



# **Inclusive Green Growth in Africa: Ethiopia Case Study**

albagoury, samar

Institute of African Research and Studies, cairo university

8 October 2016

Online at <https://mpra.ub.uni-muenchen.de/74364/>  
MPRA Paper No. 74364, posted 10 Oct 2016 21:37 UTC

## **Inclusive Green Growth in Africa: Ethiopia Case Study**

Samar H. Albagoury  
Institute of African Research and Studies  
Cairo University

### **Abstract:**

With the announcement of the new sustainable Development Goals (SDGs) in March 2016, many countries start to adopt a new development strategies focus on what is called **Inclusive Green Growth**. This term was first used in the UN Rio+20 conferences, in attempt to merge the interest of the world in green growth as well as in inclusive growth. The World Bank defines Inclusive Green Growth as “the economics of Sustainable Development”.

Ethiopia is one of the first countries in Africa to develop a green inclusive growth strategy. Ethiopia’s leadership, and its early attempts through greening its economy to achieve more inclusive growth, are of real interest for a world in which alternative growth models for long-term sustainable development and social equity have rapidly become a priority in government, business and civil society.

This paper aimed to clarify the meaning of the concept of Inclusive Green Growth (IGG) as a new pathway to achieve sustainable growth, and methods of measuring it applied on Ethiopia as a case study.

**Keywords:** Inclusive growth, Green growth, Sustainable growth, Ethiopia.

## **1. Inclusive Green Growth: Definition and Measures:**

The concept of Sustainable Development was widely used since the first Rio Summit in 1990s which announced that development has to be sustainable, and that to be sustainable, it must integrate the environmental with the social and the economic dimensions.

Although the world economic expansion took place during the past two decades, the growth fruits didn't distributed equally between people and poverty eradication still remain a concern in many places in the world. The environmental dimension was also ignored. Actually, the economic expansion has come at a price of the environment, reflected in multiple environmental issues we suffering from now, as climate change, pollution, desertification, ecosystem degradation and resource depletion. These environmental issues have not only a direct impact on the quality of life and health and on economic resources, and accordingly on the sustainable development. , but also considered as threats to basis of life itself.

With the announcement of the new sustainable Development Goals (SDGs) in March 2016, many countries start to adopt a new development strategies focus on what is called **Inclusive Green Growth**. This term was first used in the UN Rio+20 conferences, in attempt to merge the interest of the world in green growth as well as in inclusive growth. The World Bank defines Inclusive Green Growth as “the economics of Sustainable Development”. To clarify the meaning, the concept of Green inclusive Growth could be divided into two parts: Inclusive Growth and Green Growth.

### **1.1: Inclusive Growth definition:**

Inclusive Growth refers both to the pace and pattern of growth. Inclusive growth can be defined in different ways, reflecting disagreements over the concept itself, these differences came from defining the outcomes of growth (absolute vs. relative pro-poor growth)<sup>1</sup> and from defining the targets of the growth (equality of opportunities vs. equality in income distribution). (Stephen Spratt, 2013)

In line with the absolute Pro-Poor growth, World Bank defines the inclusive growth as the equality of opportunity with respect to: access to market, resources and unbiased regulatory environment for businesses and individuals (Stephen Spratt, 2013). While other literatures take a different view and defining inclusive

---

<sup>1</sup> Absolute pro-poor growth results in absolute increases in the income of the poor, while the relative pro-poor growth requires the relative income o the poor to increase, so that growth also reduces inequality.

growth in line with relative Pro-Poor growth as: achieving growth that accompanied with a declining income inequalities (Klasen, 2010). (Ifzal, 2007) In contrast, define inclusive growth as “pro-poor improvements in social opportunities”, this definition is differs in two ways: first, it moves the focus from income to non income aspects of welfare; second, as with the world bank definition, the emphasis is on equality of opportunities rather than equality of outcomes.

A more comprehensive definition for Inclusive Growth was mentioned in (Ramos, 2013) where Inclusive growth is viewed both as an outcome and a process: on one hand, it ensures that everyone can participate in the growth process, both in terms of decision-making for organizing the growth progression as well as in participating in the growth itself; on the other hand, inclusive growth makes sure that everyone shares equitably the benefits of growth. In that manner, the three pillars of inclusive growth must include social protection and promotion; productive inclusion and generation of opportunities; and territorial development and systemic competitiveness.

