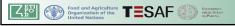


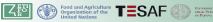
### **Contents**

- 1. From MDGs to SDGs: a positive change
- 2. CC, SDGs and natural resources management
- 3. The political context
- 4. Final remarks on policy options



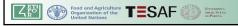
### **Contents**

- 1. From MDGs to SDGs: a positive change
- 2. CC, SDGs and natural resources management
- 3. The political context
- 4. Final remarks on policy options



# From MDGs to SDGs: a positive change

- The 17 SDGs with 169 targets are broader in scope and go further than the MDGs by addressing the root causes of poverty, keeping (like MDGs) a 15 years reference period
- The new global goals are **more ambitions** to address inequalities, economic growth, welfare, peace and justice
- The new Goals are universal and apply to all countries, whereas the MDGs were intended for action in DCs only.
- A core **focus** on:
  - mobilization of financial resources,
  - capacity-building and technology, as well as data and institutions: governance
  - climate change

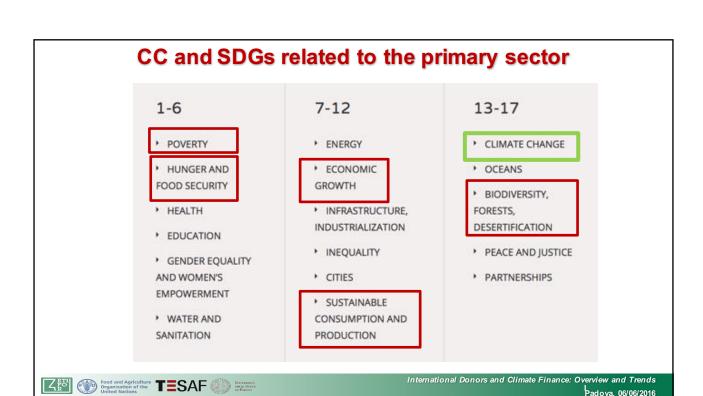


# **CC and SDG**

Tackling climate change and fostering sustainable development are **two sides of the same coin:** 

- sustainable development cannot be achieved without climate action;
- conversely, many of the SDGs are addressing the core drivers of climate change

Food and Agriculture TESAF UNIVERSEAS DEAL STATE OF THE PROPERTY OF THE PROPER



International Donors and Climate Finance: Overview and Trends

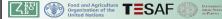
Padova, 06/06/2016

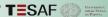
# **CC and SDG**

Tackling climate change and fostering sustainable development are two sides of the same coin:

- sustainable development cannot be achieved without climate
- conversely, many of the SDGs are addressing the core drivers of climate change

In order to achieve the Sustainable Development Goals (SDGs), substantial investments will be required, in both developed and developing countries. This agenda will require the mobilization of significant resources—in the trillions of dollars.





# **Contents**

- 1. From MDGs to SDGs: a positive change
- 2. CC, SDGs and natural resources management
- 3. The political context
- 4. Final remarks on policy options

