



# Trade and Financial Flows in Africa's Growth: Some implications for the environment

SESSION

ECONOMIC AND TRADE COOPERATION  
BETWEEN ASIA AND AFRICA

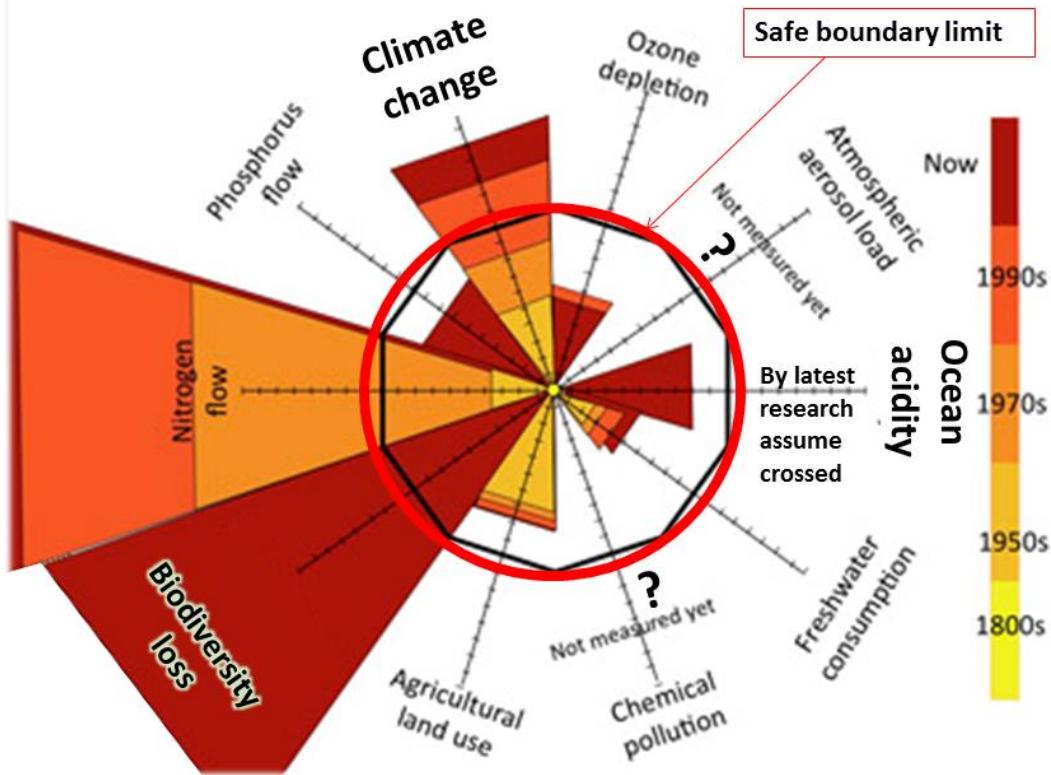
Jaime de Melo\*

FERDI

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\* Joint work with Adrien Corneille and Jie He  
Université de Sherbrooke

# The Context: An ecologist perspective



## Planetary Boundaries

## Trade/FDI and Africa's growth path

### Alternatives

- ‘Eco-modernist manifesto’ (industrialize first)
- SDGs (do as we tell not as we did it !)

Planetary processes entering global risk zone:

1. Land use change
2. Loss of biodiversity
3. Climate change, loss of biosphere integrity
4. Overload of nitrogen

⇒ Sub-Saharan Africa (SSA) is participating mostly in 1. & 2.

...but population < \$1.25/day :  
358m. (1996) → 415m. (2011).

# Can (will) Africa replicate China (and Asia)?

Figure 1 Per Capita Income in China and Africa (in 1990 International Dollar)

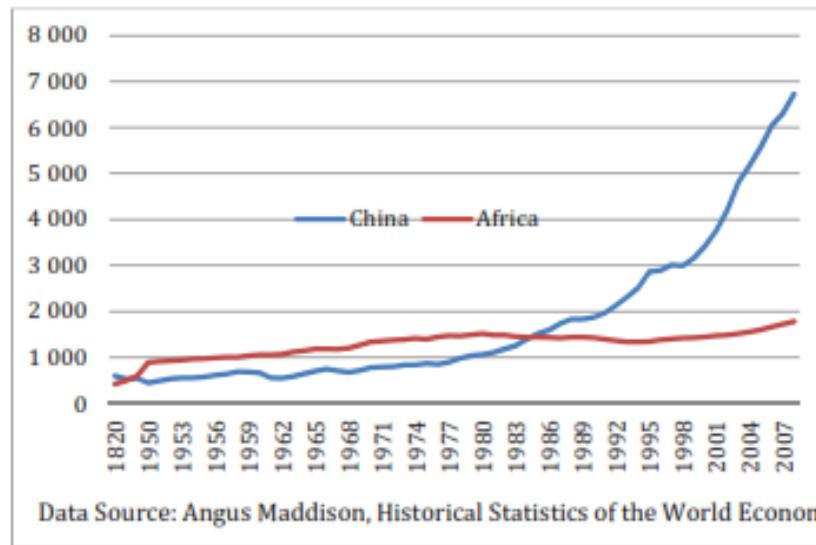
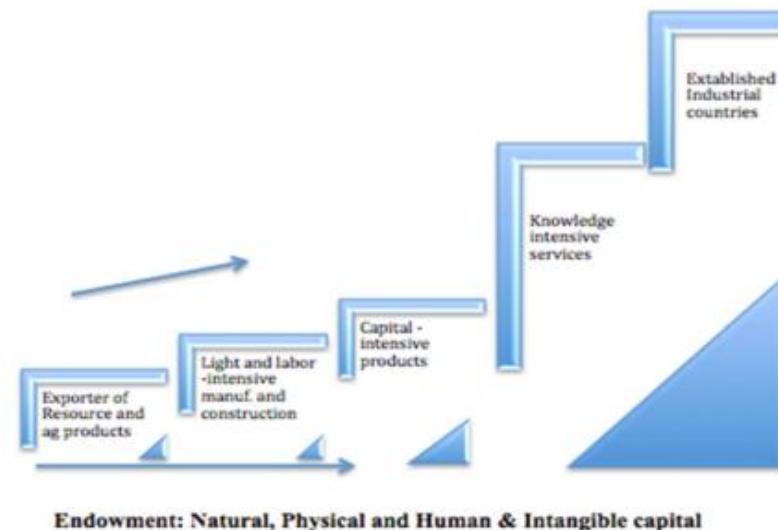