African development bank defines Inclusive growth as “economic growth that results in a wider access to sustainable socio-economic opportunities for a broader number of people, regions or countries, while protecting the vulnerable, all being done in an environment of fairness, equal justice, and political plurality. (AFDB, 2012)

UNDP defines Inclusive Growth as “growth with low and declining inequality, economic and political participation of the poor in the growth process, and benefit-sharing from that process. Inclusive growth involves a long term perspective and focuses on generating decent employment in order to increase the income of excluded groups” (Ianchovichina, 2008).

In (Vella, 2014) the key elements of Inclusive Growth are shown in the next figure. The figure shows that the inclusive growth is the economic growth that enhances productive employment and imply a reduction in poverty levels and inequality and helps to achieve human development and gender equity and improve governance efficiency that guarantee the trickle-down effect of the growth, and socio-economic amenities in the form of food, health, education, access to basic services for all.



The comprehensiveness of the concept of inclusive growth makes it difficult to be measured. However there are continues efforts had been made to build an indicator for inclusive growth. In (Mckinley, 2010) the author divides inclusive growth into four sub subjects:

- 1- Growth, productive employment and economic infrastructure.
- 2- Income poverty and equity including gender equality.
- 3- Human Capabilities Dimension of Inclusiveness.
- 4- Social protection Dimensions of Inclusiveness.

Then he use these indicators to suggest an approach to measure inclusive growth based on weights and score, which can help countries assess their progress in achieving inclusive growth using this composite index as shown in table 1.

The composite index is constructed on a weighted average score of 0-10, based on country performance on each of the four components, each of the four components is, in turn, a weighted average of its subcomponents. In general, a score of 1-3 is regarded as unsatisfactory progress on inclusive growth, a score of 4-7 as satisfactory progress, and a score of 8-10 as superior progress.

**Table 2**  
**Inclusive growth indicator components**

<b>Sub-subjects</b>	<b>Suggested indicators</b>	<b>weights</b>
<b>1. Growth, Productive Employment and Economic Infrastructure:</b>		<b>50%</b>
1.1:Economic Growth	a) Real GDP per capita growth rate b) Shares of economic sectors in GDP	25%
1.2: Productive Employment	a) Share of employment in industrial sector. b) Share of employment in manufacturing sector. c) Share of own paid family workers in total employment.	15%
1.3:Access to Economic Infrastructure	a)proportion of population with access to electricity b) no. of mobile phone subscribers per 100 people.	10%
<b>2. Income Poverty and General Equity</b>		<b>25%</b>
2.1: Poverty	a)population below national poverty line b) population below poverty line (2.5\$ per day)	10%
2.2: Inequality (vertical and horizontal)	a) Gini Coefficient b) Income share of poorest 60% of population. c) Income gap between rural and urban. d) Income gap between ethnic groups	10%
2.3: Gender Equality	a) Ratio of literate females to males (15-24 years age group) b) Ratio of girls to boys in secondary education. c) % of birth attends by skilled health personals. d) Share of women in non-agricultural wage employment.	5%
<b>3. Human Capabilities:</b>		<b>15%</b>
3.1: Health and nutrition cluster:	a) Under 5 mortality rate. b) Mortality rate for under 40 years. c) % of children underweighted.	5%
3.2: Education cluster:	a) Net primary enrollment ratio. b) Net secondary enrollment ratio.	5%
3.3:basic services cluster:	a) Proportion of the population with access to safe water. b) Proportion of population with access to adequate sanitation.	5%
<b>4. Social Protection Dimension:</b>	4.1: Exp. on all social protection programs as % of GDP. 4.2: No. of beneficiaries of social protection as % of total population. 4.3: No. of beneficiaries of social protection as % of poor population. 4.4: Average social exp. Per poor personal as ratio to poverty line.	<b>10%</b>

## **1.2: Green Growth definition:**

Over recent years the concept of “Green Growth” has appear into the international policy scene. A term rarely heard before 2008, it now occupies a prominent position in the policy discourse of international economic and development institutions.

