

CIRCULAR ECONOMY

Section 1 - Introduction to Circular Economy and Sustainability

Lesson 1.1 – Introduction of the course

Lesson 1.2 – Sustainability: the three pillars(environment, society, economy)

Lesson 1.3 – How does circularity relate to sustainability?

Lesson 1.4 – How does circularity relate to sustainability?

Prof. Massimo Guerra



Opportunities

Africa has been using circular principles for generations. As new business models and technologies emerge, the opportunities for agriculture, manufacturing and waste management can be harnessed to improve livelihoods and reduce poverty.

Circular Economy?

- What do we understand as circular economy?
An economy is circular when is able to regenerate itself.
- Why do we talk on the circular economy?
Because the traditional linear economy showed its limits, produced and still is producing many damages to the planet and to the mankind, overall in the very fragile conditions.
- Which are the differences between the two economies?



A pre-bachelor course: Circular Economy

Shortly, in this course we will:

learn the basic principles of the circular economy;

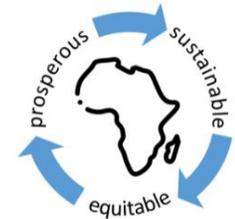
understand and manage the 17 Sustainable Development Goals;

enter the world of the new required works;

face the eco-innovation and build a green start-up;

design green business models in micro level.

But **first and overall**, we'll go and explain what means to apply an integrated approach to environmental economics, starting from the natural resources, and what means to transform a linear economy in a **circular economy**.



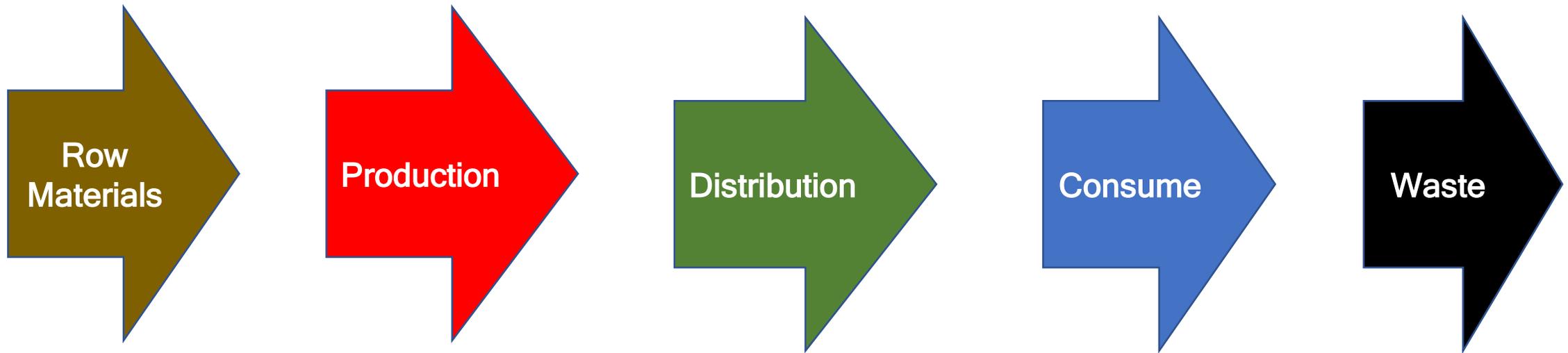
Economy?

The term **ECONOMY** origins from the ancient Greek language *oikonomía*, formed by two words: *oîkos* (household) and *némō* (distribute, allocate).

The positive meaning of **ECONOMY** is 'management of a household'

- **Every economy encompasses all activities related to production, consumption, and trade of goods and services in an area.**

Linear economy



Environment impacts: we take raw materials from it, we return waste to it

Circular Economy

An economy is circular when is able to regenerate itself.

➤ *Like Nature does, where everything (plants, animals, stone materials) never end their function in the form we know, but are transformed (as evolutionary processes teach) in something else and contribute, in a different way, to the maintenance of the natural balance.*



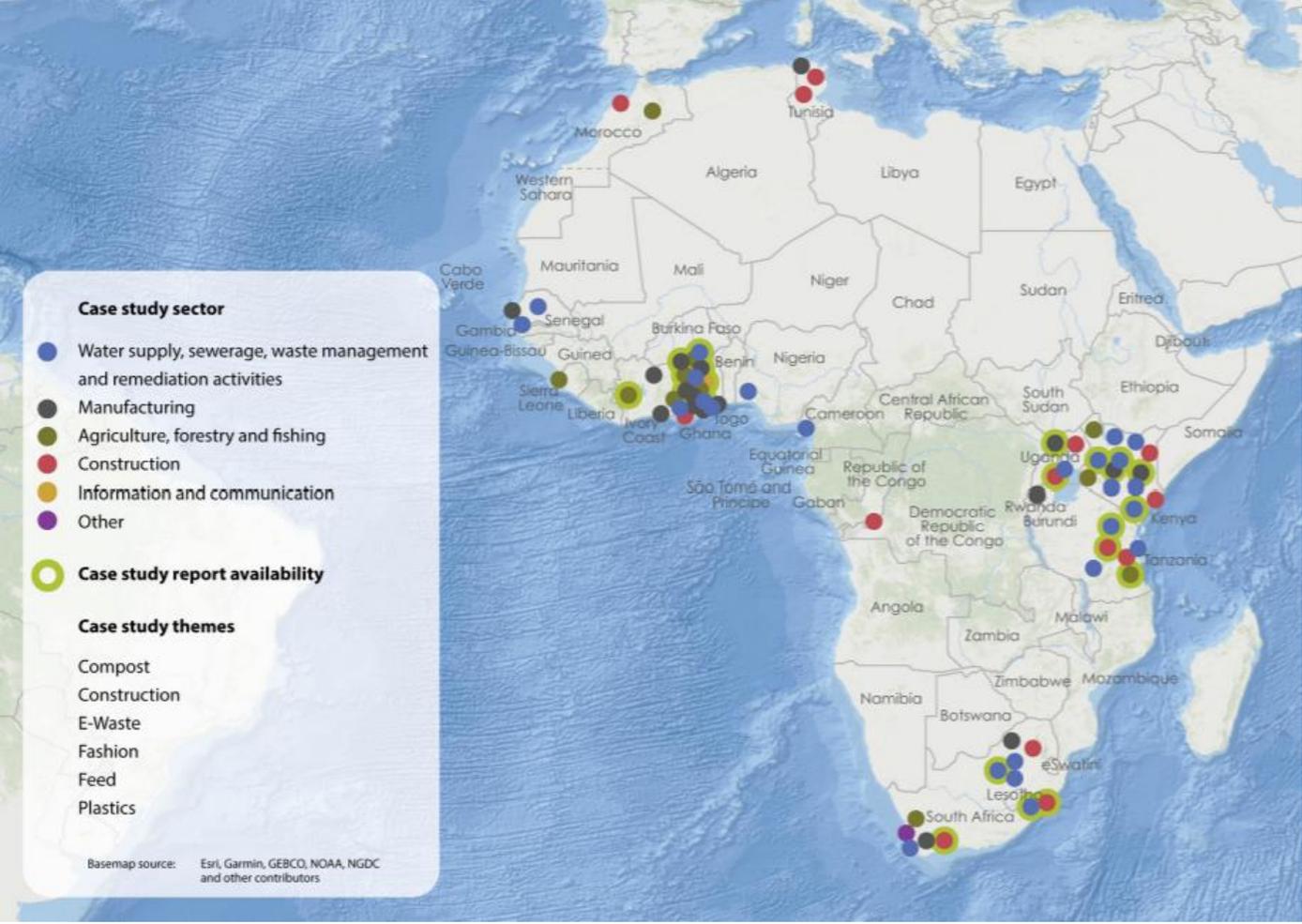
The precious work of the little dung beetle



