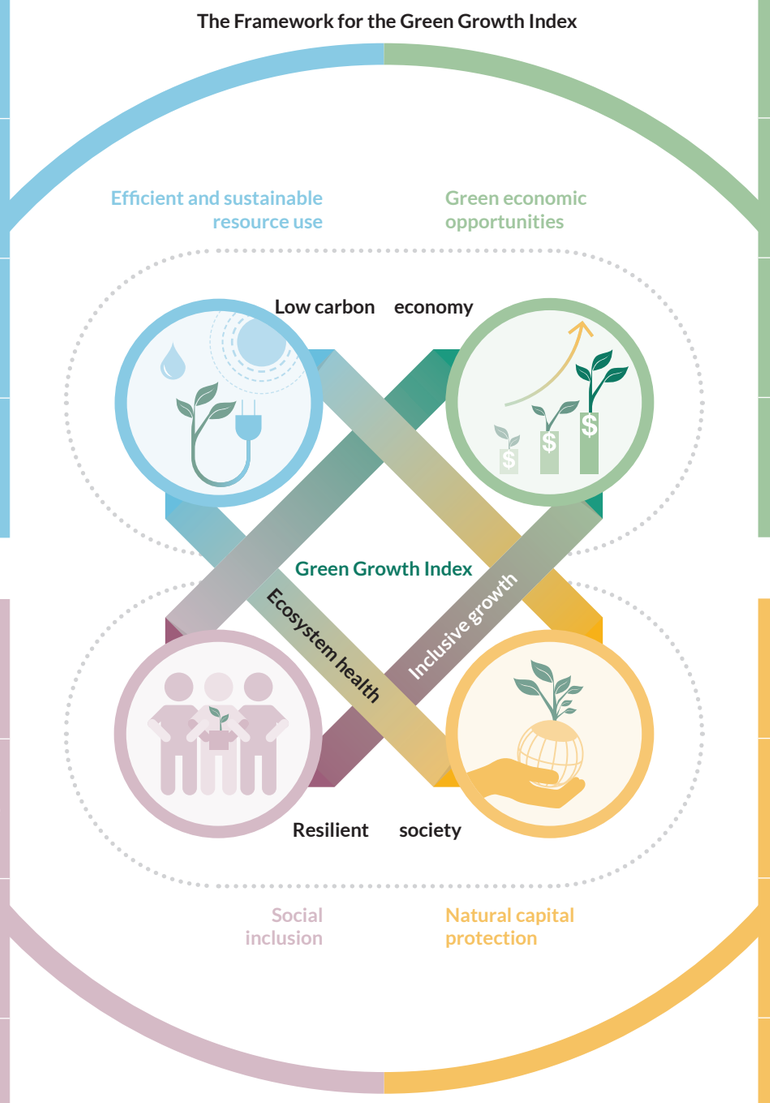
Centre for Training and Integrated Research in ASAL Development (CETRAD)
20 October 2023, Consultative session highlighting CETRAD's role in bolstering the GG index through their core focus areas, including enhanced water services access, sanitation initiatives, and efficient water resources management. Emphasis on data availability for comprehensive index analysis.

Sewerage of County Government / Municipal (Nairobi) and Kenya Wildlife Services
24 October 2023, Discussion centered on the availability of crucial data for the development of the Green Growth Index (GG Index) specific to Kenya.

1.2 *Green growth indicators for Kenya*

Guided by environmental, economic, and social sustainability concepts, the Kenya Green Growth Index is framed on four closely interlinked dimensions: (1) efficient and sustainable resource use, (2) natural capital protection, (3) green economic opportunities, and (4) social inclusion. Each dimension has four pillars, which are represented by five (5) green growth indicators. The indicators cover key environmental, economic, and social sectors as well as Kenya's development priorities, including sustainable infrastructure, building resilience, resource efficiency, and social inclusion and sustainable livelihoods. Three (3) of the 80 indicators are proxy variables due to a lack of data for the selected indicators 2010-2022. To improve the performance measurement of the Kenya Green Growth Index, the proxy variables will be replaced as data becomes available in the following years.

Ratio of total primary energy supply to GDP	EE1	Efficient and sustainable energy
Share of renewable to total final energy consumption	EE2	
Logistics performance index: Quality of trade and transport	EE3	
Electricity generation from renewables	EE4	
Per capita electricity consumption	EE5	
Water use efficiency	EW1	Efficient and sustainable water use
Share of freshwater withdrawal to freshwater resources	EW2	
Sustainable fisheries as a proportion of GDP	EW3	
Share of surface irrigation to total irrigation	EW4	
Renewable internal freshwater resources per capita	EW5	
Nutrient balance per unit area	SL1	Sustainable land use
Share of agriculture organic to total agriculture land area	SL2	
Share of ruminant livestock population to agricultural area	SL3	
Agricultural production divided by total arable land	SL4	
Farm machinery per unit of agricultural land	SL5	
Total domestic material consumption (DMC) per GDP	ME1	Material use efficiency
Total material footprint (MF) per capita	ME2	
Average of food loss to production and food waste to consumption	ME3	
Municipal solid waste recycled	ME4	
Municipal waste water treatment facilities	ME5	
Population with access to safely managed water and sanitation	AB1	Access to basic services and resources
Population with access to electricity and clean fuels	AB2	
Prevalence of undernourishment	AB3	
Population that has convenient access to public transport	AB4	
Property rights	AB5	
Proportion of seats held by women in national parliaments	GB1	Gender balance
Gender ratio of account at a financial institution	GB2	
Getting paid, laws and regulations for equal gender pay	GB3	
Proportion of mothers receiving maternity cash benefits	GB4	
School enrollment, primary (gross), gender parity index	GB5	
Inequality in income based on Palma ratio	SE1	Social equity
Population with access to electricity and clean fuels	SE2	
Disparity of unemployment: Ratio of Youth	SE3	
Age dependency ratio, old	SE4	
Population with severe disabilities receiving cash benefit	SE5	
Population above statutory pensionable age receiving a pension	SP1	Social protection
Universal health coverage (UHC) service coverage index	SP2	
Proportion of urban population living in slums	SP3	
Victims of intentional homicide per 100,000 population	SP4	
Score of Hyogo Framework for Action self-assessment reports	SP5	



