United Nations TD/B/C.I/MEM.2/13

United Nations Conference on Trade and Development

Distr.: General
21 January 2011

Original: English

Trade and Development Board
Trade and Development Commission
Multi-year Expert Meeting on Commodities and Development
Third session
Geneva, 23–25 March 2011
Item 3 of the provisional agenda
Developments and challenges in commodity markets: current situation and outlook

Recent developments in key commodity markets: trends and challenges

Note by the UNCTAD secretariat*

Executive summary

The trend in commodity prices during 2010 was driven by a strong demand for commodities in emerging Asian economies, stock replenishment in Organization for Economic Cooperation and Development (OECD) countries as well as diminished concerns about the contagion of financial turbulence in Europe. Commodities that experienced the largest variation in prices were those closely related to the evolution of the global industrial production cycle (e.g. minerals and metals). In contrast, the prices of agricultural commodities grew at moderate rates. This background note, prepared to assist in the deliberations of the 2011 edition of the Multi-year Expert Meeting on Commodities and Development, reviews the current situation and outlook of commodity markets and prices, and identifies short- and medium-term trends, and factors affecting market fundamentals and trade in various commodity sectors. It examines the current state of diversification and value addition in Africa, discusses the impact of climate change on key agricultural commodities and highlights opportunities generated by the current imperatives for greening the economy.

* This document was submitted on the above-mentioned date as a result of processing delays.

Introduction

1. The objective of this background note is to facilitate deliberations of the 2011 Multi-Year Expert Meeting on Commodities and Development in its deliberation under item 3 of the provisional agenda of its third session. The note is structured as follows. Chapter I reviews the current situation and outlook of commodity markets and prices, identifying short- and medium-term trends, factors affecting market fundamentals, and trade in agriculture, minerals and metals, fisheries and forestry. Chapter II offers an account of the current state of diversification and value addition in Africa, and discusses the impact of climate change on key agricultural commodities and highlights opportunities generated by the current imperatives for greening the economy. Chapter III concludes the note.

I. Recent commodity price developments

A. General overview

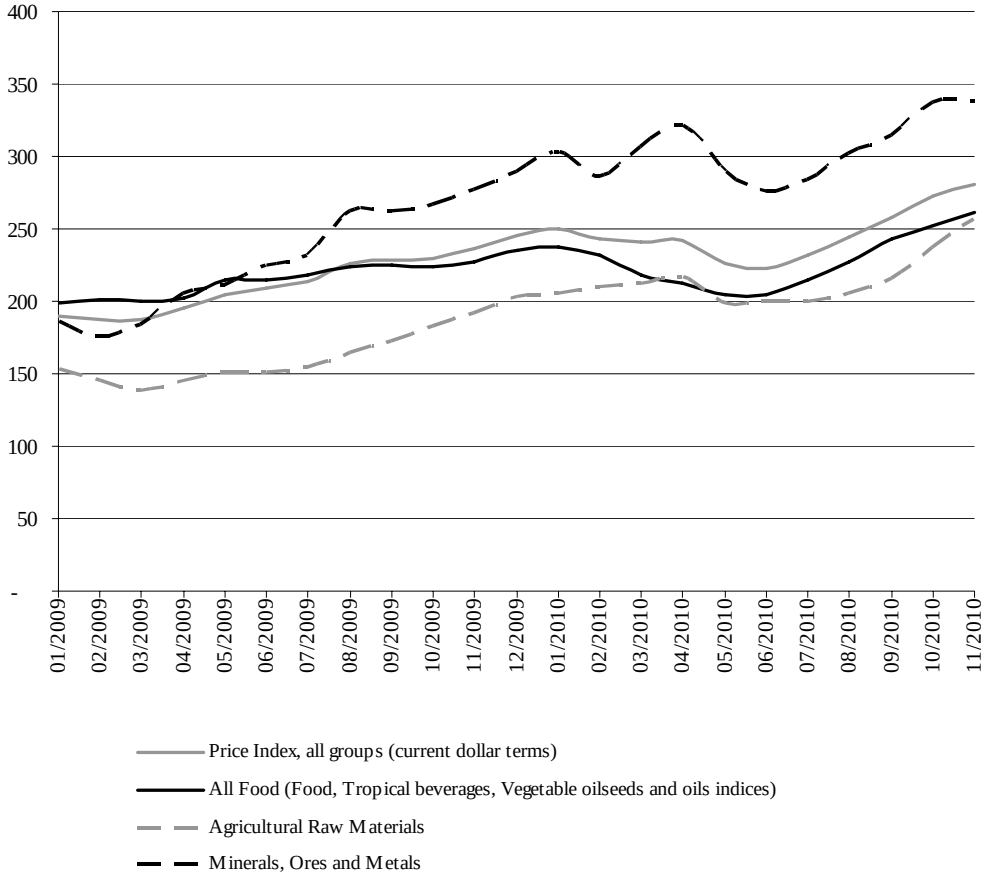
2. After a marked global slowdown in 2008 and real contraction of almost 2 per cent in 2009, the world economy appears to be recovering. Global economic growth in 2010 is estimated to have been at 4.3 per cent with large variations across regions. In Asia, due to effective stimulus programmes, emerging countries' growth averaged 9.4 per cent, whereas the economy of developed nations increased by an average of 2.7 per cent. It was in this context that, as indicated in figure 1, commodity prices, particularly those of crude petroleum, continued their upward trend over 2010, though not reaching the peak levels seen in 2008. Financial turmoil in the euro zone broke this trend during the second quarter of 2010 (May–June); but the rising trend reformed in the second half of the year. This trend was driven by a strong demand for commodities in emerging Asian economies, stock replenishment in OECD countries as well as decreasing concerns about the contagion of the financial turbulence. Commodities that experienced the largest variation in prices were those closely related to the evolution of the global industrial production cycle (e.g. minerals and metals). In contrast, the prices of agricultural commodities grew at moderate rates.

3. Prices are set to continue on their positive trend in 2011 due a combination of factors related to market fundamentals as well as the pace of recovery of the global economy. Indeed, forecasts indicate a lower growth rate for 2011 as worldwide economic activity is expected to expand by only 4.2 per cent in 2011[1] due to a slight decline in the recovery of Asian and Latin American emerging economies. IMF figures indicate that building on the 2000–2010 trend, in 2011, Africa will claim 7 of the top 10 places of the fastest-growing economies over the next five years.[2] Figure 1 provides a snapshot of the recent non-oil commodity prices.

[1] International Monetary Fund (IMF) (2010). *World Economic Outlook. Recovery, Risk, and Rebalancing.* Washington, D.C.

[2] *The Economist* online on 06 January 2010: http://www.economist.com/.