The dung beetle pushes a ball of dung: its action accelerates the decomposition of excrements and facilitates the passage of nutrients such as nitrogen, phosphorus, potassium, into the soils making them more fertile. Furthermore, this movement of accumulation and rolling of dung makes it possible to move numerous seeds within the soil, making it more porous and permeable. Finally, the continuous moving of the dung facilitates the aeration of the soils and reduces the emissions of greenhouse gases such as methane, of which cattle dung is rich.

Nature does not produce waste. Nature is circular.

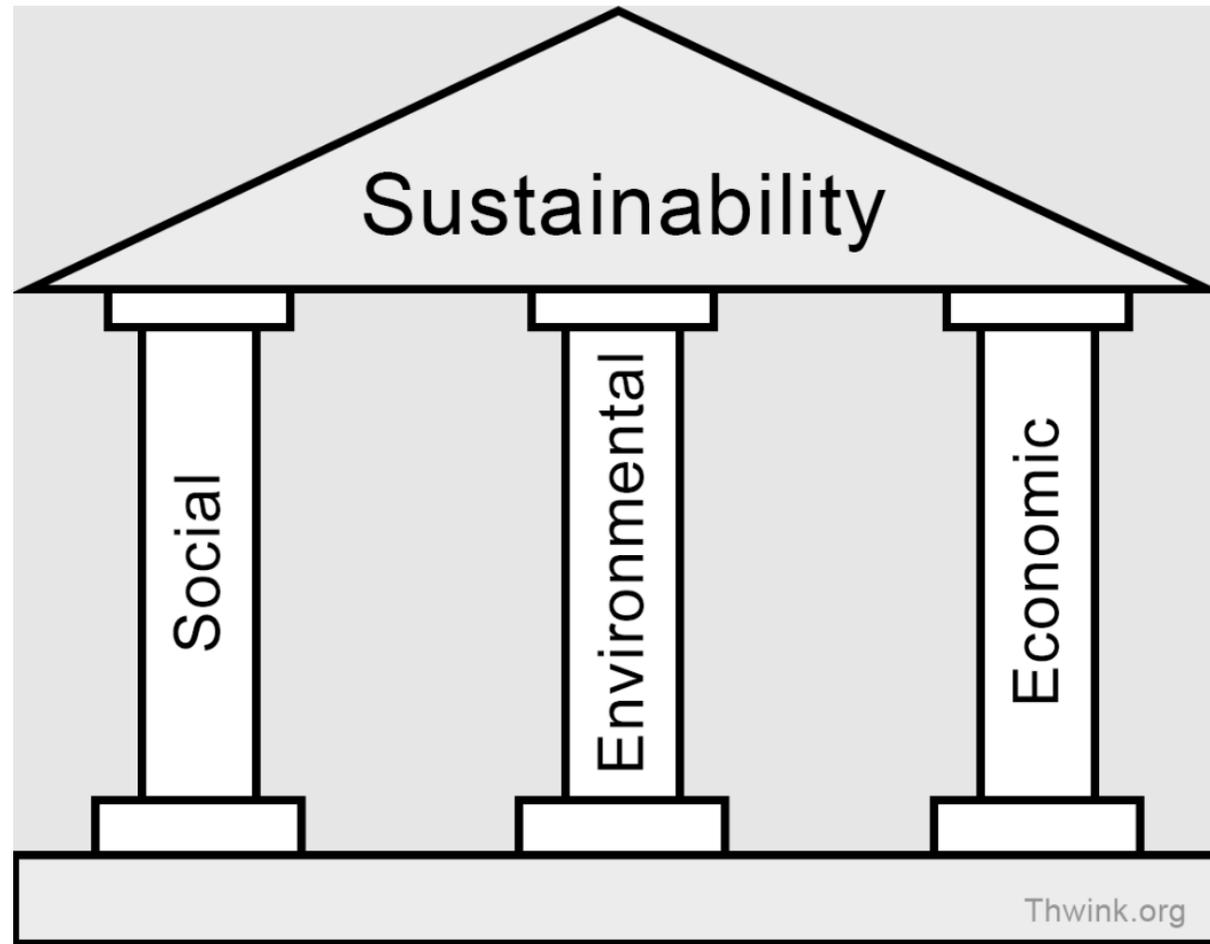
Some circular economy applications in Africa



Promoting the circular economy is a task of policy makers, addressing sustainable production and consumption of goods.

All that in order to create new important work opportunities, to prevent the pollution of the environment, to build a strong and durable economy, and a sustainable society.

Talking on circular economy, people must take in account the sustainability and its three pillars



The three pillars of the sustainability, one by one

- **Social:** the human capital, what mankind creates, as tools able to improve the citizens' quality of life, laws to support the necessity of the population and the development of improving politics in education, security and leisure, in order to build a well-cared and healthy society.
- **Environmental:** that is, to commit to study and practice the environmental preservation, the natural resources and the diminishing of the damage caused to the environment during the years.
- **Economic:** that is to production, distribution and consumption of goods and services. To have sustainability, companies can not profit at the expense of work exploitation or irresponsible and criminal exploitation of the environment.

The pillars of sustainability are based on a simple concept: we are all guests on the Earth, we must commit ourselves to live leaving our place in better conditions than we found it.

