International Chamber of Commerce
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Commission on Environment and Energy

Task Force on Green Economy

ICC comments on the UNEP draft Green Economy Report

Highlights

- Key messages
- Feedback on modelling chapter
- Feedback on selected sector and enabling conditions chapters

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Global Policy Context on Green Economy

The “Green economy” concept has emerged prominently in numerous intergovernmental forums such as the United Nations Environment Programme’s (UNEP) Green Economy Initiative, the Organisation for Economic Co-operation and Development (OECD) Green Growth Strategy and in discussions among G20 leaders. In addition, “green economy in the context of sustainable development and poverty eradication” has been declared a priority theme for the United Nations Conference on Sustainable Development in 2012 (Rio+20). Clearly governments around the globe are seeking ways to define and shape this concept into meaningful policy frameworks that advance economic growth while enhancing environmental protection.

About the ICC Commission on Environment and Energy and the Task Force on Green Economy

The ICC Commission on Environment and Energy develops policy and technical guidance on a wide range of issues including technology development and deployment, financing, adaptation, water, sustainable consumption and production. In addition, it also facilitates participation at UN processes and works in other multilateral fora as well as with senior government officials on environmental issues.

The ICC Green Economy Task Force works under the auspices of the ICC Commission on Environment and Energy and consists currently of approximately 90 members. The Task Force was launched to develop global business views on the green economy as well as to provide input into the United Nations Conference on Sustainable Development and the UNEP Green Economy Report[1].

How does ICC work

ICC member companies and associations from a wide range of sectors work together across a wide range of topics in ICC policy commissions and task forces to develop global business views. These commissions and task forces work in consultation with ICC national committees, including chambers of commerce, in over 120 countries.

Disclaimer – ICC initial comments to the UNEP Green Economy Report

The UNEP draft Green Economy Report was released on 21 February 2011. The ICC Task Force on Green Economy has taken the lead to develop these initial comments in consultation with its network and through participation of Task Force members in the UNEP-ICC Global Business and Industry Dialogue on 11-12 April 2011 in Paris. However, given UNEP’s relatively short comment period and the length of the UNEP report (almost 700 pages) the document could not be circulated for broader consultation.

[1] The UNEP Green Economy Report analyzes 11 sectors (agriculture, buildings, cities, forest, fisheries, manufacturing, renewable energy, tourism, transport, water, waste) and includes additional enabling conditions sections (financing, trade and investment, procurement, etc), as well as a modelling chapter.

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Key messages

- ICC welcomes the UNEP Green Economy Report (GER) as a tool to raise awareness about global opportunities and challenges in 'green economy' thinking. ICC also wishes to acknowledge the amount of research and work that underpin the GER.

- Innovation and technology development and their appropriate deployment via sustainable production and consumption (SCP) concepts are at the heart of greening economies. We strongly agree with the finding that resource efficiency along the value chain is of increasing importance. We support a holistic approach which includes life cycle thinking in order to help identify more sustainable technology options. Such holistic thinking may also identify new markets for innovative technologies or new materials to produce. Life cycle thinking with a focus on resource efficiency also helps identify the opportunities that may otherwise be hidden or not immediately obvious.

- Green growth/economy is a shared challenge and responsibility that will require collaborative action among all actors in society – business, government, civil society and consumers.

- We agree with the finding that addressing short term profit and long term strategies are both critical considerations to business and policy-makers.

- However, the GER is written by UNEP for policy-makers and as such, is not directly actionable from a business perspective. It highlights the need for a step change to reconcile the short term and the long term strategies towards a green economy transition but it does not describe the single steps of the journey.

- Many of the most important conclusions of the GER are model-based. Yet, it appears to be rather difficult to connect UNEP's approach and conclusions with other related work published in the peer-reviewed literature, for example by the Intergovernmental Panel on Climate Change (IPCC). Also, to be relevant to other global political debates, such analyses will require a framework that recognizes national circumstances and priorities.

- Throughout the report in several places, a distinction is made between 'green' and 'brown', both in terms of sectors and jobs. We believe such a distinction may be misleading since 'green' and 'brown' are not easily definable given the variety of situations. We would favor a more constructive terminology that would recognize the fact that an alleged 'brown' sector may produce and deliver the indispensible building blocks for a so called 'green' sector. Therefore, in order to move forward, we believe that it is more crucial to green ALL sectors in all countries and advance resource efficiency and life cycle concepts. It should be noted that business operates across global supply and value chains and greening all stages along the life cycle of its products are becoming guiding principles for many leading companies and sectors.

- Although the report advocates for a step change, changes of the macro political nature mentioned in the report do not happen everywhere at once and totally. We consider improvements of existing processes (manufacturing technologies, jobs, logistics, research, etc.) as important as launching new products and technologies and both of them should be pursued simultaneously.

- Whilst some chapters leverage synergies, globally the GER should assure greater consistency across the chapters, both in terms of leveraging their interdependences and identifying the hidden opportunities. A positive example in the report are the chapters on manufacturing and waste which highlight how certain concepts, such as closed cycle manufacturing, may bring new conversion opportunities for waste.

- On the forest chapter we would like to highlight one general comment: while the chapter gives an extensive review of the importance of forestry in balancing economic growth with sustainability, and puts much emphasis on policy standards and certification, we would recommend further analysis on effective policy frameworks and incentive schemes. New mechanisms such as

REDD+ and Payments for Ecosystem Services (PES) are promising approaches in addressing sustainability challenges. We also believe that the chapter should discuss more largely the role of bioenergy.