Figure 1.
Monthly averages of commodity price indices, January 2009–November 2010)
(current $; base 2000 = 100)



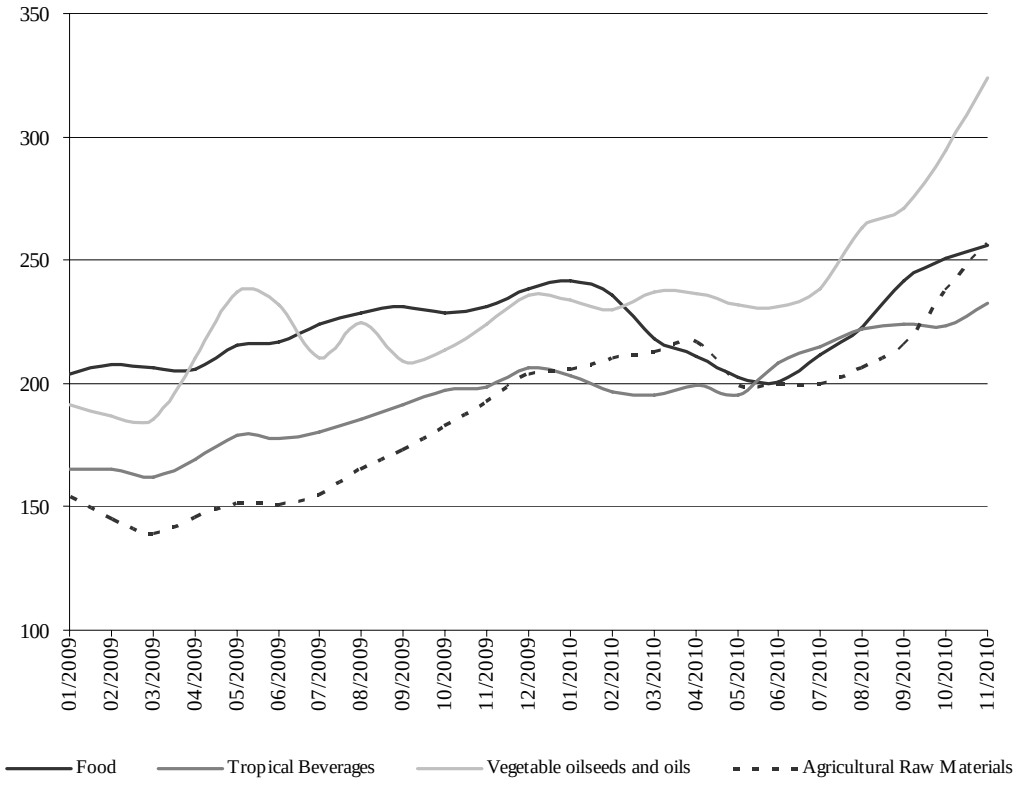
Source: UNCTAD, UNCTADstat Commodity Price Statistics.

B. Commodity price developments by sector

1. Agricultural commodities

4. The overall agricultural commodity price index recovered during 2009 and the first quarter of 2010. A disaggregation by quarter shows that agricultural commodity groups experienced variations in the direction and magnitude of these changes. The price index of agricultural raw materials experienced a sharp increase due to supply shortfalls generated by adverse weather conditions as well as strong demand in Asian emerging economies. During the second quarter of 2010, much of this price increase was lost before recovering in the second half of the year following tentative improvements in the global economy. The food price index decreased during the first half of 2010 before going up sharply, reaching a peak in November 2010 (figure 2).

Figure 2.
Agricultural commodity price indices, January 2009–November 2010
(current $; base 2000 = 100)



Source: UNCTAD Commodity Price Bulletin.

5. The increase in food price index was largely driven by wheat prices. Indeed, in September 2010, wheat prices reached a two-year high due to adverse weather conditions in major producing and exporting countries – Argentina, Canada, France, Germany, Pakistan and the Black Sea region, (mainly the Russian Federation and Ukraine). According to earlier forecasts, world wheat crop was expected to fall by about 4–5 per cent following last year's record harvest. However, recent downward revisions by the United States Department of Agriculture of its earlier 2010 United States wheat yields[3] would suggest that, despite robust wheat crop harvests in Brazil, stock levels for 2009/10 would be somewhat lower than earlier predictions. Nevertheless, in a context of a relatively healthy stock-to-use ratio for total grains (20 per cent) and all wheat (28 per cent) for 2010/11, wheat and cereal prices are unlikely to increase sharply in the short term, although a projected increase in wheat consumption due to increasing human consumption and industrial uses might yet increase the pressure on supplies of stocks.

6. The prices of rice, corn and sugar generally trended downwards during the first half of 2010, although prices remained high compared to their 2000s average. Rice prices recovered slightly over the third quarter of 2010 because of adverse weather in large Asian

[3] *Financial Times,* 13 October 2010.

producing countries, but are unlikely to increase further in the last quarter of 2010 because of large available quantities for export combined with a weak increase in demand. Corn prices recovered in the third quarter of 2010 because of increased demand, increasing concerns about United States corn yields in 2010 and developments in other cereal markets. The price increase for sugar in the third quarter of 2010 was underscored by projected higher world demand for refined sugar in a context of anticipated market deficits.

7. During the 15 months leading up to July 2010, although the oilseeds and vegetable oils index had not experienced any strong variations, it continued moving at levels above those prevailing prior to the 2008 peaks. Tightening supplies due to severe droughts in South America and delayed planting in the United States (soybean oil) combined with continued strong demand from China, India, the European Union (EU) and the United States (palm oil) led to a sharp increase in prices during the third quarter 2010.

8. Weather-induced factors have had greatest influence on the supply and price developments of tropical beverages in 2010. Coffee prices steadily increased over the first 11 months of 2010 as world coffee production decreased in 2009/10 by about 6.4 per cent due to the fall in output in several large producing countries (Brazil, Colombia and Viet Nam) induced by adverse weather. In a context of increased coffee consumption (mainly in producing countries), international stocks would continue to fall to critical levels, in particular for the highest grades of Arabica, and therefore exert additional pressure on prices in the last quarter of 2010.

9. Cocoa prices peaked at $1.60 per pound in January 2010 due largely to supply deficits.[4] However, prices dipped to a three-month low of $1.39 per pound in August 2010, only to rally for three months following speculative behaviour of a hedge fund taking delivery of 240,100 tons of cocoa beans (about 7 per cent of global supply). Prices fell in the last quarter of the year and were projected to remain subdued in the coming year due to reports of improved cocoa harvests in Côte d'Ivoire and Ghana, despite initial concerns over the potential impact of black pod disease in West Africa. By December 2010, political unrest in Côte d'Ivoire reversed the trend and led to a sharp increase in prices.

10. After dropping to 139 in March 2009, the price index of agricultural raw materials increased steadily over the second half of 2009 and throughout 2010, reaching 257 in November 2010. This peak was largely underscored by cotton, whose upward trend in 2010 reached historic peaks by November. A significant drop of world cotton production was recorded in 2009/10 in a context of projected increased demand for fibres due to increasing purchases from India and China. Despite forecasts of a large increase in world cotton production for 2010/11 (+15 per cent), prices are likely to remain high because of increasing demand and low stock levels.