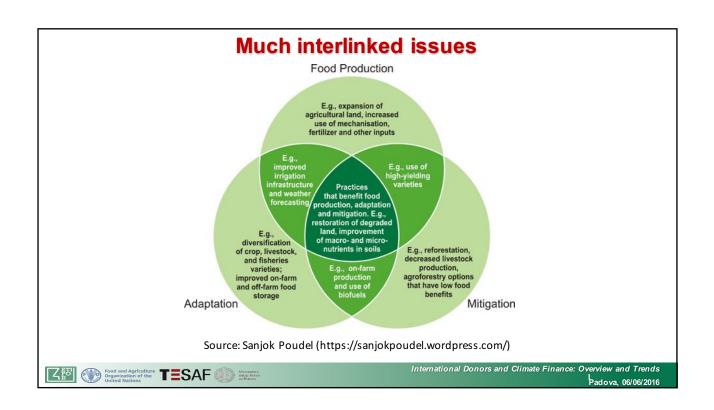




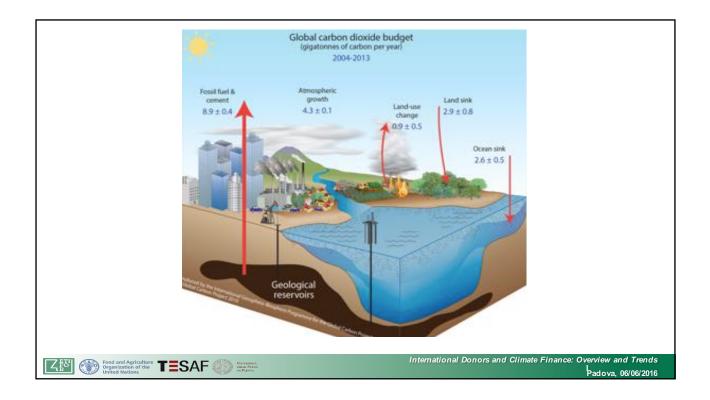
# CC, SDGs and natural resources management Two aspects of the problem Adaptation A key role of Agriculture A pathway Climate-smart agriculture (CSA) AF: afforestation, RF: Reforestation, REDD: Reducing Emissions from Deforestation and Forest Degradation

International Donors and Climate Finance: Overview and Trends

Padova, 06/06/2016



Food and Agriculture TESAF UNITED TO DEAL SIXTY INTERIOR TO THE SAF



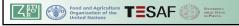
### **CSA** definition

(source: FAO http://www.fao.org/climate-smart-agriculture/en/)

In 2012 FAO, the World Bank and several countries promoted the concept of Climate-Smart Agriculture (CSA) at the first Global Conference on Agriculture, Food Security and Climate Change

CSA is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. CSA aims to tackle three main objectives:

- sustainably increasing agricultural productivity and incomes;
- adapting and building resilience to CC;
- reducing and/or removing GHGs, where possible

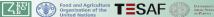


# **CSA** key activities (1)

CSA key activities (source: Pramod Aggarwal, 2015- http://www.fao.org/3/a-i4904e.pdf):

- to make full use of untapped potential of currently available technologies ← for this to happen, investments in land and water management, infrastructure, and research accompanied by enabling policies, sustained regional cooperation and robust institutions are crucial.
- the potential of information and communication technology (ICT) and **insurance** for managing climate risks. Short-term changes in weather extremes are not predictable, and can result in fluctuating yields, food price volatility and threatened food security and incomes.







# CSA key activities (2)

CSA key activities (source: Pramod Aggarwal, 2015- http://www.fao.org/3/a-i4904e.pdf):

- The opportunity to identify and exploit potential benefits of CC. While CC is generally seen in negative terms, countries in the higher latitudes could be gainers.
- **Knowledge exchange** among researchers, local partners, farmers and policymakers to select the most appropriate technological and institutional interventions based on global knowledge and local conditions
- A need to address simultaneously poverty, governance, institutions, and human capital which limit agriculture growth even today.

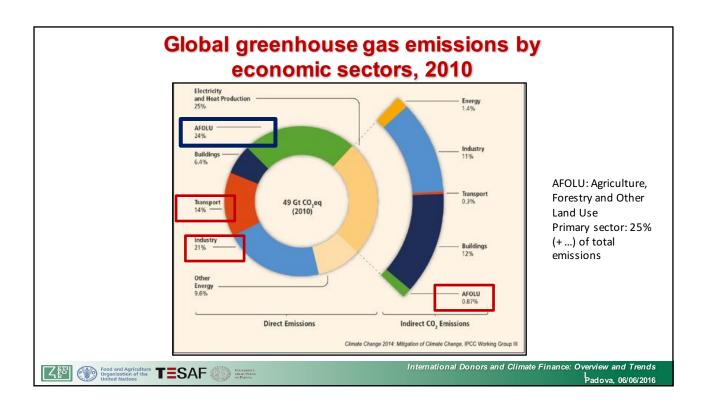








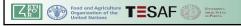
International Donors and Climate Finance: O