Green investment	GV1	Adjusted net savings, including particulate emission damage
	GV2	Installed renewable energy-generating capacity
	GV3	International financial flows for clean energy R&D
	GV4	Agriculture orientation index for government expenditures
	GV5	Road quality
Green trade	GT1	Share of export of environmental goods to total export
	GT2	Share of exported environmentally sound technologies
	GT3	Number of ISO 14001 certificates issued
	GT4	Doing business - New business density
	GT5	High-technology exports
Green employment	GJ1	Share of green employment in manufacturing (mfg)
	GJ2	Employed population below international poverty line
	GJ3	Vulnerable employment
	GJ4	Firms offering formal training
	GJ5	Volume of official development assistance for scholarships
Green innovation	GN1	Share of patent publications in environmental technology
	GN2	Articles in scientific and technical journals per million people
	GN3	Researchers (in full-time equivalent) per million inhabitants
	GN4	Proportion of medium and high-tech industry value added
	GN5	Trademark applications, direct resident
Environmental quality	EQ1	PM2.5 air pollution, mean annual population-weighted exposure
	EQ2	DALY rate due to unsafe water sources
	EQ3	Municipal solid waste generation per capita
	EQ4	Chlorophyll-a deviations, remote sensing
	EQ5	Proportion of bodies of water with good ambient water quality
Greenhouse gas emissions reductions	GE1	CO2 emissions per capita, including AFOLU
	GE2	Non-CO2 emissions per capita excluding AFOLU
	GE3	Non-CO2 emissions per capita in Agriculture and LUCF
	GE4	Carbon Intensity of energy production
	GE5	CO2 emissions per unit of manufacturing (mfg) value added
Biodiversity and ecosystem protection	BE1	Average proportion of Key Biodiversity Areas covered by PAs
	BE2	Share of forest area to total land area
	BE3	Above-ground biomass stock in forest
	BE4	Forest under verified management certification scheme
	BE5	Change in the extent of water related ecosystems over time
Cultural and social value	CV1	Proportion of local breeds according to risk of extinction
	CV2	Share of terrestrial protected areas (PAs) to total territorial areas
	CV3	Travel and Tourism direct contribution to GDP
	CV4	Plant genetic resources accessions stored ex situ
	CV5	Share of exports of cultural goods to exports of total goods

Acronyms:
AFOLU - Agriculture, forest, and land use
CO_2 - Carbon dioxide
DALY - disability-adjusted life year
GDP - Gross Domestic Product
ISO - International Organization for Standardization
LUCF - Land use change and forest
Mfg - Manufacturing
PAs - Protected areas
PM - Particulate matter
R&D - Research and Development

2 Kenya's Green Growth Index score of 47.95 represented a moderate performance level in 2022 but showed a continual improvement since 2010

2.1 *Kenya's Green Growth Performance*

The scores in the Green Growth Index range from 1 to 100, with 100 as the highest possible green growth performance score. Kenya's score of 47.95 was at a moderate level in 2022, increasing by 4.62 since 2010 (Fig 1). Improving its green growth performance to a higher level was challenged by the low scores in green economic opportunities throughout this period (Fig 2). Kenya performed best in social inclusion, showing the most significant improvement in the last decade.

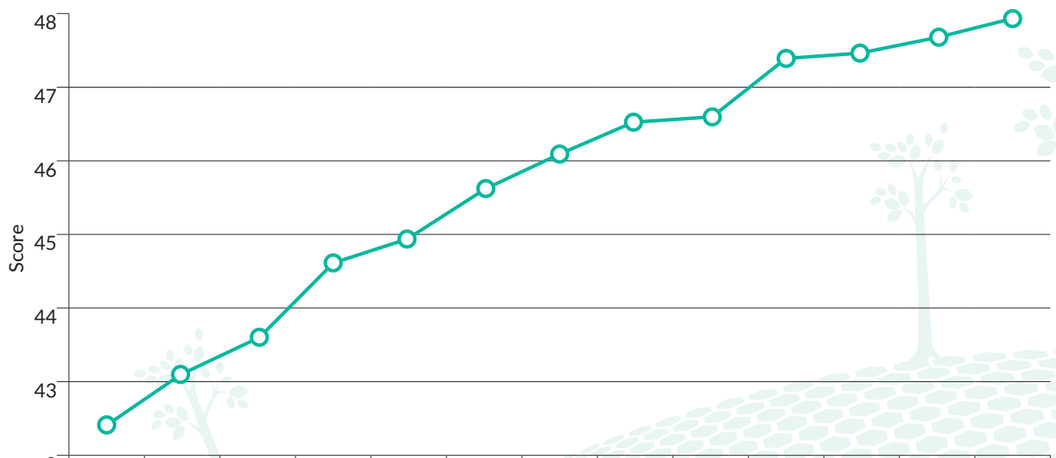


Fig 1. Trend in the Green Growth Index for Kenya, 2010-2022

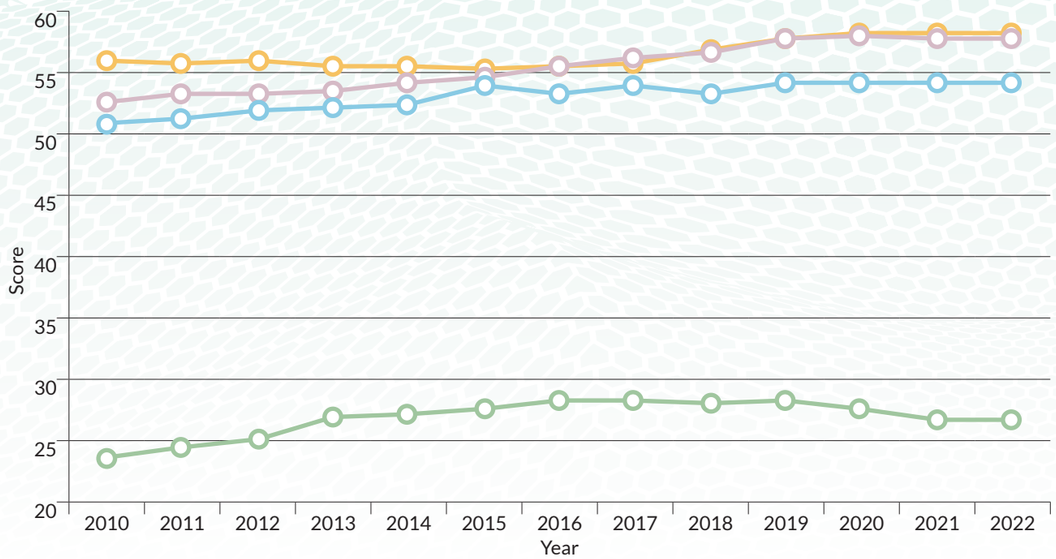


Fig 2. Trend in the green growth dimension scores for Kenya, 2010-2022

Dimensions: Natural capital protection; Efficient and sustainable resource use; Social inclusion; Green economic opportunities

2.2 *Performance in sustainability pillars*

Kenya has enormous opportunities to improve performance in green innovation and trade, with scores below 20 (Fig 3). Moreover, reversing the declining trend in green investment from 40.46 in 2016-2021 to 32.14 in 2022 offers an opportunity to improve scores in green economic opportunities (Fig 4). Overall, Kenya could improve its green growth performance in at least two pillars across the four green growth dimensions due to scores below 60.

