



## **Industrial Development Board**

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Item 6 of the provisional agenda

### **Midterm review of the medium-term programme framework, 2010-2013**

## **Midterm review of the medium-term programme framework, 2010-2013**

### **Report by the Director-General**

#### **Addendum**

In accordance with decision IDB.38/Dec.10, the present document supplements the information contained in documents IDB.38/16 and IDB.39/8 by providing additional details on UNIDO activities in the area of energy and environment.

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\* Reissued for technical reasons.



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## I. Introduction

1. As noted in document IDB.38/16, which was presented at the thirty-eighth session of the Industrial Development Board in November 2010, UNIDO activities in the area of energy and environment contribute to the overarching goal of environmentally sustainable development. This objective is increasingly important particularly given the renewed focus on the Millennium Development Goals (MDGs) and in furtherance of these goals, UNIDO works actively with its partners to support efforts to combat climate change, promote industrial energy efficiency, support cleaner production techniques and promote renewable sources of energy. By focusing on renewable forms of energy and on the promotion of energy efficiency, UNIDO is thus able to support Member States in the promotion of sustainable industrial development.

2. In the pursuit of goals related to promoting environmentally sustainable development and in the context of the green industry approach, UNIDO undertakes a range of activities and projects aimed at encouraging resource-efficient and cleaner production processes. Further details about the partnerships that UNIDO develops as well as the programmes it implements to promote these objectives are outlined in this document, which should be read as a supplement to the information previously contained in document IDB.38/16 on energy and environment-related obstacles as well as in the midterm review of the medium-term programme framework, 2010-2013 (document IDB.39/8).

## II. Energy and climate change

3. Member States are increasingly seeking UNIDO technical assistance for energy and climate change related projects, especially in least developed countries (LDCs). In the industrial energy efficiency areas there have been cross-cutting developments with the ISO 50001 energy management standards, systems optimization (including for steam, pumps, and compressed air) and benchmarking. Developments have also continued in low-carbon technologies, process and product design. The area of industrial applications has also been strengthened for solar, thermal, biomass and waste generation. Low-carbon technologies are also a focus with programmes related to hydrogen technology applications for power management, stationary and mobile fuel cells, and carbon capture storage technologies in selected industrial sectors.

4. Likewise, the success of UNIDO energy projects within the Global Environment Facility (GEF) portfolio has steadily increased. Several GEF funded energy efficiency and renewable energy projects are being implemented and UNIDO was able to mobilize the necessary co-financing from the respective country counterparts, local and regional financing institutions and the private sector. In response to the needs and requests of various countries, new GEF projects are currently in the preparatory stages of consultations with the national counterparts.

5. The first UNIDO energy project that was GEF funded with a climate change focus entitled “Greening the COP17 in Durban”, was approved in April 2011. This project is being carried out in close cooperation with the Government of South Africa and other partner agencies. The project will showcase the South Africa —

GEF — UNIDO partnership to reduce greenhouse gas emissions, promote renewable energy, demonstrate low-carbon technologies and best practices, and raise levels of awareness on the climate change challenge during the seventeenth United Nations Framework Convention on Climate Change (COP17) being held in Durban, South Africa from 28 November to 9 December 2011.

6. UNIDO will soon begin the implementation of renewable energy and energy efficiency projects in nine countries under the GEF West Africa Strategic Energy Programme, as well as a regional coordination project fostering knowledge management, capacity-building, coherence and coordination. These projects will focus on enhancing access to renewable energy based mini-grids for promoting productive uses in Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, Gambia, Guinea, Liberia, Nigeria and Sierra Leone, and for energy efficiency in small and medium enterprises (SMEs). The ECOWAS Regional Centre on Renewable Energy and Energy Efficiency (ECREEE) in Cape Verde will be closely involved in the regional coordination project, as well as in capacity-building components under each country project.

7. In early 2011, UNIDO was requested by GEF and Member States to identify energy and climate change priorities for the fifth GEF programming cycle (GEF5) for countries in the East Africa region. The projects following certain programmatic approaches will include one pertaining to the UNIDO energy and climate change mandate relating to clean energy (with specific focus on industrial energy efficiency and renewable energy for productive uses). Concept notes are currently being developed for the respective East African countries.

#### **A. Technology road map for carbon capture and storage for industry**

8. UNIDO continues to lead the development of a technology road map for carbon capture and storage for industry (CCS) to advance the global uptake of low-carbon technologies in industry, particularly in developing countries and transition economies. CCS is a key emissions abatement option in industry for which, unlike in the power sector, there is no viable alternative. Demonstration plants are needed to prove its feasibility, ascertain smooth operation and clarify cost implications. The CCS road map is funded by the Norwegian Ministry of Petroleum and Energy and the Global CCS Institute. The International Energy Agency (IEA) and the Energy Research Centre from the Netherlands are also partners in this activity.

