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## The interface between trade and climate change policies and the role of UNCTAD

Note by the UNCTAD secretariat

### *Executive summary*

The note identifies some of the most salient issues currently being addressed in different forums on the trade and development challenges posed by climate change, especially for developing countries. The issues include competitiveness in a carbon-constrained world, mutually supportive approaches to development and climate policies, and UNCTAD's role in this field. The note is intended to contribute to discussions on emerging issues in trade and development in the context of the forthcoming twelfth session of the United Nations Conference on Trade and Development, UNCTAD XII.

## Introduction

1. The purpose of this note is to help in the discussions of trade and development implications of the evolving climate change regime. It identifies some of the most salient topics currently being discussed in different forums and fundamentally addresses climate change as a development challenge. It therefore is intended to foster policy discussion, with a particular emphasis on developing country concerns.
2. Chapter I addresses competitiveness issues in a carbon-constrained world economy. Chapter II discusses some win-win scenarios, mutually supportive approaches linking development and climate policies, as well as some initial sectoral ramifications of such scenarios (namely, for the energy, transport, forestry and agriculture sectors). Chapter IV addresses what UNCTAD's role can be in the evolving development-climate change policy formation and implementation.
3. This note was prepared to assist UNCTAD member States in the discussions at UNCTAD XII and at the pre-event hosted by the Government of Brazil scheduled for 4 and 5 December 2007, as well as to serve as UNCTAD's input at the informal trade ministers dialogue convened by the Government of Indonesia during the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 13 in Bali on 8 and 9 December 2007.

### I. Carbon constraint future: competitiveness issues

4. It is clear that climate change will amplify the challenges of development and meeting basic human needs for many, if not all, developing countries. These countries might face considerable costs adapting to climate change and will most certainly require assistance in this context.
5. UNFCCC provides the framework for a collaborative and multilateral effort to combat climate change based on the principle of common but differentiated responsibilities among its parties. In that sense, it prompts the international community to take appropriate action and takes fully into account the fact that developing countries have development needs and a lower level of responsibility for the considerable increase in greenhouse gas concentrations in the atmosphere, which is directly related to energy, industrial and transport needs for human, social and economic development. In fact, developing country economies have historically contributed very little to the concentration of greenhouse gas emissions in the atmosphere, and their per capita emission levels in 2000 were significantly lower than those of industrialized economies. While developed nations had an average of 14 tons of CO<sub>2</sub> equivalent per capita, the average for developing countries was less than 3.5. Discrepancies among individual countries are also significant: in 2000, for example, the United States had 24.5 tons of CO<sub>2</sub> equivalent per capita, Brazil had 5 tons, China had 3.9 tons and India had 1.9 tons.
6. The entering into force of the Kyoto Protocol in 2005 represented a watershed on two levels. It provided evidence that Governments understood the severity of the climate problem and realized the necessity to begin restructuring their economies to mitigate adverse climate effects. It also marked the beginning of a fundamental shift in the world economy, particularly in its energy and transportation policies. It was clear that our future would be carbon-constrained and that the fossil fuel-based economy was bound to be gradually replaced with climate-protective alternatives. This emerging economic shift brought with it opportunities and challenges for development, trade, technology transfer and investment.

7. Although the Kyoto Protocol avoids specific trade obligations, the use of policy tools for the implementation of its targets and mechanisms will most likely have trade implications. For example, to meet its Kyoto reduction targets, a developed country Government may introduce, among other things, carbon/energy taxes, subsidies, energy efficiency standards, eco-labelling requirements, specification criteria for government procurement tenders, border tax adjustments to offset competitiveness losses from carbon taxes, and tariff preferences for developing countries. Another issue is that the use of unilateral – and often trade-related – measures to offset competitiveness concerns may increase as countries commit to stricter reduction targets.

8. Although both adaptation and mitigation are parts of the process of dealing with climate change, the restructuring of the productive and consumption processes as we know them today is the only effective way of solving or attenuating the problem. This implies the revision of contemporary mindsets, including the concept of sustainable development and the energy sources currently deployed.

9. Two types of competitiveness concerns related to the climate change regime have been identified: non-party and implementation concerns. These relate to competitiveness that applies between firms. While the first concerns an unfair advantage that non-party firms and sectors may enjoy because they are not subject to carbon constraints, the second corresponds to unfair competitive advantages for domestic industries that parties may create when implementing their commitments.