11. And finally, rubber prices peaked in the fourth quarter of the year due to the forecast of a fall in world production because of adverse weather in the main producing countries and increasing demand from the tyre industry in China and India.

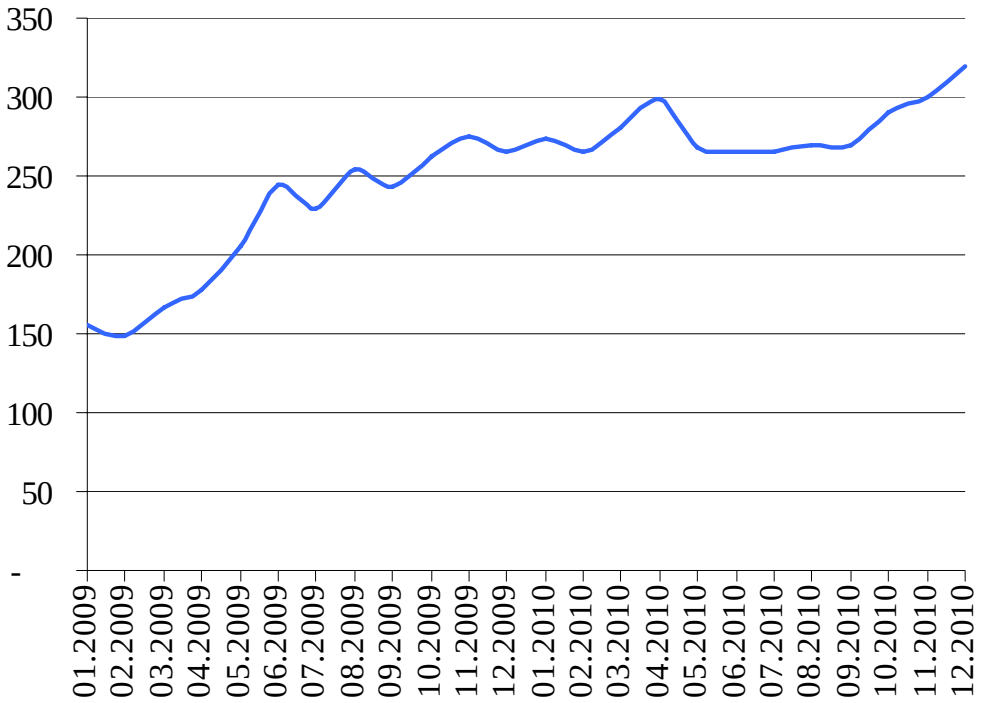
2. Crude oil

12. In 2009, oil prices averaged $61.79 per barrel, a decline of 36 per cent in comparison with the average of $97.02 per barrel recorded in 2008. However, prices increased from the last quarter of 2009 and over the first quarter of 2010, largely due to bullish sentiment in the market and cold weather in the Atlantic basin. In the second quarter of 2010, oil prices dropped only to increase again in the last quarter to above $90 in December (Fig. 3). The main price driver has been the stronger-than-expected recovery in

[4] ICCO (2010). *Cocoa Market Review May 2010*. June.

the global economy. Developing countries remain the main oil consumers, accounting for more than 75 per cent in total oil demand growth, led by China, India, the Middle East and Latin America. On a yearly basis, the average oil price reached $79 a barrel in 2010 and could exceed $80 a barrel for 2011. In a context of continuing weakness of the United States dollar increasing demand, Organization of the Petroleum Exporting Countries (OPEC) production quotas, and near exhaustion of easily accessible sources of supply, the oil market faces uncertainties which make it a challenge assessing the development of oil prices over the short and medium term.

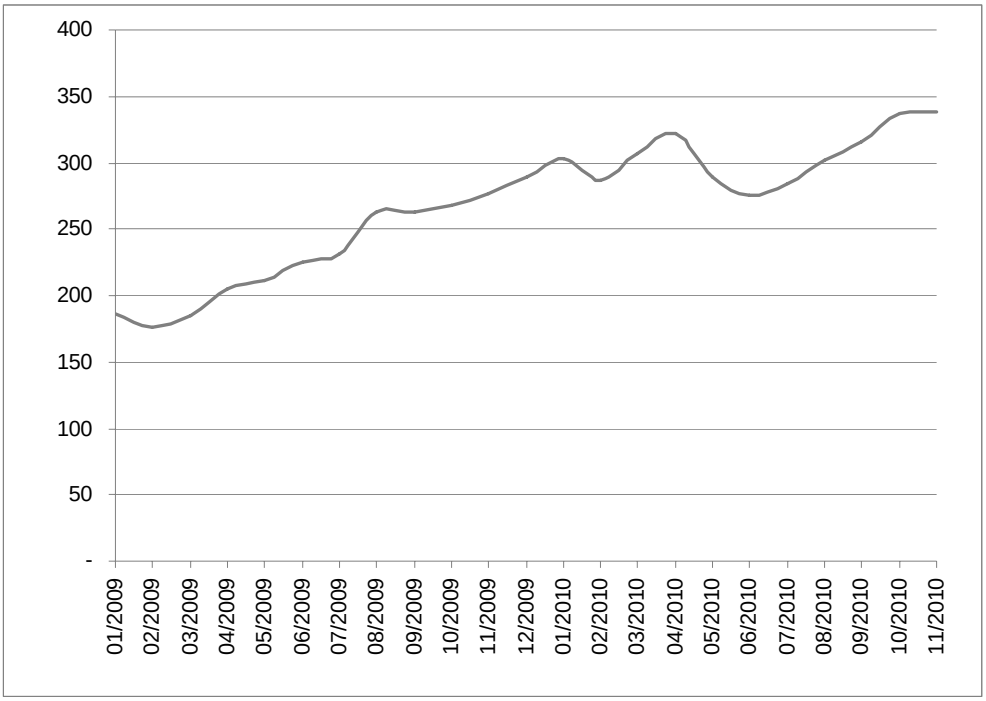
Figure 3.
Crude oil price index, average of Dubai/Brent/Texas equally weighted ($/barrel), January 2009–December 2010
(current $; base 2000 = 100)



Source: Crude petroleum price indices: UNCTAD, UNCTADstat.

13. Minerals, ores and metals price indices sharply increased in 2009 with copper, lead and zinc driving the price gains, which were a response to the stronger-than-expected recovery in emerging countries. Notably, in 2009, Chinese base metals demand grew about 24 per cent, whereas metal consumption declined about 13.5 per cent in the rest of the world. The upward trend in metal prices continued during 2010 (figure 4) due to a combination of tightening supply and a strong demand from Asian countries and Brazil. Over the next few years, the shortage of investment in new mines, coupled with an already challenging situation in upgrading mining capacity are set to further generate a supply contraction. Thus, if demand continues to grow at the rates observed over the past years, metal prices could their rise in the medium term.