9. In the context of the CCS road map, several workshops have been held and the project has conducted seven specific industry sectoral assessments. The assessments, as well as other related documents are available on the project website. The final publication will be available by the end of 2011 and will contain a review of the current situation, an outlook for industrial capture technologies, an outline of milestones, targets and policy needs, and an identification of early opportunities as well as “lighthouse” projects.

## **B. New International Standard on Energy Management Systems, ISO 50001**

10. UNIDO has achieved important progress in areas related to development of the new international standard on energy management systems, ISO 50001. In October 2010, consensus was reached on the final draft international standard and it is expected that the new standard “ISO 50001 Energy Management Systems — Requirements with guidance for use” will be released in the third quarter of 2011.

11. In relation to industrial energy efficiency activities, UNIDO will work over the next three years in more than ten developing countries and emerging economies to build technical capacity of enterprises and national institutions, for the implementation of energy management systems in line with ISO 50001. The UNIDO projects will also strengthen existing institutional capacity as well as policy and regulatory frameworks to support adoption of energy management system standards in industry.

## **C. UNIDO International Centre for Hydrogen Energy Technologies**

12. The UNIDO International Centre for Hydrogen Energy Technologies (ICHET) has recently initiated three projects with the European Union (EU) under the joint public private partnership programme. The basis of these projects is ICHET developed products, namely the fuel cell powered fork lift, fuel cell powered uninterruptible power supply (UPS), and fuel cell education and training. The EU has allocated US\$ 1.17 million for these projects. The fork lift and UPS products will be field tested in the EU by consortium partners.

13. The three-wheeler project in India, with partners Mahindra and Mahindra, Air Products and IIT Delhi, has completed the conversion of 15 vehicles to hydrogen. Clearance is currently being awaited from the Petroleum and Explosives Safety Organisation (PESO), the Indian hydrogen regulatory body for refuelling and demonstration of these vehicles. The next step will be to scale-up this technology in other developing countries, including Thailand.

14. Certain countries including Indonesia, Malaysia and the Philippines have expressed an interest in developing projects in core ICHET produced products and technologies such as hydrogen production from renewable energy, fuel cell UPS, and hydrogen powered engines and vehicles.

## **D. Observatory for Renewable Energy in Latin America and the Caribbean**

15. Due to the strong support that UNIDO has received from the Government of Spain through the Spanish Agency for International Cooperation for Development (AECID), the Observatory for Renewable Energy in Latin America and the Caribbean is currently operating in 12 countries: Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Mexico, Nicaragua, Paraguay, Peru and Uruguay. This regional initiative is already demonstrating positive results in strengthening the linkages among the counterparts, including Ministries of

Energy, and also in promoting renewable energy. At the country level, this initiative has facilitated the development of technical reports and the identification and promotion of specific proposals. In March 2011, the progress made in the framework of the Observatory, was presented at the Second Technical Regional Workshop that was hosted in Asunción, Paraguay. At this event, representatives from 12 countries discussed and shared ideas on renewable energy priorities of each country, as well as ways in which the Observatory can support the achievement of national goals related to renewable energy. UNIDO continues to work jointly with its counterparts to support national institutions to consolidate a solid portfolio of energy projects in the region.

## **E. ECOWAS Regional Centre on Renewable Energy and Energy Efficiency**

16. With financial support of the Governments of Austria and Spain, as well as the Economic Community of West African States (ECOWAS), UNIDO continues to provide technical support to the ECOWAS Regional Centre on Renewable Energy and Energy Efficiency (ECREEE). Since its inauguration on 6 July 2010 in Praia, Cape Verde, the Centre successfully established its governance structure and network of national focal institutions among all ECOWAS countries. UNIDO is assisting the Centre in developing its own internal proceedings and structures. The Centre aims at mitigating existing barriers for the deployment of renewable energy and energy efficiency solutions in West Africa by supporting targeted activities in the areas of policy development, capacity-building, knowledge management, and investment promotion.

17. With technical assistance from UNIDO, the Centre successfully launched its operational activities and developed its business plan including a long-term planning framework until 2015. The quick uptake and quality of initial operations attracted further funding from international and local partners including Brazil, Nigeria, Spain, the European Commission and the United States Agency for International Development (USAID). In less than one year, the Centre could more than triple its budget for programmes and projects. ECREEE is also responsible for different projects co-funded by GEF and the European Commission and internationally acknowledged as a unique renewable energy and energy efficiency promotion agency. UNIDO will continue to assist the Centre in its mission to contribute to the achievement of the MDGs, as well as other goals related to energy access and reduction of greenhouse gas emissions.