10. Regarding the non-party problem, competitiveness impacts associated with environmental regulation are likely to be moderate, but sectoral characteristics matter – depending on the energy-intensiveness of the sector, the state of technology and the extent to which firms may transfer cost increases to consumers – as does the form of regulation. The implementation problem, on the other hand, seems a less important cause of concern in terms of competitiveness issues arising from the climate change regime.

11. Several factors, at different levels, seem to affect the vulnerability of a firm to competitiveness impacts: (a) at the firm level, the main feature is the ability to innovate; (b) at the sectoral level, what matters are the existing opportunities for abatement, i.e. how energy intensive is the sector and what are the possibilities to convey cost increases; and (c) at the national level, the type of regulation and the allocation of burden are the determinant factors. Of particular concern to a given developing country is the ability to assess, anticipate and offset potential impacts of global climate policies on its carbon-intensive sectors and firms, particularly if these sectors produce a significant number of a country's tradable goods.

12. The challenges of climate policy are thus how to introduce policy incentives to steer investments towards lower carbon-intensive energy production and use, and how to make trade and climate policy mutually supportive, hence avoiding that economies are locked into unsustainable paths for the next 30 to 50 years, while dealing with competitiveness concerns in a nondiscriminatory manner, taking into consideration the special needs of developing countries, especially the least developed among those.

### **The development needs of the South**

13. Sustainable development as a path implies the adoption of a comprehensive and integrated approach to economic, social and environmental processes. It is also seen as intrinsically linked to the achievement of the United Nations Millennium Development Goals.

<b>United Nations Millennium Development Goals</b>
1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

14. Achieving the Millennium Development Goals presupposes considerable human-induced economic activities. Assuming current carbon intensity of economic growth, this might result in growing emission levels, which in turn would result in higher adaptation costs for developing countries in the future. Therefore, preventing temperature variations that would make projected changes become true (anything above a 2°C variation is a risk) and preparing for adaptation must be high on developing countries' agendas. As shown in figure 1, developing countries will be the worst affected if the planet's temperature rises more than 2°C.

**Figure 1. Examples of climate variability, extreme climate events and their impacts**

Projected Changes	Projected Impacts
Higher maximum temperatures, more hot days and heat waves over nearly all land areas  <i>Prognosis: very likely</i>	<ul style="list-style-type: none"> <li>▲ Incidence of death and serious illness in older people and urban poor</li> <li>▲ Heat stress in livestock and wildlife</li> <li>▲ Risk of damage to a number of crops</li> <li>▲ Electric cooling demand</li> <li>▼ Energy supply reliability</li> </ul>
Higher minimum temperatures, and fewer cold days, frost days, and cold waves over nearly all land areas  <i>Prognosis: very likely</i>	<ul style="list-style-type: none"> <li>▼ Cold-related human morbidity and mortality</li> <li>▼ Risk of damage to a number of crops</li> <li>■ Range and activity of some pests and disease vectors</li> <li>▼ Heating energy demand</li> </ul>
More intense precipitation events  <i>Prognosis: very likely, over many areas</i>	<ul style="list-style-type: none"> <li>▲ Flood, landslide and avalanche damage</li> <li>▲ Soil erosion</li> <li>▲ Flood run off could increase recharge of some flood plain aquifers</li> <li>▲ Pressure on government and private flood insurance systems and disaster relief</li> </ul>
Increased summer drying over most mid-latitude continental interiors and associated risk of drought  <i>Prognosis: likely</i>	<ul style="list-style-type: none"> <li>▼ Crop yields</li> <li>▲ Damage to building foundations caused by ground shrinkage</li> <li>▲ Risk of forest fire</li> <li>▼ Water resource quantity and quality</li> </ul>
Increase in tropical cyclone peak wind intensities, and mean and peak precipitation intensities  <i>Prognosis: likely, over some areas</i>	<ul style="list-style-type: none"> <li>▲ Risks to human life, risk of infectious disease epidemics</li> <li>▲ Coastal erosion and damage to coastal buildings and infrastructure</li> <li>▲ Damage to coastal ecosystems such as coral reefs and mangroves</li> </ul>
Intensified droughts and floods associated with El Niño events in many regions  <i>Prognosis: likely</i>	<ul style="list-style-type: none"> <li>▼ Agricultural and rangeland productivity in regions prone to drought and flood</li> <li>▼ Hydro-power potential in drought-prone regions</li> </ul>
Increased variability of Asian summer monsoon precipitation  <i>Prognosis: likely</i>	<ul style="list-style-type: none"> <li>▲ Flood and drought magnitude and damage in temperate and tropical Asia</li> </ul>
Increased intensity of mid-latitude storms  <i>Prognosis: little agreement between current models</i>	<ul style="list-style-type: none"> <li>▲ Risks to human life and health</li> <li>▲ Property and infrastructure losses</li> <li>▲ Damage to coastal ecosystems</li> </ul>