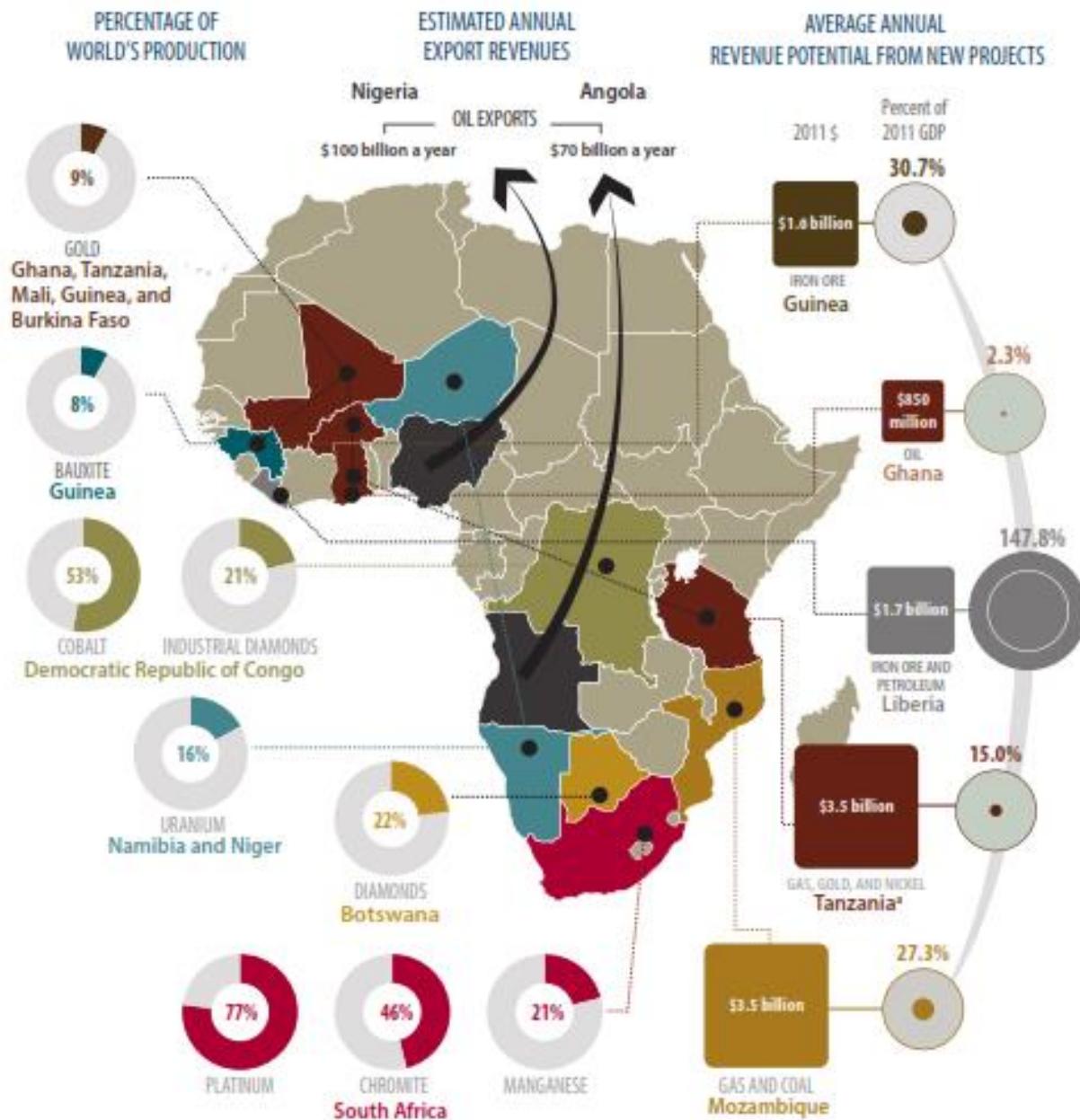
Illustration 1. Learning can happen by taking “one step at a time” and building on the comparative advantage determined by a country’s endowment

...via comparative-  
advantage-based  
industrialization built  
around evolving  
physical and human  
endowments



Source: Lin and Wang (2014)

## ACET report: Strategy built around 4 pillars



SSA needs more than growth:

⇒ DEPTH indicator:  
diversification of  
export + export  
competitiveness +  
productivity +  
technology growth  
+human well-being

ACET (2014) pillars  
4 pathways:

1. Labor intensive Mfg (... but early employment peak?)
2. Agro-processing
3. Tourism
4. Oil, gas, minerals

# Challenge 1: Prospects for labor-intensive industrialization appear bleak

(The Economist (october 2014), Rodrik (2015))

