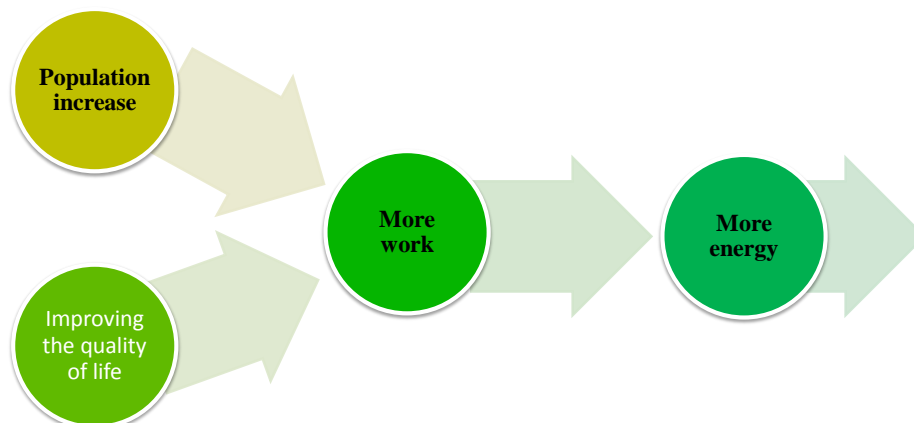


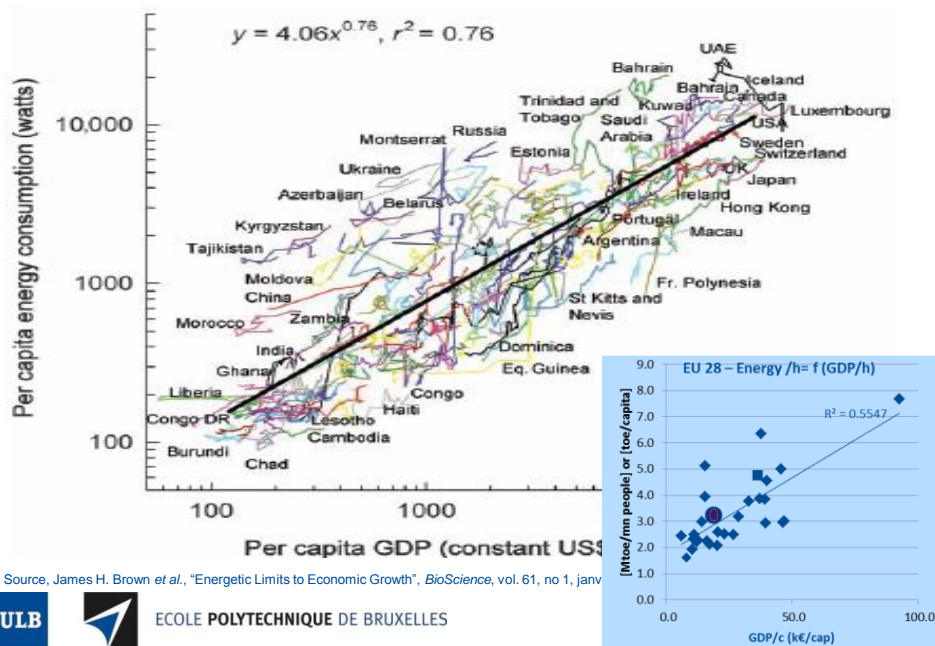


"Work" is "Energy"