**Key to symbols**

- ▲ Increased
- Extended
- ▼ Decreased

Source: Climate Change Secretariat, 2005: 1.

15. It has been estimated that, in order to limit global temperature increases to this level, concentrations should be capped at 550 parts per million (ppm), meaning that global emissions would reach their peak by 2030 and be significantly reduced thereafter.

16. Therefore, the question is not whether activities required for development should take place, given the challenge of climate change, but in what forms these activities should be carried out. In sum, development is an undisputable necessity, and so is achieving development patterns that are sustainable, i.e. taking the climate change externality into account. While this challenge is common to all countries, different strategies are available and a country's choice will have important implications for the mitigation of climate change.

17. Many win-win scenarios exist, e.g. clean energy services will be a vital factor in promoting both sustainable development and climate mitigation goals. The Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report emphasizes that "given the fact that energy consumption and emissions per capita are low in the developing world, focus on climate mitigation alone may have large opportunity cost in terms of fiscal and human capitals, and therefore not be compatible with meeting sustainable development goals. Non-climate policies for sustainable development goals can be more effective in addressing climate change, such as population control, poverty eradication, pollution reductions, and energy security".

18. A great amount of resources and, most of all, creativity and policy ingenuity will be required to solve the global problem of climate change. Two additional ingredients are fundamental in this formula: international cooperation and mainstreaming climate concerns into development policies. Few now doubt that this is the way forward towards a lower carbon-intensive development path and the concretization of the Millennium Development Goals.

## **II. Climate change and development mutual supportiveness: win-win scenarios**

19. In the quest for more sustainable development paths, various products and production processes will have to be altered (or influenced) in order to be more climate friendly; however, a great array of opportunities – in terms of investment, trade and development – will also arise. Research and development partnerships, technology transfer and foreign direct investment via clean development mechanism projects are all means to achieve the stabilization of emissions at levels that will not endanger the planet.

20. As countries are at different levels of development, the paths and policies to achieve mitigation of greenhouse gas emissions and "climate friendliness" will not necessarily be the same for all. While developed countries have assumed international commitments to limit their greenhouse gas emissions, because they are historically responsible for current global warming trends, developing countries are taken by the urgent need to deal with poverty and hunger, lack of employment, health and child mortality, primary education, environmental degradation and all other issues encompassed under the Millennium Development Goals.

21. However, the objectives of development and fighting climate change are not mutually exclusive. On the contrary, it has been demonstrated that in many ways they are mutually supportive, and this is recognized in the text of the UNFCCC, which reads:

*Article 3.4. The Parties have a right to, and should, promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each Party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.*

22. At the policy level, climate change and development policy makers have been engaged in a dialogue on clean development paths, and how to integrate climate change concerns into development strategies and vice versa. This engagement has given fruits, such as the formulation of the SD-PAM (Sustainable Development Policy and Measures) concept, the projection of win-win-win scenarios, or the view of development-first vs. climate-first policies. No matter how epistemic communities want to name it, one fact is a scientific truth, as confirmed by the Third and Fourth Assessment Reports prepared by the IPCC: developing countries, while adopting policies founded in a cleaner development path, are already contributing to the mitigation of climate change.

23. Therefore, the question is: how to assist developing countries in achieving a cleaner development path? The answer is definitely not the imposition of barriers to trade with such countries, be them based on competitiveness or any other concerns. That is, climate change policies adopted by developed countries must not hinder development opportunities for developing countries, especially since in the increasingly globalized world economy these countries count heavily on the trade of agricultural, manufacture, textile and various other products for fulfilling their needs of foreign products, of payment of foreign debt, for investment in infrastructure, health, education, etc. Hence, climate change and development policies should go together, while trade policy should support this virtuous synergy, by avoiding any type of tariff and non-tariff barriers to developing countries' products. This is also what parties of the UNFCCC agreed to in their compromise:

*Article 3.5. The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including multilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.*

24. Thus, the main premise guiding current climate change discussions is that present and future development models can no longer follow the unsustainable path of a fossil fuel-based economy, which has been the growth strategy used so far, and that developed countries must assist developing ones in this pursue. Real efforts need to be put into decoupling greenhouse gas emissions trends and economic growth rates.