Figure 4.
Minerals, ores and metals price index, monthly averages, January 2009–November 2010 (current $; base 2000 = 100)



Source: UNCTAD, UNCTADstat Commodity Price Statistics.

14. Copper prices more than doubled (at a time when the world experienced its worst financial crisis and deepest economic contraction) as a result of tight supply owing to under-investments in mine production. This was compounded by a 7 per cent increase in demand for copper (compared to 2009) growing consumption in emerging countries and the slight recovery of OECD economies, in particular Japan and some EU member countries. In January 2010, copper prices rose to $7,386 per ton mainly influenced by strikes in key copper mines of the CODELCO group in Chile. On a monthly basis, cooper prices reached historical levels, averaging $7,400 per ton from January to November 2010. In 2011, copper demand could strongly increase due to the Chinese restocking phase, in particular of refined copper, leading to an even greater prices increase.

15. Lead prices have remained at about 80 per cent above their average since the beginning of the 2000s.[5] During the first half of 2010, lead prices continued the decreasing trend that began in 2009. Price recovery only began in the second half of 2010, mostly due to increased demand from the battery industries, but this was hindered by rising inventory levels. Indeed, between early 2009 and December 2010, lead stocks registered with the London Metals Exchange (LME) have more than quadrupled constituting the highest level recorded since late 2002. In the short term, the reopening of operating facilities that were closed or where activity was reduced during the economic slowdown will contribute to increase stocks but will not be enough to support a demand take-off in the short-to-medium term. Moreover, as supply of lead could be affected by restrictions on current production

[5] Computations over the first three quarters of 2010.

technologies imposed by environmental policies, it is likely that prices will remain high in 2011.

16. After doubling over 2009, zinc prices followed a downward trend in the first months of 2010 due to the reopening of mines that were closed or slowed down during the economic turmoil. Global production of zinc increased about 15 per cent, driven by countries such as China where production grew by about 25 per cent. As demand started to increase, prices went up, averaging $2,300 per ton as of October 2010. Zinc consumption may approach 13 million tons in 2010 (about 20 per cent above its 2009 level), thus contributing to consolidating the upward price trend. The main demand increases will be observed in Asia, in particular in the Republic of Korea, Japan and China, as well as in Europe and Brazil. Tin prices also largely increased in 2010, recording an average price of $20,400 per ton (more than the double its price since the beginning of the 2000s). This increase was due to the combined effect of three factors: (a) a fall in production in Indonesia; (b) the increased demand from the Chinese electronic sector; and (c) the sharp contraction of tin stocks between January and October 2010 (e.g. LME stocks were divided by two over the period).

17. The price of gold continued its soaring trend in 2009, at an average of $973 per ounce, up $100 per ounce over the previous year. In 2010, the average gold price surged to an average of more than $1,200 per troy ounce during the first 11 months of the year, (more than double its average price over the 2000s). This development is underscored by several factors, including market fundamentals. Increased demand mainly driven by the jewellery (15.5 per cent) and the electronic (21 per cent) sectors combined with the fall of world production (-8.5 per cent), largely contributed to push gold prices to astronomical levels. Gold has also largely been used as safe investment vehicle since the beginning of the economic and financial crisis in 2007.[6] The outlook for gold remains positive as long as the imbalance between demand and supply in the Chinese market persists.

3. Fishery and forestry

18. Despite the contraction of global demand for fish at almost 8.5 per cent, on a monthly basis, price increases for most species were noted in 2009. In 2010, fish prices remained at historical highs at about 53 per cent above their 2000 to 2009 average, with a price per kilo of around $6.00. Between January and September 2010, for example, fish prices sharply increased by 17 per cent. The current trend in fish prices is mainly supported by market fundamentals. Strong demand for fish is sharply driven by improving economic conditions in China, where per capita consumption dramatically increased, from 5kg per capita/per year in the 1970s to about 26kg in 2008/09. During the same period, consumption has continued to grow steadily in other areas of the world. The trend for fish trade remains positive as the shares of production in both developed and developing countries entering international markets are set to continue to rise.

19. The price of non-coniferous wood prices increased by an average of 2.5 per cent during January–July 2010. This trend may be explained by the strengthening of the demand associated with a slight upturn of the world economy and its effect on the building sector, mostly in Asian developing countries and, to a lower extent, in developed countries. For example, Chinese log imports increased by 37 per cent over the first quarter of 2010

[6] From 2000 to 2006, the average of gold price ounce was about $380, while from 2007 to 2010, its average price rose to around $915 per ounce.

compared to the same period in 2009. The imposition of log export taxes in the Russian Federation could also have played a role in increasing wood prices.[7]

II. Development challenges in a changing climate

20. Economic diversification and higher value addition have been key components of the development strategy of many commodity-dependent developing countries (CDDCs) in the past half century of so. In Latin America and Asia, the results have been largely positive. In contrast, in Africa, in particular, sub-Saharan Africa, diversification and higher value addition have generally remained elusive with a few notable exceptions.

A. Diversification and value addition

21. Most African economies at the start of the twenty-first century displayed very low levels of export diversification and had largely not succeeded in graduating from traditional exports to more dynamic exports with greater value addition and higher earning potential. As reported by the Economic Commission for Africa and the African Union, it appears that episodes of diversification (and value addition) in Africa have been sporadic and short-lasting, with the gains of one period often being reversed in the next.

22. With regard to the extractive industries, exports of raw commodities are by and large the norm in sub-Saharan Africa. It is estimated that in 2006, for instance, only gold, copper and platinum group metals were exported in refined form from the region, while other commodities such as bauxite, coloured gemstones, diamonds, iron ore, petroleum and uranium were exported without significant downstream processing. Although several countries have acknowledged the need to adopt a strategy to facilitate a shift from a resource-based to a knowledge-based economy focused on value addition, none has fully succeeded in doing so, perhaps with the exception of South Africa.[8] Indeed, stakeholders from the mining sector in South Africa suggested establishing a beneficiation agency to drive downstream, upstream and sidestream beneficiation.[9] Changes have also been made to the country's mineral charter in line with the Government's strategy for local industrialization, job creation and poverty alleviation. The September 2010 edition of the country's Mining Charter explicitly strengthens the notion of local content to support local industries.

23. More generally, diversification, value addition and enhancing local content are being increasingly discussed in multi-stakeholder gatherings in the extractive industries. As part of this drive, the theme of the fourteenth UNCTAD Oil and Gas and Minerals Trade and Finance Conference held in Sao Tome and Principe in November 2010 was **"**Natural Resource Development: Value Creation and Retention". The meeting, among other things, underscored the need for local content requirements being made an integral part of investment promotion efforts.

[7] United Nations Economic Commission for Europe and FAO (2010). *Forest Products, Annual Market Review. Innovation for Structural Change Recovery*, United Nations.