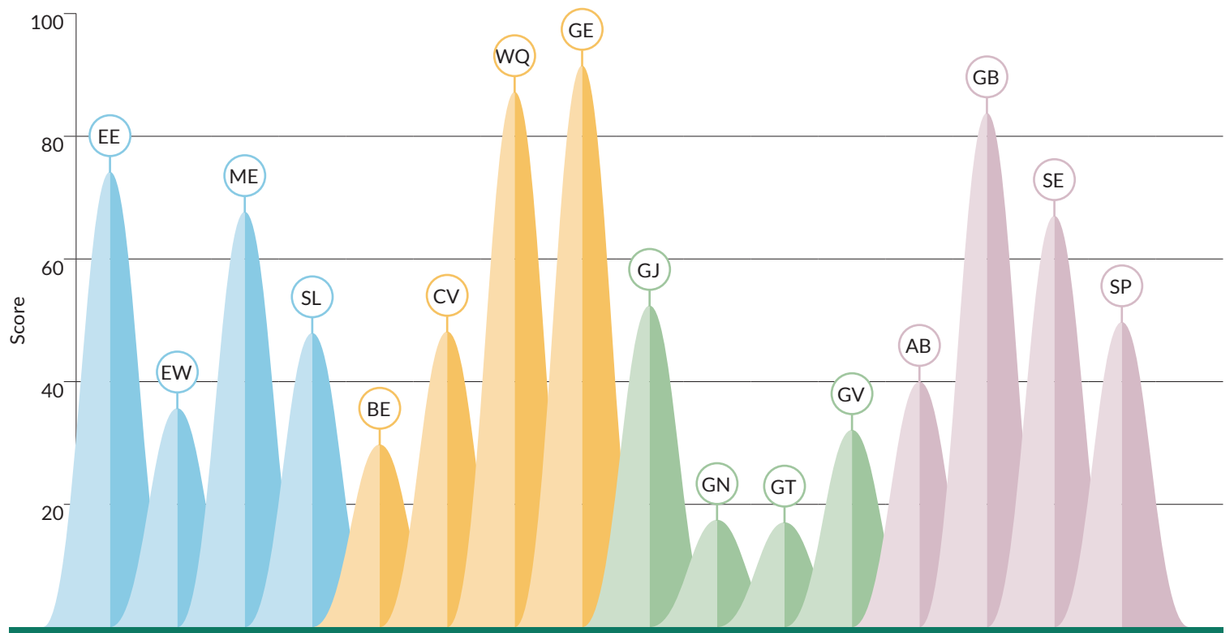


Fig 3. Kenya's performance in the green growth pillars, 2022

Efficient and sustainable resource use; Natural capital protection; Green economic opportunities; Social inclusion

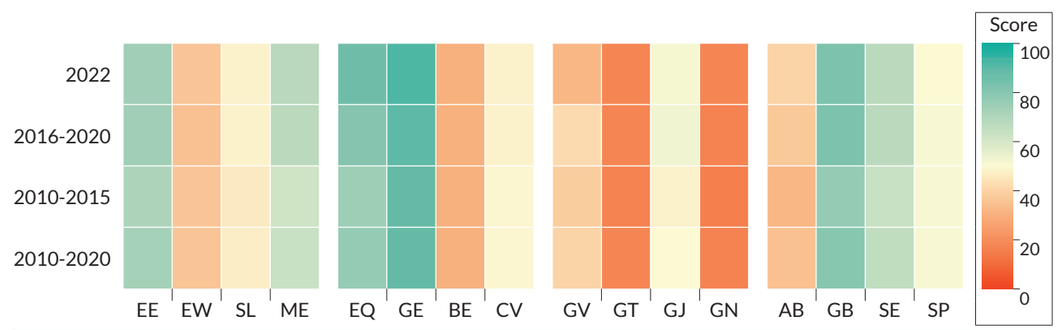


Fig 4. Changes in Kenya's performance in the green growth pillars for various periods

Pillars:
EE – efficient and sustainable resource use, EW – efficient and sustainable water use, SL – sustainable land use, and ME – waste and material use efficiency
EQ – environmental quality, GE – greenhouse gas emissions reduction, BE – biodiversity and ecosystem protection, and CV – cultural and social value
GV – green investment, GT – green trade, GJ – green employment, and GN – green innovation
AB – access to basic services and resources, GB – gender balance, SE – social equity, and SP – social protection

2.3 *Distance to sustainability targets*

Because the green growth indicators are benchmarked against sustainability targets, a score of 100 indicates achievement of the targets. Kenya is very close to reaching the targets in two natural capital protection pillars, including GHG emissions reduction (GE) and environmental quality (EQ), with scores of 91.53 and 87.23 (Fig 1a). Other green growth pillars showing high scores in other dimensions include gender balance (GB) and efficient and sustainable energy (EE).

2.4 *Performance in green growth indicators*

Natural capital protection has the highest number of green growth indicators with very high scores, i.e., nine indicators with scores above 80 (Fig 2d). Efficient and sustainable resource use and social inclusion have seven indicators with very high scores (Fig 2a-b). However, nine indicators in green economic opportunities (Fig 2c) and seven indicators in efficient and sustainable resource use (Fig 2a) have very low scores, i.e., below 20, pulling down Kenya's overall green growth performance.

Fig 2a. Efficient and sustainable resource use

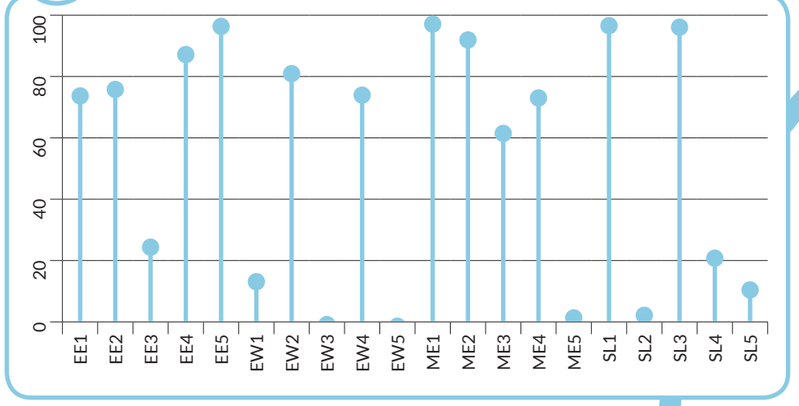
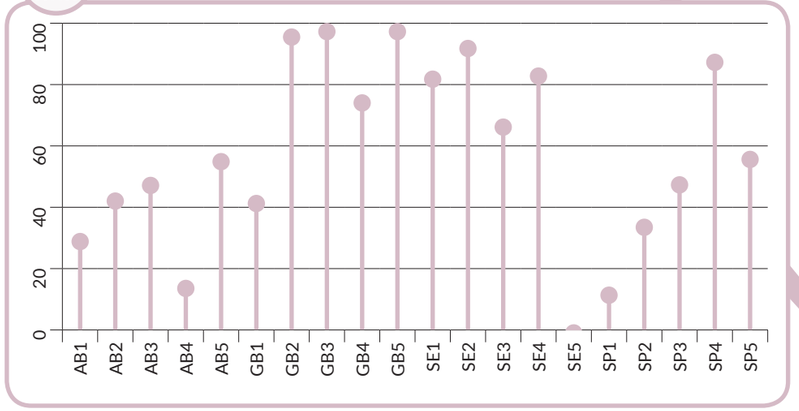
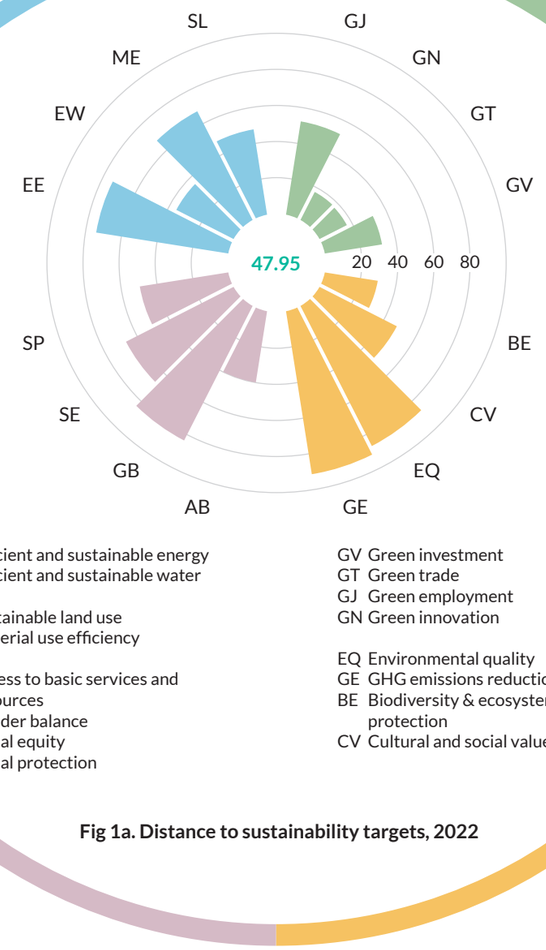