The deep meaning of the Sustainability

- **Sustainability** means to meet our own needs without compromising the ability of future generations to meet their own needs.
- In addition to natural resources, we also need social and economic resources.
- Sustainability is not just environmentalism.
- Most definitions of sustainability concern for social equity and economic development.

Sustainability and the time

- Sustainability therefore means working to ensure that a thing, a service, a product, an action takes into account, together and at the same level, the social, economic, environmental aspects, and that they last over time.
- Time is the time to think a project, to create a multidisciplinary team, to face every aspect, to share researches and their results, to study, to learn new issues, to teach the others.
- Indeed, there is a fourth pillar of the Sustainability: training and studying.



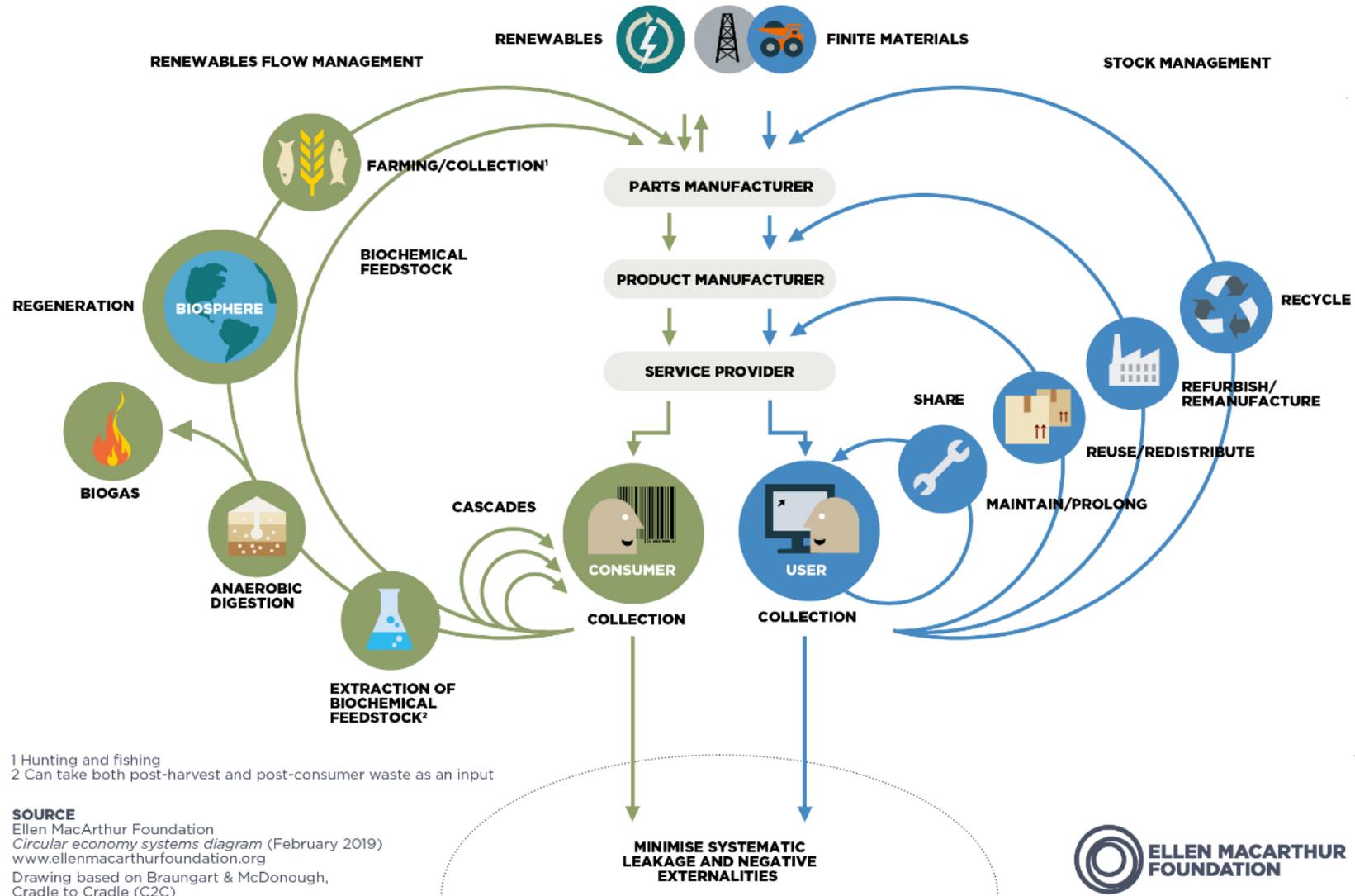
Sure, adding the knowledge, the table is stable

What is the circular economy?

- According to the European Union, the **circular economy** is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended**.