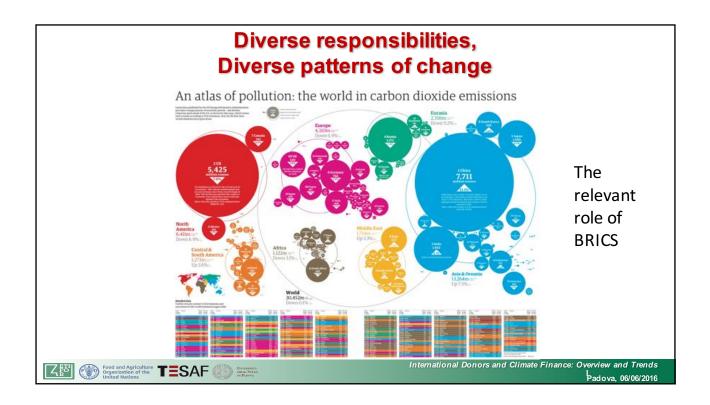


# Primary sector contribution: the problem of the boundaries

Primary sector-related emissions and opportunities for mitigation also occur in the **supply chain** (transport, processing fertilizer production, post harvest loss – 30-40% of the total production) and **consumption patterns** (diet and food waste).

→ It is not easy to **define the boundaries** of the sector





# Agriculture impacts on greenhouse gas

Agriculture contributes ~5.0 to 5.8 GtCO2e/yr or ~10% of total anthropogenic GHG emissions (Smith et al., 2014).

## The role of developing countries:

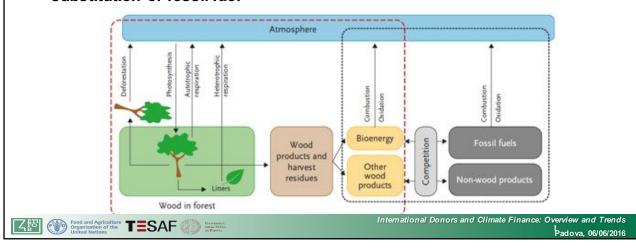
- collectively they produce the majority of agriculture-related emissions globally and are where emissions are expected to rise the fastest (Smith et al., 2014).
- at national levels, agriculture contribute an average of 35% of emissions in developing countries and 12% in developed countries (Richards et al., 2015b).



# Forest impacts on greenhouse gas

~15% of total anthropogenic GHG emissions, but 2 + 1 positive impacts in mitigation:

- they sequester carbon in biomass (forest carbon sink).
- carbon sequestration in **long-lived wood products** (→ delays carbon release into the atmosphere)
- · substitution of fossil fuel



# Deforestation and forest degradation: a key rile of tropical forests

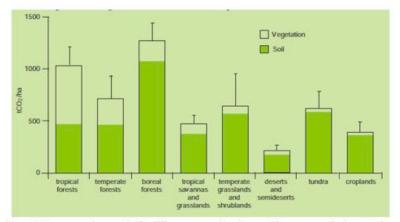


Figure 3: Average carbon stocks for different types of land cover. Please pay particular attention to amount of carbon stored in the vegetation, shown here in the unshaded portion of the bar graphs, in the tropical forests bar on the far left in comparison to temperate and boreal forests bars to its right (Eliasch 17).

Food and Agriculture TESAF Whyserest of the Property of the Pr

### **Contents**

- 1. From MDGs to SDGs: a positive change
- 2. CC, SDGs and natural resources management
- 3. The political context
- 4. Final remarks on policy options



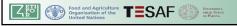
International Donors and Climate Finance: Overview and Trends
Padova, 06/06/2016

# From Rio to Paris

Food security and hence agriculture was the primary concern when the world agreed to meet in Rio de Janeiro in 1992 to negotiate the UNFCCC.