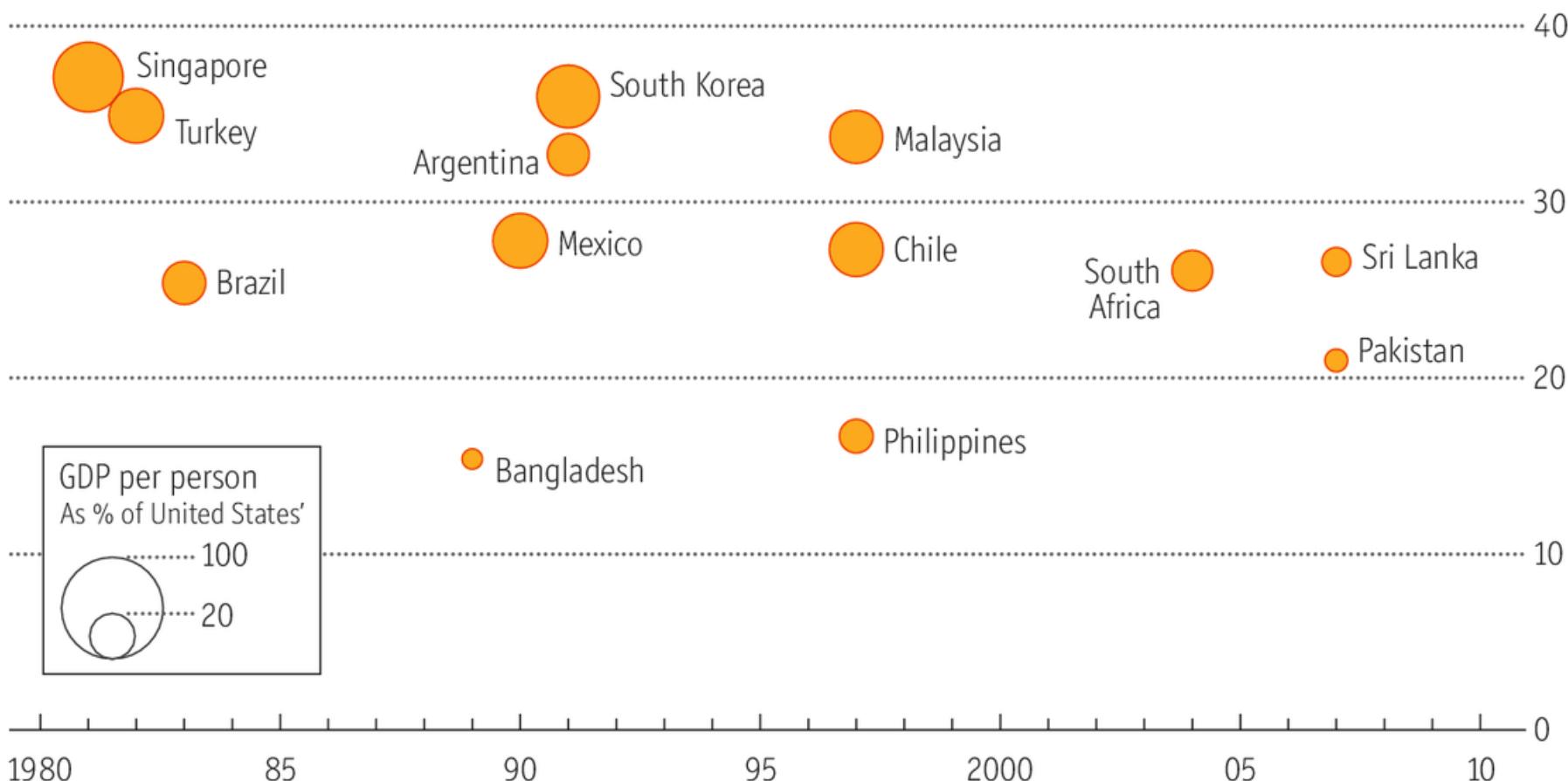
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## Off peak

Share of employment in industry at peak industrialisation\*, %

« From stuff to fluff »

Can Africa reach middle class status  
by the development of industry?



Sources: Amrit Amirapu & Arvind Subramanian; World Bank

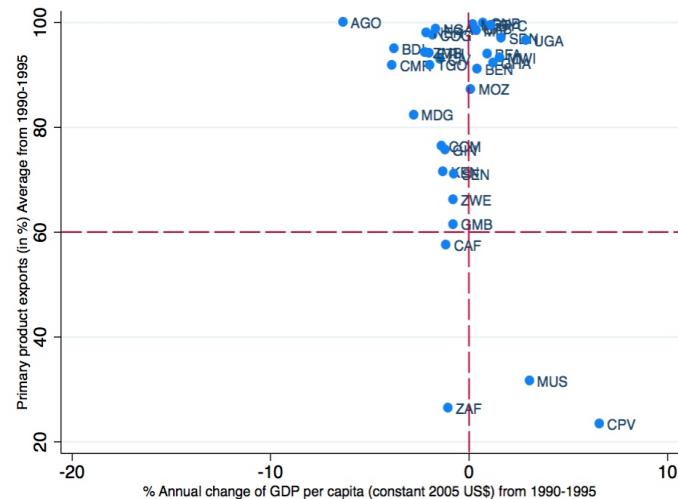
\* Highest share of people employed in industry

Growth has picked up but dependency on resources persists so economies are not diversifying

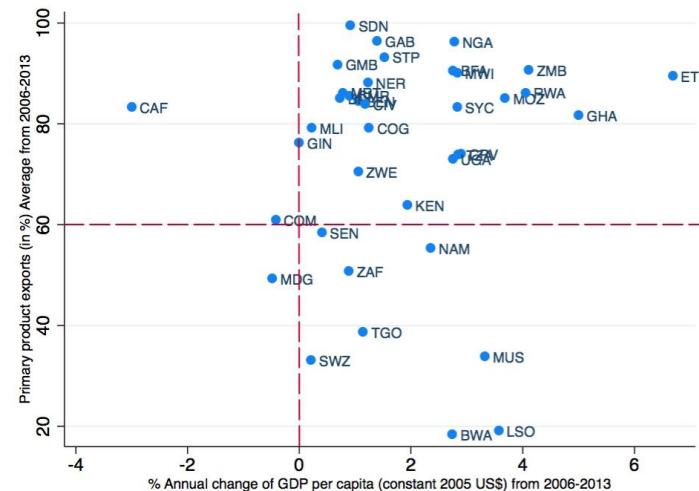
...and the elasticity of poverty reduction to growth is low.

## Share of Primary exports vs. GDP growth

1990-95 average



2006-13 average



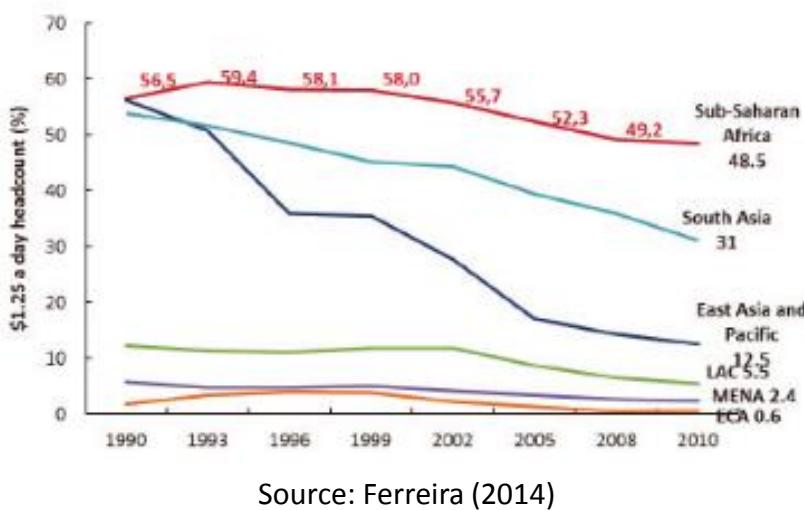
Source: World Bank indicators

« Countries get rich by producing the goods consumed by the rich »

....Controlling for standard determinants of growth, more diversified countries have higher subsequent growth.