Let's go and take a deeper look at the circular economy

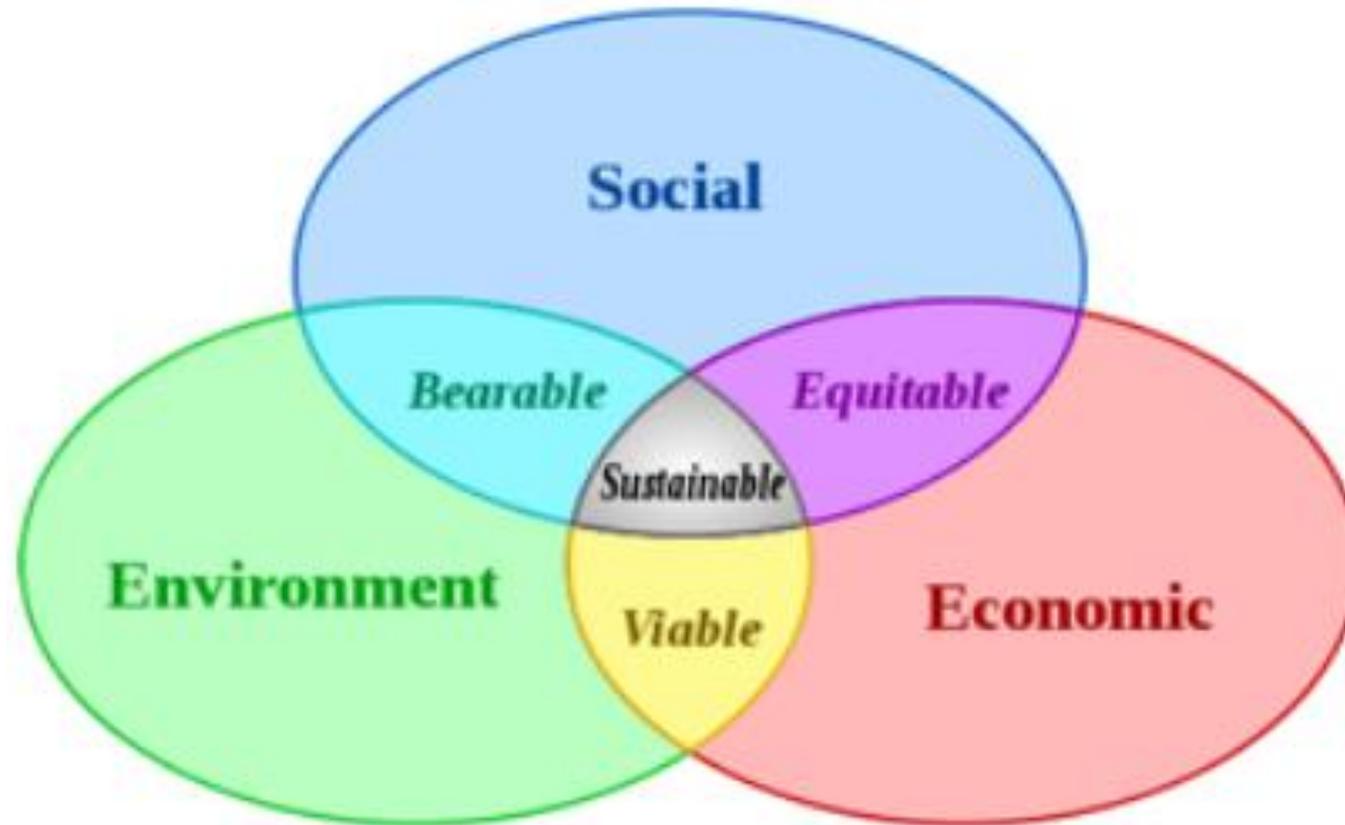


Circular economy: one more definition

- According to the Ellen MacArthur Foundation, the circular economy is a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution.
- Actually, many definitions have been developed on the Circular Economy, but all of them relate to the pillars of the Sustainability.
- Again, the question is:

How does circularity relate to sustainability?

A circular project has sustainability at its core



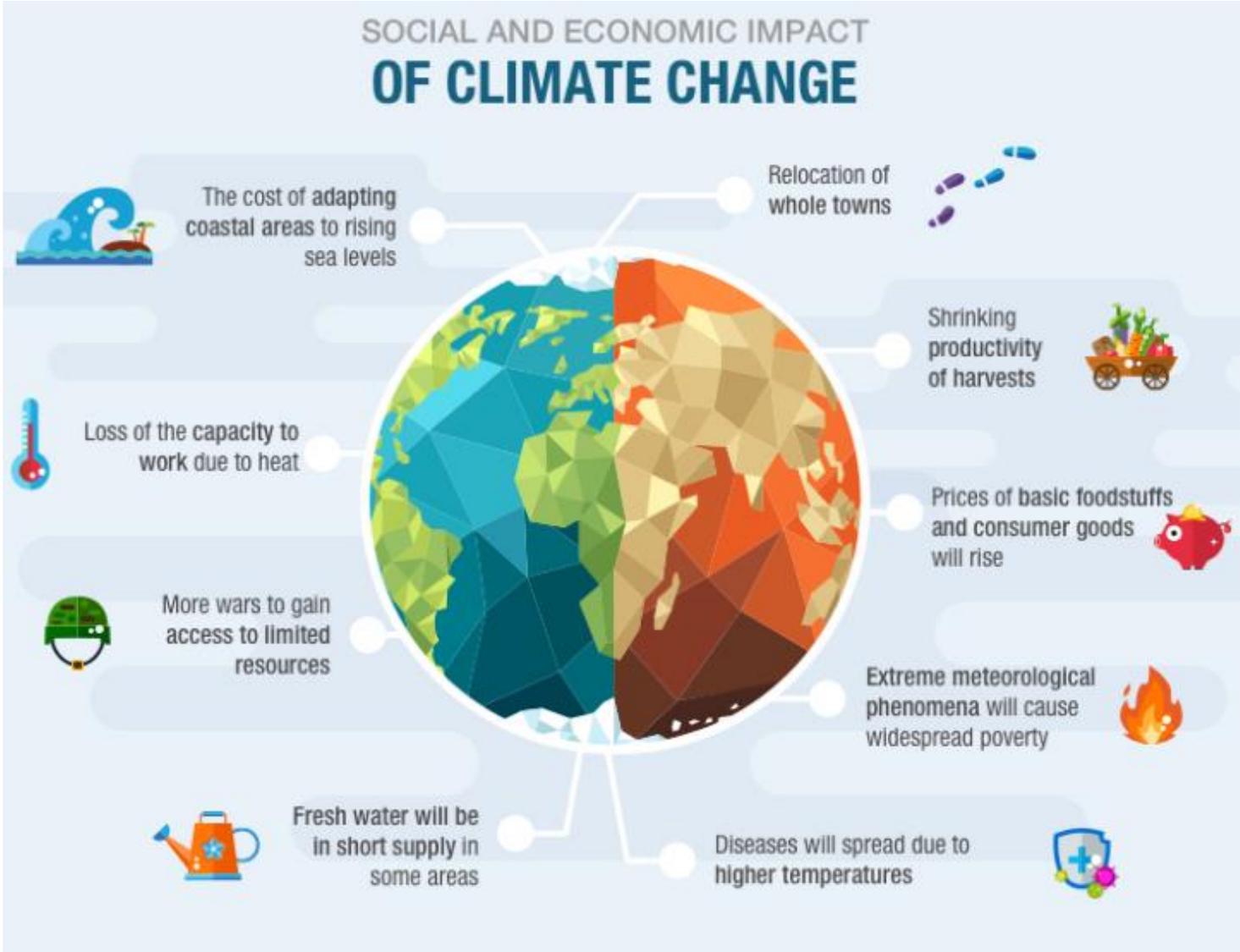
In any field, never forget to consider the social, environmental and economic impacts. It is not hard, it is intelligent and proactive for the future. And take in account the zero/options too.