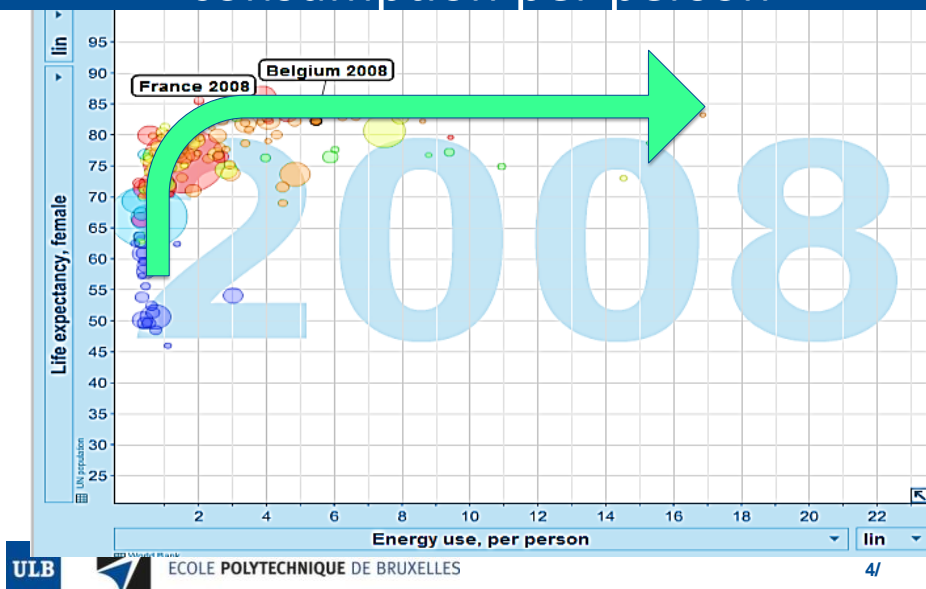
It is a law of physic : $W = \vec{F} \cdot \vec{d}$



Energy demand = f(revenues)



Life expectancy based on energy consumption per person



40% of world population (2.7 billion) depends of traditional biomasses



In Africa 2/3 of households (+580 M peoples) do not have access to commercial energy

Traditional cooking indoors in Uganda



Photo : Orlando Furfari, 2012

Deforestation in the countries of the East African Community and the DRC

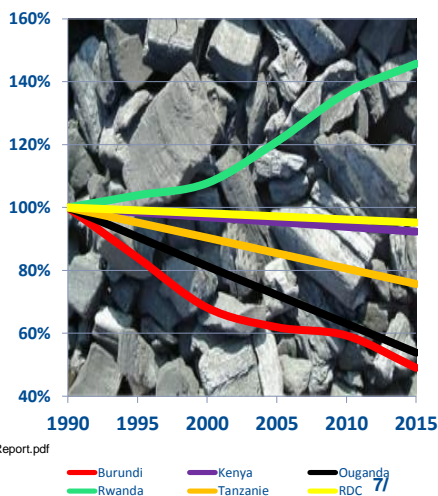


Ref:
FAO, Evaluation des ressources forestières mondiales 2015, FRA 2015, p. 1
BURUNDI, Rapport national sur les OMD 2015, Juillet 2015,
<http://www.bi.undp.org/content/dam/burundi/docs/publications/Burundi-MDG-2015-Final-Report.pdf>



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- FAO: 2010 to 2015: - 2.8 M ha
- At this pace in 2040 there will be no more forest in Burundi



Share of population with access to electricity in some sub-Saharan African countries

Pays	%	Pays	%
Afrique du Sud	85	Malawi	10
Botswana	53	Mali	26
Burkina Faso	13	Mauritanie	22
Burundi	7	Mozambique	20
Cameroun	54	Namibie	47
Centrafrique	11	Niger	14
Congo (Brazzaville)	42	Pays	18
Congo (RDC)	16	Rwanda	18
Érythrée	36	Sierra Leone	14
Éthiopie	27	Somalie	33
Gabon	89	Soudan	33
Gambie	35	Soudan du sud	5
Ghana	64	Swaziland	42
Guinée	26	Tanzanie	15
Kenya	23	Tchad	6
Lesotho	21	Togo	31
Liberia	10	Zambie	22
Madagascar	15	Total Afrique subsaharienne	35