- The metrics and measures used in the GER are not those commonly utilized by business today. As there is no currently agreed upon set of measuring tools to gauge the 'green economy' it would be difficult, at times impossible, to quantify what the 2% of GDP investment referenced in the GER would be. For business all activities must be measured and accounted for. We encourage cooperative efforts to recognize and integrate environmental and equity externalities in balance sheets. Such methodologies should also take into account other dimensions, including economic growth and employment.

- Financing the green economy is a critical element and a prerequisite for long term success. In order to make longer term investment decisions into the direction of a green economy, business requires predictability and regulatory certainty. As long as these enabling conditions are directional only and without regulatory and market certainty, investments in 'green economy initiatives' will be slow and compete with investments for conventional activities.

- In this regard, we would like to point out that 'green economy' is a term used by policy makers rather than the business community. We would like to recommend that UNEP more clearly defines or stimulates the development of indicators and measurements for terms such as 'green investments' and 'green economy'. ICC will be happy to assist in such a clarification effort.

- The GER advocates the development of a top-down macro-economic policy that would deliver the right financing and investment for a 'green economy'. We strongly believe that such macro-economic policy changes must ultimately be global and inclusive to ensure a level playing field and reach the full potential that greening economic activity can offer.

- The desired level of financing and investment for 'green economy' is still low as compared to the overall size of the economy. It should be noted that business allocates its investments globally and only when there is sufficient level of regulatory certainty and predictability will such investments be viable and provide the expected return. Governments should not pick industry winners and losers and instead provide regulatory clarity and consistency in order to better stimulate markets towards a transition to a green economy.

- The GER highlights the need to take externalities into decision making, whether in policy or in business. We agree that ultimately, to decouple economic activity from environmental degradation, the composition of GDP and its associated measures need to change. Such changes ultimately must be global in scope and top down. We support further work to mature these concepts through collaboration of global experts and industry leaders.

- Lastly, the GER provides a good collection of best practices and examples of bottom up efforts in sustainable consumption and production (SCP). It demonstrates how these initiatives increase resource efficiency and may reduce costs for businesses. We support the replication and scaling up of such best practices to create a multiplier effect. There are additional best practices available within the business communities and we encourage UNEP to utilise them.

- In this regard, the report may serve as a good basis to initiate more in depth discussions between business experts and policy makers to advance green economy concepts, also in the UN CSD and Rio+20 processes.

- Given the important role of the private sector in the transition towards a green economy, we would encourage UNEP to produce an executive summary of the GER for business leaders.

- While the GER and the UNEP-ICC Global Business and Industry Dialogue (11-12 April 2011 in Paris) are good first steps, there is a need for continuing dialogue with the private sector. ICC stands ready to support further initiatives in that direction.

Introduction

Present in over 120 countries through its global network, ICC is a representative body that speaks on behalf of enterprises from all sectors in every part of the world. ICC would like to underscore the private sector's key role and support to transition towards what policy makers call a 'green economy'.

Part of the challenge and opportunity for business is to understand the concrete possibilities of a 'green economy' with its opportunities and risks for both developed and developing countries. While no single agreed definition or set of financial measurements as to what exactly constitutes a 'green economy' exists, the ICC Green Economy Task Force defines 'green economy' from a business perspective as follows:

"The business community believes that the term 'green economy' is embedded in the broader sustainable development concept. The 'green economy' is described as an economy in which economic growth and environmental responsibility work together in a mutually reinforcing fashion while supporting progress on social development. Business has a crucial role in delivering the economically viable products, processes, technologies, services, and solutions required for the transition to a green economy."

A comprehensive and balanced green economy framework should thus be clear, stable, and predictable so that investors and financiers trust that policy goals and incentives will be in place for the duration of projects fostering innovation-led green growth.

ICC thanks UNEP for the opportunity to review and submit comments on the draft GER published on 21 February 2011. Moreover we would like to commend UNEP on a useful piece of work which complements several other UN and inter-governmental initiatives on green economy/growth, and makes an important contribution in catalysing international and multi-stakeholder discussions on this issue.

We would also like to thank UNEP for co-organizing this year's UNEP Global Business and Industry Dialogue with ICC. This meeting provided an excellent opportunity to exchange views and to give feedback on six key sector chapters, namely agriculture, energy, transport, manufacturing, waste, and financing.

Whilst we appreciate the extension of the comment period of two weeks given to ICC, and would like to thank UNEP for this extension, we would like to point out that the relatively short comment period provided by UNEP to develop comprehensive global business perspectives on the GER (almost 700 pages) has limited ICC's ability to comment in more depth and to fully consult our broad global network. This is unfortunate and given the final publishing date provided to us by UNEP – end of 2011 – we would hope that more time may be allocated to allow for a more comprehensive consultation within the global business community.

Our comments should be read in conjunction with various ICC policy statements and discussion papers related to 'green economy'[2] produced over the past several years. We too will continue to broaden and deepen our thinking and develop recommendations on the many facets of greening economic activity. We seek to identify the areas where business can make the most substantive contribution to this on-going and important debate.

In this regard, ICC submits the following comments on selected sector chapters of the GER, as well as additional thoughts on information and communication technology which ICC considers a vital element in the transition to a green economy.