[8] Even then, South Africa's remains limited. In the first half of 2010, for example, primary goods accounted for almost three quarters of the country's exports (research by South Africa's Industrial Development Corporation reported in *Mining Weekly*, http://www.miningweekly.com/print-version/resources-exports-2010-12-08, accessed 09.12.2010).

[9] This is a value-adding process for minerals which is usually adopted with the objective of achieving higher export sales value.

24. Despite their potential for wealth creation, it is estimated that extractive industries in Africa only employ about 5.3 per cent of the population.[10] Furthermore, the share of direct employment creation is bound to decline due to a combination of resource depletion and technological process, whereas the agricultural sector and related industries are likely to remain the largest source of job creation in most sub-Saharan African countries.

25. With regards to the agribusiness sector, countries that have adopted a diversification strategy include Côte d'Ivoire, Ethiopia, Ghana, Kenya, Uganda, Zambia and Mauritius.[11] However, with the exception of Mauritius, in all sub-Saharan African countries, key structural constraints still hinder the sector's development and reduce the competitiveness of African firms in the global market. These constraints include:

(a) Low level of infrastructure development;

(b) Low level of technological innovation;

(c) Non-tariff barriers: Sanitary and phytosanitary (SPS) standards and other technical requirements such as those defining quality, size and ripeness for fruits and vegetables; animal welfare regulations, environmental and minimum residue requirements, as well as labour standards that outlaw child labour, for instance;

(d) Poor marketing strategies and product differentiation.

26. First, regarding the paucity of infrastructure, some African suppliers have lost market shares in favour of suppliers that have been able to innovate in order to overcome initial infrastructure or geographical disadvantages. The development of the papaya cultivar in Brazil, for example, with its new characteristics of being sea-freighted to Europe has undermined Ghana's prior cost advantage in air-freighted papayas to Europe.

27. Second, low level of technology adoption is one of the chief constraints to a move to high value added activities for many commodity exporting countries in Africa. To date, South Africa remains the economic and technological engine of the continent. The increased trade and investment flows between South Africa and neighbouring countries could therefore be the conduit for these countries' technological catch-up. In line with this argument, recent analysis based on industry-level panel data suggests that South Africa is playing the role of leading goose in a regional flying geese paradigm.[12] These findings highlight the potential gains that other Southern African countries can derive from increased intensification of economic and business ties with South Africa. For example, Botswana's intra-industry trade with South Africa has generated a tentative emergence of manufacturing industries with increasing technologically sophistication.

28. There are some positive moves at the subregional level, as the potential of science and technology and innovation to reduce Southern African countries' reliance on unprocessed commodities was highlighted at the 2010 Common Market for Eastern and

[10] ECA (Economic Commission for Africa), Minerals cluster policy study in Africa: Pilot studies of South Africa and Mozambique, ECA/SDD/05/08, UNECA, 2004.

[11] See the following background papers respectively for the 2009 and the 2010 Multi-Year Expert Meeting on Commodities and development for a discussion of the motivations for economic diversification based on specific case studies: (a) TD/B/C.I/MEM.2/3: Integrating commodity policies into development and poverty reduction strategies: success stories, transparency and accountability. (b) TD/B/C.I/MEM.2/9: Addressing the commodity problematique through trade-related policies.

[12] Yaremye AH (2008). Economic Proximity and Technology Flows: South Africa's Influence and the Role of Technological Interaction in Botswana's Diversification Effort. UNU-WIDER, Research Paper No. 2008/92.

Southern Africa (COMESA) Summit, the theme of which was "Science and Technology for Development". The summit pushed, *inter alia*, for the implementation of the COMESA Policy on Intellectual Property and Cultural Rights, which lays out the overall framework to promote innovation and creativity in the region.

29. Third, with the exception of a few countries, the low level of investments in standards and codes in many African countries has resulted in a lack of competitiveness in high-value agricultural commodities such as fish fillets and boneless beef. Exceptions include Uganda and the United Republic of Tanzania for fish fillets and Namibia and Botswana for boneless beef. Investments in quality and food safety assurance systems are considered to be the key factors behind Uganda and the United Republic of Tanzania's emergence as important suppliers of fish fillets, now considered to be one of the most dynamic commodities in world trade. In the same vein, Namibia and Botswana are the largest exporters of boneless beef to the EU. Both countries have been able to compete with large beef exporters such as Brazil and Argentina thanks to substantial public investments in livestock identification and trace-back systems and upgraded facilities in slaughterhouses. Additional investments such as the Government-owned and privately financed Meat Board of Namibia have secured Namibia's lead. This scheme, unique in Africa, enables both full traceability and strict veterinary and animal welfare standards conforming to EU requirements.

30. Fourth, weak managerial expertise, including poor marketing practices and strategies and a lack of product differentiation, has limited the potential contribution of the private sector to realizing the objectives of diversification strategies. This is particularly the case in the agri-business sector, which is critical to economic growth and in the attainment of the Millennium Development Goals. As such, alleviating the constraints to this sector should be a priority. As part of this agenda, the International Fund for Agricultural Development (IFAD) organized two regional expert consultation workshops to investigate the role of high-value crops in rural poverty reduction in the Near East and North Africa, based on case studies from Morocco, Tunisia and Egypt.

31. The workshop provided evidence that the optimization of the poverty reduction impact of the agribusiness sector is dependent on a strong involvement of smallholders. The key determinants to success span the economic, institutional and marketing fields (box 1). The active participation of the private sector in these workshops led to the identification of limitations in managerial practices as well as in marketing and product differentiation.

Box 1. Selected lessons learned from successful experiences in the development of small holder horticulture

(a) An enabling macroeconomic and trade policy;

(b) A favourable institutional and regulatory environment;

(c) A demand-driven and export-oriented strategies based on market opportunity;

(d) Effective producer and marketing associations with strong private–public and grower–trader exporter partnerships;

(e) Skilled management along the entire supply chain;

(f) The availability of horticultural education, training and extension;

(g) Rigorous product differentiation and market segmentation;

(h) Strategic planning and government support;

(i) Support of entrepreneurial "champions" and replication of successes to ensure economies of scale;

(j) Good long-term planning capabilities at the national, local and grower levels;

(k) Development of national standards for certification of good agricultural practice, which may be provided domestically at reasonable cost.

Source: IFAD (2008). "The Role of High-Value Crops in Rural Poverty Reduction in the Near East and North Africa". Near East and North Africa Division Programme Management Department.

32. Acknowledging the importance of agrobusiness, in April 2008, at the Global Agroindustries Forum (GAIF) held in New Delhi, India, 44 African countries called on the United Nations agencies to organize a regional forum to deliberate on concrete proposals for promoting agribusiness and agro-industries development in Africa. As a follow-up to this request, a meeting was held in March 2010 in Abuja, Nigeria, which identified concrete measures to move the agenda forward. It underscored the need to fulfill the following key conditions for the development of the sector:

(a) Development of innovative financial and risk mitigation mechanisms;

(b) Promotion of public–private partnerships; and

(c) Removal of barriers to agricultural trade to effectively link agricultural producers to markets.

