Analysing and supporting innovation and technology transfer capacity in developing countries

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Outline

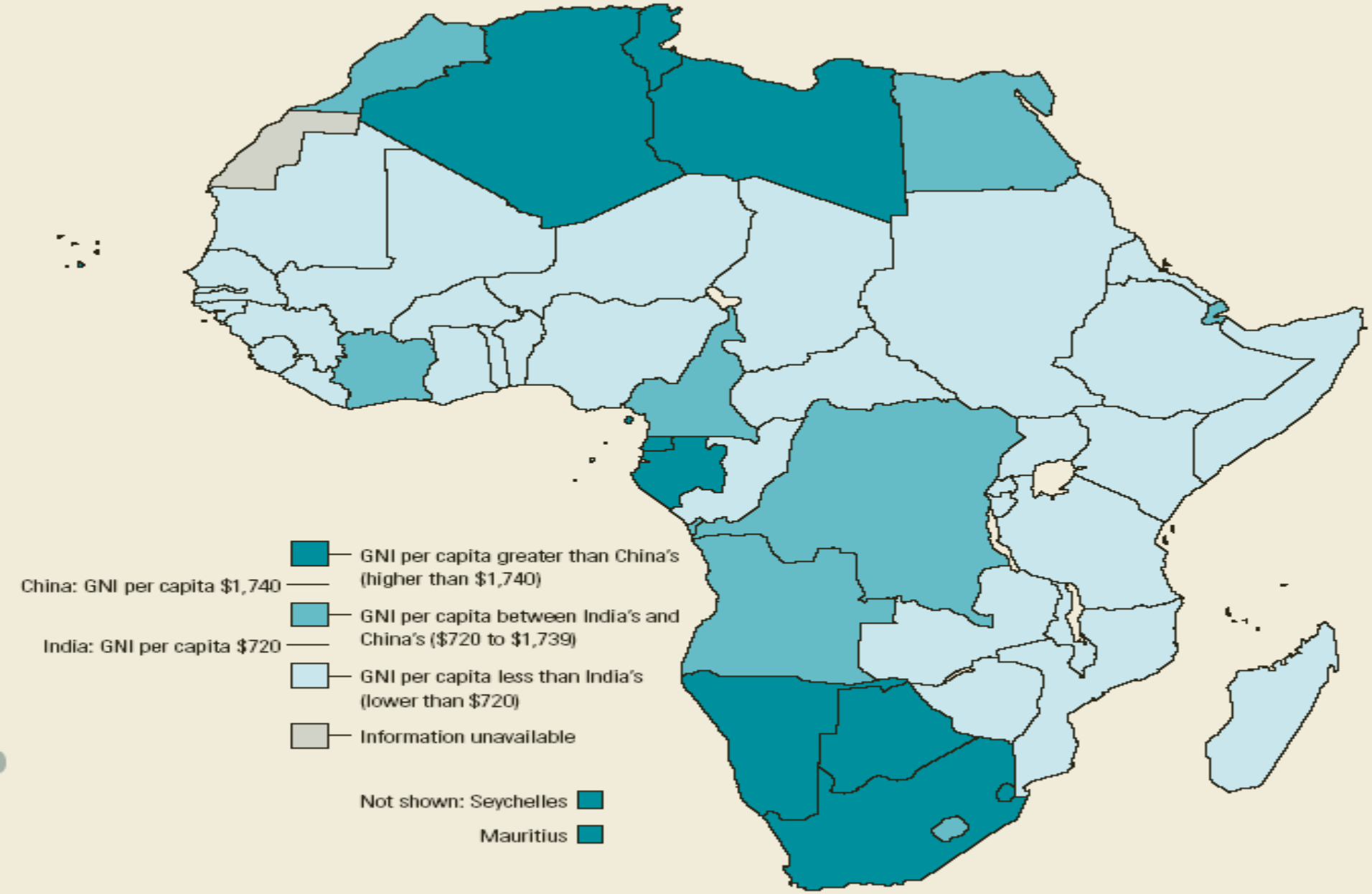
- A rapidly changing global world
  - A quick test
  - Importance of technology transfer challenges both in rich and poor countries (from energy to health)
- New innovation research challenges