[2] www.iccwbo.org/policy

I Feedback on modelling chapter

Many of the most important conclusions of GER are model-based. It is stated that the authors of the GER used an integrated assessment model that is "*well suited to jointly represent the economic, social, and environmental aspects of the development process*" (page 505). We can appreciate how difficult this modelling exercise has been, especially in relation to harmonization, simply in order to rely on similar or at least coherent assumptions. However, we would like to highlight the following points:

■ Key messages

- It is difficult to connect UNEP's approach and conclusions with related work published in existing peer-reviewed literature such as the Inter-governmental Panel on Climate Change (IPCC) and the technical background information of the GER provided to ICC.

- A wider range of policy tools and modeling approaches should be used to assess what means can best achieve proposed or agreed goals. To be relevant to other political debates, such analyses will require a framework that recognizes national circumstances and priorities. 'Real world' considerations, such as opportunity or competitiveness concerns, also hold the likelihood that costs will be higher, perhaps far higher, and that timelines will be longer than in the GER scenarios.

■ Comments and recommendations

- Some of GER conclusions are:
  - "*Investing just 2% of the global GDP into ten key sectors can kick-start a transition towards a low-carbon, resource-efficient economy."*
  - *"Greening the economy not only generates growth, and in particular capital, but it also produces a high growth in GDP and GDP per capita."*
  - *"In a transition to a green economy, new jobs will be created, which over time exceed the losses in brown economy jobs."*

  These results, and several others, appear more properly to be described as the result of assumptions in the business as usual (BAU) case, scenarios and underlying representations of sectors, than as conclusions about policy. For example, the BAU cases assume no change in investment patterns to 2050. It does not account for the natural adaptation of the economy, as part of BAU, to resource and environmental pressures even in the absence of a "green" policy push.

- The scenarios imply a significant (10%) increase in capital investment directed at particular ends without mentioning 'real world' issues such as:
  - means for government to acquire and direct funds on this scale;
  - opportunity costs and political economy of not addressing other business opportunities and societal priorities;
  - competitive concerns among and within nations, sectors and firms;
  - implications of implied international wealth transfers;
  - actual efficiency and cost of policy tools required to incent change;

- The modelling approach relies on the Threshold 21 model. From a theoretical point of view, the approach adopted is based on dynamic systems, which are however not described in more detail than with figures, and incorporates optimisation and econometrics with little description.

- Based on the GER and the provided technical background materials of the GER to ICC, it is difficult to determine whether the model is an actual integrated one or whether it gathers a series (collection) of different approaches each dedicated to a specific sector. Also, the GER mixes different sectors, including water, agriculture, forestry, energy, etc. and the analysis scale remains unclear.

- Furthermore, the modelling approach of the GER seems to take into consideration that the world is managed by one government and major decisions are taken based on one model and executed by the same authority.

- The 'green economy' under study should be defined more clearly with indicators for measurement thus allowing a better assessment whether the green economy goals are attained. For example what exactly encompasses 'green investments'?

- The GER should take into consideration scenarios which are somewhere between the 'business as usual' and 'green economy'.

- Employment is among the most difficult of variables to predict in models. Computable general equilibrium (CGE) models typically assume full employment, so all outcomes will have identical employment at a given level of population. Policy can affect the distribution of jobs among sectors and the income associated with jobs but not the level of employment in such models.

- The GER does not discuss the deadweight costs to the economy of premature obsolescence of equipment and infrastructure, and the costs of unemployment or the retraining of people with skills that are no longer relevant.

- The bibliography focuses on the work done in a Norway laboratory by the University of Bergen relating to two PhD theses (2009). We would like to encourage UNEP to include further sources from peer reviewed literature.

II Feedback on selected sector and enabling conditions chapters

Agriculture[3]

■ Key messages

- There is no single technology or policy to ensure sustainability in agriculture, as it operates in a wide range of geographies, climates and soils. Markets, policy frameworks and consumer demand all play a role, as do institutions and resources that support its implementation. For this reason, a multi-stakeholder approach is more useful to developing, promoting and achieving sustainable agricultural practices. No technologies should be dismissed unless experience or scientifically sound evidence points to such action.

- We strongly recommend a more holistic analysis of the agriculture chapter and would like to highlight ways in which the private sector contributes – often in cooperation with other stakeholders - to addressing the agricultural challenges, such as productivity increases, investment in research and development (R&D) towards integrated technology packages[4], climate change, water use efficiency and biodiversity conservation.

■ Comments and recommendations

- We agree with those elements of the chapter that highlight increasing investment in agricultural R&D, boosting productivity, enhancing access to markets, liberalizing trade, reducing waste and lessening the environmental impact of agriculture as being central to future development

- In general, we recommend UNEP to broaden the analysis to consider the positive contributions of conventional agriculture that utilizes modern technologies and its positive impacts on development. For example, improvements in conventional practices have resulted in reductions in environmental impacts.

- Furthermore, the GER should:

  - Use the term agro-ecology in the broader context, e.g. as defined by the OECD as "*the study of the relation of agricultural crops to the environment*[5]";

  - Expand the analysis to better reflect the real world trade-offs that must be considered in farming, including also getting the prices right (e.g. farm and energy subsidies, payment of ecosystem services);

[3] This chapter should be read in conjunction with:
"ICC views on Agriculture, Rural development, Land, Drought, Desertification and Africa for the 17th Session of the United Nations Commission on Sustainable Development (2009) available at:
http://www.iccwbo.org/uploadedFiles/ICC/policy/Environment/213%2068%20ICC%20Discussion%20paper%20for%20CSD%2017%2030%20April.pdf,
ICC Discussion Paper on "Sustainable Agriculture" contributions by the private sector" (2008) available at:
http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/pages/Discussion%20paper%20sustainable%20agriculture%20UNCBD%20COP9%20FINAL.pdf,
ICC case studies on "Integrating biodiversity into sustainable agriculture" available at:
http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/pages/Case%20Studies%20FINAL-policyB.pdf