Annex A to the Kyoto Protocol lists **enteric fermentation**, **manure management**, **rice cultivation**, **agricultural soils**, **prescribed burning** of savannas and **field burning** of agricultural residues as the main mitigation opportunities in agriculture.

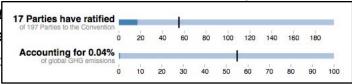
While the primary sector has a **good potential for mitigation** of climate change, and is the **prime candidate for adaptive action**, there has been **little prominence given to the sector** in the CC negotiations till the Paris Agreement (Promode Kant, 2015).



# The Paris Agreement (the pros)

The 2015 **Paris Agreement** aims to hold the rise in global average temperatures by 2100 to "well below 2°C above pre-

industrial levels and to pursi increase to 1.5°C above pre National voluntary commitments: Contributions (INDC).



A surprisingly large number of countries (at least 119 out of 195 participating countries), voluntarily pledged to reduce their agricultural GHG emissions for the agreement in their statements of INDC (Richards et al., 2015a).

Focus on **financial mechanisms**. Participation of "Non-party stakeholders" (134. Welcomes the efforts of all non-Party stakeholders to address and respond to climate change, including those of civil society, the private sector, financial institutions, cities and other subnational authorities)



Food and Agriculture

TESAF

UNIVERSE

UNIVERS

International Donors and Climate Finance: Overview and Trends

# **Non-State Actor Zone for Climate Action**

http://climateaction.unfccc.int/



# The Paris Agreement (the cons)

Not a binding convention: only voluntary commitments in the light of the general objectives and the principle of shared responsibility. 
"To take stock of the collective efforts of Parties in relation to progress towards the long-term goal" is binding

→ the tool "mobilization of shame" by the civil society

(PA defined as an "hook" for the civil society)

### **Quotations:**

- Agriculture: no one
- Forestry: 2 quotations (but REDD project formally supported)
- ... but also oil, fossil and coal have zero quotations!
- ... but "full Carbon accounting" formally accepted as an approach

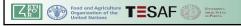


International Donors and Climate Finance: Overview and Trends

# Accounting for agriculture (and CSA) role in CC: a difficult technical task with impact on policy

Most models use 2°C climate scenarios that focus only on non-CO<sub>2</sub> emissions in agriculture (e.g. methane), as soil carbon is highly variable and involves assumptions related to organic matter inputs, carbon-nitrogen ratios, depth and bulk density, and timing of saturation (Source: E. Wollenberg et al - in press)

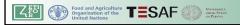
Moreover global data on carbon in biomass, such as **agroforestry**, are comparatively weak = a key sector in CSA that cannot always correctly evaluated



# The critical role of agriculture and forestry meeting global climate targets (1)

Scenarios indicate that the primary sector emissions, including non-CO<sub>2</sub> emissions, will constitute **the largest sector of surplus emissions in the future**, as other sectors are projected to reduce their emissions to the maximal extent by 2030

→ agriculture and forestry are critical to meeting global climate targets (Bajzelj et al., 2014; Gernaat et al., 2015).



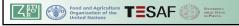
International Donors and Climate Finance: Overview and Trends

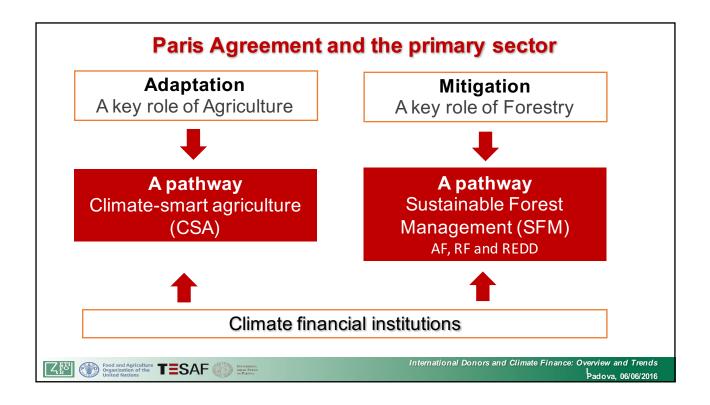
# The critical role of agriculture and forestry meeting global climate targets (2)

**Excluding** agricultural emissions from mitigation targets will increase the cost of mitigation in other sectors (Reisinger et al., 2013) or reduce the feasibility of meeting the 2°C limit.