The core meaning of the concept of Green Growth can be defined as the economic growth which also achieves significant environmental protection. It could also be defined as fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which human wellbeing relies. (OECD, 2012)

Although the concept of green growth was traditionally focused n the diminutions of climate change, it now covers a wider range of environmental resources (Soil, water, fish stocks, habitats....).

The World Bank defines green growth as “growth that is efficient in its use of natural resources, clean in that it minimize pollution and environmental impacts, and resilient in that it accounts for natural hazard and the role of environmental management and natural capital in preventing physical disasters. (WB, 2012)

United Nations Environment Programme (UNEP) constructed a wider definition for Green Growth as “the growth that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcity”. (UNEP, 2011)

Thus, Green Growth has several dimensions, “greening growth” and enhancing new growth possibilities from environmental considerations. So it is difficult to capture such concept in one indicator, instead, OECD measure Green Growth according to four inter-related groups of indicators (OECD, Toword Green Growth: Monitoring Progress, 2011):

- 1- Environmental and resource productivity: representing the volume of output per unit of services from natural assets. Rising environmental and resource productivity would appear to be a necessary condition for green growth.
- 2- The natural asset base: which is the major foundation of economic activity and human welfare, they provide materials and ecosystem services that are necessary to develop human, social and produced capital.
- 3- The environmental dimension of quality of life.
- 4- Economic opportunity and policy responses.

Each of these dimensions is measured by one or more sub-subject as identified in the following table:

**Table 2  
Green Growth indicators**

1. Environmental and Resource Productivity:	a) Co2 Productivity. b) Energy productivity c) Material Productivity.
2. The natural asset base:	a) Available fresh water. b) Total land area available for agriculture. c) No. of threaten animal and plant species.
3. The environmental dimension of quality of life.	a) Technology and innovation. b) Environmental goods & services. c) International financial flows. d) Prices & transfers. e) Skills and training. f) Regulations and management approaches.
4. Economic opportunity and policy responses.	a) Economic growth and structure. b) Productivity and trade. c) labour markets, education & income. d) Socio-demographic pattern

Another way of measuring Green Growth is the way adopted by UNEP, by which Green Growth is also divided into sub-subjects; environmental indicators, Policy indicators and well-being and equity (DIA, 2014).

### **1.3: Inclusive Green Growth:**

So while inclusive growth concerned with the welfare of the current generation and green growth concerned with the welfare of the future generations, Inclusive Green Growth could be defined as: the growth which improves the welfare of current and future generation. IMF defines Inclusive Green Growth as: “a paradigm



that aims to achieve sustainable development by reconciling developing countries' urgent need for rapid growth and poverty alleviation with the need to avoid irreversible and costly environmental damage". So Inclusive Green Growth could be seen as the way to achieve sustainable development.

The World Bank also states a definition for inclusive green growth as, "growth that is efficient in its use of natural resources, clean in that it maintains pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disaster. And this growth needs to be inclusive" (Spratt, 2013).

More expansive definition is given by UUDP as: "embraces social, economic and environmental pillars and is promoted based on principles of inclusiveness, equity, particularly gender equity and women's empowerment, and sustainability. It supports the alleviation of poverty through green job creation, sustainable energy for all, low-carbon technologies; and promotion of sustainable urban living. It recognizes the importance of and interplay between natural capital and social capital, equally important assets that must be managed and invested in". (Spratt, 2013)

Since Inclusive Green Growth is a comprehensive concept covering multiple interlinked dimensions: economic, social and environmental, it couldn't be measured by a single indicator. Instead, the analysis of this concept is divided into five main measurement themes (Narloch, 2016):

- 1) Natural assets underpinning economic activities.
- 2) Natural resource efficiency and absolute decoupling from economic growth.
- 3) Socioeconomic resilience to ecological risks
- 4) Economic opportunities and efforts related to environmental policies.
- 5) Inclusiveness of environmental policies.