Fig 2b. Social inclusion





EE Efficient and sustainable energy
EW Efficient and sustainable water use
SL Sustainable land use
ME Material use efficiency

AB Access to basic services and resources
GB Gender balance
SE Social equity
SP Social protection

GV Green investment
GT Green trade
GJ Green employment
GN Green innovation

EQ Environmental quality
GE GHG emissions reduction
BE Biodiversity & ecosystem protection
CV Cultural and social value

Fig 1a. Distance to sustainability targets, 2022

Fig 2c. Green economic opportunities

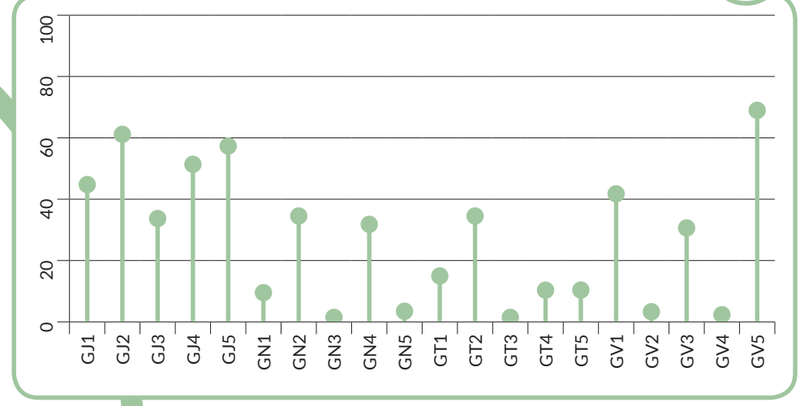
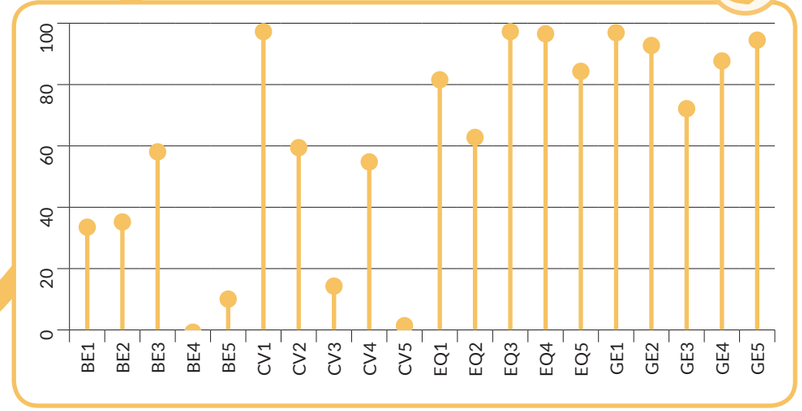


Fig 2d. Natural capital protection



Efficient and sustainable resources use: EE1 - Energy intensity, EE2 - Renewable energy share, EE3 - Efficient transport, EE4 - Low-carbon electricity, EE5 - Per capita electricity consumption, EW1 - Water use efficiency, EW2 - Level of water stress, EW3 - Sustainable fisheries, EW4 - Share of surface irrigation, EW5 - Renewable water resources per capita, SL1 - Soil nutrient balance, SL2 - Organic agriculture area, SL3 - Share ruminant livestock, SL4 - Agricultural productivity, SL5 - Farm machinery per unit land, ME1 - Material consumption per GDP, ME2 - Material footprint, ME3 - Food loss and food waste, ME4 - Municipal solid waste recycled, ME5 - Waste water treatment facilities

Social inclusion: AB1 - Access to safe water and sanitation, AB2 - Access to electricity and clean fuels, AB3 - Prevalence of undernourishment, AB4 - Convenient access to public transport, AB5 - Property rights, GB1 - Women in national parliaments, GB2 - Gender account in financial institution, GB3 - Equal gender pay, GB4 - Mothers with maternity cash benefits, GB5 - School enrollment gender parity, SE1 - Inequality in income, SE2 - Rural-urban access to electricity, SE3 - Youth unemployment disparity, SE4 - Age dependency ratio, SE5 - Cash benefit for people with disabilities, SP1 - Share of old people receiving pension, SP2 - Universal health coverage, SP3 - Population living in slums, SP4 - Victims of intentional homicides, SP5 - Score of Hyogo Framework

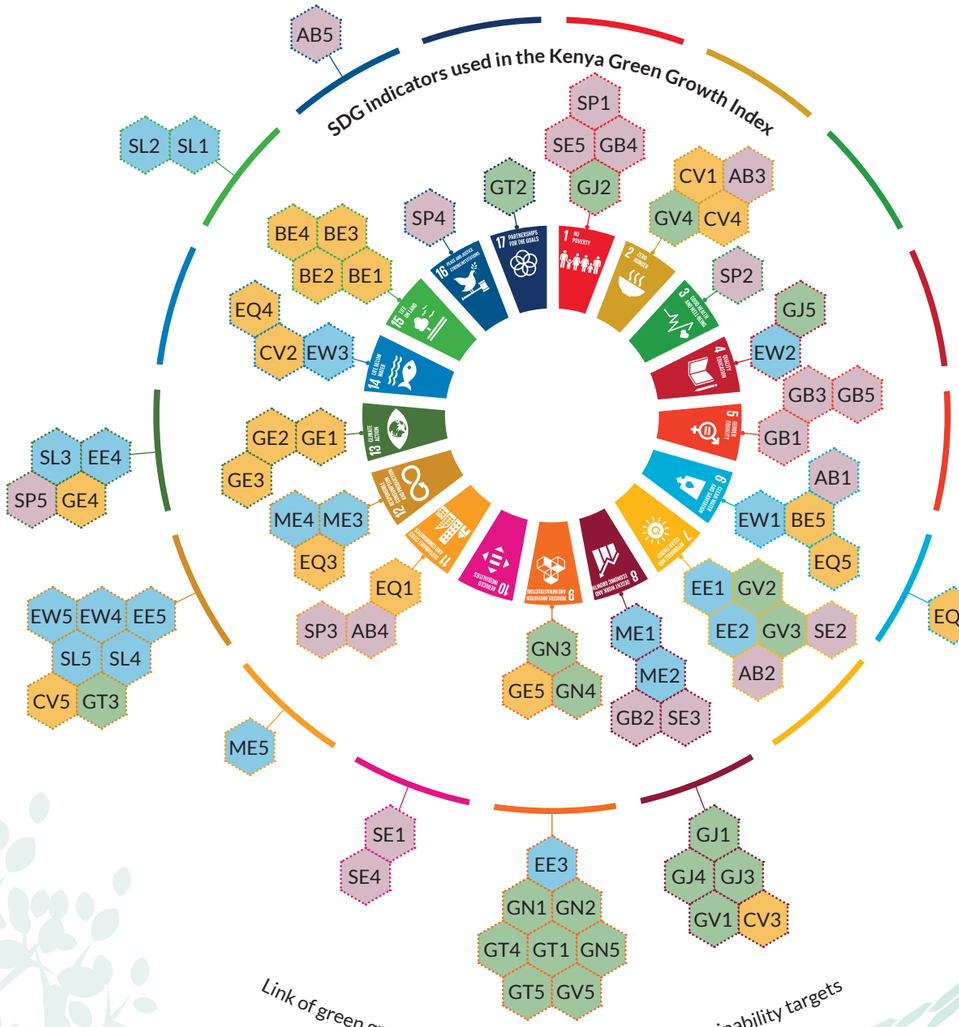
Green economic opportunities: GV1 - Adjusted net savings, GV2 - Renewable electricity capacity, GV3 - Financial flows for clean energy R&D, GV4 - Agriculture orientation index, GV5 - Road quality, GT1 - Exports of environmental goods, GT2 - Environmental technologies exported, GT3 - ISO 14001 certificates issued, GT4 - New business density, GT5- High-technology exports, GJ1 - Green employment in manufacturing, GJ2 - Employed below poverty line, GJ3 - Vulnerable employment, GJ4 - Firms offering formal training, GJ5 - ODA flows for scholarships, GN1 - Environmental technologies, GN2 - Scientific and technical journals, GN3 - Researchers per million inhabitants, GN4 - Medium/ high-tech mfg value-added, GN5 - Trademark applications