33. The meeting also made a number of recommendations with regard to trade facilitation, infrastructure, and access to finance, with an emphasis on regional level actions[13] (box 2).

[13] For a discussion of other initiatives not mentioned here see TD/B/C.I/MEM.2/3 and TD/B/C.I/MEM.2/9.

Box 2. Selected recommendations from the High-level Conference on the Development of Agribusiness and Agro-industries in Africa, March 2010, Abuja

(a) Mainstreaming the New Partnership for Africa's Development (NEPAD) infrastructure corridor and spatial development initiatives into the Comprehensive Africa Agriculture Development Programme (CAADP) regional implementation strategy;

(b) Mapping and agreeing on potential regional production and processing belts of strategic food and agricultural commodities;[14]

(c) Creating in those belts an enabling environment of preferential regional investment zones for profitable and secure private investment in coordinated regional agricultural input and commodity value chains (investment codes, land policies, fiscal policies, etc.);

(d) Creating/strengthening regional centers of excellence for agricultural research and development along the value chain of strategic commodities;

(e) Establishing appropriate financing mechanisms to fund investment in regional public goods and services for agricultural transformation

(f) Supporting financial services sector development for value chain development;

(g) Promoting agricultural investment forums and enterprise development platforms;

(h) Establishing agribusiness joint-venture fairs.

Source: ECA-FAO-UNIDO Working Lunch on "Public–Private Partnerships in Agribusiness and Agro-industry Development in Africa through Regional Value Commodities Chains", 9 March 2010, Abuja, Nigeria.

34. These recommendations can be translated into policies that can in turn be part of a regional industrial strategy that builds on increased value addition in the commodity sector. Research suggests that, because of economies of scale, large economic spaces are more likely to industrialize faster than smaller ones, hence making the case for greater regional integration. There are signs that regional bodies now consider the effective implementation of industrialization strategies to be of prime importance. Milestones include the African Productive Capacity Initiative (APCI) adopted by the African Union and NEPAD in 2004 and the adoption of the strategy for the Implementation of the Plan of Action for the Accelerated Industrialization of Africa (AIDA). The validation workshop of the latter in March 2010 led to the creation of a coordination unit for AIDA, a major step in emphasizing the importance of regional integration in Africa's industrialization.

35. At the international level, CDDCs' drive towards export diversification is dependent on the harmonization of multilateral trade disciplines and investment regimes with national development strategies. More specifically, tariff escalation (charging higher import tariffs on processed goods than on unprocessed products) must be addressed, as it discourages diversification of production in developing countries and increases their reliance on unprocessed commodities. In their raw state, the average tariff on forestry products is 6.1

[14] The 2006 Abuja Food Security Summit identified (a) nine continent-level strategic commodities: rice, maize, legumes, cotton, oil palm, beef, dairy, poultry and fisheries; and (b) three subregional-level strategic commodities: cassava, sorghum and millet.

per cent, but in their more processed form, it rises to 10.2 per cent in the case of cork, wood and paper products, and to 18.3 per cent in the case of wooden furniture.[15]

B. Impact and implications of climate change on key agricultural commodities

36. It is generally agreed that climate change results from an increased concentration of greenhouse gases (GHG) such as carbon dioxide, nitrous oxide, and methane associated with economic activities. It is estimated that, in the next 50 years, due to global warming associated with climate change, temperatures could increase by 2 to 3 degrees.[16] Add-on ecological effects include rising sea levels, changing rainfall patterns, a higher occurrence of pests and diseases, and increased frequency and severity of extreme climatic events (e.g. drought, flooding, hail, hurricanes and tornados). Most climate change models concur that, while climate change is expected to cause moisture patterns to shift, there is still considerable uncertainty concerning the magnitude and direction of such changes. These factors are predicted to have significant impacts on agricultural productivity. Indeed, even small changes in temperature and rainfall could generate changes on the quality of cereals, fibre and beverage crops and fruits with consequences on their prices and trade.

37. Global warming in the short term is likely to impact positively on agricultural production in temperate regions and negatively impact tropical crop production in South Asia and in Africa.[17] Estimates suggest that these changes could generate negative impacts for agricultural exporting developing countries. In Africa and Latin America, for example, as many rain-fed crops are near their maximum temperature tolerance, even small changes in temperature can generate significant declines in yields. Increased incidence and abundance of new invasive pests are also feared. Intergovernmental Panel on Climate Change (IPCC) data released in 2007 showed that the agricultural sector and related activities contribute to about 30 per cent of total greenhouse gas (GHG) emissions. Of this total, 17.4 per cent are attributed to the clearing of forested area for agriculture and 13.5 per cent are attributed to the intensive crop and livestock production.[18] In light of these facts, diseases and weeds will lead to increased pesticide and herbicide use. The increase in pesticide and herbicide use raises concerns about their potential for worsening climate change.

38. More specifically, commodities that would suffer from the negative impact of climate change include cotton, cocoa, coffee, maize and rice. Cotton, for instance, is highly dependent on water for growth – 20,000 litres of water are needed to produce 1 kg of cotton, which is barely enough to manufacture a single t-shirt and a single pair of jeans. As water supply is increasingly limited in cotton-producing areas in China, Pakistan and

[15] WTO (2010). World Trade Report 2010, Trade in Natural Resources. ISBN 978-92-870-3708-4. Switzerland.

[16] UNCTAD (2010), *The Least Developed Countries Report 2010, Towards a New International Development Architecture for LDCs.* United Nations publication. Sales No. E.10.II.D.5. United Nations. New York and Geneva.

[17] For example, some projections estimate that Southern Africa will lose over 30 per cent of its maize yield by 2030, whereas staple crops such as maize, rice and millet are estimated to incur losses of over 10 per cent in South Asia within the same period. Considering differences in analytical methods across a large body of literature on the impact of climate change, these estimates have to be treated with caution.

[18] IPCC (2007b). Climate Change 2007 – mitigation of climate change. Contribution of Working Group III to the Fourth Assessment Report of IPCC. Cambridge. United Kingdom. Cambridge University Press.

Central Asia, the risk of conflict that such scarcity would generate is thought to be real. Of immediate relevance, a dramatic reduction in cotton production in a lead cotton-producing country can generate sharp and sustained increases in international prices; and increase in precipitation could impact negatively on cocoa yields (box 3).