According to UNEP report on measuring inclusive growth, the relative importance of these different measurements themes is dependent on regional contexts and the priorities and needs of countries. For example, in fast-growing Asian and Pacific nations, such as China, where development needs are still pressing, issues related to equitable access to resources, energy and resource efficiency, pollution and emission control are increasingly high on the agenda. In resource-rich African countries, the efficient and sustainable management of natural assets could be a priority concern. In Latin America, with a large urban population and critical ecosystems, urban development and transport as well as land and water management may be viewed as critical metrics for IGG. In low-lying countries in

South Asia with large coastal populations that are highly vulnerable to climatic impacts resilience may be a top priority (Narloch, 2016)

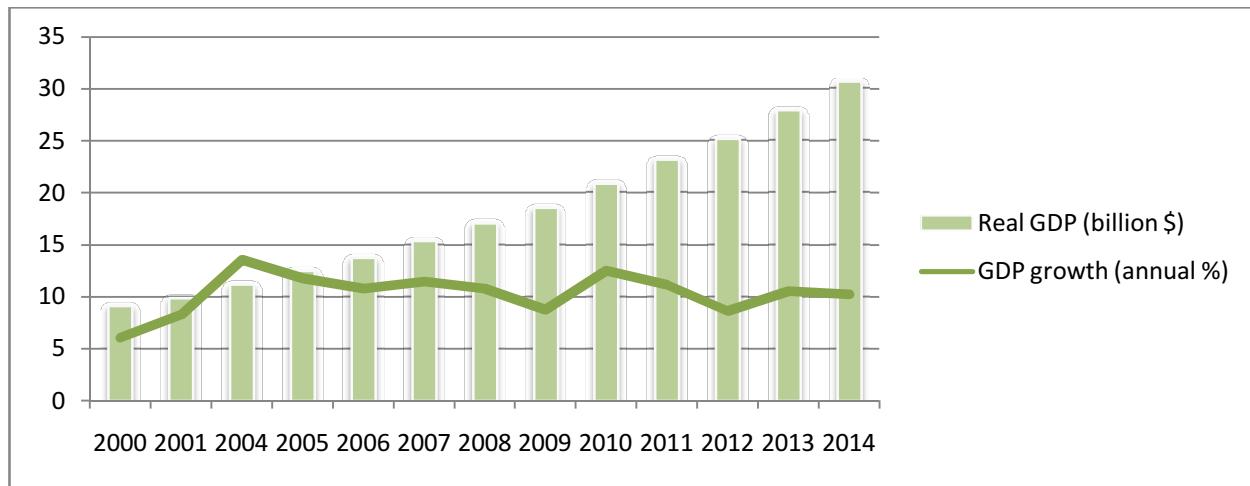
## **2. Ethiopia: Economic and Social highlights:**

Ethiopia has the second largest population in Africa south of the sahara, more than 96.5 million inhabitants in year 2015, with an annual population growth rate of 2.5%, 60% of them are under the age of 25. This strains social services in urban areas and presents challenges in creating sufficient employment opportunities. The majority of Ethiopian population lives in rural area (about 80%) depending on agriculture sector in their living. (AFDB and others, 2015)

Ethiopian economy is highly dependent on agriculture sector that contribute by more than 40% of the Ethiopian GDP, 70% o exports and 80% of labour force in 2014.

Ethiopia economy has evolved to become the largest non-oil exporting economy in Africa in the past decade, and one of the top ten fastest growing economies in the world (AFDB, AFDB and Ethiopia: Partnering for Inclusive Growth, 2013), after a decade of a continuous economic expansion in which the real GDP growth rate averaged 10.8% per year as shown in the next figure. This growth driven primarily by huge public investment in infrastructure, and more generally by the growth of all Ethiopian economic sectors as average annual growth rate of Agricultural sector was 7.5%, industrial sector 14% and services 12%.

**Figure (1)**  
**Real GDP and Growth Rates in Ethiopia**  
**(2000-2014)**



Source: World Bank online data bank, at: <http://databank.worldbank.org>

The Ethiopian economic performance during the recent years was effective. The Ethiopian government managed to reduce the inflation rate from 13.5% in 2013 to 8.1% in 2015, and reduce the budget deficit as a percentage of GDP from 1.9 in 2013 to 1.4% in 2015 and the current account deficit as a percentage of GDP from 8.6% to 5.9 in the same period. (African Economic Outlook)