# Population Growth and Poverty

Figure 5.  
Worldwide poverty reduction attempts and results  
(1990-2010)

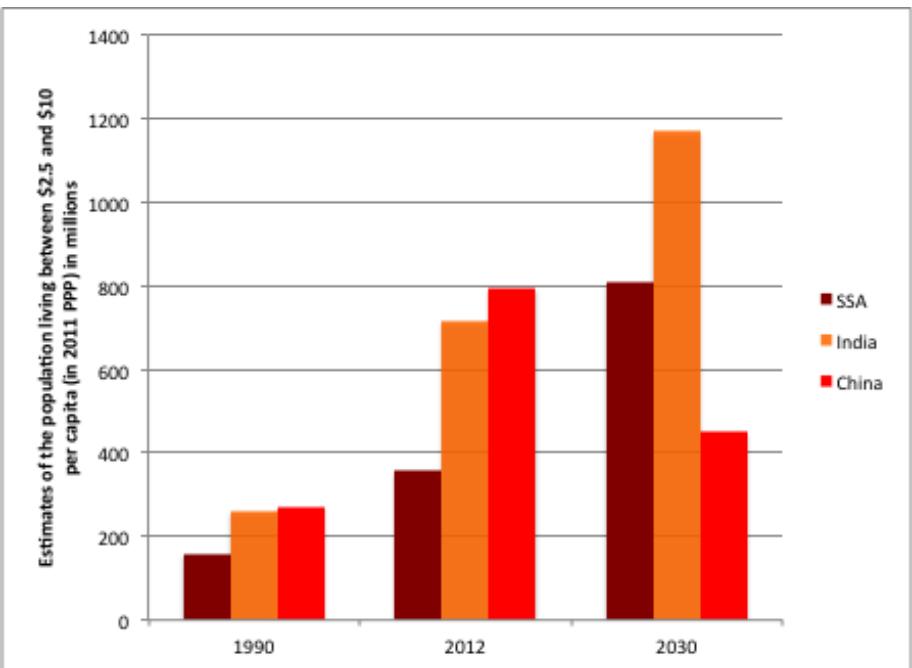


Source: Ferreira (2014)

Headcount ratio :  $y_p < \$1.25$   
(2006 PPP data)



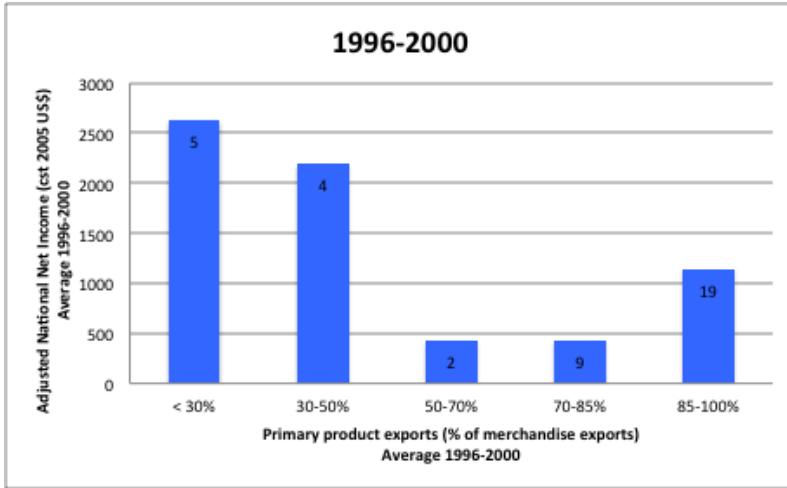
Population  $\$2.5 < y_p < \$10$   
(BAU 2000-10) ( 2011 PPP data)



Source: Based on estimates from Edwards and Sumner (2015)

# Challenge 2: Poverty and the Environment

Resource dependency and ANNI in SSA

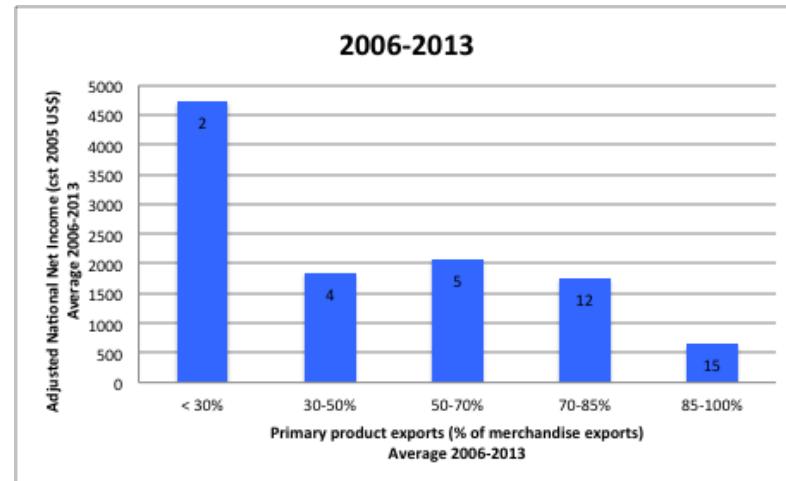


**Adjusted net national income** is Gross National Income minus consumption of fixed capital and natural resources depletion.

**Primary product export** refers to agriculture raw materials, food, fuel, ore and metal commodities to total merchandise exports.

The sample includes **39** SSA countries from **1996-2000**, **40** SSA countries from **2001-2005** and **38** SSA countries from **2005-2013**.

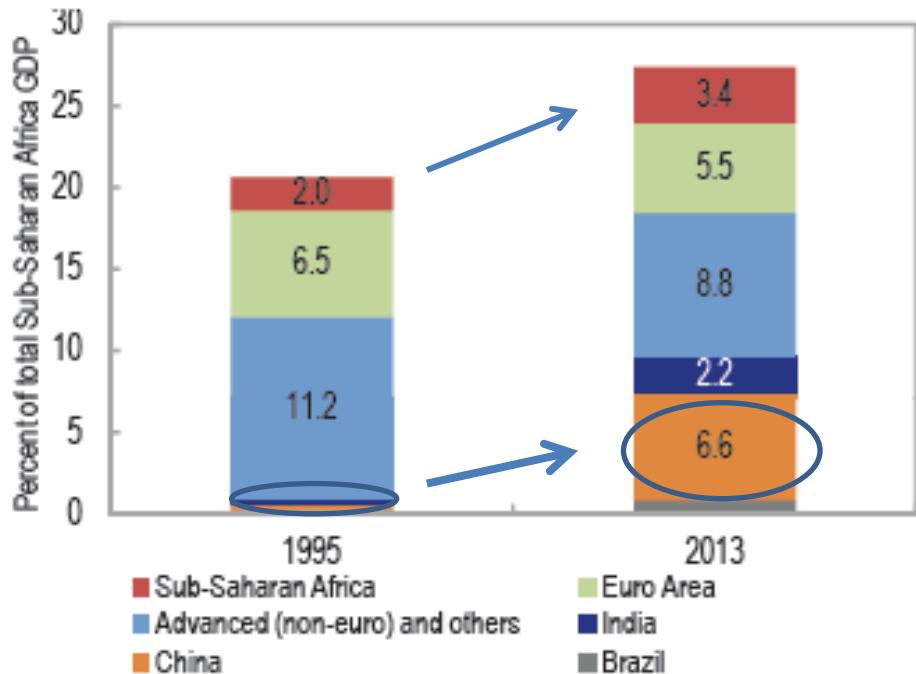
27/38 countries have >70% of exports in primary products ⇒