So **3 functions** of the inclusion of the primary sector:

- Reduce **poverty** and **undernutrition**
- Reduce the costs of mitigation
- Will create positive externalities related to other ES (a rather under-evaluated issue)





# Financing (1)

PA decision: starting from 2021 **a fund of 100 Billions \$/year** for clean technology transfer to contrast CC (52 B\$ in 2013, 62 B\$ in 2013 – OCSE, 2015)

CSA is an approach that can support countries to fulfil their commitments put forward in INDCs and to implement adaptation to CC and mitigation action in the agricultural sectors through UNFCCC instruments, in particular Nationally Appropriate Mitigation Actions and National Adaptation Plans.

**Green Climate Fund** and the **Global Environment Facility** supports countries to access funds for the implementation of CSA projects.



# National planning and funding mechanisms

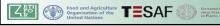
- Biennial Update reports (BURs). It was decided at the sixteenth session of the Conference of the Parties (COP 16) that developing countries should submit biennial update reports to communicate their national efforts. BURs share information on greenhouse gas inventories, on mitigation actions, on their needs, and the support received.
- To date, the secretariat of the Climate Change Convention (UNFCCC) has received 11 biennial update reports (BURs) from developing countries. This demonstrates the commitment of developing countries to share their efforts to implement the Convention with the international community.
- Intended Nationally Determined Contributions (INDCs) are countries' commitments to reducing emissions and addressing climate change in the build up to the UNFCCC Conference of the Parties (CoP21) in December 2015. FAO supports member countries in their preparation of INDCs and other important international processes under the United Nations Framework Convention on Climate Change (UNFCCC).
- INDCs allow countries to demonstrate leadership on addressing climate change, communicating internationally how they will cut emissions for the post-2020 period. Through their INDCs, countries can tailor their contributions to their own national priorities, capabilities, and responsibilities and can be a basis for collective action.
- Nationally Appropriate Mitigation Actions (NAMAs) refer to any action that reduces emissions in developing countries and is prepared under the
  umbrella of a national governmental initiative. NAMAs can help to upscale tested and successful CSA practices by supporting appropriate policies
  and institutional arrangements and opening access to sources of finance. Until now only a few agriculture and land use NAMAs have received
  international financial support, whereas other sectors are more advanced. In order to develop NAMAs in agriculture and land use sector, FAO is
  helping to provide countries with specific guidance.
- National Adaptation Plans (NAPs). Adaptation to climate change is becoming a necessary component of planning at all levels. At its seventeenth
  session, the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) acknowledged that
  national adaptation planning can enable all developing and least developed country (LDC) Parties to assess their vulnerabilities, to mainstream
  climate change risks and to address adaptation. The COP also acknowledged that, because of their development status, climate change risks
  magnify development challenges for LDCs. It recognized the need to address adaptation planning in the broader context of sustainable
  development planning. With this in mind, the COP established the national adaptation plan (NAP) process supported by FAO as a way to facilitate
  effective adaptation planning in LDCs and other developing countries.

# Financing (2)

The **Green Climate Fund (GCF)**, established at the 16th Conference of Parties to the UNFCCC in 2010, may be accessed in two ways:

- directly through accredited subnational, national or regional implementing entities,
- indirectly via accredited international entities, such as UN agencies, multilateral development banks, and international financial institutions.

The Fund's investment priorities target many challenges such as low-emission and climate-resilient agriculture.