1. A rapidly changing global world

- In a globally, physically (trade, travel) and mentally (Internet, mobile communication) accessible world, ***population*** has become the key variable for future market growth opportunities, **GDP** by contrast represents increasingly a variable of the past.
- In 2020 when world population, now at 6.6 billion, will be at or just over its top of 9 to 10 billion people, the largest countries will be localized all across the globe, except in Europe.
- Ranked in terms of declining population: India, China, the USA, Indonesia, Pakistan, Nigeria, Brazil, Bangladesh, Congo, Ethiopia, the Philippines, Mexico, Egypt, Vietnam, Russia, Japan and Iran will all be countries with more than 100 million inhabitants, representing two thirds of the world's population.
- No single European country is represented amongst those. Europe consists of small countries, justifying ex post the need for a European Economic, Monetary but also Political Union.
- The developing world contains, however, a huge variety in levels of development and emerging markets

A test…

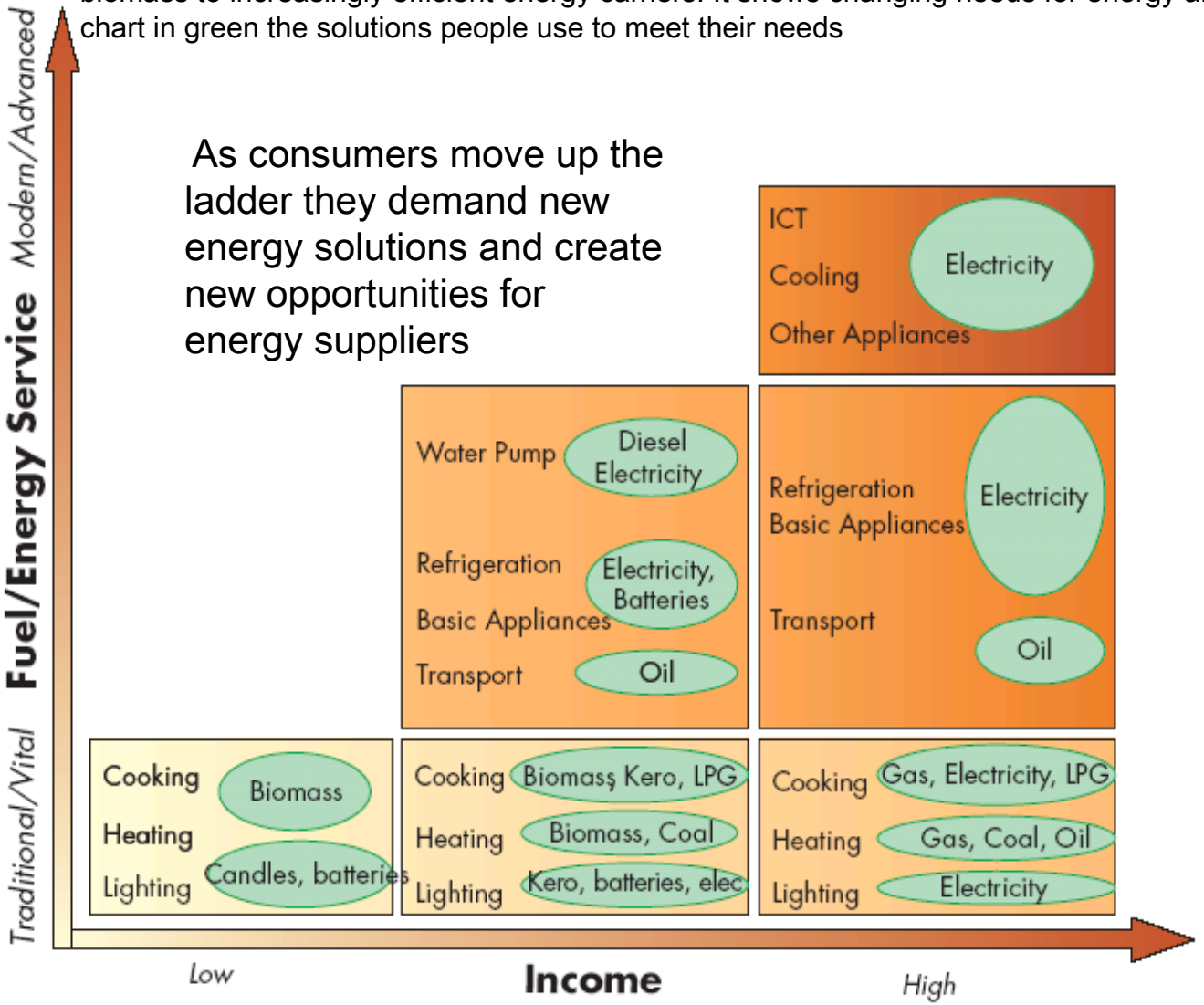
- Did you know that:
  - Africa is substantially wealthier than India;
  - The average gross national income (GNI) per capita across all 53 African nations in 2005 was about $954, more than $200 higher than India's;
  - That 12 African nations out of the 53 had a GNI per capita that was greater than China's. Twenty nations had a GNI per capita that was greater than India's.
- Large continents like Africa, India or China hide an enormous variety in developing markets…
- They also are represent the most formidable challenge for sustainable innovation and technology transfer.
- This is where the EU can play an important role both in terms of its own experience and as important international partner