Source: World Bank indicators

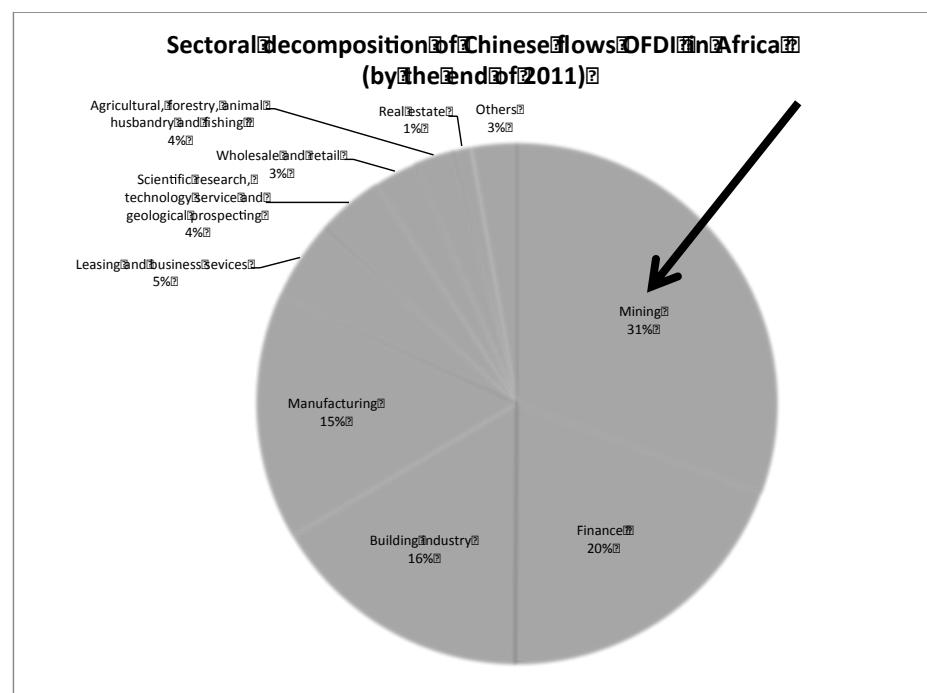
# China in Africa: Trade and FDI

## Sub-Saharan Africa: Exports by partner



Source: IMF Direction of Trade Statistics and International Trade Center, (2013)

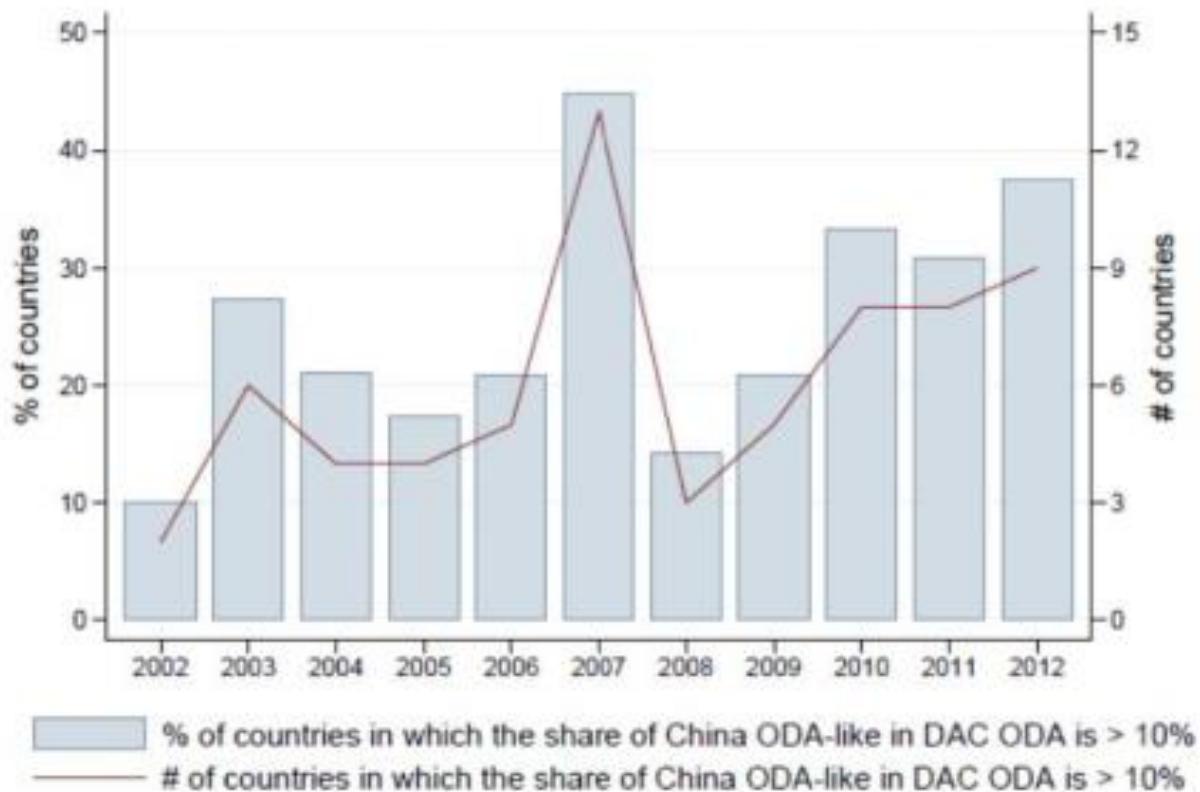
Investment in infrastructure  
China's share: 4.5% (2007) to 13.5% (2012)



Source: Office of the State Council (2013)