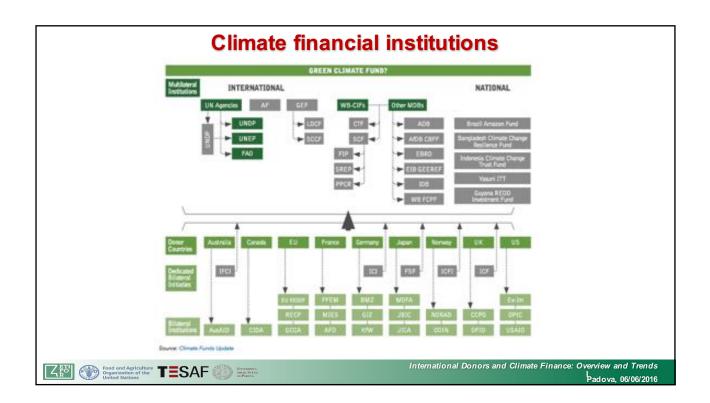
# Financing (3)

The **Global Environment Facility (GEF)** provides funding for CC mitigation through:

- its Climate Change Strategy,
- its Special Climate Change Adaptation Fund and Least Developed Countries Fund for climate change adaptation

All three funds offer opportunities for countries to access finance to support the transition to climate-smart food and agricultural systems.





### **Contents**

- 1. From MDGs to SDGs: a positive change
- 2. CC, SDGs and natural resources management
- 3. The political context
- 4. Final remarks on policy options



International Donors and Climate Finance: Overview and Trends

# Final remarks on policy options

3 main areas of action (Source: E. Wollenberg et al -in press):

- R&D → high-tech solutions (e.g. methane inhibitors that reduce dairy cow emissions - Hristov et al., 2015- or cattle breeds that produce less methane (Herd et al., 2013)
- Information and communication systems to land owners and managers
- Financial instruments

A risk in supporting a development towards a **restricted perception of Green economy** 



# Gree (Bio-based or nature-based) economy: two views

Adaptive strategy ("Old wine in new bottles") → conventional wisdom of innovation generation and externality correction (i.e., "getting prices right")

Alternative strategy: "Strategies for synergies" (M.Toman, 2012): which consider not only the protection of natural capital, "but it stresses as well the importance of addressing equity and social inclusion challenges in moving toward a green economy".

# The social and political components of the Green economy

Green economy "will also involve achieving smooth and just adjustment in labor markets by ensuring that workers have the means to find opportunity in change. More generally, the success of a green growth strategy will rest on addressing political obstacles and distributional concerns about the costs of change." (OECD 2011, page 20)

"The key aim for a transition to a green economy is to eliminate the trade-offs between economic growth and investment and gains in environmental quality and social inclusiveness... the environmental and social goals of a green economy can also generate increases in income, growth, and enhanced well-being" (UNEP 2011, page 16)

# Two views with different impacts on biodiversity conservation: the case of the forest resources

Adaptive strategy: focus on producing raw materials with biotechnology being the engine of the growth

Technological innovations, large scale investments (→ high risks), diversification in outputs, ...

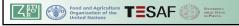
→ Developing the primary sector in a value chain perspective (sectoral development – vertical dimension of bio-economy)

Strategies for synergies: focus the increasing importance on the social dimension of the economy (from an economy based on commodities to a an economy based on services)

# Examples on how to reduce emissions in agriculture

Many are high-tech solutions:

- methane inhibitors that reduce dairy cow emissions (Hristov et al., 2015)
- cattle breeds that produce less methane (Herd et al., 2013)
- improved information systems for farmers associated to precision agriculture (saving of water, pesticides, land, ...)