[4] *"Technology packages" are combinations of technologies including: inputs such as seeds, fertilizers and crop protection, animal feed, veterinary medicines and services; agricultural equipment and machinery, including irrigation systems; capacity building and knowledge sharing; information and communication technologies; including mobile phones; insurance and financial services, including micro-credits. Technology packages provide integrated solutions for agriculture in specific production environments.*

[5] http://stats.oecd.org/glossary/detail.asp?ID=81

- Include additional peer reviewed literature, models and their respective outcomes, as well as broaden the list of authors and stakeholders in an inclusive process;

- Provide specific examples of improvements in market access that may be instructive in achieving the vision of a green economy;

- Address in positive terms the innovation cycle and the concomitant incentives to bring new innovations to meet the objectives of the vision;

- Incorporate the variables of agricultural systems – markets, local infrastructural, labour, climate, water, soil, yield, spoilage – throughout the chapter and conclusions to accurately reflect the complexities that exist;

Energy[6]

■ Key messages

- Access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy is fundamental to economic growth and sustainable development. Energy poverty induces poor living conditions in many developing countries and global poverty. In this context, providing access to modern energy services and reducing greenhouse gases (GHG), are key challenges for society.

- ICC believes that *all* energy options will be required and must remain open to meet pressing demands for access and security to energy while reducing greenhouse gas emissions, particularly in developing countries.

- In order to accelerate the development and deployment of key technologies, new financing models will be required. Carbon financing will bridge some of the gap, but multilateral development financing and other policy incentives will help accelerate deployment.

■ Comments and recommendations

- The assumption that using solely renewable energy would create jobs and eradicate poverty is doubtful in the case of many developing countries particularly for energy exporting developing countries. The switch from coal, oil and gas to renewable sources, when possible in some sectors of the economy, would require large investment beyond the current capabilities of many developing countries including many energy exporters and therefore needs to be considered as a long term undertaking.

Specifically:

- *Synthesis page 2: 'At present, enabling conditions are heavily weighted towards and encourage, the prevailing brown economy which, inter alia, depends excessively on fossil fuel energy':* This statement implies *direct support* is provided for the 'brown economy' which is a misleading characterisation.

- *Synthesis page 13: 'if the demand for new buildings* social (housing, hospitals, schools, etc.) *that exists in developing countries is considered the potential is much higher':* This job growth is part of so called 'Business as Usual' and should not be referenced. Figure 3: Why would energy efficiency jobs continue to increase through 2050? Removing this employment growth results in a

[6] This section should be read in conjunction with ICC papers developed by the Task Forces on Energy and Climate Change available at : http://www.iccwbo.org/policy/environment/

significant reduction in overall employment levels in the energy sector and overall. The report should also comment on the skill level of the jobs created (e.g. those for energy efficiency) vs. those displaced.

- *Synthesis page 15: "Increasing energy supply from renewable sources reduces the risks from rising and volatile prices for fossil fuels in addition to delivering mitigation benefits..."* Given the immaturity of new renewable technologies and dependency on external factors (wind, sun) a significant increase in renewables is no guarantee that prices will not be volatile and high. Sustained high growth through 2050 will push up input prices like steel and rare earth minerals, and with zero marginal cost once installed and periodic limited dispatch over extended periods the possibility of extreme price volatility is high as renewables take greater market share. It is also important to recognise that in the 20th century it took around 30 years for new energy sources and carriers to capture 1% of the market after commercial introduction[7]. Further, the capacity of an immature industry to absorb investment is limited in the early stages of deployment.

- *Synthesis page 15:* "*Successful conclusion of a global agreement on carbon emissions and the resulting assurance that there will be a future carbon market and pricing is strong incentive for further business investment in renewable energy"...page 27 "work with clear and effectively enforced standards, and not have to deal with uncertainty or face unfair competition from non-compliance..."* Industry needs a clear regulatory framework that supports the most cost-effective low-carbon investments. Business needs a clear regulatory framework that provides a clear price signal for investment. Policy objectives should be clear but should be technology neutral and resort to standards only where it is clear that market based approaches would not be effective.

- *Synthesis page 24: "With respect to energy primary energy demand returns to current levels by 2050 which is about 40% less than BAU:* The report should quantify the magnitude of this achievement by comparison with historic rates of energy efficiency improvement. The cost of implementing energy efficiency has proven historically to be much higher than shown in desk studies, particularly if large government programs are required to induce this investment.

- *Synthesis page 30: "Fossil fuel consumption subsidies were estimated $US557 billion worldwide in 2008 and production subsidies accounted for an additional US$100 billion...there is consensus that these subsidies pose a significant barrier to the development of renewable energy technologies..."* Elimination of wasteful consumption subsidies while maintaining targeted subsides for the poor is important. But it must be noted that the vast majority of consumption subsidies are found in a small number of resource rich economies with large indigenous oil and gas production. These countries dispute characterisation of their prices as subsidised and elimination of these 'subsidies' are unlikely to materially affect renewable energy in the near term. The GER misleadingly implies these subsides occur in all countries.