# China's Aid to Africa

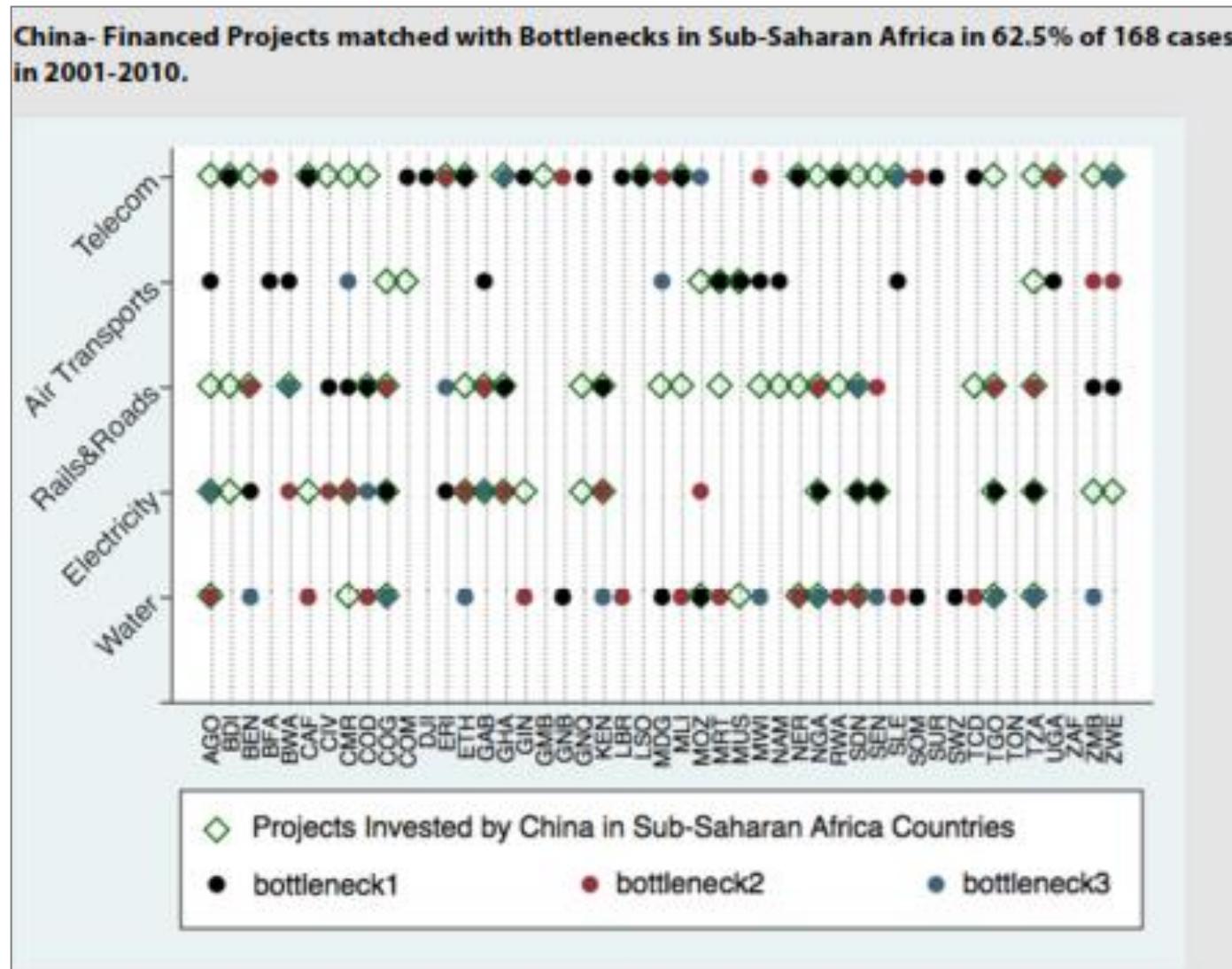
Figure 3. The relevance of China with respect to traditional donors



Source: Adam et al. (2015)

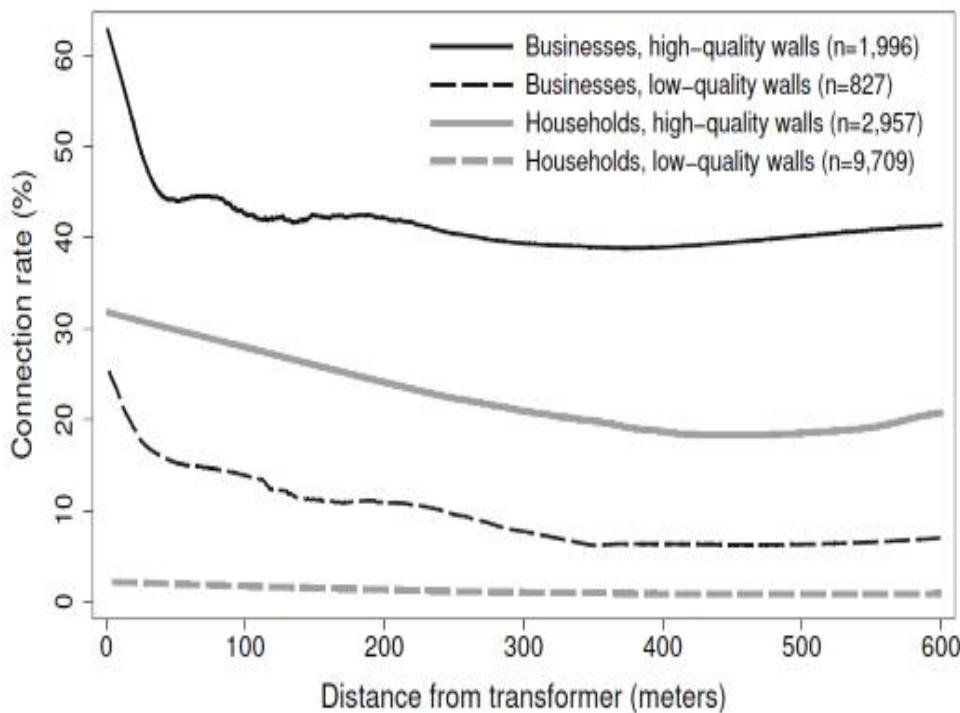
- China accounts for more than 10% of total ODA flows in 1/3 of African countries
  - ⇒ Results from satellite data
- Aid is not more politically motivated than aid provided by Western donors (Dreher and Fuchs (2012))
- Current political leaders' region of birth get larger financial flows (not so for WB lending). Result in line with principle of non-interference (Dreher et al. (2015)).

# China-financed projects in hard-infrastructure addressed bottlenecks



Source: Lin and Wang (2014)

# Electrification in Africa is low



In Western Kenya, there are still unconnected households even though there are electricity lines nearby.