A circular project has sustainability at its core

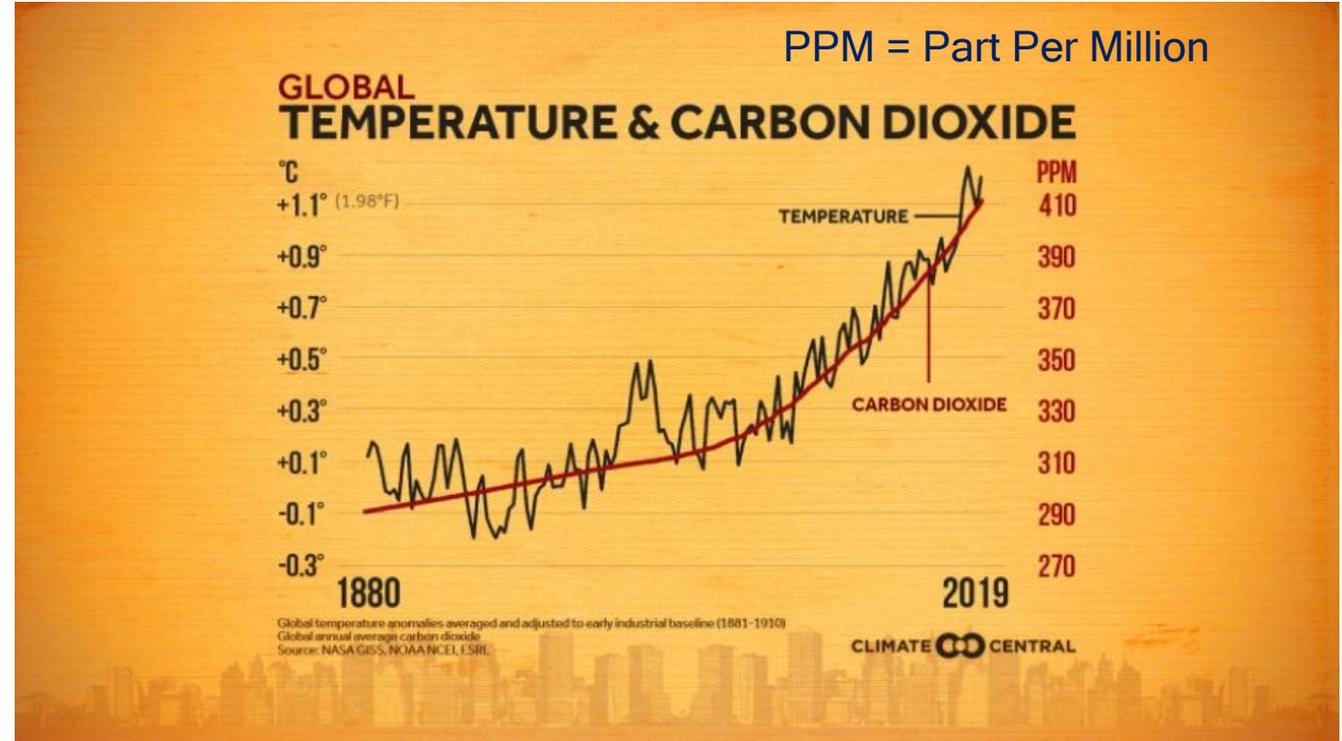
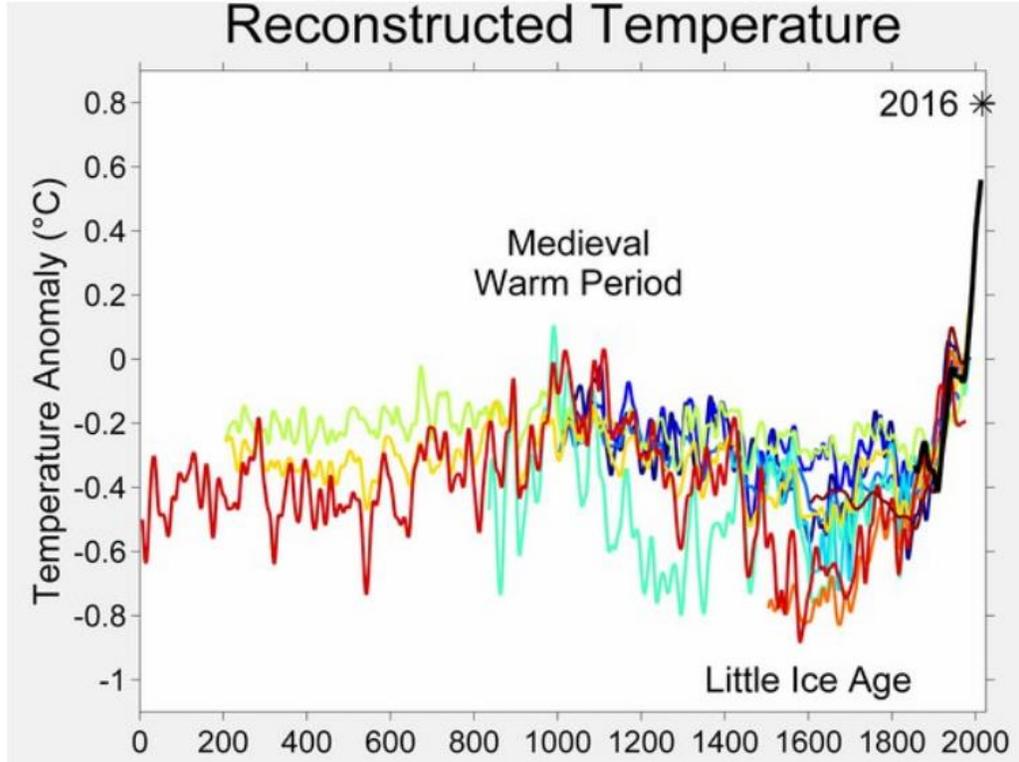
The circular economy tackles:

- climate change
- waste production
- scarcity of water
- deforestation
- illegal activities
- extraction of fossil sources
- withdrawal of raw materials
- social and economic inequality
- forced migration
- rise in the level of the oceans
- the marginalization of women and young people from work
- the lack of prospects for the future

Economic impacts: the climate change



Economic impacts: the climate change



The growth of carbon dioxide causes climate change by trapping heat and also contribute to respiratory diseases from smog and air pollution. Extreme weather conditions, food supply disruptions and increased fires are other effects of climate change caused by greenhouse gases.

Last January 19, around 3 PM, global population has exceeded 8 Billions.