- *Renewable Energy page 204: "The energy sector is directly responsible for climate change..."* This statement is inaccurate and should be revised. Emissions from energy consumption clearly contribute to increasing GHG concentrations but responsibility for reducing emissions from energy consumption lies with many actors in society, including not only energy producers but also governments, companies and individual users. The GER also states the "*the building sector is the single largest contributor to global greenhouse gas emissions (8.6 billion tons CO2 equivalent)..."* The report should identify which aspects of buildings contribute to GHG emissions, for example is it energy consumption, building materials or poor insulation? Greater granularity is required to identify policies to address core issues.

- *Renewable Energy page 204: "The maturity of technologies and the related "learning effects" have helped make their costs increasingly competitive..."* This statement is inconsistent with other aspects of the report requiring significant 'additional' investment in renewable energy.

[7] Nature magazine, vol 462/3 December 2009. *"No Quick Switch to low-carbon energy"* by Gert Jan Kramer and Martin Haigh

Manufacturing[8]

Key messages

- The life cycle of a product comprises various stages from raw materials acquisition, processing, manufacturing, transportation, use, to end-of-life options including waste. At each of these phases, it is critical to promote resource efficiency to maximize the benefits and minimise the environmental impacts. Policy frameworks to promote 'green' manufacturing should be founded upon the reality that manufacturing is just one stage in a supply chain. An integrated, holistic view would be beneficial to successful policies and financial incentives should also take the life cycle concept into consideration.

- The manufacturing sector is not a uniform sector; there are varying amounts of knowledge on the principles and tools for sustainable production. Whilst certain manufacturing sectors such as the chemical industry have intensified their efforts and been instrumental in shaping the concept of sustainable development, implementation of the knowledge and principles for sustainable production is not globally uniform. Barriers such as high costs, lack of appropriate policy frameworks, and the geographic dispersion/fragmentation of the global supply chain across many different countries remain.

- The chapters on 'manufacturing' and 'waste' provide a good overview of available options and technologies ranging from closed cycle manufacturing over waste heat recycling, to voluntary and mandatory labeling and extending the product life cycle. When analysed together, these chapters may unveil hidden opportunities for conversion of waste back into the manufacturing process. Therefore, the manufacturing and waste sectors probably lend themselves for further increased collaboration between all actors to identify such opportunities for conversion and render the enabling conditions and their instruments more favorable.

- However, since manufacturing sectors vary widely, we cannot generalize the use of policy instruments across all manufacturing but rather support a case by case approach. For example, whilst taxes may be beneficial in a certain sector (e.g. landfill), they may hamper innovation in other sectors. This illustrates that also here, there is no one size fits all approach.

Comments and recommendations

- Using the lifecycle approach, from raw material extraction over product design, production through manufacturing, transportation, to end-of-life options such as re-manufacturing will indeed be important in the transition towards a green economy. Such an approach can identify new technology options and new markets as well as identifying new applications for existing products.

- Recommended policy priorities and approaches do not take sufficient account of the fact that product design and production are dispersed across many countries and actors. Action by one requires action by all. Thus, policy frameworks should be based on a holistic view that enable better sharing of costs, responsibilities, resources, and rewards. Some possible policy measures could be:

  - Shared responsibility by requiring corporate disclosure and/or incentives/tax breaks to drive changes in the design or take-back;

[8] This section should be read in conjunction with documents produced by the Commission on Environment and Energy and its task forces available at www.iccwbo.org/policy/environment

- Policy support for standards development on "sustainable manufacturing";
- Training, tax and incentives to promote retrofitting of existing factories to be more energy efficient or low-waste.

- Limited lifecycle analysis of the carbon impacts of consumer products show that transport and logistics could account for 15-20% of the total environmental impact of a product, particularly where air freight is used. Thus, lifecycle approaches should also address transportation.

- While policies should certainly promote the construction of more "green factories", a far greater challenge is how to retrofit, convert, and install new processes in existing factories, many of which are in developing countries with limitations on their external environments. This brings up the question of step change versus incremental change. Realistically, this is a challenge of scale for which there is again not a one size fits all solution. Both business and government should replicate best practices such as the 'Factory of the Future[9]' whilst finding ways to further promote sustainable production through clean technologies also in existing operations.

- A durable example of a public-private partnership that takes into account the life-cycle approach is the Strategic Approach to International Chemicals Management (SAICM) - a policy framework which promotes chemical safety around the world. SAICM has as its overall objective the realization of the sound management of chemicals throughout their life cycle so that, by 2020, chemicals are produced and used in ways that minimize significant adverse impacts on human health and the environment. The International Council of Chemical Associations (ICCA[10]) has for example developed the Global Product Strategy as a management system for the sound chemicals management across the value chain. Such initiatives should be further promoted for implementation by all actors by both governments and industry.

Waste

Key messages

- Waste management has become a global industry in most countries as the increasing volume of all types of waste (solid, liquid, hazardous and non-hazardous), especially in cities, is a real challenge for local authorities and private providers. Waste management is also closely linked with other issues including pollution of water from landfill contamination, greenhouse gas emissions, etc.

- As mentioned earlier, using the lifecycle approach, from raw material extraction over product design, production through manufacturing, transportation, and end-of-life options such as re-manufacturing and finding new ways to waste management will be important in the transition towards a green economy. Applying life cycle thinking to waste management offers a comprehensive approach to adding value as the waste is seen as a resource.

- The GER focuses on municipal waste as a key area of concern. In order to deal effectively with the growing waste issues, waste management alternatives including treating the waste close to its source should be promoted. This will require further policy developments into the definitions of waste. The term waste implies for many that there is no longer a purpose for the material whilst viewing the waste as a resource will open new opportunities and applications for such products and materials.