Natural capital protection: EQ1 - PM2.5 air pollution, EQ2 - DALY rate from unsafe water, EQ3 - Solid waste generation, EQ4 - Chlorophyll-a deviations, EQ5 - Water with good ambient quality, GE1 - CO_2 emissions per capita, GE2 - Non-CO_2 per capita excl. AFOLU, GE3 - Non-CO_2 emissions in AFOLU, GE4 - Carbon intensity of energy production, GE5 - CO_2 emissions per mfg value-added, BE1 - Protected key biodiversity areas, BE2 - Share of forest areas, BE3 - Forest above-ground biomass, BE4 - Forest under certification scheme, BE5 - Change in extent of water ecosystems, CV1 - Local breeds risk of extinction, CV2 - Terrestrial protected areas, CV3 - Tourism contribution to GDP, CV4 - Plant genetic resources accessions, CV5 - Share of exports of cultural goods

3 Forty-seven (47) SDG indicators are represented in Kenya's Green Growth Index, but data availability for many green growth indicators poses a challenge

3.1 Green growth indicators and the SDGs

About 60% of the 80 green growth indicators are directly derived from the SDGs. The remaining indicators, while not SDG indicators, contribute to achieving not only the SDGs but also the Paris Climate Agreement and Aichi Biodiversity Targets. Many of the non-SDG indicators are relevant to decent work and economic growth (SDG 8), industry, innovation and infrastructure (SDG 9), responsible consumption and production (SDG 12), and climate action (SDG 13).



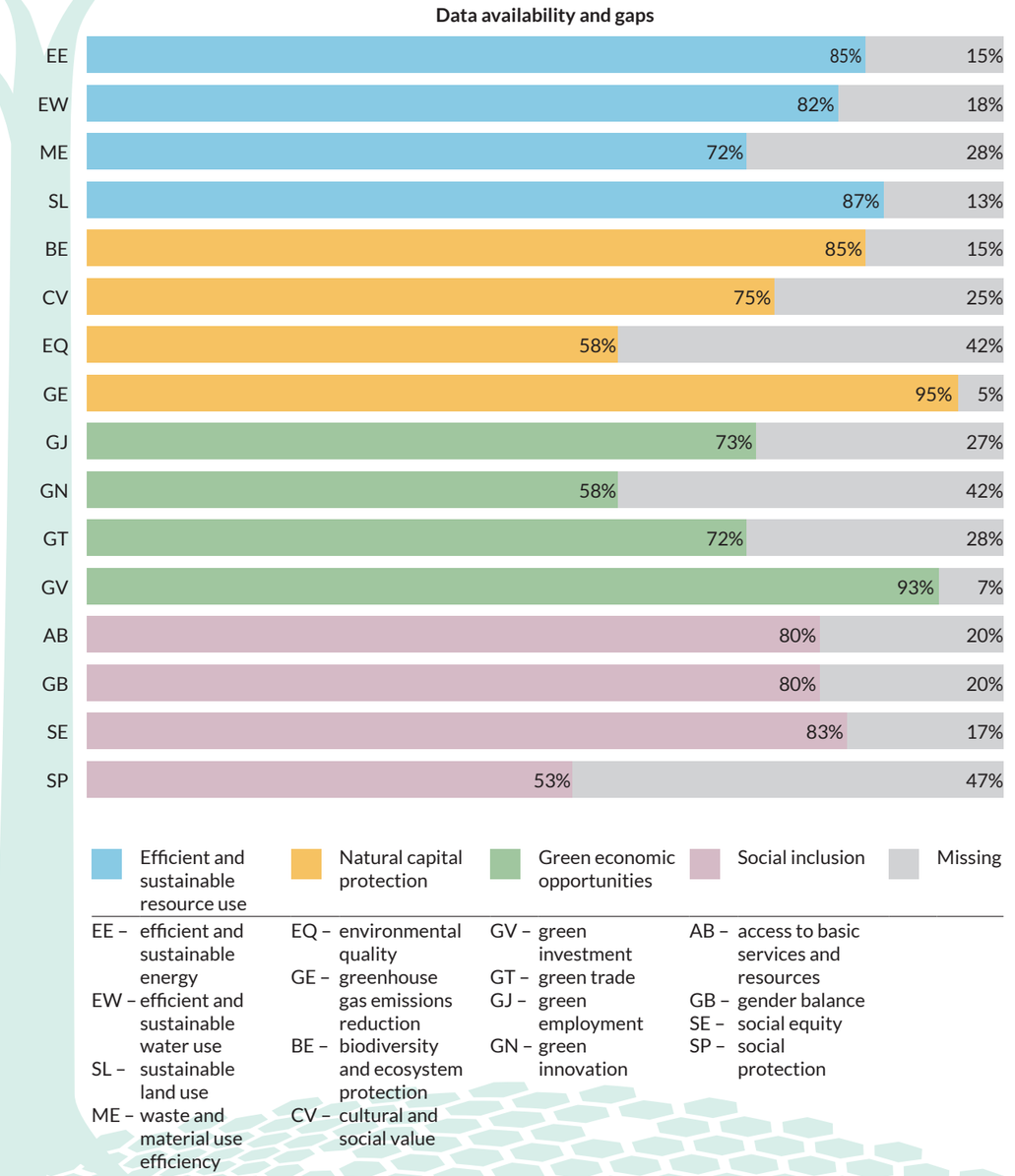
Efficient and sustainable resource use Natural capital protection Green economic opportunities Social inclusion

The SDG indicators are benchmarked against the SDG and other sustainability targets and the non-SDG indicators against the average values of top-five performers in developing countries. Benchmarking facilitates measurement of Kenya's performance in achieving the sustainability targets and allows comparison of its performance with top-performing developing countries.