**High quality walls** are those made of brick, cement or stone

**Low quality walls** are defined as those made of mud, reeds, wood or iron.

Quality walls play an important role in the electrification rate as it improves electricity access.

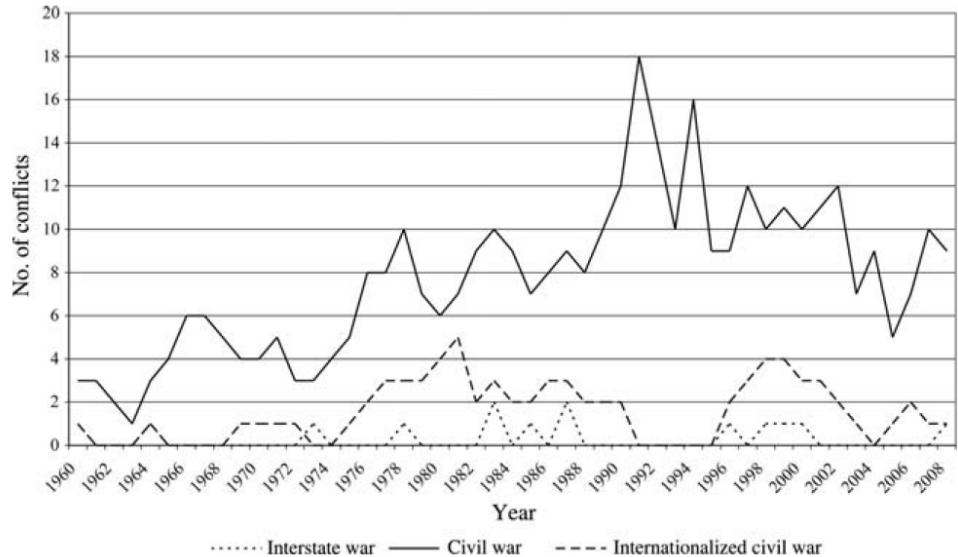
## Distance and connection to the power grid in Kenya

Source: Lee and *al* (2014)

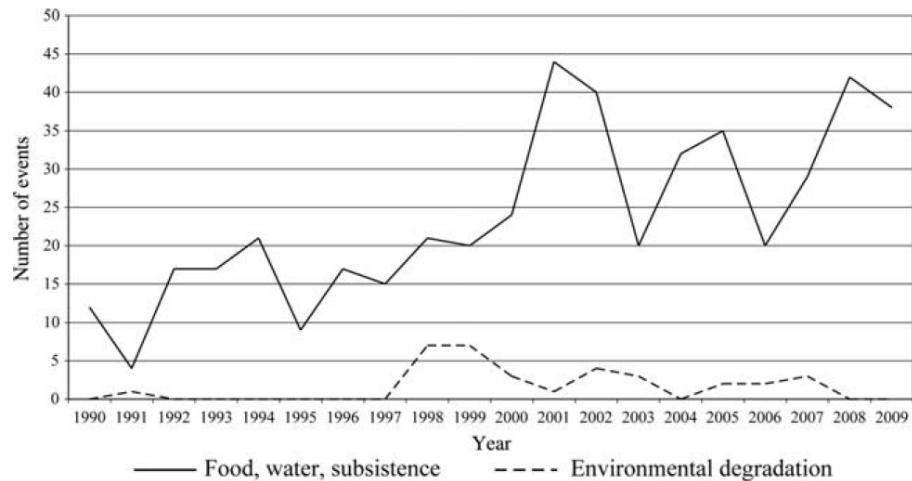
Will Africa avoid the  
«environmental trap»?

(1) Conflicts occurrence becomes more important in Africa when climate resilience is lower.

(2) Africa was subject to active conflicts (interstate wars, civil war, internationalized civil war) during 1960-2008.



(3) Violence **over access to livelihood resources** in SSA has increased between 1990–2009.



---Number of conflicts related to food, water and subsistence

---and number of conflicts related to environmental depletion.

Source: Straus (2012) and data from Social Conflicts in Africa.

# How will Africa's growth interact with the environment?

Among SDGs, 3 are referring to ENVIRONMENT (while only 1 under MDGs)

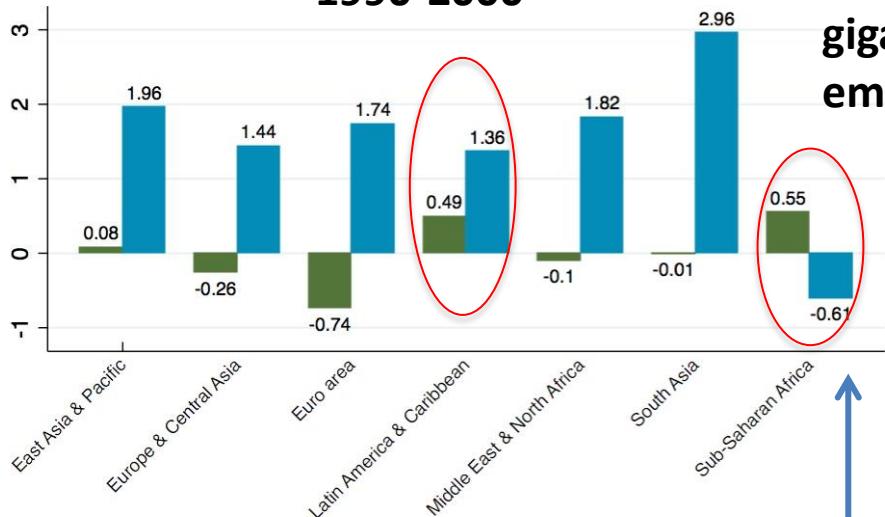
MDG	SDG
<b>Goal 7:</b> Ensure environmental sustainability	<b>Goal 13:</b> Take urgent action to combat climate change and its impact.  <b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development.  <b>Goal 15:</b> Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt biodiversity.

Among SDG indicators 11 suggested are environmental indicators.