Box 3. Examples of the implications of climate change on specific commodities: the cases of cotton and cocoa

Cotton in Pakistan

Agriculture accounts for a quarter of the GDP and employs 50 per cent of the workforce in Pakistan. The economy is highly dependent on trade in textiles, which in turn relies on cotton production. In recent years, temperature extremes, heat waves and prolonged cold spells have become common. Extended droughts have reduced fresh water supplies. Precipitation patterns are also changing and the frequency and intensity of extreme precipitation events has increased along the foothills of the Himalayas. Indeed, climate change, through increasing temperatures, will negatively affect the volume of freshwater storage in Himalayan glaciers and its slow release for crops. In addition, climate change is also expected to change the timing, duration and intensity of monsoon rainfall. It is estimated that the volume of summer monsoon rains could increase by up to 60 per cent, resulting in flooding and reducing fibre and food production, flattening crops such as cotton, and destroying irrigation systems. These projections have led some scientists to argue that the severe flooding that affected three provinces in 2010 was caused by this phenomenon. The flooding destroyed infrastructure and irrigation systems and swept away land and crops. In one province, crops such as cotton and sugarcane have been destroyed. The extensive losses in cotton production due to these floods have contributed to the unprecedented increase in prices for cotton in the last quarter of 2010. The additional losses in livestock, sugarcane and in farmers' seed reserves such as wheat for planting for the next harvest, have increased destitution in the province.

Cocoa in Ghana

Cocoa accounts for 60–70 per cent of foreign export earnings from agriculture and for 20–25 per cent of total foreign export earnings. About 800,000 smallholder families rely on cocoa for their livelihood. Cocoa can only be profitably grown within a temperature range of 18–32°C. As its pattern of cropping is related to rainfall distribution, it is susceptible to drought. Moreover, cocoa crop in Ghana is currently vulnerable to an aggressive black pod disease called Phytophthora megakarya. As this pathogen thrives in humid conditions, any increases in precipitation or changes in rainfall patterns could have significant negative effects on its spread and impact. An increase in the use of fungicide sprays (currently up to eight times per year) associated with a higher spread of this pathogen would mean more negative impacts on the environment.

Source: Adapted from Masters, G, Peter Baker and Julie Flood .2010. Climate change and agricultural commodities. CABI Working Paper 2.

39. With regards to other crops, it is projected that rising temperatures and tighter water supply will lead to a contraction in the top quality land areas of coffee production, thus impacting negatively on foreign exchange earnings of countries such as Mexico and Colombia. In the same way, maize and rice in tropical countries can also suffer from the impact of rising temperatures as they are already near the upper limits for their optimum growth[19] (Lobell et al, 2008 cited in Masters et al, 2010).

[19] Lobell, D.B., Burke, M.B., Tebaldi, C., Mastrandrea, M.D., Falcon, W.P. & Naylor, R.L. (2008) Prioritizing climate change adaptation needs for food security in 2030. Science 319, 607–610.

40. In the face of these projected changes, countries could use a number of mitigation and adaptation strategies. Mitigation strategies refer to interventions aimed at reducing the sources or at enhancing the sinks of GHG emissions whereas adaptation strategies concern actions whose purpose is to moderate the potential damage of climate change. In the context of African CDDCs, to be effective, an effective adaptation package should be linked to policies aimed to develop the agricultural sector. Such policies should offer secure land tenure, effective pricing and access to credit schemes. Brazil, for example, instigated an official programme on agricultural zoning in 1996. Agricultural zoning is based on the integration of crop growth models, climate and soil databases, decision analysis techniques and geo-referencing. In 2004/05, thanks to an innovative public–private partnership, $8 billion were invested in the programme, $2.5 billion of which were made available for small farmers. This programme is credited to have helped farmers to use more adequate technologies and to improve the planning of their activities. The overall results include a decrease in farmers' production costs and risks, and an increase in national production and productivity. Brazil's investments in the agricultural sector have led the country to be ranked in the global top three position in the production of ten commodities, including coffee, soya, sugar and maize (Zullo et al, 2006, cited in Masters et al, 2010).[20]

C. Greening the economy: opportunities for developing countries

41. On the whole, although the impact of climate change is estimated to be negative, if CDDCs implement appropriate adaptation and mitigation measures, the overall picture at country level can be mixed. Net oil importing and agricultural exporting developing countries could gain from the current emphasis on greening the economy. A green economy is generally defined as an economy that is characterized by increased investments in economic sectors that enhance the Earth's natural capital and reduces negative environmental impacts. Such characteristics include, among others, a higher share of renewable energy and sustainable agriculture. There are facilities and resources at the global level (see below) that could assist CDDCs investing in green initiatives.

42. The benefits of a greener economy are bound to be significant for net oil importing developing countries. Indeed, it is estimated that sub-Saharan Africa spends between 20 to 30 per cent of its export earnings on petroleum. At the extreme end, Ethiopia, for example, spends 87 per cent of its import earnings, i.e. $1 billion every year, on oil imports. The 2008 food and energy crises highlighted the need to reduce such countries' dependency on fossil fuels. However, despite African least developed countries (LDCs') substantial endowment of renewable energy resources, little of that potential capacity is utilized. As a group, LDCs only use 10 per cent of their collective potential capacity in renewable energy. Clean energy derived from sugar waste, for example, offers a lot of potential in many CDDCs where electricity is costly. Bagasse-based cogeneration[21] utilizes the waste material from sugar refineries or other agro-industries. Its use offers significant potential for sub-Saharan Africa. It is estimated that considering current sugar production in sub-Saharan Africa, bagasse-based cogeneration from sugar industries can meet about 5 per cent of the total electricity demand in the region. This potential increases to about 10 per cent when biomass waste from other agro-industries and from forestry industries is included.

[20] Zullo JJ, Pinto HS and Assad HD (2006). Impact assessment study of climate change on agricultural zoning. Meteorological Applications 13, Supplement, 69–80.

[21] Cogeneration refers to the technology that generates electricity and at the same time captures the heat that is a by-product of generating the electricity. For a full definition, see: http://www.greenassembly.net/useful-data/glossary/.

43. Mauritius offers the most successful example of diversification in electricity generation thanks to bagasse-based cogeneration. Cogeneration has not only enabled Mauritius's sugar industry to be self-sufficient in electricity but has also allowed it to sell the excess to the national grid. Moreover, as highlighted in box 4, it has also allowed the industry to be less vulnerable to fluctuations in global sugar prices. The scheme's equitable revenue sharing policy has also allowed smallholder farmers to benefit from the revenue generated by the sale of excess electricity.

Box 4. Bagasse-based cogeneration: the case of the sugar industry in Mauritius

In Mauritius, thanks to the extensive use of bagasse-based cogeneration, the country's sugar industry is self-sufficient in electricity and is able to sell the excess to the national grid. The sugar industry is now contributing over half of the electricity supply on the island. Cogeneration in Mauritius is designed to use bagasse during the cane harvesting season (roughly six months), with coal used to generate the electricity supply for the rest of the year.