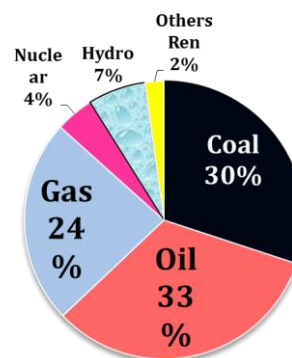
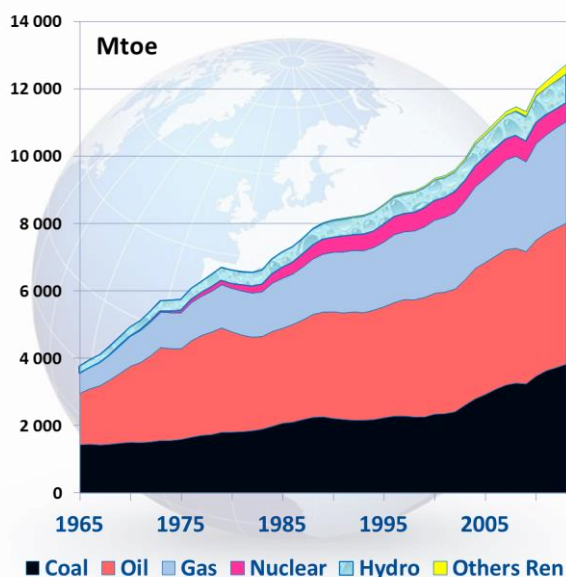
Banque Mondiale, World DataBank, World Development Indicators, <http://databank.banquemondiale.org/data/reports.aspx?source=indicateurs-du-d%C3%A9veloppement-dans-le-monde#>



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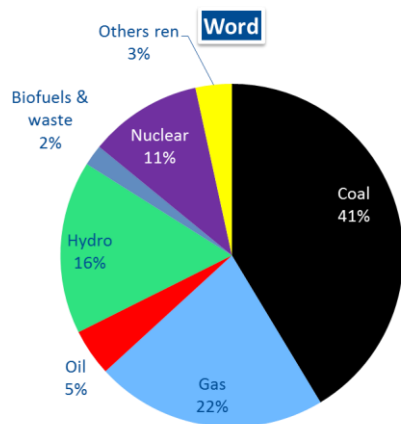
9/

A fossil world

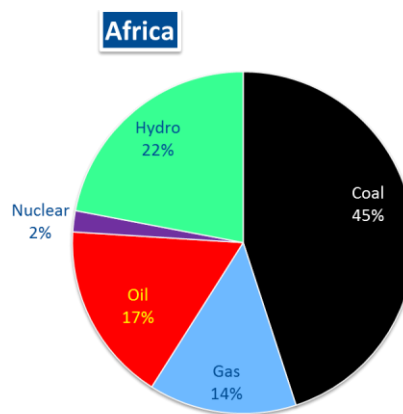


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Generation of electricity: Comparison World and Africa