GNI per capita greater than China's (higher than $1,740)
China: GNI per capita $1,740
GNI per capita between India's and China's ($720 to $1,739)
India: GNI per capita $720
GNI per capita less than India's (lower than $720)
Information unavailable
Not shown: Seychelles
Mauritius

Energy Ladder ("micro")

"The energy ladder" concerns the ability of individuals and societies to switch, as GDP increases, from traditional biomass to increasingly efficient energy carriers. It shows changing needs for energy and also mapped on the chart in green the solutions people use to meet their needs

As consumers move up the ladder they demand new energy solutions and create new opportunities for energy suppliers



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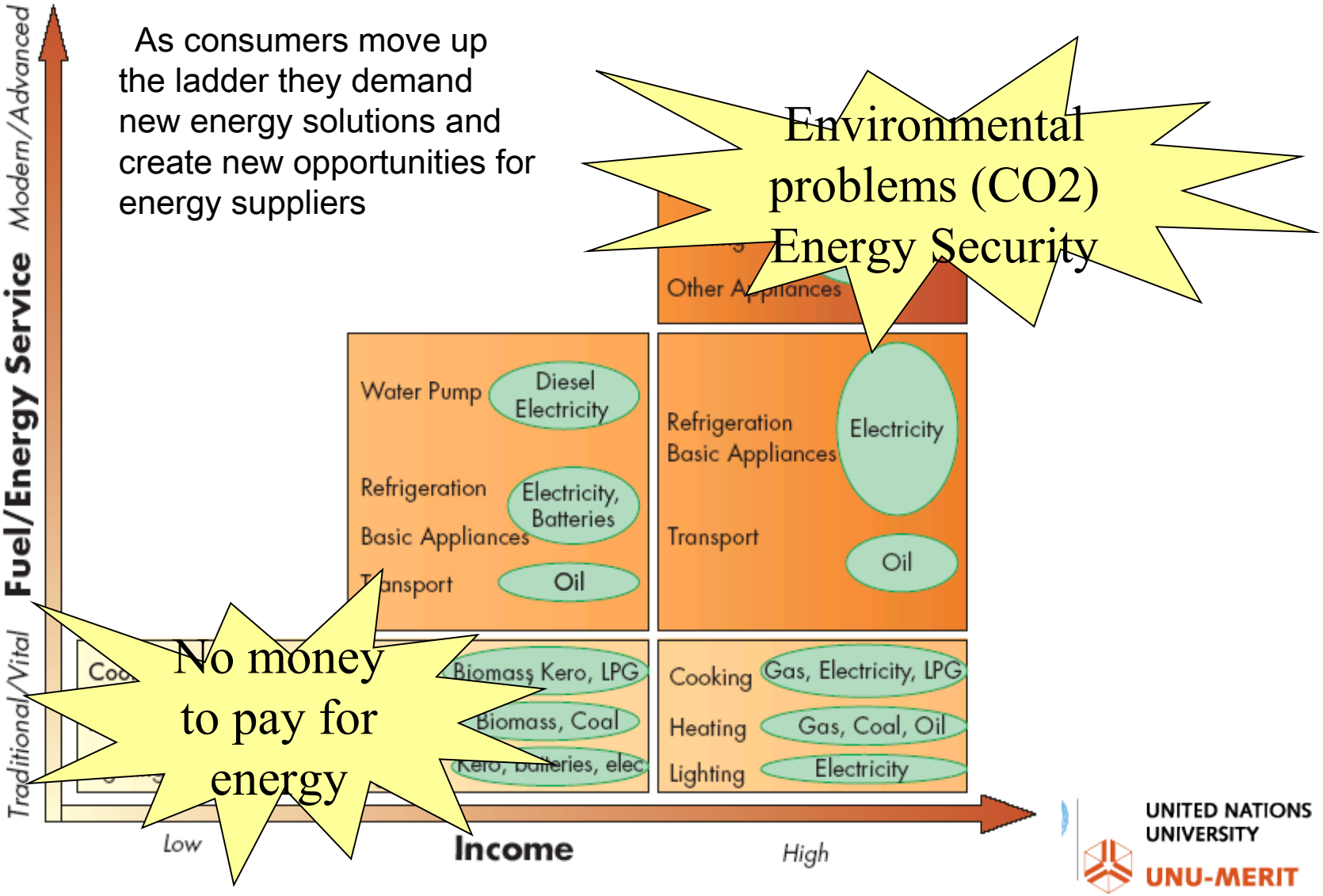
Energy Ladder issues in meeting needs