Bagasse-based cogeneration development in Mauritius has delivered a number of benefits, including reduced dependence on imported oil, diversification in electricity generation, improved efficiency in the power sector in general, and increased incomes for smallholder sugar farmers. It has also helped sugar factories in Mauritius to weather fluctuations in global sugar prices, including the reduction in the EU's preferential sugar prices to African, Caribbean, and Pacific (ACP) countries. In recent years, the revenue from the sale of excess electricity from cogeneration has enabled Mauritian sugar factories to remain profitable.

Perhaps one of the most important achievements is the use of a wide variety of innovative revenue-sharing measures. For example, the Mauritian cogeneration industry has worked closely with the Government to ensure that substantial monetary benefits from the sale of electricity from cogeneration flow to all key stakeholders of the sugar economy, including the poor, smallholder, sugar farmers. The equitable revenue sharing policies in Mauritius provide a model for ongoing and planned bioenergy projects in other sub-Saharan African countries.

Another important development to note is that, in Mauritius, cogeneration development has resulted neither in an increased competition for land, nor in an increase in food prices – the two most notable negative impacts of large scale bioenergy development. In fact, over time, while increased cogeneration development has led to additional electricity supply, the land area on which sugarcane is cultivated has been declining – implying that increased efficiency in cogeneration has partly led to freeing up land for other uses, including food production.

Source: Adapted from Masters G, Baker P and Flood J (2010). Climate change and agricultural commodities. CABI Working Paper 2.

44. Developed countries' favourable policies for the development of biofuels has generated market opportunities for agricultural exporting CDDCs. Malawi, Mali, Nigeria, Senegal, Zambia, Zimbabwe, South Africa and Mauritius, for instance, have introduced pro-biofuel national strategies. However, the increased competition for land induced by the cultivation of crops for the biofuels market has been controversial. At a global level, a recent World Bank survey also uncovered that biofuels come in at a close second place after crops and livestock as the reason behind large scale acquisition of farmland in 80 countries. It is also feared that some countries' focus on biofuel production and the resulting deforestation could reduce these countries' suitability to capture financial benefits for Reduced Emissions from Deforestation and Degradation (REDD) strategies aimed at improving carbon sequestration through forest preservation.

45. At the global level, concerns for the costs of tackling the impacts of climate change have led to the creation of a number of institutions, schemes and resources whose purpose is to assist countries in addressing challenges related to climate change. The United Nations Framework Convention on Climate Change (UNFCCC) initiated National Adaptation Programmes of Action (NAPAs) to provide a process for LDCs to identify priority activities that respond to their urgent and immediate needs to adapt to climate change. By the end of 2010, 40 NAPAs have been submitted.

46. The Kyoto Protocol also includes a provision for market-based mechanisms of buying and selling the right to emit GHGs on the "carbon market". The Clean Development Mechanism (CDM) is part of this market mechanism and is of benefit to developing countries. The purpose of CDM projects in developing countries is to offset carbon emissions by corporations in developed countries. However, the increase in carbon emission since the creation of the CDM and the scepticism that surrounds the soundness of methods used for assessing the "offsetting" capacity of some CDM projects have led to a lot of controversy. In spite of these criticisms, CDM projects can generate opportunities for CDDCs. UNFCCC estimates that by August 2010, 78 per cent of over 2,400 CDM projects originated from Asia. In contrast, Africa accounts for less than 2 per cent of the registered projects despite a notable growth in recent years as the number of projects on the continent has gone up from 42 in 2007 to 122 CDM in 2010. A number of capacity-building initiatives are in place to allow Africa to fully seize the opportunities associated with the CDM.

47. A number of multilateral and bilateral donors are specifically targeting their support to sub-Saharan African countries with a view to assisting them to become more engaged in the CDM market. UNEP is generally the lead implementer of capacity-building activities on CDM in developing countries.[22] Ethiopia, Kenya, Malawi, Sudan, Swaziland, Uganda, and the United Republic of Tanzania, for instance, are taking part in "Cogen for Africa", a regional, clean energy initiative funded by the Global Environment Facility.[23] Another example, the DANIDA-funded CDM Green Facility, is to be implemented in Benin, Burkina Faso, Ghana, Mali, Niger and Zambia. Similarly, the French-funded CASCADe Project, also implemented by UNEP, has currently implemented pilot projects in seven sub-Saharan African countries: Benin, Cameroon, the Democratic Republic of the Congo, Gabon, Madagascar, Mali and Senegal. Targeted sectors usually include energy and agriculture. This focus highlights the relevance of CDM projects for CDDCs.

48. Recent developments at the United Nations Climate Change Conference, which took place in Cancun, Mexico, from 29 November to 10 December 2010, are promising for developing countries. Gains include the strengthening of the CDM to drive more investments and technology into environmentally sound and sustainable emission reduction projects in developing countries. With regard to climate finance, a total of $30 billion in fast-start finance from industrialized countries will be available to support projects in the developing world, up to 2012. The agreements also include the intention to raise $100 billion in long-term funds by 2020. And finally, a new Green Climate Fund will be created and will be governed by a board of 24 members, with an equal number from developing and developed countries and to be administered by the World Bank for the first three years.

[22] See the United Nations Environment Programme's (UNEP's) website for more information (http://www.unep.org). Spin-off websites include http://www.cd4cdm.org/Guidebooks.htm, which offers a series of guidebooks on CDM.

[23] The initiative is co-implemented by UNEP and the African Development Bank (AfDB) and executed by AFREPREN/FWD (Energy, Environment and Development Network for Africa). Cogeneration for Africa will build on the success of cogeneration in Mauritius, which currently meets close to 40 per cent of the country's electricity needs.

With regard to this latter point, the African Union announced that it is working towards the creation of an Africa Green Fund that would channel Africa's share of funds, to be administered by the African Development Bank. The debate surrounding climate finance is bound to remain interesting in the years to come.

III. Concluding remarks

49. The modest recovery of the global economy driven by the consistent growth of Asian and Latin American emerging developing economies enabled commodity prices to recover during the last quarter of 2009 and over much of 2010. Commodities that experienced the largest change in prices were those linked with the industrial production cycle (e.g. minerals and metals) though prices of most of these raw materials did not reach the peak levels attained in early 2008. Agricultural commodity prices only increased at moderate rates.

50. Commodity price volatility is likely to remain a major challenge for CDDCs due to the uncertainty in the evolution of markets and prices. In the short term, development in commodity prices will depend on market fundamentals and the pace of recovery of the global economic activity. The continued good economic performance of emerging countries (e.g. China) in 2011 would allow the prices of minerals and metals to continue their upward trend. However, commodity price volatility will remain a challenge. The financialization of commodity markets and factors linked to climate change will continue to influence prices of agricultural commodities.

51. Being the main source of fiscal revenues and employment in CDDCs, commodities are critical for eradicating poverty and hunger. However, the persistent problematique of commodity dependence brings to the fore the necessity to promote a coherent policy framework that could enable CDDCs to strengthen their possibilities of advancing towards economic diversification. In doing so, CDDCs also need to seize new opportunities linked to greening the economy.