European Commission Data



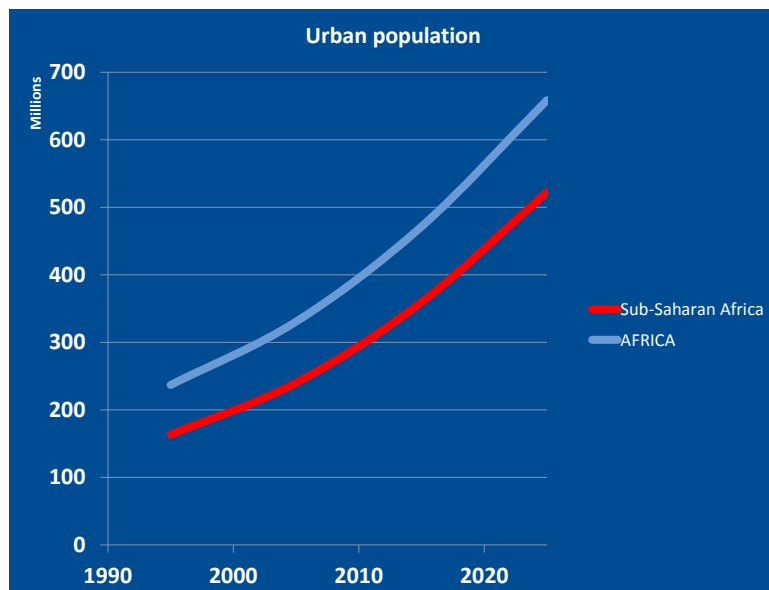
IEA data



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11/

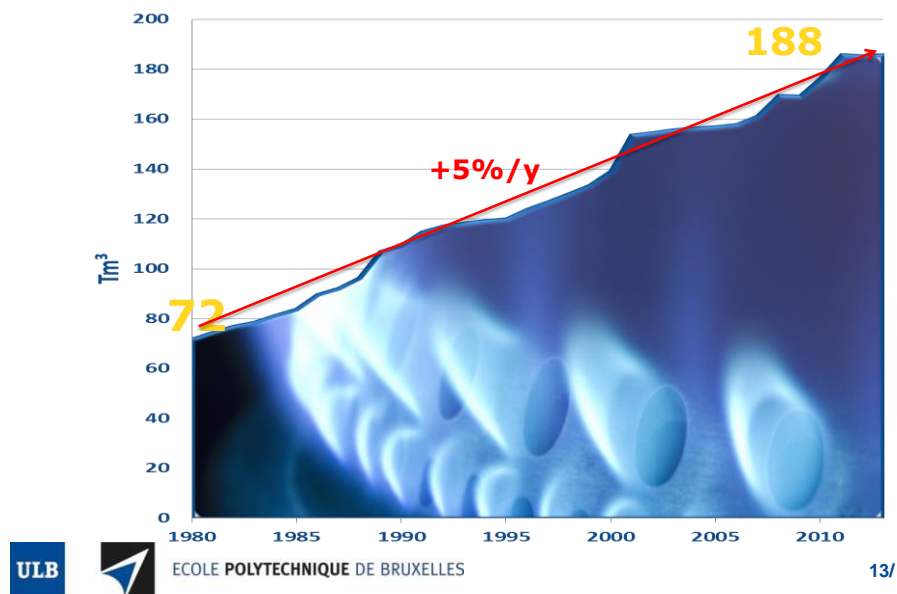
Priority : centralised or decentralised?

Source : <http://wcr.unhabitat.org/main-report/>

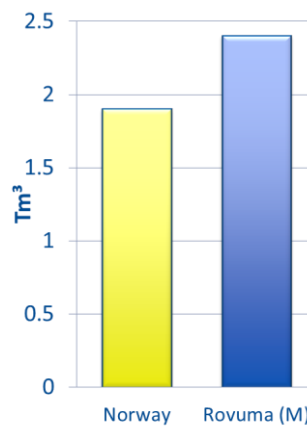
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12/