Public expenditure focuses on poverty reduction priorities outlined by the government's poverty reduction strategy and priority sectors include health, education, agriculture, roads and water and sanitation. Ethiopia has one of the highest levels of pro-poor spending in SSA and the budget allocation for 2014/15 for those priority areas has increased to 84% of all public spending. (OECD, African Economic Outlook, 2015)

The government's Productive Safety Net Programme (PSNP) provides 8.3 million chronically food insecure households with reliable cash and/or food transfers during lean months. The PSNP, as part of the government's strategy for food security and the eradication of extreme poverty, represented a key departure away from annual emergency food aid appeals towards a planned approach to food security and drought risk management. A comprehensive national social protection policy was approved by the council of ministers in 2014. Labour-market regulations are broadly appropriate and enforced for an increasing number of

workers. Active labour-market programmes (linking micro and small-scale enterprises with public works such as paving and urban housing construction) are improving in quality and coverage, although weaknesses remain. The government created more than 1.3 million jobs in the 2013/14, through its support to micro and small-scale enterprises

Since 2011, the Ethiopian ministry of environment and forestry's efforts has been focused on implementing the Climate-Resilient Green Economy (CRGE) strategy that sets the target of becoming carbon-neutral with middle-income by 2025. In 2014, a project aimed at supporting the reducing carbon emissions from degradation and deforestation (REDD) mechanism was lunched. The strategy aims to enable Ethiopia to access the carbon trade whereby developed countries offset their emissions by investing in emission-reduction projects in developing countries. (OECD, African Economic Outlook, 2015)

In 2014, CRGE projects in agriculture, water, irrigation and energy, forestry, transport. Industry and urban development were being implemented. It is part of Ethiopia's CRGE strategy to reduce emissions and vulnerability in order to build a Climate-Resilient Green Economy with zero-net carbon emissions by 2025. Both up-front support and ex post payments are provided for carbon-reduction action. (OECD, African Economic Outlook, 2015)

### **3. Inclusive Green Growth in Ethiopia:**

#### **3.1: policy framework:**

Ethiopian government has developed and implemented a series of policies, strategies and programmes to create the suitable policy framework for green inclusive growth. In this context; the country adopted what is called Climate-Resilient Green Economy (CRGE) strategy, which define IGG as, "sustainable economic development that is resilient to climate and environmental shocks, creating a competitive advantage out of sustainable use of resources and higher productivity growth, as well as overcoming the possible conflict between economic growth and fighting climate change. Applying this definition, CRGE strategy targeting four main pillars to achieve IGG (UNECA, 2015):

- 1) Improving cropland livestock production for higher food security.

- 2) Protecting and re-establishing forests for economic and ecosystem services
- 3) Expanding electricity from renewable energy for wide domestic consumption and the regional market.
- 4) Transferring to modern and energy-efficient technologies used by transport, energy and industry sector.

Ethiopia also adopted the Sustainable Development and Poverty Reduction Programme 2000-2005 (SDPRP); and the Plane for Accelerated and Sustained Development to End Poverty 2006-2010 (PASDEP). The implementation of SDPRP resulted in increased pro-poor spending from 28% in 2000/2001 budget to 57% in 2004/2005 budget. On the other hand, PASDEP plane was designed to help in efforts aimed to achieve MDGs and associated targets and to provide an overarching policy strategy for reducing poverty and tackling food security (UNECA, 2015).

According to UNECA report, the implementation of SDPRP, ASDEP and CRGE has thus far, registered a number of achievements. Among them are:

- 1) Irrigation infrastructure developed to insure smallholders' farmers against drought shocks.
- 2) Private sector development and export diversification enhanced to mitigate against trade shocks.
- 3) Farmers' education intensified to enhance labour productivity.
- 4) The marketing system for agricultural outputs and inputs streamlined and strengthened through a new established commodity exchange system.
- 5) Small and medium enterprises packages formulated and implemented to address women and youth unemployment and underemployment problems.

### **3.2: The status of IGG in Ethiopia:**

The main question arise after this brief discussion of the policy framework of inclusive green growth in Ethiopia, is whether IGG is achieved or not? This question could be answered by analyzing the improvements of the IGG three dimensions: Economic, Social and Environment, using the indicators mentioned in the first section of this paper.