Both people at the bottom of the pyramid as well as the top of the pyramid have issues in meeting their needs

As consumers move up the ladder they demand new energy solutions and create new opportunities for energy suppliers



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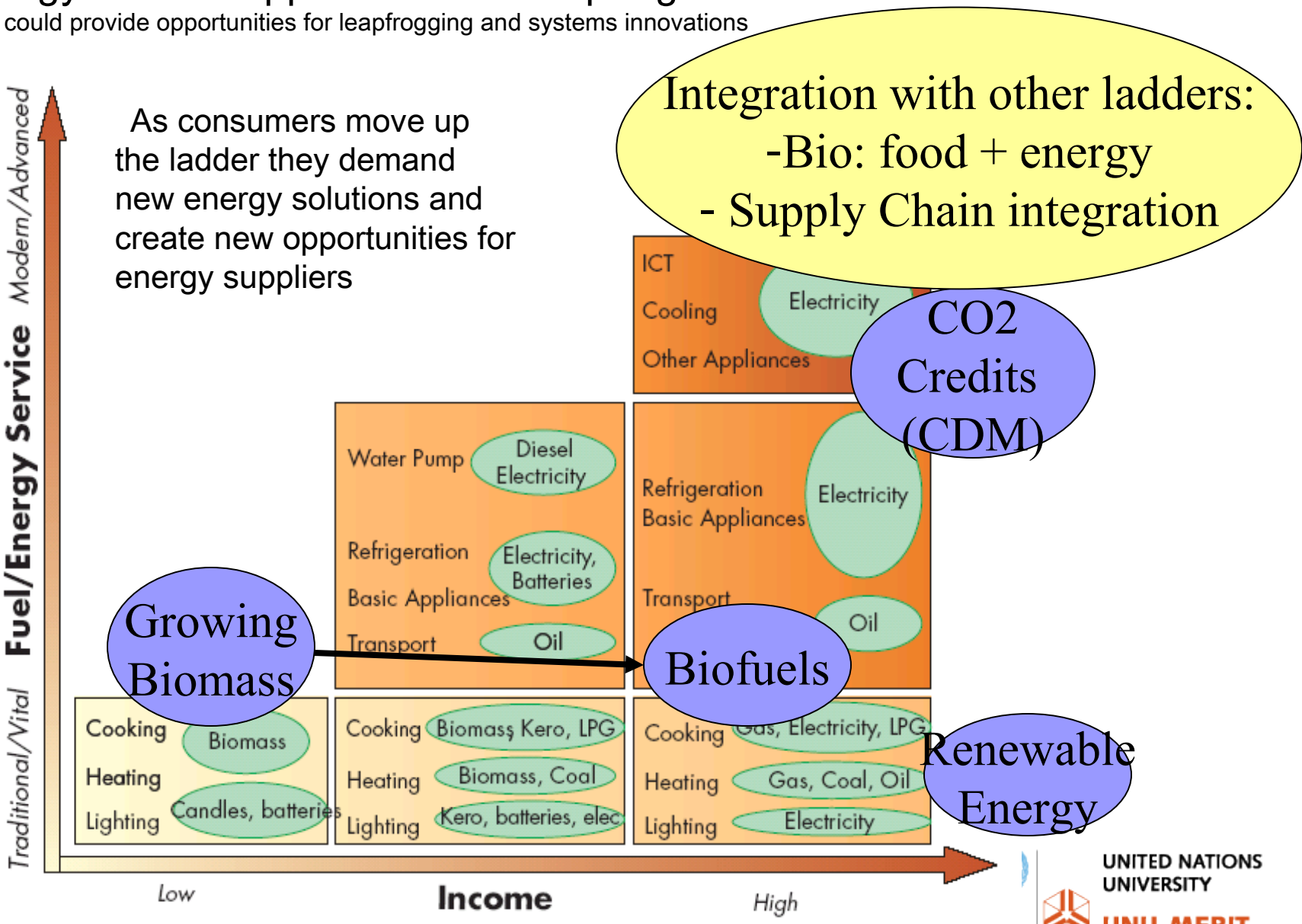
Energy Ladder: opportunities to leapfrog