#### **A. What do development and climate change have in common?**

25. The impacts of climate change are unevenly distributed, with the poorest being hit the hardest, not only because of climatic and geographical conditions, but also due to a lack of ability and resources to respond. The mainstreaming of climate change aspects into development policies and strategies, and the formulation of adaptation strategies, coupled with enhanced efforts towards economic diversification, seem the necessary way forward.

26. Climate change economics is economics of risk, and much of the risk may be reduced through a strong mitigation policy, which can be achieved at a far lower cost

when compared to costs associated with adapting to adverse climate impacts. Developed countries have undertaken specific commitments under the Kyoto Protocol to limit greenhouse gas emissions, but no such commitment exists for developing countries. Thus, while developing countries do not have specific mitigation commitments, they can also achieve mitigation through development policies and measures, which would definitely ease the pressures on adaptation, on the one hand, and avoid the need to engage in mitigation in the future, on the other. If developing countries find the means and the technology to achieve clean development, they will be saving huge resources in the future (those that developed countries are currently spending on mitigation) while assisting in the effort to keeping global emissions at a safe level. There is then a quid pro quo situation not to be missed.

27. In this sense, mitigation is a highly productive investment. As the Stern Review states:

*“... taking strong action to reduce emissions must be viewed as an investment, a cost incurred now and in the coming few decades to avoid the risks of very severe consequences in the future. If these investments are made wisely, the costs will be manageable, and there will be a wide range of opportunities for growth and development along the way. For this to work well, policy must promote sound market signals, overcome market failures and have equity and risk mitigation as its core”.*

28. The evidence gathered by the review leads to the conclusion that there are increasing risks of serious, irreversible impacts from climate change associated with business-as-usual paths for emissions, and that the benefits of strong, early action considerably outweigh the costs.

29. Furthermore, the Fourth IPCC Assessment Report demonstrated that economic growth has been driven by emissions, but that the stabilization of greenhouse gas concentrations in the atmosphere is feasible with sustained growth, because changes in energy technologies and the structure of economies have reduced responsiveness of emissions to income growth. The Stern Review adds that with strong, deliberate policy choices, it is possible to “decarbonize” both developed and developing economies on the scale required for climate stabilization, while maintaining economic growth. In conclusion, the world does not need to choose between averting climate change and promoting growth and development; these policies can and will have to go together in order to prevent uncontrolled – and avoidable – emissions growth coming from developing countries.

30. The main premise, then, is to introduce pragmatic policy options towards decoupling emissions trends and economic growth rates, whilst addressing the human development needs of the South.

31. So, how can this be achieved? Possibilities are offered by several sectors if wise development policies are chosen now. Costs and opportunities will be incurred in the shift from a high-carbon to a low-carbon path. In addition, growing investment opportunities will arise in developing and developed countries. Significant new opportunities are foreseen across a wide range of industries and services, with markets for low-carbon energy products likely to be worth at least \$500 billion per year in 2050.

32. Climate change policy can thus help to root out existing inefficiencies and can open the way for new boosts to technology transfer and investment in developing countries at relatively lower costs when compared to mitigation costs in economies of the Organization for Economic Development and Cooperation (OECD). It can

also help decrease high adaptation costs foreseen by 2050 if the world temperature is allowed to rise by 5–6° C.

33. Greenhouse gas emissions can be cut in four ways. Costs will differ considerably depending on which combination of these methods is used, and in which sectors:

- (a) Reducing demand for emissions-intensive goods and services;
- (b) Increased efficiency, which can save both money and emissions;
- (c) Action on non-energy emissions, such as avoiding deforestation; and
- (d) Switching to lower carbon technologies for power, heat and transport.

34. While the International Energy Agency (IEA) shows that increases in energy efficiency have the potential to be the biggest single source of emissions savings in the energy sector by 2050, action will also be required on non-energy emissions, which make up one third of total greenhouse gas emissions, such as deforestation, whose prevention would be relatively cheap compared with other types of mitigation.