### **3.2.1: Inclusive growth in Ethiopia:**

#### *a) Growth, productive employment and economic infrastructure:*

During the last decade, Ethiopia achieved a high stable economic growth with a real GDP growth rate averaged 10.8% per year. This rapid economic growth has created a number of new job opportunities in cities and urban areas and thus has contributed to poverty reduction. The urban unemployment rate has decline to 18%.

The labour productivity in Ethiopia had witnessed a notable improvement during the past decade. Total labour force productivity grows by an average of 3% during the early 2000s, increased to 9.3% in the following years. The most growing productivity appears in the mining and industrial sectors followed by services sector. labour productivity in industrial sector is still considered very low but growing in a high rate (Martin, 2014). Agriculture sector labour productivity is very low comparing to other sectors (about 257\$ in 2013 comparing to 438\$ and 543\$ in manufacturing and services sectors respectively).

Access to Economic infrastructures in Ethiopia also improved during the recent years. The percentage of population with access to electricity increases from 12.7% in 2000 to 26.6% in 2012. But there is still a huge gap in this accessibility between rural and urban areas. In 2012, while 100% of the urban population has access to electricity, only 7.5% of the rural population has this access. However this low percentage could be seen as improvement since it was only 0.4% in 2000. Mobile cellular subscription also increases form about 18 thousand in 2000 (27 subscribers per 100000 people) to more than 30 million in 2012 (31594 subscribers per 100000 people).

#### *b) Income poverty and equity including gender equality:*

Poverty in Ethiopia has declined at an average rate of 1.94% per year since 1995. Poverty headcount ratio at the national poverty lines fell from 44.2% in 1999 to 30% in 2014. According to the World Bank poverty assessment report, these improvements are impressive comparing to the performance of other African countries in the same period of time.

Although these improvements, poverty still widespread in Ethiopia, The poorest household have become poorer, the income share for the poorest 20% actually decreases from 9.4% in 2004 to 8% in 2010.

Income Inequality measured by Gini coefficient has remained broadly constant at 0.298 in 2014 compared to 0.3 in 2004, while the urban Gini coefficient has decline to 0.37 in 2010 from 0.44 in 2004.

About gender inequality, women in Ethiopia provide the majority of the agricultur labor. However according to a recent USAID report, women's access to resources and community participation are usually mediated through men, and their agricultural contributions often go largely unrecognized (USAID, 2016)

Women participation in labour force is not limited to agriculture sector, the participation of women in the non-agricultural sector increased to more than 50% which marks a distinct improvement from 1999 when it was about 40%.

Gender inequality situation in education and health care had improved recently. Women access to education improves, as appears from Gender parity index that increased from 0.66 in 1990 to 0.87 in 2008 and 0.93 in 2010. Births attend by skilled health staff increased from 5.6% in 2000 to 15.5% in 2014.

### *c) Human Capabilities Dimension of Inclusiveness:*

Ethiopia achieves a notable improvement in the indicators related to human capabilities. Under five mortality rate decreases from 145.1(per 1,000) to only 61.8 (per 1,000) in 2014. According to UNICEF, child stunting improved at an average of 1.2 percentage points per year from 2000-2014. The rate of improvement was mostly consistent throughout the country, with the exception of some lowland areas, however regional variation in stunting prevalence remains high. This improvement is presently the fastest in Africa, and may be the fastest national African level estimated at any recent time. In addition, the steady improvements in stunting are similar to those found in other countries with a history of success in elimination of under-nutrition over sustained periods. The rate of improvement was consistent across the country, except for the lowland pastoral areas possibly due to previous episodes of drought. Actual stunting prevalence was not much different between livelihood groups (pastoralist, agricultural, agro-pastoralist), at approximately 40% in each group. Net secondary enrollment ration in Ethiopia also increase from 11.25% in 2000 to 31.8% in 2014.

Access for basic services situation in Ethiopia also improved specially in the rural area where % of population with access to improved water sources increased from 18.9% in 2000 to 46.7% in 2014, while the % of rural population with access to improved sanitation increases from only 6.1% in 2000 to 26.7% in 2014.