This could provide opportunities for leapfrogging and systems innovations



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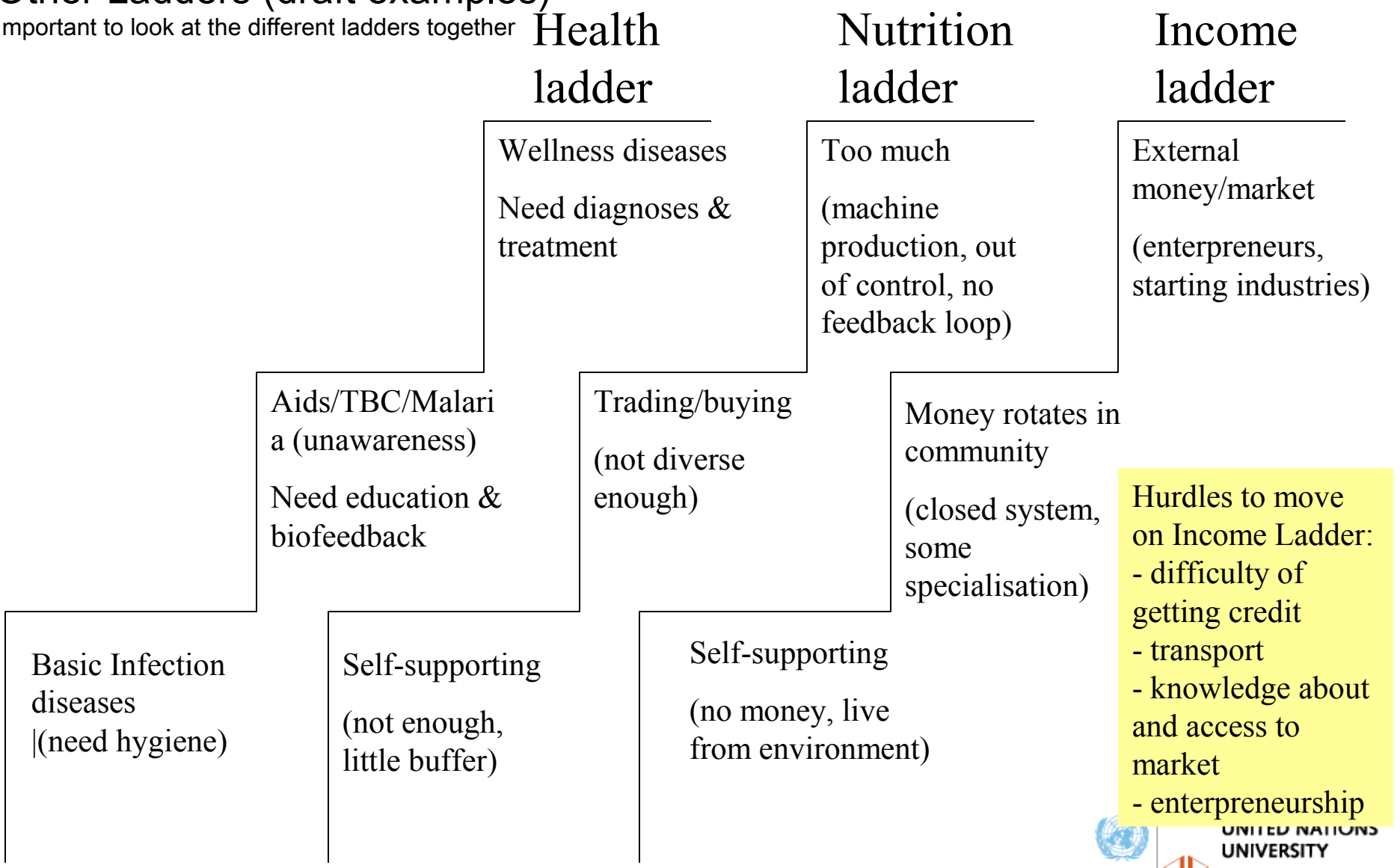
Other Ladders (draft examples)