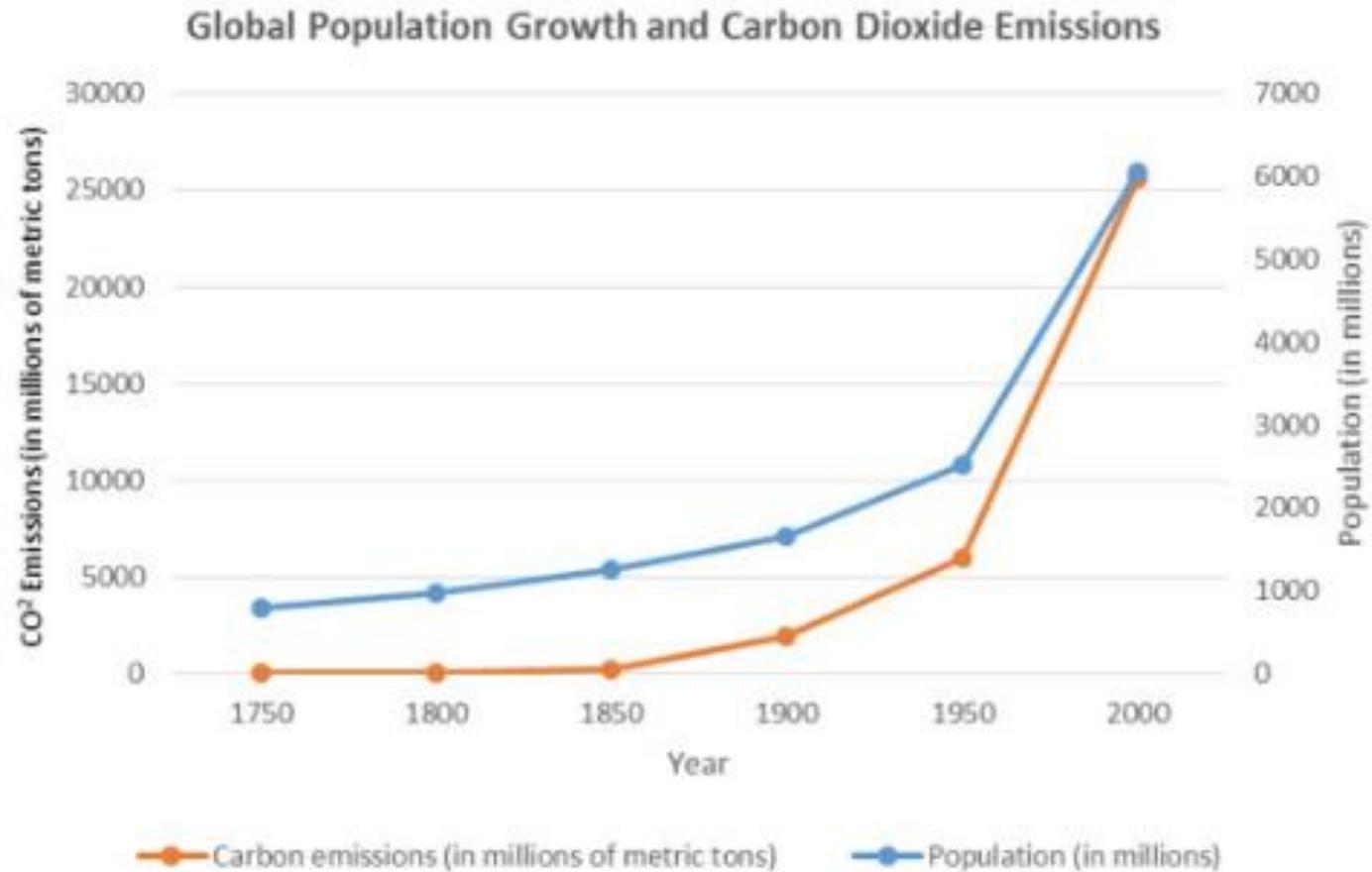
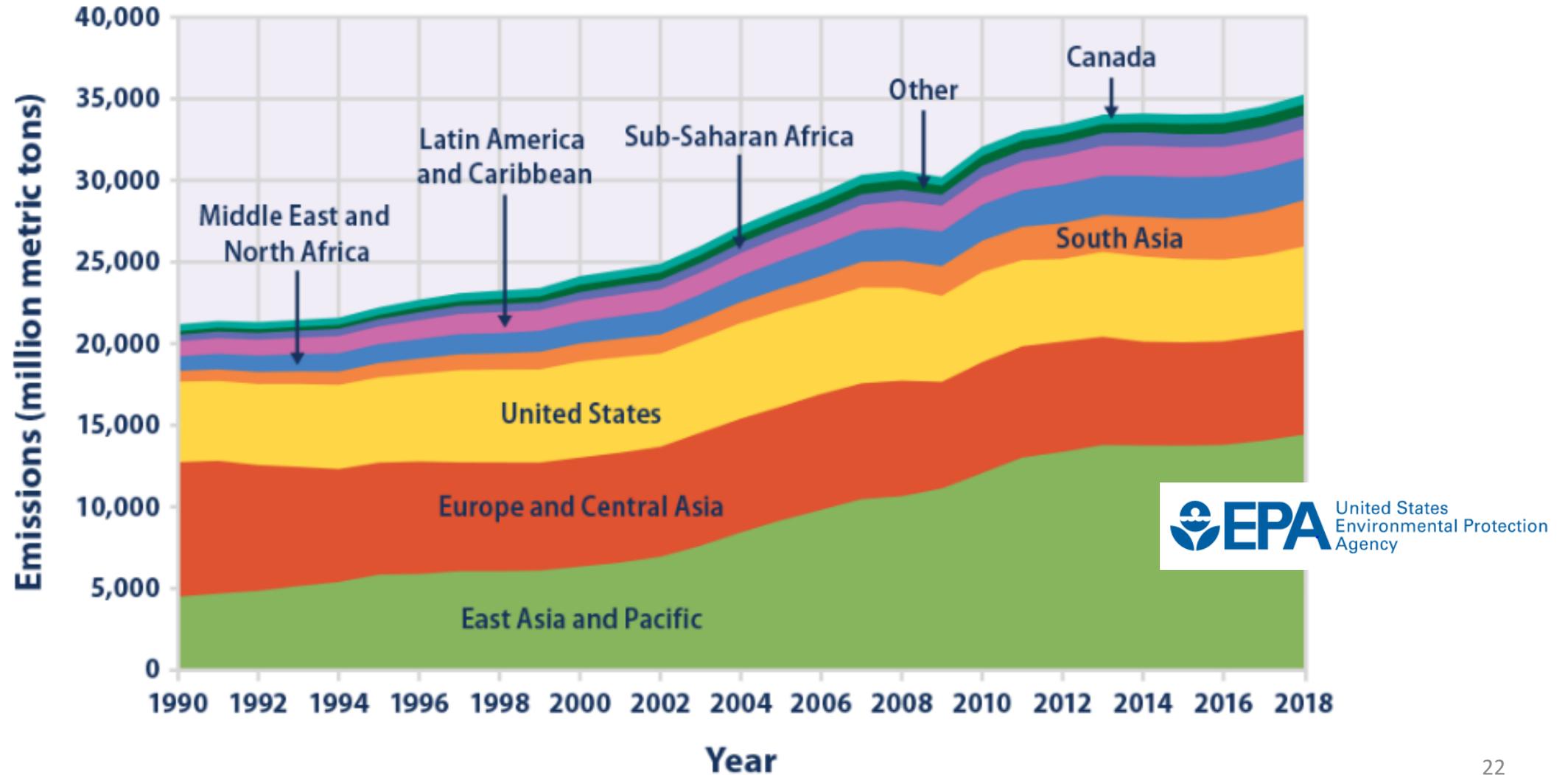
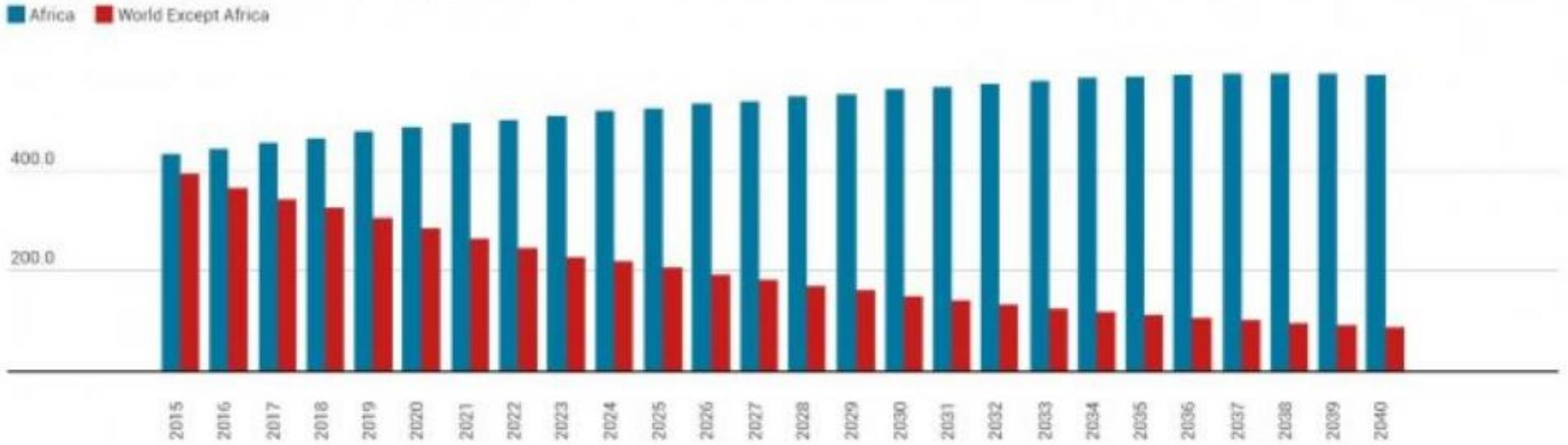