- It is important to acknowledge that the waste sector in each country mobilizes many local communities and that management policies and providers' need to find innovative solutions to minimize any potential adverse impacts on human health as well as the environment.

[9] www.suschem.org
[10] www.icca-chem.org

Comments and recommendations

- As stated earlier, the manufacturing and waste chapters, when analysed together, may offer new opportunities for collaboration between actors. The interconnectedness between waste and the value chain is of increasing importance in dealing with issues such as contamination and new treatment technology development. For example, the cement sector welcomes certain wastes as raw materials in cement production to promote closed cycle manufacturing, however, issues such as access to the waste and its quality will need to be addressed further.

- Three main aspects may be highlighted when considering waste in the green economy's scope:

  - Taking a comprehensive approach treating waste through its entire lifecycle (in the world, of the 4 billion metric tons of waste currently generated, only 1 billion is recovered and recycled);

  - Taking into account the added value of waste as a resource for example transforming waste into alternative energy (biomass), reusing metals or producing agricultural fertilizers;

  - Reducing GHG emissions via the implementation of clean technologies, UN Clean Development Mechanism (CDM) projects with equipped landfill and adequate financing.

- With regards to these diverse issues, waste management needs increasingly a strong know how and expertise. Global mindsets and behavioural changes are required by all actors to drive innovation in this sector. Governments should actively promote the development of education, know-how, and expertise and further incentivise this sector. To add value from waste management, a good approach may consist in building up a large range of services from collection to recycling options with tailored solutions, e.g. waste sorting, solvent recovery, reprocessing ores with new technologies. Governments should also ensure that where technologies are available for improved treatments, these technologies are applied and implemented.

- As waste management is closely linked with other issues, improving this sector as a whole requires further policy development in the areas of definition of waste and promoting alternatives that allow viewing waste as a resource and as a material with a new purpose. Governments should stimulate investments in this area and enhance the certainty and predictability that investments will actually pay off. Other concerns such as resistance to certain sectorial approaches, lack of infrastructure, both physical and broadband and competition between national governments should also be addressed in order to promote a holistic and value chain thinking to the waste sector and its many applications.

Water[11]

Key messages

- Water is a key priority issue for economic growth, employment, social development, health, environmental sustainability and political stability. Access to clean water is the foundation of any sustainable community and business and is recognized as one of the UN Millennium Development Goals, reflecting global consensus about its importance. Considering water impacts and issues is an indispensable attribute of a transition to greener economic activity.

[11] This section should be read in conjunction with documents produced within the ad-hoc, temporary business initiative "*Business Action for Water"* convened by ICC, WBCSD, and Aquafed for the World Water Forum in 2009 and now for 2011, as well as for the 13th UN Commission on Sustainable Development in 2005: http://www.iccwbo.org/policy/environment/id26150/index.html

- There is an internationally recognized need to access private sector funds to meet the needs of small and medium sized cities, but high risk financial environments with uncertain legal systems present a major barrier. The private sector can further contribute to the delivery of affordable water services as demonstrated in many national and international experiences through the provision of increased funding and enhanced efficiency.

Comments and recommendations

- The chapter on water presents a number of issues, such as water subsidies and below cost pricing, which should be addressed in order to solve the world's water supply and sanitation problems. We would like to encourage UNEP to reference in the report more clearly the critical role of the private sector in the provision of water and sanitation services, particularly as business is already a critical actor providing these services in many countries.

- ICC would also like to highlight the submission made by Aquafed to UNEP on 22 April. In it, Aquafed identified three key points for attention: a) including the examination of impact of water pollution, b) starting the examination of the water and sanitation challenge from the perspective that nearly half the population of the world lacking water services that meet the requirements of the 2010 right to safe drinking water, c) aligning certain sections of the report with the 2010 UN resolutions on the right to water so as to ensure a consistent position between UNEP and other UN entities.

Finance[12]

Key messages

- As said above, financing the 'green economy' is a critical element and a prerequisite for long term success. In order to make longer term investment decisions into the direction of a green economy, business requires predictability and regulatory certainty. As long as these enabling conditions are directional only and without regulatory and market certainty, investments in 'green economy initiatives' will be slow and compete with investments for conventional activities.

- ICC agrees that greening the economy as described in the GER would require significant shifts in public policy both to incentivize and also to enable the private sector to undertake research, development and deployment of existing and innovative new technologies, products, processes, goods and services that will be essential for a transition to greener pathways.

- We believe that market based approaches, in general, will have a key role in addressing environmental concerns, such as climate change, in those countries and regions that choose to use them.

Comments and recommendations

- The key role of public finance will be to leverage private actions and finance. The GER should discuss ways to assure the cost-effectiveness of public finance.

[12] This section should be read in conjunction with papers of the ICC task forces on climate change and energy available at: www.iccwbo.org/policy/environment

- It is essential to highlight that it is not only the scale, but also the pace of change that is critical to assess financial impacts and needs.

  - One major impact not mentioned by the GER concerns the almost certain premature obsolescence of existing capital stock and infrastructure, and the consequences of that for public and private actors to continue to finance existing debt.
  - Another concerns the essential retooling and changes in the labour pool and supply chain, especially for skilled workers and small and medium size enterprise.

- Since, as mentioned earlier, there is no currently agreed upon set of measuring tools to quantify what the 2% of GDP investment referenced in the GER would be, ICC also considers that the adjective "just" to characterize redeployment of 2% of global GDP is not appropriate. Such a shift would represent significant change, with major consequences and impacts for governments, taxpayers, shareholders, private institutions and consumers.