*d) Social protection Dimensions of Inclusiveness:*

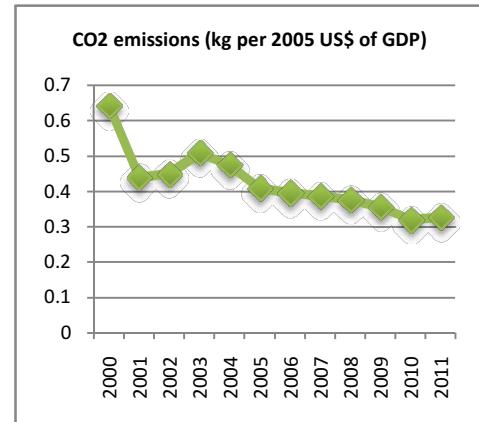
Ethiopia implements Productive Safety Net Program (PSNP) in 2005, started with six regions and 4.83 million beneficiaries. The largest coverage the PSNP reached was in 2011/12 at the height of the Horn of Africa 2011 crisis during which 7.642 million people were reached in eight regions. However, in 2012/13, the number of beneficiaries decreased by 762,000. This was due to the fact that some were transitory food insecure, while the rest must have graduated from the PSNP (Abreha, 2013).

### **3.2.2: Green Growth in Ethiopia:**

*a) Environmental & Resource Productivity:*

Ethiopia's contribution to GHG emissions is very low on a global scale. Actually the GHG emissions in Ethiopia witness a reduction trend in line with the implementation of CRGE strategy. CO2 emissions (kg per 2005\$ of GDP) decreases from 0.64 in 2000 to 0.32 in 2010.

Sector-wise, Ethiopia's emission profile is dominated by emissions from Agriculture and Forestry sectors, contributing 87% of the total; followed by power, transport, industry and buildings, which contributed 3% each.



Ethiopia generates most of its electricity from renewable energy, mainly hydropower on the Blue Nile. In 2012, over 98% of Ethiopia's electricity was from hydropower. Most of the energy needs of Ethiopia are filled by bio-fuels for cooking, heating, and off-grid lighting. Renewable energy consumption in Ethiopia supply about 93% of the total energy supply while petroleum, including gasoline, diesel and kerosene supply less than 7%.

With regard to resource productivity, measured by DMC/GDP ratio<sup>2</sup>, it has improved between 2005 and 2010 by about 33%, meaning that one unit of GDP is generated using lower amount of material (Material Flow Database).

*b) Natural Asset Base:*

Ethiopian natural resources base (land, water forest, wildlife and biodiversity), which is the basis of Ethiopia's economic development and food security of the people, is under intense pressure from population growth and inappropriate traditional farming and management practices. During the last years, natural asset base in Ethiopia witness a stabilized trend in most of its indicators, but some witnessed a notable deterioration. For example The area of total forest decreased from 14.3% in 1997 to about 12.7% in 2012 (according to FAO database) with an average decreasing rate of 1.1%.

Ethiopia has 12 river basins with an annual runoff volume of 122 billion m<sup>3</sup> of water and an estimated 2.6 - 6.5 billion m<sup>3</sup> of ground water potential. This corresponds to an average of 1,575 m<sup>3</sup> of physically available water per person per year, a relatively large volume. However, due to large spatial and temporal variations in rainfall and lack of storage, water is often not available where and when needed. The drought is still a major concern in Ethiopia and its economic and social costs still not managed. (Awulachew)

*c) Policy response and Economic Opportunities:*

According to a recent study about the environmental taxation in Ethiopia (Melese, 2013), tax authority has not introduced environmental related taxes yet, but there are environmentally related taxes in the country. Even though these taxes are not mentioned in the tax laws as environmental tax the definition make sure that having environmental relevance base categorized those taxes as environmental taxes. Those environmental taxes have high contribution to the tax as well as total revenue of the country but it needs attention to be more effective in protecting the environment as well as generating revenue.

---

<sup>2</sup> Direct Material Consumption (DMC) is defined as the total amount of material directly used in an economy, i.e. it equals domestic extraction plus imports minus exports. DMC does not include upstream hidden flows related to imports and exports of raw materials and products.

The ratio of DMC to GDP is used as measure of resource productivity, this ratio is also called: Material Intensity Index, it reflects the amount of material needed to generate one unit of GDP.