Important to look at the different ladders together



Hurdles to move on Income Ladder:
- difficulty of getting credit
- transport
- knowledge about and access to market
- enterpreneurship

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2. New innovation research challenges: from South to North

- Developing markets appear to raise some of the most motivating research/innovation challenges
  - Autonomy, unwired to high quality infrastructure (energy, water, roads, terrestrial communication);
  - Low education hence necessity of simplicity in use;
  - No maintenance/repair facilities, so intrinsic need for long term sustainability;
  - Extreme income inequalities with strong needs in urban slums and poor rural villages, but barely any current purchasing power;
  - High living risks, so low willingness to invest or borrow money in the long term.
- All these features appear also and increasingly of particular value to consumers in developed countries:
  - Autonomy of high quality infrastructure as “freedom of movement”;
  - Shift in the democratization of innovation: from the needs of sophisticated, bèta users to the needs of (digital) illiterates;
  - Need for zero maintenance and ecological sustainable: cradle to cradle
  - Downsizing the scalability of selling goods in large quantities
  - Relevance of new financial products such as micro-credit and micro-insurance in poor urban areas

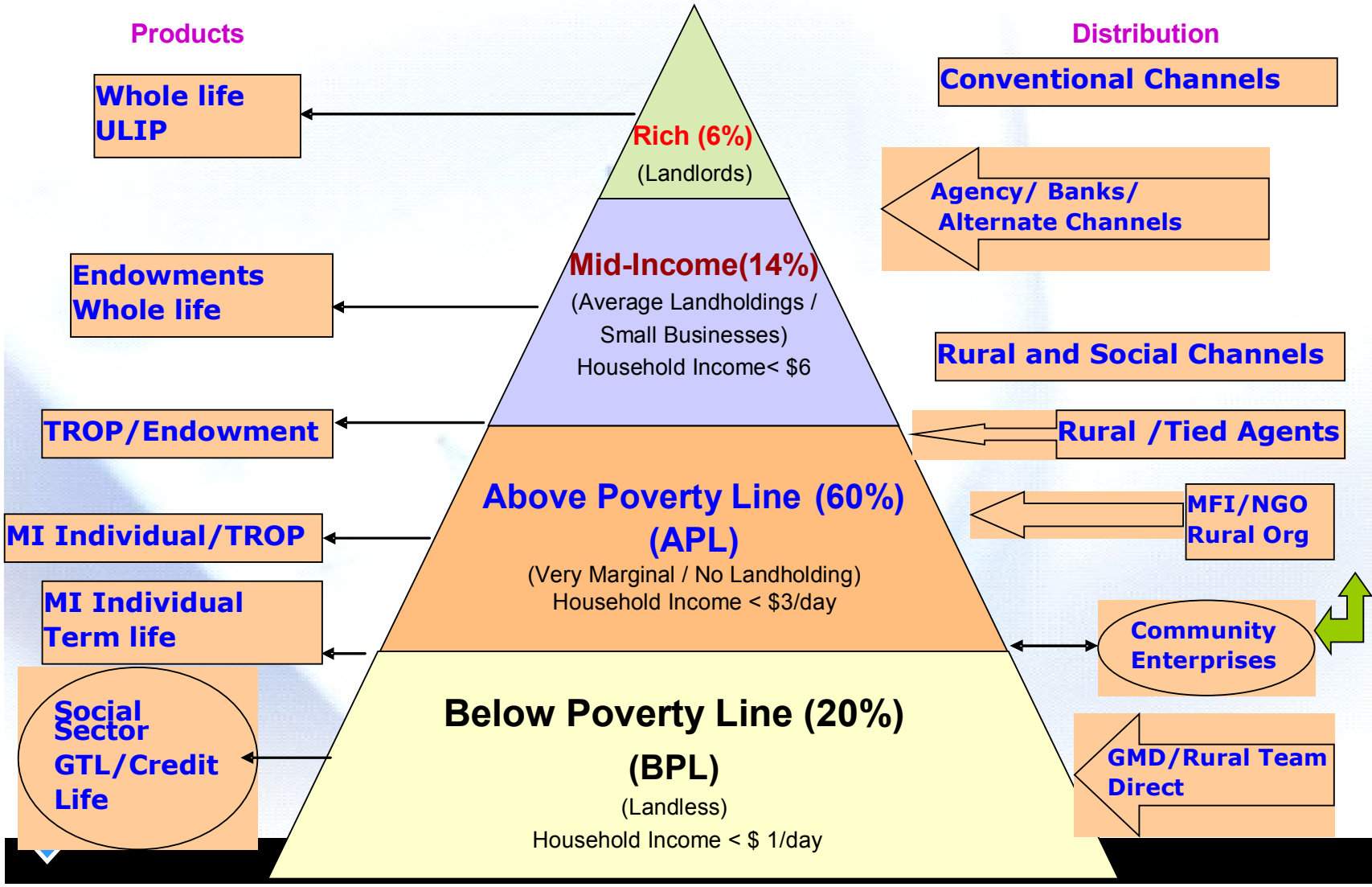
Innovation for development

- Inclusive innovation vs “appropriate technologies”, not purely technically based (K/L) but primarily organisationally
- Successful location of BoP innovation activities will ultimately have to be close to BoP users.
- The innovation process is likely to be reversed, starting with the design phase which will be confronted most directly with the attempt to find functional solutions to the BoP users framework conditions.
- Need to bring the product on the market at a substantially lower price than existing goods, but also adaptation to poor local infrastructure facilities: e.g. with respect to energy delivery systems, water access, transport infrastructure or digital access.