Figure 3. Global Carbon Dioxide Emissions by Region, 1990–2018



Climate change and poverty in Africa

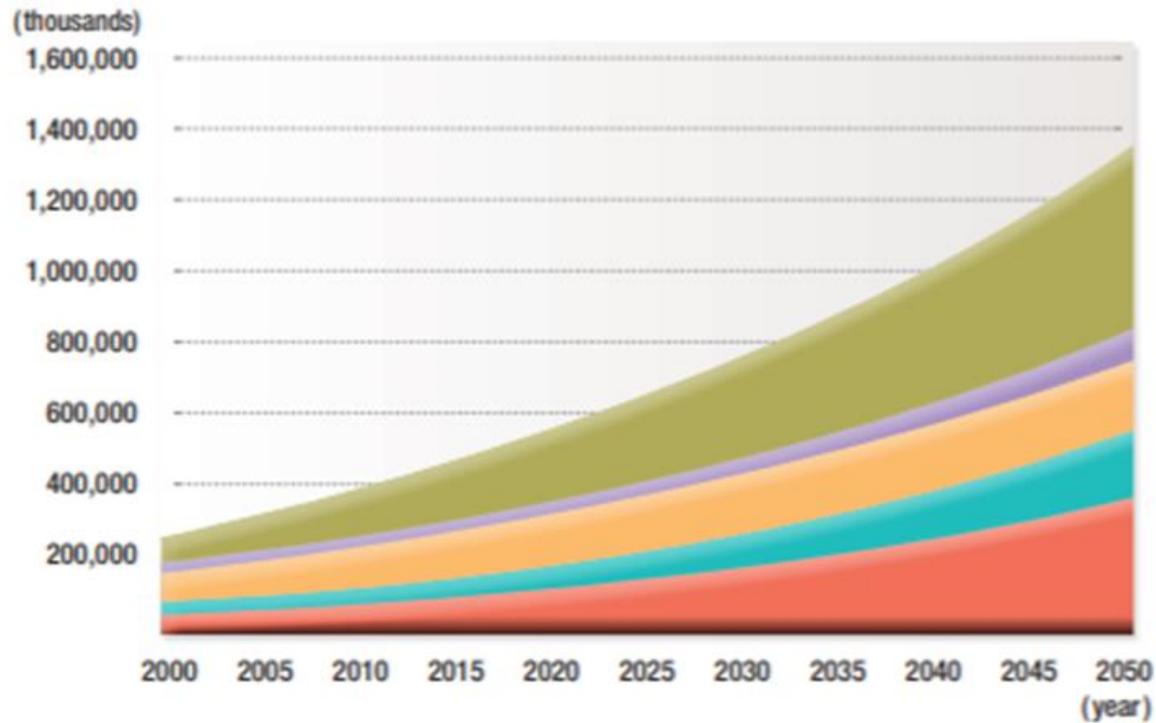
Number of people living in extreme poverty