- The GER should recognize that finance in this context is primarily concerned with investment projects themselves and not just capital. Please note that many projects are self-financed by companies that develop and deploy technologies to achieve a competitive advantage in the marketplace.

- Carbon markets, for those nations that use them, are an important tool to attain a low-carbon economy. Other instruments that should be mentioned in the GER are Green Bonds, sectoral crediting systems and NAMAs (Nationally Appropriated Mitigation Actions) as currently being considered in the United Nations Framework Convention on Climate Change (UNFCCC) discussions.

- ICC has developed guidance on the role of public finance in the climate arena that addresses relevant concerns of business[13]. Many of them are not addressed in the GER, such as:

  - Institutional structures and frameworks to govern financial flows will be critical. They will require sound governance and transparency or the sheer size of the investment transfers is certain to raise political concerns in donor countries and focus attention on the effective and sound nature of the funding to achieve its goals.

  - The fundamental issue for business is not only the availability of capital, but also whether proposed projects occur within a policy framework that is clear, stable and predictable. This is important to assure investors trust that goals and incentives will last for the duration of the project.

  - Especially for currently non-commercial technologies policies must also encourage the timely development of enabling legislation and regulation.

  - Governments should focus on market approaches to marshal resources and effort most efficiently.

  - Effective public funding could encourage more private sector actors to commercialize risky but potentially viable technologies. A challenge is to recognize when they have the potential to become commercial after overcoming start-up barriers, and when they are in fact not viable.

  - Once technologies have a commercial track record, another significant issue is driving technology costs down to a level that can compete with existing technologies. Policies that address demand and price will encourage more private sector investment.

[13] For further information: http://iccwbo.org/policy/environment/id40255/index.html

Enabling conditions – in general

The chapter on Enabling Conditions does not sufficiently underline the "game-changer" role that international trade can have on climate change mitigation *and* adaptation. Additional points to consider include:

- Subsidies on resources that deplete environmental assets do need to be phased out BUT where the primary recipients of such subsidies are the poor, especially in developing countries, the phase out cannot be de-linked from the availability of a reasonably priced and available alternative. For developing countries, subsidies are a social stability issue – and social stability should be duly considered in the phase-out plan.

- Sustainable public procurement should target not only public institutions (government) but also state-owned enterprises, due to their dominant, market-mover characteristics in developing countries.

Investment and spending[14]

Key messages

- The private sector has a key role to play in contributing the majority of investments essential to greening economies. Through domestic and foreign direct investment (FDI), the private sector is essential in developing and diffusing the innovative products, processes, technologies, and services that will generate environmentally responsible solutions.

- Open, rules based trade and investment are critical enablers of the substantial increase in technological dissemination and financing that will be required to move to more sustainable low-carbon, resource and energy-efficient pathways addressing environmental responsibility while promoting economic growth and social development.

Comments and recommendations

- Environmental regulations should be "least investment-restrictive". While governments have the right to regulate economic activity with respect to cross-border investment, they should do so in a manner that does not impede unnecessarily the overall cross-border flow of investment and/or disrupt the benefits it brings to home and host countries.

- Where environmental regulations establish a review process, the process should be fact-based, analytically rigorous, and should assure procedural and legal certainty by being timely, transparent and non-discriminatory.

- Governments should ensure effective protection for investors against environmental measures tantamount to expropriation, so-called "creeping expropriation" caused by progressive erosion of the original conditions under which an initial decision was made. In the event such actions take place, expropriations must be carried out in a non-discriminatory fashion and investors must be provided with an acceptable timetable for divestment. Clear guarantees of prompt, adequate and effective compensation should be paid in freely convertible currencies.

[14] This section should be read in conjunction with papers produced by the Commission on Trade and Investment Policy available at http://www.iccwbo.org/policy/trade/

Training and education

Key messages

- Whilst any government policy will have on impact on employment, a long lasting positive effect is most dependent on growth being market driven.
- The concepts of the 'green economy', a 'green versus brown economy', 'greening the economy', 'greening businesses' and 'green jobs' are not utilized per se at the enterprise level. Business sees their operations from the other end of the telescope. They need new equipment, components, distribution arrangements, and people with the right skills and qualifications.
- Definitions and assumptions about the greening of jobs must be broad and comprehensive. In making stark distinctions between "green" and presumably non-green jobs, we miss an opportunity to reflect on how to raise our sights, so that *all* jobs become greener.
- It should be noted that education is the cornerstone of any strong and competitive i.e. 'green economy' and a skilled workforce is a prerequisite. Although business is doing a lot to meet their own labour market needs internally, more education to align skills with labour market needs is needed externally. To advance this, it will be important that governments step up their efforts in education in STEM[15] disciplines. Stepping up education efforts will foster the mindsets and behavioral changes needed to drive the required innovations into the direction of a 'green economy'. This is an opportunity for governments to actively promote the development of education, know-how, and expertise and further incentivize the 'green economy' area.

Comments and recommendations

- The training/education section in the GER contains a balanced high level reference that should stimulate further investigation, analysis and case studies as more experience is gained.
- The sector analysis is helpful as it provides practical information and realistic examples. But the transition towards greener economies is a complex process and the path is different for different countries and regions. Because of the interdependence between sectors, the policy challenges should be addressed on the basis of a wider sustainability perspective.
- Government, employers, education and training providers and individuals need to work in partnership to benefit from a continuum from education, training and lifelong learning. It is necessary to build and develop resilience into the economy and population so that they are capable of dealing with all change, not just those related to the green economy.
- The major factors contributing to resilience in the economy and population will vary from country to country and will depend on its culture and stage of development. In the global context the educational and training policies of individual countries or regions will have implications for other policy areas such as employment, immigration and migration.