- Feedback from BoP users and from design developers upstream towards more applied research assistance, is an interesting new example of reverse transfer of technology (from the South to the North), re-invigorating and motivating the research community in the highly developed world increasingly “in search of relevance.”

FINISH (Financial INclusion in Sanitation and Health)

- A sanitation example: “invisible market of toilets”
  - Indian government policy = no sanitation policy; China had ten year plans for sanitation about 10-15 years back. No deep thinking on how targets will be attained.
- FINISH project attempting at integrating sanitation (water, sanitation and hygiene) into main activities of micro-finance institutions, including enhanced livelihood opportunities arising from sanitation interventions (soap manufacturing, composting, fertiliser usage, construction activities etc).
- Increase scope of financial services offered to rural and peri-urban poor through linking micro-insurance (life and health) with micro–credit expanded to include sanitation. The underlying assumption is that health insurance does have a demand which is based on studies indicating that health costs are one of the largest unplanned perils that low income households encounter.
- By having the MFI distribute micro-insurance as well as sanitation loans their grass root relationships can be maximised. TATA-AIG already distributes and services life Micro insurance across the country with MFI relationships and hence its interest in the health insurance distribution through these channels. Insurance of health through partners will need field underwriting interventions for which capacities are easier built with existing relationships.
- Second aspect of MI partnership deals with claims data on mortality and morbidity which might provide information on the difference sanitation and clean water practices are making on the community.