# Regional Forest depletion and GDP growth

(Decadal growth rates—deforestation in red)

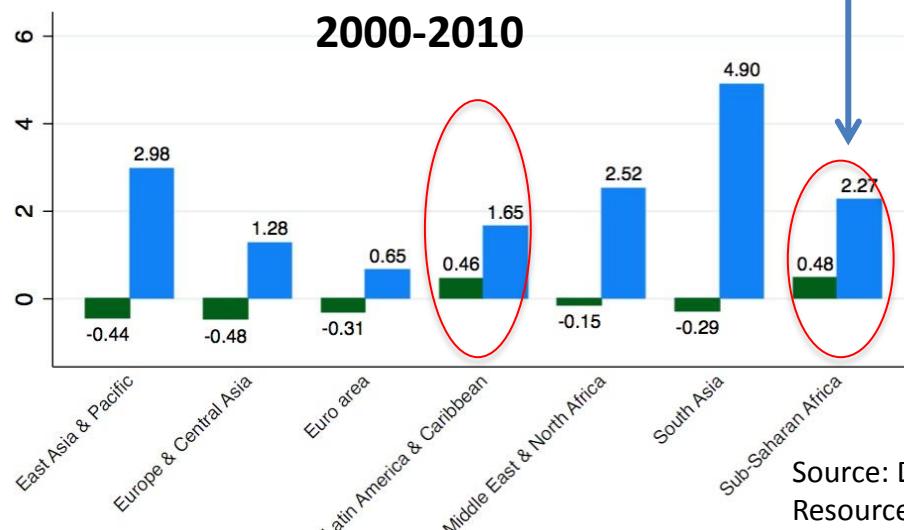
**1990-2000**



Land conversion in forested countries **emitted 5.4 gigatons** a year from 2008 to 2012 (**larger than the emissions from the entire European Union in 2011**).

Average annual deforestation (in % of change 1990-2000)  
Average annual GDP per capita constant 2005 US\$ (in % of change 1990-2000)

**2000-2010**



⇒ Engelman (2015): for less than \$2 billion a year, via reforestation, global CO<sub>2</sub> emissions could be cut **by more than the amount emitted by the United Kingdom each year ....**

Average annual deforestation (in % of change 2000-2010)  
Average annual GDP per capita constant 2005 US\$ (in % of change 2000-2010)

Source: Deforestation from Food and Agriculture Organization, Global Forest Resources Assessment and GDP per capita (constant 2005 US\$) from World Bank.

# Conclusion

Can “safeguard vs. infrastructure” dilemma posed by the objective to grow fast (7% annual GDP growth for LDCs) be avoided?

→ Follow the « eco-modernism » manifesto?

<http://static1.squarespace.com/static/5515d9f9e4b04d5c3198b7bb/t/552d37bbe4b07a7dd69fcdbb/1429026747046/An+Ecomodernist+Manifesto.pdf>

« About 80% of New England is today forested compared with about 50% at the end of 19<sup>th</sup> century.”

...but also follow the 12 precepts of the natural resource charter

→ <http://www.naturalresourcecharter.org/precepts>

# References

- ACET (2014). Growth with depth: African Transformation Report. <http://africantransformation.org/>
- Adam, C. et al (2015). Financing for Development: the policy research agenda. <http://www.voxeu.org/article/financing-development-policy-and-research-agenda>
- Barbier Edward B. & Jacob P. Hochard. (2014). Land Degradation, Less Favored Lands and the Rural Poor: A Spatial and Economic Analysis. A Report for the Economics of Land Degradation Initiative. Department of Economics and Finance, University of Wyoming. [http://www.edwardbbarbier.com/Projects/ELD/Economics\\_of\\_Land\\_Degradation.html](http://www.edwardbbarbier.com/Projects/ELD/Economics_of_Land_Degradation.html)
- Busby, J. W., Smith, T. G., & Krishnan, N. (2014). Climate security vulnerability in Africa mapping 3.0. Political Geography, 43, 51-67.
- Climate Change and African Political Stability (May 2015). Mapping tool. <http://ccaps.aiddata.org/>
- Dreher, A. and A. Fuchs (2012) «Rogue Aid? On the Importance of Political Institutions and Natural Resources for China's Allocation of Foreign Aid », <http://www.voxeu.org/article/rogue-aid-should-we-fear-china-s-aid-programme>
- Dreher, A. F. Fuchs et al. (2015). Aid on Demand: African Leaders and the Geography of China's Foreign Assistance.
- Francisco H. G. Ferreira (2014). Growth and Poverty Reduction in Africa. Review of Environment, Energy and Economics. Fondazione Eni Enrico Mattei.
- International Monetary Fund (2014). Regional Economic Outlook: Sub-Saharan Africa. Staying the Course. Washington D.C.: International Monetary Fund. .

# References

- Lee, K., Brewer, E., Christiano, C., Meyo, F., Miguel, E., Podolsky, M., ... & Wolfram, C. (2014). Barriers to Electrification for “Under Grid” Households in Rural Kenya (No. w20327). National Bureau of Economic Research.
- Leung and Zhou (2014). Where Are Chinese Investments in Africa Headed? World Resources Institute, <http://www.wri.org/blog/2014/05/where-are-chinese-investments-africa-headed>
- Lin Yifu L. & Yan Wang (2015). China’s contribution to development cooperation: ideas, opportunities and finances. (WP 119) FERDI. <http://www.ferdi.fr/en/publication/p119-china%E2%80%99s-contribution-development-cooperation>
- Van der S. Lught (April 2014). « China-Africa: An evolving relationship but invariable ». GREAT Insights, 3(4) <http://ecdpm.org/great-insights/emerging-economies-and-africa/mapping-comparing-chinas-imports-africa/>
- Maddison, A. (2007). The world economy volume 1: A millennial perspective volume 2: Historical statistics. Academic Foundation.
- OECD (2012). Mapping Support for Africa’s Infrastructure Investment. Edition OECD, Paris.
- Office of the State Council (2013). China-Africa Economic and Trade Cooperation. White paper. [http://news.xinhuanet.com/english/china/2013-08/29/c\\_132673093.htm](http://news.xinhuanet.com/english/china/2013-08/29/c_132673093.htm)
- Rodrik (2015). Premature deindustrialization in the developing world. Weblog . [http://rodrik.typepad.com/dani\\_rodriks\\_weblog/2015/02/index.html](http://rodrik.typepad.com/dani_rodriks_weblog/2015/02/index.html)
- Jeffrey D. Sachs (2015). The Age of Sustainable Development. International Growth Centre public lecture.

# References

- Strange, Austin, Bradley C. Parks, Michael J. Tierney, Axel Dreher, and Andreas Fuchs and Vijaya Ramachandran. (2013). "China's Development Finance to Africa: A Media Based Approach to Data Collection." Working Paper. Washington D.C.: Center for Global Development.
- Strange, A., Parks, B., Tierney, M. J., Fuchs, A., & Dreher, A. (2014). Tracking under-Reported Financial Flows: China's Development Finance and the Aid-Conflict Nexus Revisited. *University of Heidelberg Department of Economics Discussion Paper Series*, (553).
- Straus, S. (2012). Wars do end! Changing patterns of political violence in sub-Saharan Africa. *African Affairs*, ads015.