[15] STEM: science, technology, engineering, and mathematics

Information and communication technologies (ICTs)[16]

Key messages

- ICTs play a key role in enabling other industries to increase energy efficiency and manage scarce resources in areas as diverse as building design and maintenance, transport and logistics, electricity generation, distribution and consumption.
- ICC would like to highlight the enabling power of ICTs towards the transition to a green economy.

Comments and recommendations

- The World Bank has estimated that for every 10% increase in high-speed Internet access, economic growth rises 1.3%[17].
- ICTs, when deployed strategically in business processes and to eco-enable everyday activity, have the potential to reduce global carbon dioxide emissions by 15% equal to 7.8 GtCO2e by 2020, an amount five times larger than its own carbon footprint[18].
- Travel substitution (virtual meetings and flexible work arrangements facilitated by IP networks) could reduce CO2 by up to 130 MMT and save $20-$40 billion. A study[19] on this subject also showed that a videoconference over a distance of 100 kilometers uses less than 5% of the primary energy that would be consumed if the participants were to travel by car.
- Furthemore, improvements in supply chain logistics can minimize travel among distribution networks. Telematics solutions can optimize loading and route management for goods transport vehicles, taking more traffic off the road and lowering logistics company costs. Optimal route management – through smart mapping and other tools enabled by ICTs – can work to impact the average time that a car driver spends today in traffic jams, which equates to a full three days and nights per year or, if measured for all, approximately 14 billion liters in unnecessarily used fuel. Moreover Smart Grid, an ICT-enabled energy management system could potentially reduce CO2-emissions in the U.S. by up to 480 MMT[20]. ICT-based services and solutions can help to optimize traffic flows and, where possible, avoid them completely.
- While a High-Speed broadband access to the Internet is essential[21], realizing the efficiencies afforded by new technologies will require legal, policy and regulatory approaches that promote investment in the necessary infrastructure and technologies, and support around software and implementation, particularly in developing countries.

[16] This section should be read in conjunction with the ICC Discussion Paper on 'ICTs and environmental sustainability' available at: http://www.iccwbo.org/uploadedFiles/ICC/policy/environment/COP16/ICTs_and_environmental_sustainability_Discussion_Paper_6Oct10.pdf
[17] See Information and Communications for Development 2009: Extending Reach and Increasing Impact, World Bank Publications 2009, at: http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0, contentMDK:22231728~pagePK: 64257043~pi PK:437376~theSitePK:4607,00.html
[18] Global e-Sustainability Initiative, Smart 2020 Report 2008, at: www.smart2020.org/_assets/files/02_Smart2020Report.pdf [hereinafter "Smart 2020 Report"], p. 20. For example, GeSI estimated that smart buildings that consume less energy could abate up to 360 million metric tons of CO_2 and save $20-$40 billion.
[19] See Green Technology: Driving Economic and Environmental Benefits from ICT, a World Econ. Forum Report (Jan. 2009) [hereinafter "Green Technology"], at: http://www.weforum.org/pdf/ip/ittc/Green%20Technology%20Report.pdf, at 11.
[20] See Green Technology: Driving Economic and Environmental Benefits from ICT, a World Econ. Forum Report (Jan. 2009) [hereinafter "Green Technology"], at: http://www.weforum.org/pdf/ip/ittc/Green%20Technology%20Report.pdf
[21] Stern Review on the Economics of Climate Change, 2006

ICC would like to thank UNEP again for having sought feedback on the GER. We hope that these private sector inputs are helpful to the finalization of the Green Economy Report.

ICC is prepared to share the experience of its network as it touches on the ‘green economy’. We are looking forward to continuing the dialogue and collaborate with UNEP to generate the holistic analysis needed towards the transition to a ‘green economy’.

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The International Chamber of Commerce (ICC)

ICC is the world business organization, a representative body that speaks with authority on behalf of enterprises from all sectors in every part of the world.

The fundamental mission of ICC is to promote trade and investment across frontiers and help business corporations meet the challenges and opportunities of globalization. Its conviction that trade is a powerful force for peace and prosperity dates from the organization's origins early in the last century. The small group of far-sighted business leaders who founded ICC called themselves "the merchants of peace".

ICC has three main activities: rules-setting, dispute resolution and policy. Because its member companies and associations are themselves engaged in international business, ICC has unrivalled authority in making rules that govern the conduct of business across borders. Although these rules are voluntary, they are observed in countless thousands of transactions every day and have become part of the fabric of international trade.

ICC also provides essential services, foremost among them the ICC International Court of Arbitration, the world's leading arbitral institution. Another service is the World Chambers Federation, ICC's worldwide network of chambers of commerce, fostering interaction and exchange of chamber best practice.

Business leaders and experts drawn from the ICC membership establish the business stance on broad issues of trade and investment policy as well as on vital technical and sectoral subjects. These include financial services, information technologies, telecommunications, marketing ethics, the environment, transportation, competition law and intellectual property, among others.

ICC enjoys a close working relationship with the United Nations and other intergovernmental organizations, including the World Trade Organization, the G20 and the G8.

ICC was founded in 1919. Today it groups hundreds of thousands of member companies and associations from over 120 countries. National committees work with their members to address the concerns of business in their countries and convey to their governments the business views formulated by ICC.

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