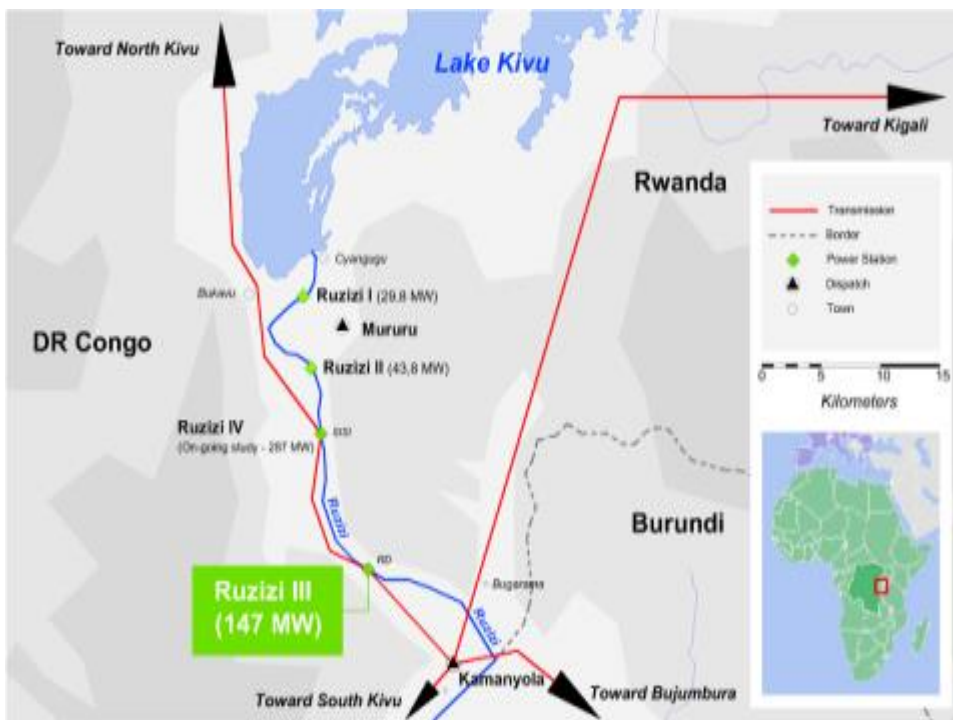
Natural gas reserves



13/



14/



Grand Barrage de la Renaissance Ethiopienne

RENAISSANCE : NOUVEAU BARRAGE SUR LE NIL



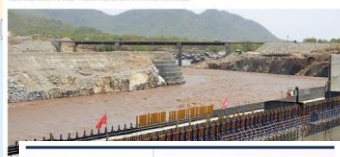
Sources : Google Earth ; Ambassade Ethiopie Paris
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Le Point Afrique ACTUALITÉ | ÉCONOMIE | CULTURE | LIFESTYLE | SPORT | MULTIMÉDIA

ACTUALITÉ - ÉCONOMIE

Grands travaux - Éthiopie : ce barrage pharaonique qui fâche

Il sera le plus grand barrage d'Afrique, mais "le barrage de la Renaissance" a longtemps dû compter avec la colère des descendants de Ramsès et de Thoutmôsis.
 PAR NOTRE ENVOYÉ SPÉCIAL À ADDIS ABABA, FRÉDÉRIC THERIN



Raddis Tadese, au centre, en compagnie du Ministre éthiopien des Affaires étrangères, Dr Tedros Adhanom, gauche, et de Bill Gates.

En février 2012, la Fondation Bill et Melinda Gates a nommé d'Raddis Tadese, citoyen américain d'origine éthiopienne, au poste de représentant auprès de l'Éthiopie et de l'Union africaine. Il était le tout premier représentant de la Fondation dans un pays africain. Hailemariam Tsedenye, d'Addis Abeba, s'est récemment entretenu avec M. Tadese dans son bureau de la capitale, Addis-Abeba, pour aborder les raisons de la croissance économique de l'Éthiopie.

Renewable energy is not the solution

Bill Gates to invest \$2bn in breakthrough renewable energy projects

Bill Gates plans to double investment in green energy technology and research to combat climate change, but rejects calls to divest from fossil fuels



US billionaire Bill Gates says "high-risk" investment in renewables is needed as current technology isn't able to meet our energy needs. Photograph: Bertrand Gony/AFP/Getty Images