Note: Definitions of the indicator codes are available on pages 4-5.

3.2 Data availability and gaps

For the period 2010-2022, there are huge data gaps for the green growth indicators in environmental quality, green innovation, and social protection pillars, with at least 40% missing data. Simple imputation was applied to fill data gaps and reduce erratic score trends. In addition to replacing proxy variables, addressing data gaps will be critical to improving the Green Growth Index's precision in measuring performance and assessing Kenya's green growth transition.



4 Sharing experiences in developing the Green Growth Index with experts in Africa and beyond advocates knowledge on green growth transition

4.1 Sharing experience in the region

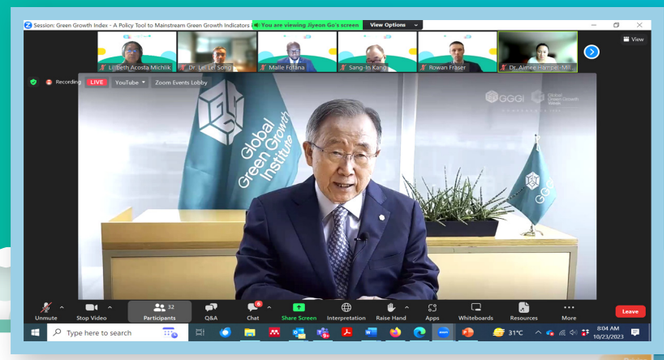
The Ministry of Green Economy and Environment (MoGEE) led the development of the Zambia Green Growth Index in 2022 and shared its experience with Kenyan experts in using it to guide the development of the National Green Growth Strategy. The national experts participating in the second participatory workshop appreciated the lessons learned from developing and using the Green Growth Index in the African region.

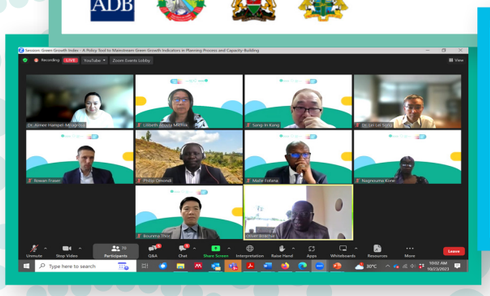
Mr. Hedges Tembo, Chief Green Economy Officer from the Zambia Ministry of Green Economy and Environment (MoGEE) sharing experience with the Kenyan national experts.

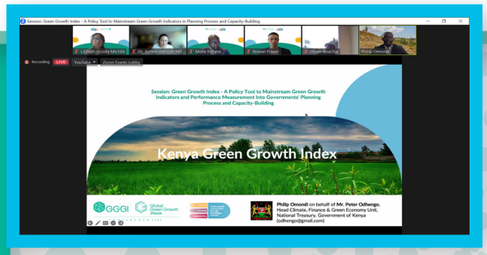
4.2 Sharing experience globally

The National Treasury and Economic Planning of the Republic of Kenya shared its experience in developing the Green Growth Index with the international audience during the Global Green Growth Week 2023. The event provided an excellent opportunity to disseminate the participative and rigorous process of developing the Kenya Green Growth Index and create global awareness about its value in tracking performance in the green growth transition.

GGGI's President and Chair, Mr. Ban Ki-moon, providing video message to the participants of the 2023 Global Green Growth Week.







Mr. Philip Omondi presenting the Kenya Green Growth Index on behalf of Mr. Peter Odhengo, Head of the Climate Finance & Green Economy Unit, National Treasury and Economic Planning, Republic of Kenya

View video recording

https://www.youtube.com/live/MxdiXwgEix0?feature=shared

5 Close collaboration of the National Treasury and Economic Planning and GGGI with the national experts enabled the prompt completion of the Kenya Green Growth Index in 2023

5.1 Collaboration among national experts

National experts from 20 government agencies, three non-governmental organizations, and one academic institution participated in developing the Kenya Green Growth Index since August 2023. They represent interdisciplinary expertise covering the four green growth dimensions, including efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion. During the first participatory workshop on August 29-30, they debated the policy relevance of more than 200 green growth indicators and selected 80 most relevant to the country's environmental, economic, and social contexts. During the second participatory workshop on November 6-10, they assessed Kenya's opportunities and challenges to green growth transition based on the Green Growth Index scores.

Mr. Peter Odhengo, Head Climate, Finance & Green Economy Unit at the National Treasury and Economic Planning, Government of Kenya (left) and Dr. Malle Fofana, GGGI's Director and Head of Programs for Africa (right) providing keynote messages to the national experts during the second participatory workshop.

Lead of national experts

Mr. Odhengo Peter, Head, Climate Finance & Green Economy Unit, National Treasury and Economic Planning, Republic of Kenya

Mr. Hillary Korir, Senior Economist, Climate Finance & Green Economy Unit, National Treasury and Economic Planning, Republic of Kenya

Institutions	National experts
The National Treasury and Economic Planning	Mr. Peter Odhengo, Mr. Hillary Korir, Saada Mohamed Sala, Henry Too, Idris Mohamed Somoebwana, Janet Chelangat, Martin Kituyi, Phyllis Muthoni, Walter Muturi
The National Treasury - Financing locally-led climate action program	Elizabeth Mwelu Muange, Emathe Eregai Hilton, Julius Barno, Tumpeyo Baari
Ministry of Agriculture and Livestock Development	Bernard Kimoro, David Palla, Fredrick Aloo
Ministry of Agriculture and Livestock Development, Climate Change Unit	Jane Njeri Reuben
Ministry of Energy and Petroleum	Bakari Mwaura J.E, Diana Masika, Paul Nzomo Mbuthi, Rukia Bakari Khamis
Ministry of Foreign & Diaspora Affairs	Maureen Mstadu
Ministry of Environment, Climate Change and Forestry	Augustine K. Kenduiwo
Ministry of Mining, Blue Economy and Maritime Affairs	Leonard Njihia, Odupah Ian
Ministry of Water, Sanitation and Irrigation	Aineah Omondi, Betty Namulunda Barasa, Mirriam Chebungei, Thandi Githae
National Environment Management Authority	Anne N. Omambia
State Department for Economic Planning	Jackson Kiprono
State Department for ICT & Digital Economy	Annie M. Kegode, John Kiria
State Department for Transport	Esther W. Gachanja
State Department of Housing and Urban Development	Levy Omoto, Machira Moses Wanjama, Ruth C. Mutai, Wesley Kirui
Centre for Training and Integrated Research in ASAL Development	Caroline Ouko
Kenya Agricultural and Livestock Research Organization	Elizabeth Adobi Okwuosa
Kenya Association of Manufacturers	Innocent Mokua Onserio, Nancy Mwari Muriithi, Simon Githuku
Kenya Electricity Generating Company PLC	James Metto, Stanley Kirakou, Willis O. Ochieng
Kenya Forest Service	Rose Akombo
Kenya Industrial Research and Development Institute	Gaudensia Owino
Kenya Private Sector Alliance	Faith Ngige
Sustainable Energy for All	Ann Kiburi, Eva Sawe
The Kenya Institute for Public Policy Research and Analysis	James Ochieng Babu
University of Nairobi	Jackson Wachira, Prof Oludhe Christopher, Richard Mulwa

5.2 *Collaboration with technical experts*

The GGGI team worked closely with the National Treasury and Economic Planning of the Republic of Kenya to support the development of the Green Growth Index. The team applied a stepwise approach to conceptualize, prepare, and analyze the 80 green growth indicators selected by the national experts. Step 1 ensured that the green growth indicators were aligned with the framework of the Green Growth Index and relevant to the key policy documents in Kenya. Step 2 involved applying the checklist criteria to validate the policy relevance of the green growth indicators as well as collecting and preparing the data for these indicators. Step 3 computed the normalized and benchmarked scores for the green growth indicators, aggregated the scores for the pillars and dimensions, and checked the robustness of the scores.