# An example of the vertical model in forestry Finland: the first next-generation bio-product mill in the world Bioproduct mill – more than a traditional pulp mill

- Wood is refined into biomaterials, bioenergy, biochemicals and fertilizers sustainably and with great resource efficiency
- Resource-efficient way of using all production sidestreams
- The mill will not use fossil fuels
- Energy efficiency will be emphasized when choosing equipment and machin
- Helps Finland to reach its targets for the use of renewable energy



- Metsä Group is planning the biggest investment in the forest industry in Finland (EUR 1.1 billion)
- Annual pulp production: 1.3 million tonnes
- Use of wood: 6.5 million m³ annually (currently 2.4 million m³)
  - → Wood mobilisation
- Over 2,500 jobs will be created throughout the value chain, new jobs in harvesting and wood transport
  - → Competent workforce

Source: Riikka Joukio, 2014

# Two views with different impacts on biodiversity conservation: the case of the forest resources

Adaptive strategy: focus on producing raw materials with biotechnology being the engine of the growth

Technological innovations, large scale investments (→ high risks), diversification in outputs, ...

→ Developing a value chain perspective (sectoral development – vertical dimension of bio-economy)

Strategies for synergies: focus the increasing importance on the social dimension of the economy (from an economy based on commodities to a an economy based on services)

Social innovations, small scale, diversification in the use of inputs, networks, high added value P&S

→ Intesectoral development– horizontal dimension

# **Areas of actions**

### 4 main areas of action:

- R&D → high-tech solutions (e.g. methane inhibitors that reduce dairy cow emissions - Hristov et al., 2015- or cattle breeds that produce less methane (Herd et al., 2013)
- Information and communication systems to land owners and managers
- Financial instruments
- More ambitious policy mechanisms oriented to social innovation also will be needed

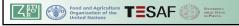


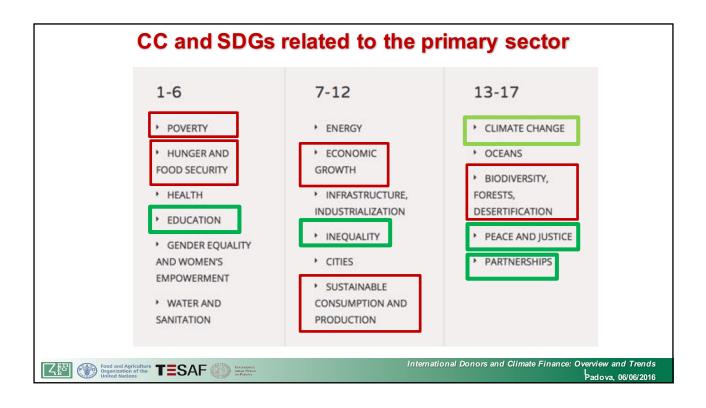
International Donors and Climate Finance: Overview and Trends

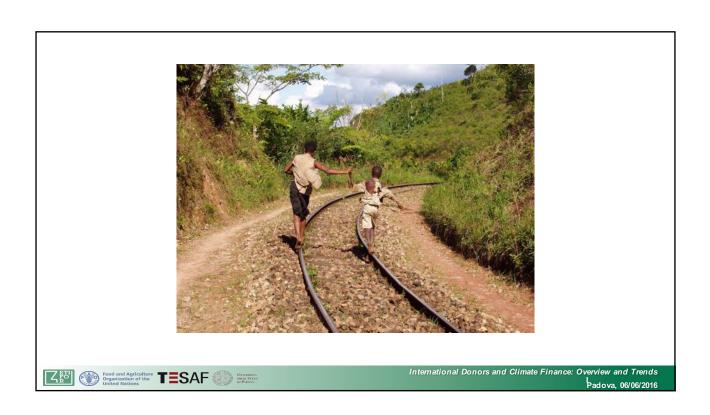
# **Policy motivation**

Policy actions should be based not only on what is technically or politically feasible, but on what is **socially feasible**, **equitable** and what is **necessary** to reduce CC.

Getting back to the SDGs options...









Padova University spin-off



In partnership with FSC® Italy



### ETIFOR srl

Viale dell'Università 16, c/o Dip. TESAF Università di Padova, 35020 Legnaro (PD), Italia

T. +39 342 5050297 · etifor@etifor.com

www.etifor.com · P.IVA 04570440281