35. Climate change policies also have some other development benefits, such as contributing to reducing ill health and mortality from air pollution-born causes, preserving forests, and thus biodiversity, addressing gender issues and increasing energy security, among others.

36. Greater international cooperation to accelerate technological innovation and diffusion is urgently needed to reduce the costs of mitigation. Although the private sector is the major driver of innovation and the diffusion of technologies around the world, Governments can help promote international collaboration to overcome barriers in this area, through inter-State arrangements, including the reduction of trade barriers and negotiation of international standards, and through public-private partnerships. Technologies must, however, be locally inclusive and adapted to the needs and characteristics of a particular place/country.

37. To sum up, climate change is influenced not only by the climate-specific policies, but also by the mix of development choices and the resulting development trajectories. The preferred mix of policy decisions and their effectiveness in terms of sustainable development and climate change mitigation strongly depends on national characteristics. Making development more sustainable by changing development paths can undoubtedly make a significant contribution to climate goals.

## **B. Opportunities at the sectoral level to change development pathways towards lower emissions through development policies**

38. Just as development policies may lead to direct or indirect greenhouse gas emissions reduction, climate change policies may have beneficial development effects. As mentioned, climate change and development policies may either be looked at as a self-contained set of actions, or in an integrated approach. Whether climate change policies are considered in their own right (climate-first), or as an integral element of a sustainable development path, developing countries gain by taking action. Not only they can lead by example and reduce the costs of adaptation, but they may also benefit from the business and investment opportunities that are arising, and may save resources by adopting energy-efficient technologies and by investing in a one-time clean development path that will not need to be updated in order to cover for mitigation measures in the near future.

39. Well-designed development policies (development-first) may play an important role in tackling climate change, which can be catalysed by the mainstreaming of climate change into development policies, with the consideration of climate change mitigation in non-climate policies, programmes or individual actions taken. Mainstreaming is important for both developing and developed countries, as a way of entering a low-carbon development path.

40. In the absence of direct constraints on emissions, indirect approaches to climate mitigation should not be underestimated, especially in developing countries, which have development imperatives to be dealt with. Finally, developing countries generally face lower abatement costs for the implementation of clean/top technologies, as no amortization periods exist for previous “high carbon” investments, as is the case in developed countries.

41. Below we will briefly examine – in a non-exhaustive manner – some selected sectors that present quite important mitigation opportunities, as discussed in the IPCC Fourth Assessment Report. Each selected sector – Energy, Transportation, and Forestry and Agriculture – is analysed in relation to windows of opportunity, areas in which either well-planned development policies or mitigation action will bring gains to developing countries. The analysis below is twofold, covering gains from development-first policies climate-first policies.

## 1. Energy

42. **Development-first:** Access to energy is critical for the fulfilment of the Millennium Development Goals and for the provision of basic services such as lighting, cooking, refrigeration, telecommunications, education, transportation, etc. While almost 1.6 billion people remain without access to electricity, mainly in Africa and South-East Asia, an additional 800 million rely on traditional biomass for cooking and heating purposes. The use of biomass resources is responsible for killing thousands of children and adults from respiratory diseases and for occupying a lot of the time of women and girls, who are the main responsible for seeking fuel in poor countries.

43. Providing reliable access to electricity would have a highly positive impact on human development, while decreasing indoor air pollution by a great amount, in case a shift from crop residues to liquefied petroleum gas, kerosene, ethanol, biodiesel and biogas takes place.

44. Energy efficiency, reducing energy demand without negatively affecting output at the lowest possible cost, is another goal with a direct impact on development, saving financial resources of public and private actors alike, and on greenhouse emissions, depending on the carbon content of the energy supply. According to IEA, policies that increase energy efficiency have so far saved a great amount of energy, and therefore of CO<sub>2</sub> emissions, representing almost 50 per cent of 1998 energy consumption levels. Other positive effects are the increase of competitiveness and decreased dependency on foreign energy, as well as increased availability of resources for other development goals.

45. Mainstreaming climate change into energy policies would mean the adoption of cost-effective renewables, the implementation of demand-side management programmes, and investment in transmission and distribution loss reduction. Other non-climate measures, such as the diversification of imported and domestic fuel mix and reduction of energy intensity (energy security aim), and the promotion of liquefied petroleum gas, kerosene or electricity for cooking (rural development aim), have also shown a positive impact on the fight against climate change.