Stepwise approach to develop the Green Growth Index

Conceptualize

Step 1.a Applying green growth framework

Efficient and sustainable resource use	Natural capital protection	Green Economic opportunities	Social inclusion

Step 1.b Assessing policy frameworks and priorities

Policies, plans, and programs	Economic, social and environmental issues

Step 1.c Setting up checklist criteria for indicators

National policies	Sectoral programs	Development priorities	Global indicators

Data preparation

Step 2.a Assessing indicators' relevance to the checklist

Indicators in national policies, sectoral programs and SDGs (explicit)	Issues relevant to priorities, policies and programs (implicit)

Step 2.b Identifying data sources and availability

To indicate data availability for indicators from online sources	To check for national databases for indicators not available online

Step 2.c Data collection and preparation

Download/collect data	Check outliers	Data imputation

Data analysis

Step 3.a Normalization and benchmarking

Identify relationship (+/-)	Re-scaling rules	Apply targets

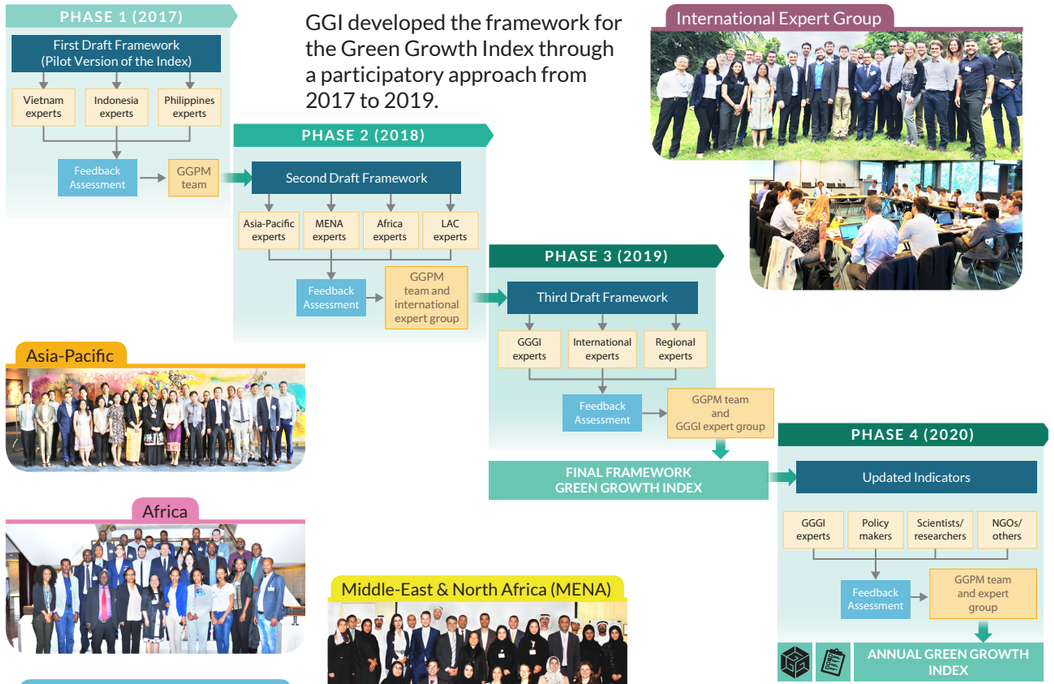
Step 3.b Aggregation

Level 1: Indicators	Level 2: Categories	Level 3: Dimensions

Step 3.c Robustness check

Sensitivity analysis	Explanatory power

GGI developed the framework for the Green Growth Index through a participatory approach from 2017 to 2019.



GGGI Team

Mr. Ribeus Mihigo Munezero, Data analyst and Python programmer, Rwanda

Dr. Philip Omondi, National Consultant, Kenya

Mr. Ruben Salem Sabado Jr., Data analyst and workshop coordinator, Philippines

Mr. Innocent Nzimenyera, Data analyst and Python programmer, Rwanda

Dr. Lilibeth Acosta, Deputy Director, Program Manager for the Green Growth Performance Measurement, Hungary

Dr. Malle Fofana, Director for Africa and Head of Programs, Côte d'Ivoire

Ms. Nagnouma Kone, Senior Regional Business Development Lead, Côte d'Ivoire

Ms. Flaviour Sisala Chanda, Program Officer, Côte d'Ivoire

Interns: Ms. Yeonju Song, Mr. Amon Jean-Marc Anoh, Ms. Jiu Lee

Backdrop of Key Messages

1 The first Green Growth Index for Kenya is framed on four green growth dimensions, including efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion. The concepts of low carbon economy, ecosystem health, inclusive growth, and resilient society support interlinkages among these dimensions. Each dimension comprises four sustainability pillars, representing the green growth indicators relevant to Kenya's environmental, economic, and social contexts. The framework for dimensions and pillars of the Green Growth Index was developed through a consultative approach between the GGGI and other international organizations from 2017 to 2019. GGGI applies the framework to the Global Green Growth Index, which it publishes annually (https://greengrowthindex.gggi.org/).

The same framework is applied in developing the National Green Growth Index. Many experts from various institutions actively participate in the design process to ensure the policy relevance of the green growth indicators to the national context. In the case of Kenya, the National Treasury and Economic Planning led the mobilization of more than 50 experts from 24 institutions. The national experts participated in various activities, including webinars, online surveys, participatory workshops, and targeted consultations. GGGI provided technical support in all the activities, ensuring that experts' capacities were built and their expertise contributed to developing the Kenya Green Growth Index. The national experts selected 80 most relevant indicators to measure Kenya's green growth performance and track its green growth transition. Proxy variables were used for indicators with insufficient data and will be replaced when data becomes available.

2 The Green Growth Index scores range from 1 to 100. The green growth indicators in the Green Growth Index are benchmarked against sustainability targets, including SDGs, the Paris Climate Agreement, and Aichi Biodiversity Targets. A score of 100 implies that Kenya achieved the sustainability target for a given indicator. Without sustainability targets, the average values of the top-five performing developing countries were used to benchmark the green growth indicators. A score of 100 implies that Kenya was among the top performers among the developing countries. The Green Growth Index scores are classified into very low (1-20), low (21-40), moderate (41-60), high (61-80), and very high (81-100) levels of green growth performance. With a score of 47.95, Kenya's performed only moderately in 2022. The Green Growth Index score has increased by 4.62 since 2010, showing Kenya had the capacity to improve its green growth performance over the last decade.