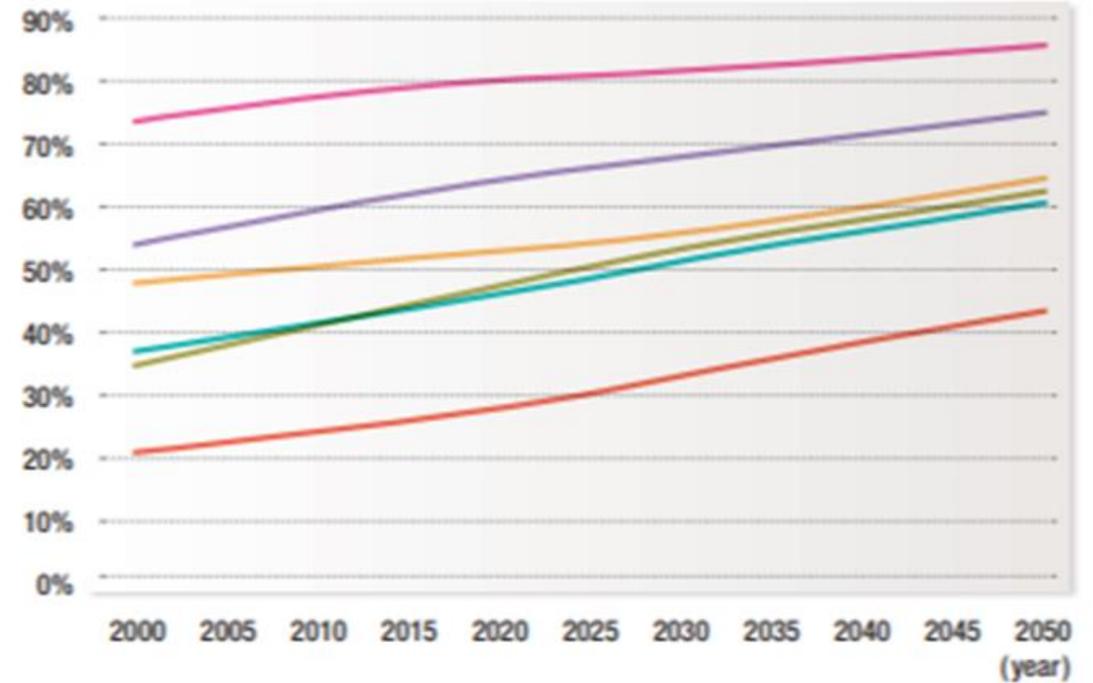
Source: Institute for Security Studies (ISS) - South Africa

Population grows ...

Urban Population in Africa

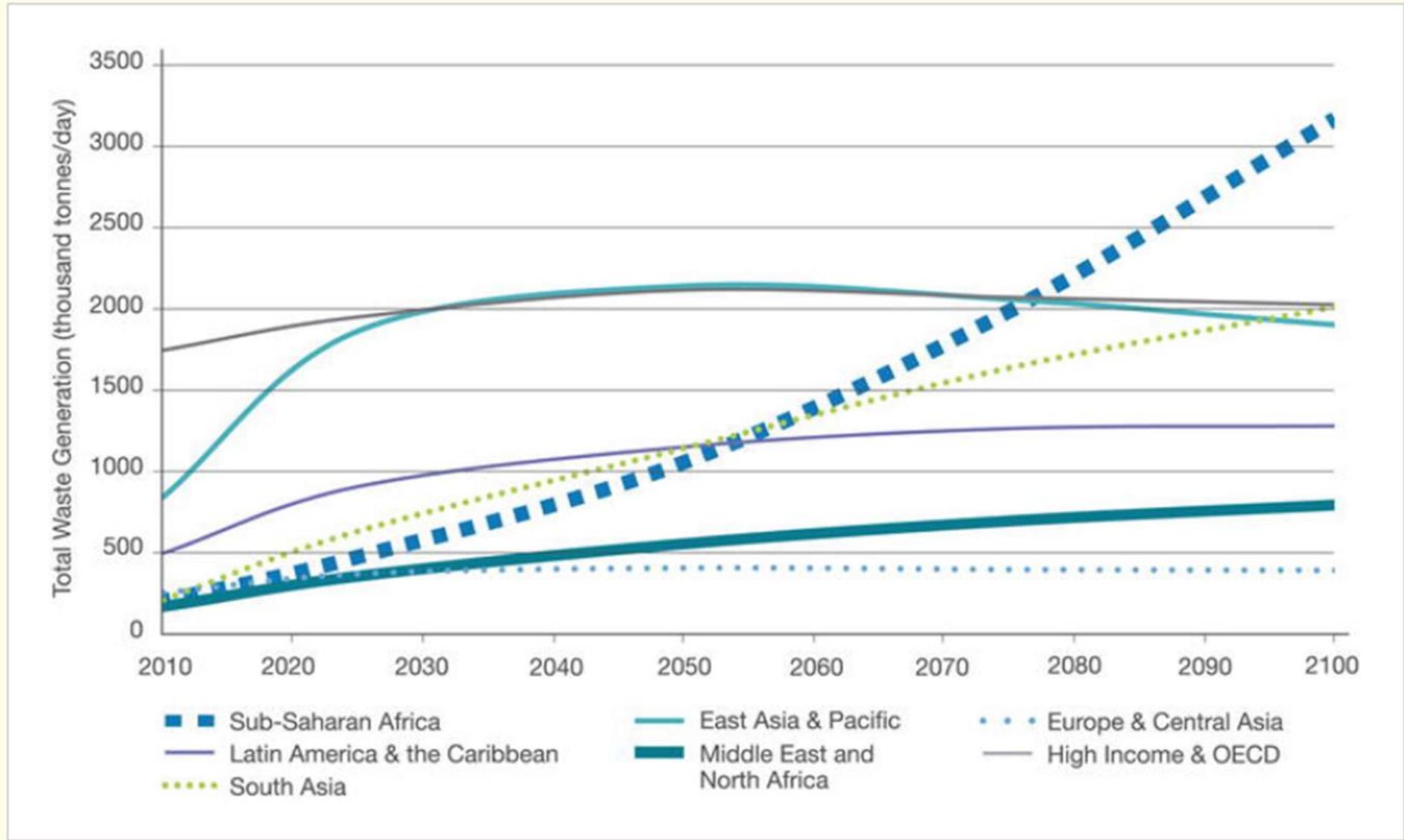


Urbanisation in Africa



■ Eastern Africa
 ■ Middle Africa
 ■ Northern Africa
 ■ Southern Africa
 ■ Western Africa
 ■ More developed regions

... waste production too



A pre-bachelor course: Circular Economy

- ✓ What are the key elements of the economy?
- ✓ What is a circular economy? Definition and principles of a circular economy.
- ✓ How does circular economy contribute to the sustainability?

These are the main issues of the next second lesson.

Your study is a powerful way to help change the state of affairs.

For yourself, for your country, for the world.

Stay tuned.