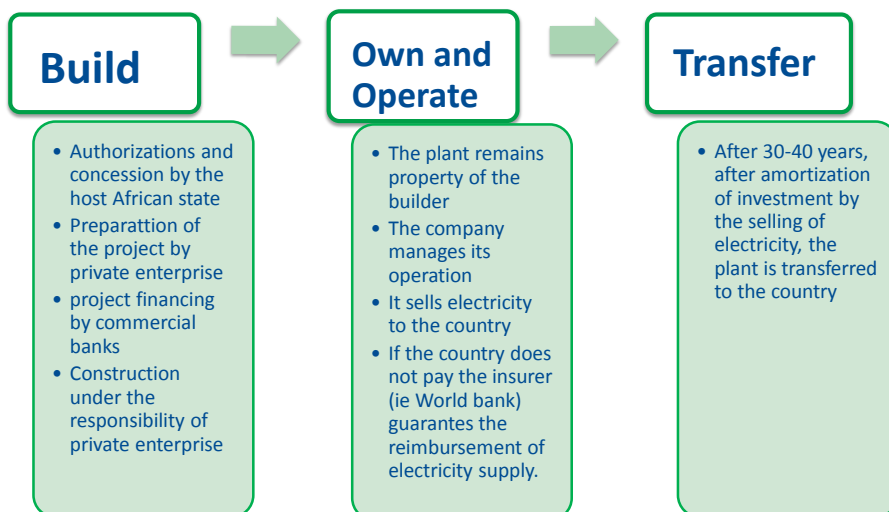
The Guardian 29 June 2015



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- In March, the Guardian [launched a campaign](#) calling on the Gates' Foundation and the Wellcome Trust to divest from coal, oil and gas companies.
- Gates dismissed the calls of the fossil fuel divestment movement on the basis that **it would have little impact**.
- Gates told the Financial Times that the only way current technology could reduce global emissions is at **"a beyond astronomical cost"** and that **innovation** is the only way to reach a positive scenario. 17/

Principle of the BOOT



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According Foundation BRIDGIN

18/

Sub Saharan Africa agriculture energy supply

30 millions tracteurs x 50 HP x 7.36 = 11
milliards de personnes

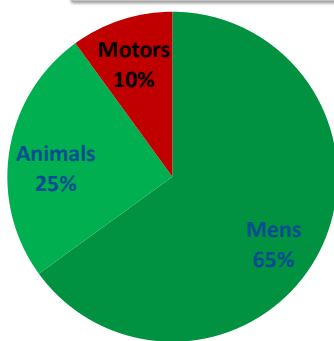


Tableau 1. Niveau de mécanisation en ASS

Région d'ASS	% terre cultivé par source d'énergie		
	manuel	animale	Tracteur
Centrale	85	11	4
Occidentale	70	22	8
Orientale	50	32	17
Afrique du Sud	54	21	25

Source : FAOSTAT, 2001

Claude Stéphane SIDE et Michel HAVARD, DEVELOPPER DURABLEMENT LA MECANISATION POUR AMELIORER LA PRODUCTIVITE DE L'AGRICULTURE FAMILIALE EN AFRIQUE SUBSAHARIENNE, INTERNATIONAL JOURNAL OF ADVANCED STUDIES AND RESEARCH IN AFRICA, <https://agritrop.cirad.fr/577133/1/Side%20Havard%20int%20J.%20Advance%20studies%202015%20mecanisation%20agricole.pdf>



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19/

SD & developing countries : the implication of the Maslow theory

Abraham Maslow, (American 1908-1970), considered the founder of transpersonal psychology



credit: Maslow, University of Pennsylvania

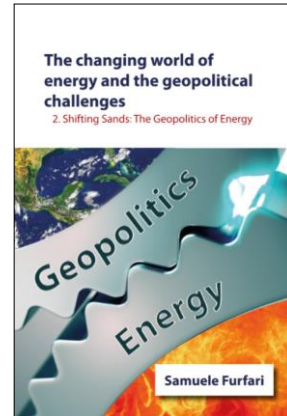
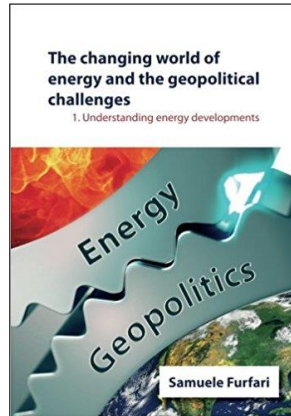
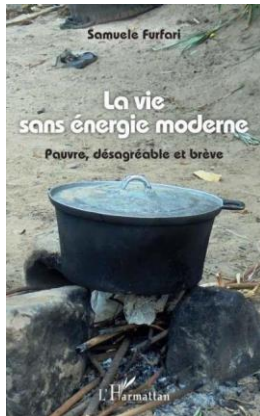


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