Rural Life Markets – Products and Distribution



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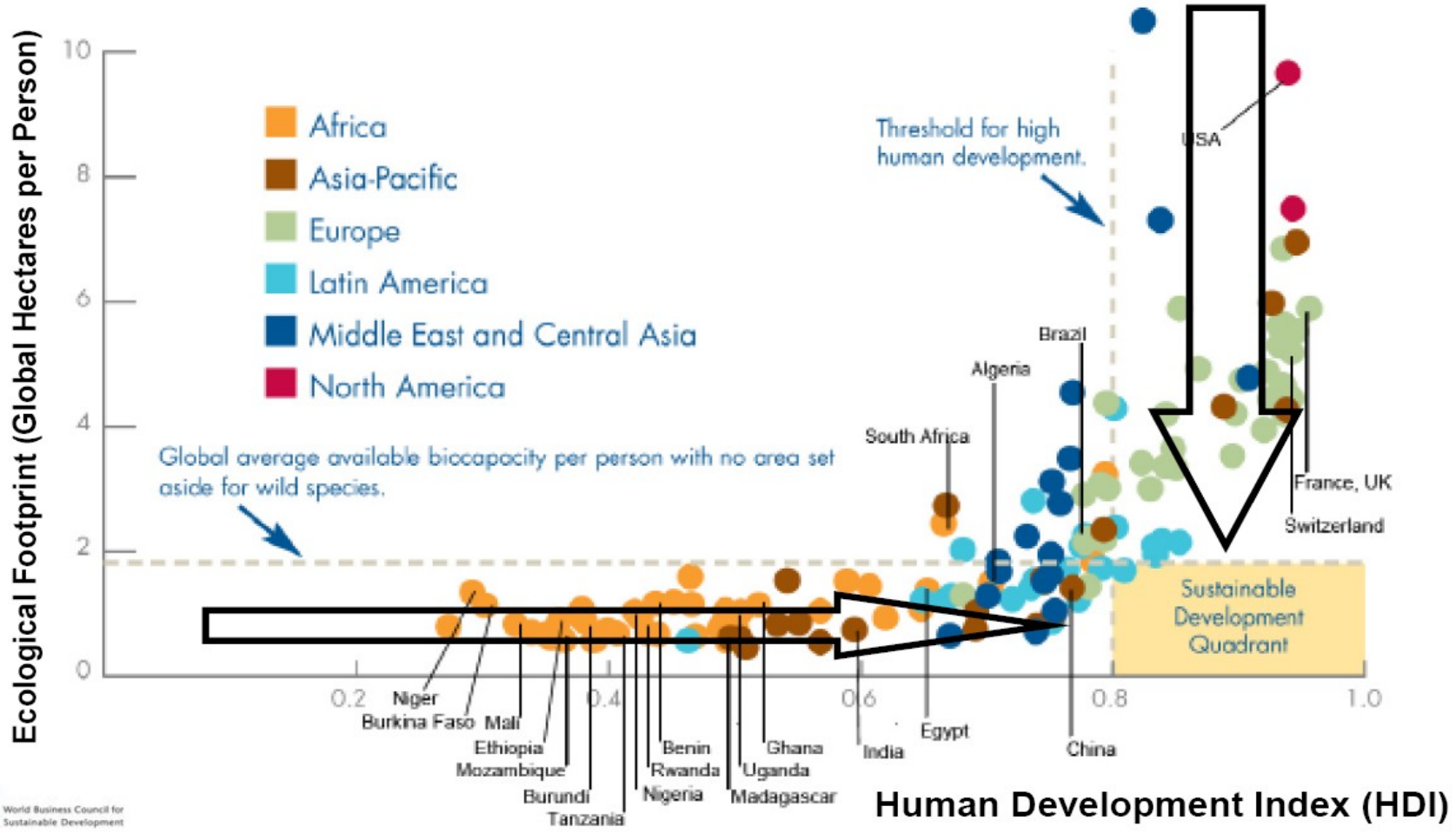
The challenge of this workshop: design of policies aimed at technology and knowledge transfer

- So far most technology and innovation policies have been dominated by national competitiveness considerations.
- Quid about policies aimed at speeding up knowledge diffusion and technology transfer.
- Let me refer to a quote from the Sapporo G-5 declaration on climate change:
  - “Affordable access to adaptation and mitigation technologies, achieved through a suite of funding mechanisms, investment structures and policy tools, is a key enabling condition for developing countries to tackle climate change. We call upon the international community to work towards a strengthened scheme for technology innovation, development, transfer and deployment, and a comprehensive review of the intellectual property rights regime for such technologies in order to strike an adequate balance between rewards for innovators and the global public good. “
- An area where continental Europe with its high savings could take the lead
- A need for new tools: visit e.g. https://www.myc4.com/Portal/Default.aspx

How linking human development within planet's ecological limits?



World Business Council for Sustainable Development