## **Conclusion:**

Although Ethiopia had managed to achieve a remarkable growth rate during the recent decade, this growth was neither inclusive nor green. Although the improvements achieved by the government, the inclusiveness indicators show that the fruits of the growth didn't trickle down equally to the Ethiopian people. Inequality is still widespread vertically and horizontally. Vulnerability to environmental and climatic shocks, remains a critical challenge for Ethiopia and especially for its agricultural sector growth, and also has a direct impact on food security situation in the country given that food production is rain fed. Green growth indicators still limited, but the available information show that huge efforts still needed to be done to achieve green growth.

## Bibliography

- Abreha, A. (2013). *The Making of Social Protection in Ethiopia*. Retrieved from <http://aigaforum.com/articles/the-making-of-social-protection-ethiopia.pdf>
- AFDB. (2013). *AFDB and Ethiopia: Partnering for Inclusive Growth*. Tunisia: AFDB.
- AFDB and others. (2015). *African Statistical Yearbook 2015*. Denemark: Scanprint.
- AFDB. (2012). *Briefing Notes for AFDB's Long-Term Strategy: Inclusive Growth Agenda*. Tunis: African Development Bank.
- Awulachew, e. (n.d.). *water resources and Irrigation Development in Ethiopia*. Retrieved from International water management institute:  
[http://www.iwmi.cgiar.org/Publications/Working\\_Papers/working/WP123.pdf](http://www.iwmi.cgiar.org/Publications/Working_Papers/working/WP123.pdf)
- DIA. (2014). *Measuring Green Growth: Why Standardisation is sometimes Not Desirable*. Bonn: German Development Institute.
- Ianchovichina, E. a. (2008). *What are the constraints to Inclusive Growth in Zambia*. Washington D.C.: World Bank.
- Ifzal, A. a. (2007). Measuring Inclusive Growth. *Asian Development Review*, 1 (24), 11-31.
- Klasen, S. (2010). *Measuring and Monitoring Inclusive Growth: Multiple Definitions, Open Questions and Some Constructive Proposals*. Asian Development Bank .
- Martin, P. (2014). *Structural Change in Ethiopia: An Employment Perspective*. Washington D.C.: World Bank.
- Material Flow Database. (n.d.). *Global Material Flow*. Retrieved from <http://www.materialflows.net/data/datadownload/>
- Mckinley, T. (2010). *Inclusive Growth Criteria and Indicators: An Inclusive growth index for Diagnosis of Country Progress*. Manila, Philippines: Asian Development Bank.
- Melese, L. (2013). *Environmental taxation practice and revenue performance in Ethiopia*. Addis ababa.
- Narloch, U. &. (2016). *Measuring Inclusive Green Growth at the Country Level*. Nairobi: UNEP.
- OECD. (2015). *AFrican Economic Outlook*. Paris: OECD.
- OECD. (2012). *Inclusive Green Growth: For the Future we want*. Paris: OECD.
- OECD. (2011). *Toward Green Growth: Monitoring Progress*. Paris: OECD.
- Ramos, R. a. (2013). *after all, what is inclusive growth?* International Policy Center for Inclusive Growth.

Spratt, S. &. (2013). *Mobilising Investment for Inclusive Green Growth in Low-Income Countries*. Bonn: GIZ.

Stephen Spratt, e. (2013). *Mobilizing Investment for Inclusive Green Growth in Low-Income Countries*. Bonn: German Federal Ministry for Economic Cooperation and Development.

UNECA. (2015). *Inclusive Green Growth in Ethiopia: Selected case Studies*. Addis Ababa: UNECA.

UNEP. (2011). *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Nairobi: UNEP.

USAID. (2016). *Gender Equality and Women Empowerment in Ethiopia*. Retrieved from <https://www.usaid.gov/ethiopia/gender-equality-and-womens-empowerment>

Vella, P. S. (2014). A Theoretical Model for Inclusive Economic Growth in Indian Context. *International Journal of Humanities and Social Science*, 4 (13).

WB. (2012). *Inclusive Gree Growth: The Pathway to Sustainable Development*. Washington D.C.: World Bank.

This document was created with Win2PDF available at <http://www.win2pdf.com>.  
The unregistered version of Win2PDF is for evaluation or non-commercial use only.  
This page will not be added after purchasing Win2PDF.