Kenya's potential for increasing the Green Growth Index scores was highest for green economic opportunities, with the most significant number of indicators with very low scores, including those in green innovation and trade. It could face some challenges in improving green growth performance in green investment, where the scores showed a declining trend from 40.46 in 2016-2021 to 32.14 in 2022. The very low performance in green economic opportunities negatively impacted the very high scores in many natural capital protection indicators, leveling off Kenya's Green Growth Index score at a moderate level. Kenya was very close to reaching the targets in two natural capital protection pillars, including GHG emissions reduction (GE) and environmental quality (EQ). Other pillars contributing positively to the green growth performance were gender balance (GB) in the social inclusion dimension and efficient and sustainable energy (EE) in the efficient and sustainable resource use dimension.

3 Using SDG indicators in the Green Growth Index allows tracking global sustainability commitments and aligning green growth transition with achieving SDGs. About 60% of the 80 green growth indicators in the Kenya Green Growth Index were directly derived from the SDGs, and the remaining indicators, while not SDG indicators, contribute to achieving SDGs, the Paris Climate Agreement, and Aichi Biodiversity Targets. So far, there are only a few SDG indicators representing green economic opportunities in the global SDG database, explaining why many green growth indicators in this dimension are non-SDG indicators. Only eight of the 20 green economic opportunities indicators were directly derived from the SDGs. But the 12 non-SDG indicators contribute to achieving decent work and economic growth (SDG 8) and industry, innovation, and infrastructure (SDG 9). Other non-SDG indicators were mainly from the efficient and sustainable resource use dimension, contributing to responsible consumption and production (SDG 12) and climate action (SDG 13).

Data gaps affect the Green Growth Index's precision in measuring performance and assessing green growth transition. For this reason, green growth indicators with insufficient data were temporarily replaced by proxy variables until data becomes available. For indicators with only a few missing data and no available proxy variables, simple imputation was applied to fill the data gaps and reduce erratic score trends. Three pillars, including environmental quality, green innovation, and social protection, have the most significant data gaps at 40%. The assessment of these pillars' scores should thus be taken carefully, and the uncertainty brought about by the imputed data should be considered. Improving data availability for environmental quality, green innovation, and social protection indicators will need attention when updating the Kenya Green Growth Index in the following years.

4 GGGI is supporting the development of the Green Growth Index in its Member Countries and Partners. In 2022, the Ministry of Green Economy and Environment (MoGEE) and GGGI worked closely to develop and jointly publish the first Green Growth Index for Zambia (https://zambia-greengrowthindex.gggi.org/). Mr. Hedges Tembo, MoGEE's Chief Green Economy Officer, made an online presentation during the second participatory workshop of the Kenya Green Growth Index on the 9th of November 2023, sharing Zambia's experience in developing the Zambia Green Growth Index with the Kenyan experts. He emphasized the value of the Green Growth Index in guiding the development of the country's National Green Growth Strategy. The Kenyan experts appreciated hearing the lessons learned from developing and using the Green Growth Index in another African country.

The National Treasury and Economic Planning is leading the dissemination of the Kenya Green Growth Index beyond the African region. During the Global Green Growth Week 2023, Mr. Peter Odhengo, Head of Climate, Finance & Green Economy Unit at the National Treasury and Economic Planning, was one of the speakers during the session on "Green Growth Index - A Policy Tool to Mainstream Green Growth Indicators in Planning Process and Capacity-Building" on the 23rd of October 2023. Co-organized by GGGI and the Asian Development Bank (ADB), the session provided opportunities for sharing experiences in developing the Green Growth Index in Kenya, Ghana, Lao PDR, Azerbaijan, and the Central Asian Countries. The presentations create awareness among the global audiences about the value of the Green Growth Index in tracking performance in green growth transition. There are also plans to disseminate the Kenya Green Growth Index during the 28th UN Climate Change Conference of the Parties (COP28) in Dubai, United Arab Emirates, from November 30 to December 12, 2023.

5 The National Treasury and Economic Planning and GGGI closely collaborated to develop the Kenya Green Growth Index. The National Treasury and Economic Planning was responsible for selecting the national experts and mobilizing them to participate in the activities, including webinars, online surveys, participatory workshops, and targeted consultations. With interdisciplinary competence, the national experts from 24 government agencies, three non-governmental organizations, and one academic institution participated in developing the Green Growth Index. GGGI provided technical support to the activities, making presentations, conducting online surveys and Mentimeter votings, and preparing the Green Growth Index website to guide the national experts in selecting the most relevant green growth indicators and assessing the implications of the Green Growth Index results on Kenya's green growth transition. The national experts rated the policy relevance of more than 200 green growth indicators and selected the 80 most relevant to the country's environmental, economic, and social contexts during the different breakout sessions of the first participatory workshop on August 29-30, 2023. They assessed Kenya's opportunities and challenges to green growth transition based on the Green Growth Index scores, which were presented on an interactive website (http://kenya-greengrowthindex.gggi.org/) during the second participatory workshop on November 6-10, 2023.

The GGGI team calculated the Green Growth Index scores from the 80 green growth indicators using a stepwise approach, including the conceptualization of the indicators using checklist criteria (step 1), preparation of the indicators by collecting and validating the data (step 2), and data analysis involving normalization, benchmarking and aggregation of the indicators and robustness check of the Green Growth Index scores (step 3). Step 1 ensured that the green growth indicators were aligned with the dimensions and pillars of the Green Growth Index and relevant to the key policy documents included in the checklist. Step 2 involved applying the checklist criteria as a method to validate the indicators' policy relevance, collecting data from various online and statistical sources, and checking data outliers and correlations. Step 3 computed the normalized and benchmarked scores for the green growth indicators, aggregated the scores for the pillars and dimensions, and checked the robustness of the scores using Monte Carlo and regression analyses. The Kenya Green Growth Index 2023 Technical Report, which will be published in December 2023, will provide details of the information summarized in this report.

Partners

The National Treasury & Economic Planning
The National Treasury

Ministry of Agriculture & Livestock Development

Ministry of Energy and Petroleum
State Department for Energy

MINISTRY OF FOREIGN AND DIASPORA AFFAIRS

Ministry of Information, Communications and The Digital Economy

MINISTRY OF LANDS, PUBLICWORKS, HOUSING AND URBAN DEVELOPMENT
State Department for Housing and Urban Development

Ministry of Mining, Blue Economy and Maritime Affairs

MINISTRY OF ROADS AND TRANSPORT

MINISTRY OF WATER, SANITATION AND IRRIGATION

OFFICE OF THE PRIME CABINET SECRETARY AND MINISTRY OF FOREIGN & DIASPORA AFFAIRS

CETRAD

KALRO
Kenya Agricultural & Livestock Research Organization

KAM 60 Years
KENYA ASSOCIATION OF MANUFACTURERS

KenGen

KEPSA
KENYA PRIVATE SECTOR ALLIANCE

KIPPRA
The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

nema
National Environment Management Authority

SUSTAINABLE ENERGY FOR ALL

UNIVERSITY OF NAIROBI