46. **Climate-first:** The two main mitigation options in the energy sector (energy supply and use) are those that improve energy efficiency and those that reduce the use of carbon-intensive fuels. Energy efficiency can be achieved in every sector – industry, buildings, fuels and transportation – contributing to reduced pollution, creation of business opportunities, reduced spending on energy for poor families, and improved energy security. Fuel switching may also bring health and economic benefits to the local population, if the switch is to a safer, cleaner source.

## 2. Transportation

47. **Development-first:** Transportation is one of the fastest growing end-use sectors in terms of CO<sub>2</sub> emissions, besides being a key development issue. Public policies may influence the technologies used for transportation as well as their cost, and broader public policies such as those related to urban planning, land use and infrastructure may also affect transportation emissions by promoting the decrease (or increase) of distances travelled by goods and people.

48. In the transportation sector, long-term planning is key, since the demand and supply of transportation are largely inelastic in the short term. This means that coherence is required from successive administrations, and continuity is demanded from policymakers, to foster private investment and partnerships. Transportation mode and fuel source choices are also means to influence – positively or negatively – greenhouse gas emissions in an area, region or country.

49. **Climate-first:** Fuel switch (for a lower carbon option) is both an energy and a transportation policy. Biofuels, for example, although envisaged as a solution for current climate challenges, began in Brazil as an oil substitution strategy and a development priority. It may promote rural development and increase energy security in a sustainable way when practiced with crop residues or second-generation sources. Transportation efficiency (which is also an energy issue) involves vehicle standards and transportation planning. Mitigation measures may result in reduced air pollution, higher fuel economy and better urban planning.

## 3. Agriculture and forestry

50. **Development-first:** A broad spectrum of policies have an impact on the amount of emissions – and sequestration capacity – from the forestry and agriculture sectors, such as those shaped to achieve environmental protection of biodiversity, soil and water conservation, and development policies aimed at rural development, agricultural exports or domestic support. Agriculture intensification policies may increase the productivity of cultivated land and lower pressures on forests. However, they could also trigger migration and increased deforestation. It is also estimated that the reduction of agricultural subsidies could have a beneficial impact on the environment and reduce greenhouse gas emissions by decreasing the incentives for over-exploitation of land.

51. Land-use and land-use change policies, and policies regarding bioenergy and biomass substitution, are directly related to the emissions produced by forests. Deforestation, one of the main sources of emissions from developing countries, has to be tackled both in an integrated and a specific manner, by policies that deal with its drivers, which change from region to region. Adoption of forest conservation and sustainable management practices are thus development policies which have a direct impact on greenhouse gas emissions.

52. **Climate-first:** These policies could lead to the following development benefits: in forestry, for example, both afforestation and avoided deforestation, including forest management, may bring significant sustainable development benefits, by promoting local communities, by reducing wasteland, arresting soil

degradation and contributing to water management. In agriculture practices, cropland, grazing land and livestock management are three mitigation options suggested to tackle climate change. They may bring direct developmental benefits by promoting the environmental health of ecosystems and water quality, and by reducing desertification and improving productivity, providing social security to the poor.

53. Finally, macroeconomic policies such as exchange rate policies, fiscal policies, government budget deficits, or trade policies may have important impacts on carbon intensiveness of economic sectors.

54. Among macroeconomic policies, trade policies are extremely relevant for analysis, given the recent expansion of international trade (from 1947 to 2005, international trade has expanded 33-fold). Although the general consensus is that openness is beneficial for economic growth in the long run, the pace of openness and its consequences affect greenhouse gas emissions globally. That is, as products consumed in a given country are no longer necessarily produced at the place of consumption, consumers may have the idea that the products they consume are cleaner, whilst emissions are taking place abroad.

55. It is widely known that, for many cases, developing countries use production techniques which are less carbon-efficient compared to developed countries techniques. This leads to a second issue, which may be seen as an obstacle to implementation – the trade barriers imposed on clean technologies by developing and developed countries. A study by the World Bank demonstrates that the elimination of tariffs and non-tariff barriers could lead to a considerable increment (from 7 per cent in the case of tariff removal to 14 per cent for removal of tariffs and non-tariff barriers) in the volume traded of clean technologies, including clean coal, wind, solar and fluorescent lighting.

56. For developing countries to tackle these areas, a significant boost in new investment and technology transfer will be needed, independently from the international scenarios being designed for a second commitment period – post-2012 – in the Kyoto Protocol. The scope for larger South-South trade should also be further examined.

57. To sum up, although the examples discussed above are very diverse, the IPCC Fourth Assessment Report draws some general patterns:

- (a) In any given country, sectors where effective production is far below the maximum feasible production with the same amount of inputs – sectors that are far away from their production frontier – have opportunities to adopt “win-win-win” policies, which free up resources and bolster growth, meet other sustainable development goals, and also, incidentally, reduce greenhouse gas emissions relative to baseline.
- (b) Sectors where production is close to the optimal, given available inputs – sectors that are closer to the production frontier – also have opportunities to reduce emissions by meeting other sustainable development goals, but the closer to the production frontier, the more trade-offs are likely to appear.
- (c) In many of the examples reviewed and mentioned above, what matters is not only that a “good” choice is made at a certain time, but also that the initial policy has persisted for a long period – sometimes several decades – to truly have effects.
- (d) Moreover, often not one policy decision but an array of decisions is necessary to influence emissions.

- (e) Finally, institutions are significant in determining how a given policy or a given set of policies ultimately impact on greenhouse gas emissions.

### **III. UNCTAD areas of intervention**

58. The need for unbiased economic analysis, capacity-building and consensus-building on mutually supportive policy scenarios that address the trade, investment and development implications of climate change has been increasingly recognized. Admitting that future economies will be carbon-constrained, UNCTAD has a significant role to play in preparing developing countries for expected shifts in relative prices and relative production costs stemming from the introduction of climate policies and measures. Moreover, UNCTAD could contribute to a smoother transition to a post-high-carbon economy.

59. As a growing commitment towards more active climate change policy at both the national and international levels is observed, UNCTAD is particularly well placed to address the following issues:

- (a) Trade competitiveness aspects of climate change policies;
- (b) Trade and development gains and investment opportunities arising as climate change measures are adopted;
- (c) Investment promotion and development gains in developing countries under the Clean Development Mechanism of the Kyoto Protocol; and
- (d) Compatibility issues between climate policy and trade rules.

60. It is proposed that the following activities, among others, are undertaken in the period 2008–2012:

- (a) Economic analysis on trade and climate change interface, for example by assessing trade and development impacts of specific emission reduction proposals;
- (b) Development of training material on the rules of the Clean Development Mechanism (CDM), so that a considerable number of developing nations can attract investment via CDM towards energy development projects;
- (c) Organization of international policy forums to discuss the interface and mutual supportiveness of trade and climate change policy at the international, regional and national levels; and
- (d) Assessment of the potential for the production, domestic use and trade of biofuels in developing countries, including ways to prevent non-tariff barriers related to trade in biofuels.

### **IV. Conclusions**

61. As discussed, greenhouse gas emissions are influenced by but not rigidly linked to economic growth. Decoupling emissions trends and growth, with the right policies in place, could result in sound economic growth with lower greenhouse gas emission patterns.

62. A clean development path should be sought by developing and developed countries, and financial and technology means should be made available, especially for developing countries, so that climate change measures may be mainstreamed into development policies.

63. As stated in the Fourth IPCC Assessment Report:

*“...changing development paths will be critical to addressing mitigation and the scale of effort required is unlikely to be forthcoming from the environmental sector on its own. If climate policy on its own will not solve the climate problem, future research on climate change mitigation and sustainable development will need to focus increasingly on development sectors. A better understanding is needed of how countries might get from current development trajectories onto lower-carbon development paths – how to make development more sustainable.”*

64. Climate change is a development challenge which requires an integrated approach. Sustainable development policies will necessarily be context-specific and attuned with local and national realities. However, several measures are low cost, highly effective and easy to replicate. Synergy should be sought with relevant non-climate policies including trade, finance, rural and urban development, water, energy, health, agriculture, forestry, insurance and transport, among others, which may directly or indirectly affect greenhouse gas emissions/sinks.

65. A portfolio of technologies will be required to stabilize emissions. With the widespread use of new technologies, it is expected that the costs will decrease through economies of scale. Mitigation costs will thus be determined by the development pathway pursued by countries.

66. The worst impacts of climate change can still be avoided if decisive collective action is taken. Reducing its risks requires cooperation at many levels, among various actors, public and private. Nonetheless, costs of delay will far outweigh the costs of taking immediate action.