## **F. South-South Cooperation and the UNIDO International Technology Centres**

18. UNIDO continues to enhance South-South cooperation within its energy technical cooperation programmes. In March 2011, representatives of the UNIDO International Technology Centres (ITCs) held a series of meetings in Vienna to discuss ways to further strengthen collaboration, delivery of services, scaling up and replication of initiatives and technology transfers between developing countries. The meetings also provided an opportunity for the ITCs to showcase activities and best practices, and to focus on priorities for strengthened cooperation. The meetings

set a new strategic framework of collaboration to promote South-South cooperation and the project activities being led by the ITCs. There is an agreed consensus that the ITCs will become more involved in projects related to energy and climate change, which will build on the lessons learned from the strategic partnership programmes of the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) in Cape Verde and the Observatory for Renewable Energy in Latin America and the Caribbean.

### **G. Global forum activities**

19. As outlined in document IDB.39/20, UNIDO will in cooperation with certain partners, host a number of international events in the area of energy and environment during the week of 21 June 2011, including the Vienna Energy Forum 2011. Details of all events are contained in document IDB.39/20.

## **III. Environmental management**

### **A. Raising levels of awareness**

20. In cooperation with the Association of Southeast Asian Nations (ASEAN), UNIDO organized in January 2011, a regional conference on expanding resource efficient and cleaner production in South-East Asia. The August 2009 publication on the Green Industry Initiative entitled "*A greener footprint for industry: Opportunities and challenges of sustainable industrial development*" outlines the UNIDO approach for engaging industries in the transition to sustainable development. Additional related publications aim to highlight the interlinkages between resource efficiency, cleaner production and climate action. These include the joint publication with the World Bank programme InfoDev, on climate innovation centres, released during COP16 in Cancún, Mexico, in December 2010. UNIDO has also been active in addressing the interaction between different environmental agreements, such as those linking elimination and disposal of chemicals with energy management and their effect on climate change. The International Professional Development Event, which was held in Vienna in October 2010 helped to bring an added focus on these issues.

### **B. Technical cooperation**

21. As of mid-April 2011, the UNIDO technical cooperation portfolio in the area of environmental management comprised projects with a total value of about \$142 million. Activities have primarily focused on consolidating the UNIDO-GEF portfolio in water and chemicals, activities related to persistent organic pollutants (POPs), and the advancement of the joint UNIDO-UNEP Programme on Resource Efficient and Cleaner Production, in collaboration with the network of National Cleaner Production Centres.

22. Likewise, ongoing UNIDO projects related to the Multilateral Fund for the Implementation of the Montreal Protocol amount to about \$61.5 million. In 2010, the Multilateral Fund approved for implementation by UNIDO projects to a total

value of US \$76 million. This includes the preparation and implementation of hydrochlorofluorocarbon (HCFC) phase-out management plans in different countries. The commitment by these countries to the Montreal Protocol requires urgent intervention by UNIDO in eliminating HCFCs as the countries concerned are obliged to freeze their usage in 2013. In recognition of the valuable work carried out by UNIDO, the Organization has been ranked first among implementing agencies in 2009 by the Multilateral Fund.

### **C. Global forum activities related to green industry**

23. In 2011, there are three major conferences that will take place related to UNIDO activities that promote green industry, namely in St. Petersburg, Russian Federation (May), Tokyo, Japan (November) and Marseille, France (December).

24. As part of the Fourth Nevsky International Ecological Congress in St. Petersburg, a series of open sessions will aim to foster an exchange of views on innovative, practical tools and strategies to facilitate the development of green industry in the Commonwealth of Independent States (CIS), and to strengthen transboundary cooperation and environmental legislation.

25. The International Conference and Exhibition on Green Industry Development in Tokyo will aim to facilitate the development of green industry in developing and emerging economies. Contributing to this are three specific objectives, namely to foster transfer and implementation of best available techniques for green industry development; to exchange experiences on green industry programmes and initiatives; and to position green industry as a cornerstone for achieving sustainable development and poverty alleviation.

26. Finally, following on from the success of the 2008 Eco-Cities of the Mediterranean Forum, the 2012 Eco-Cities Forum in Marseille will aim to facilitate discussion among representatives of local government, the private sector and the non-government sector on sustainable management options with a focus on water and waste management.

27. The involvement by UNIDO in these events will contribute to ongoing efforts in removing policy gaps and other barriers towards green industry in developing and transition economy countries. In doing so UNIDO will also provide direct input to the preparatory process for the United Nations Conference on Sustainable Development (Rio+20), which will focus on green economy issues in the context of sustainable industrial development.

### **D. Knowledge sharing**

28. Following the adoption of the Manila Declaration on Green Industry in September 2009, UNIDO assisted signatory countries with the promotion and preparation of national initiatives, including green industry seminars in Bangladesh and Thailand, preparation of best practice policy guidelines, and technical cooperation activities on resource efficient and cleaner production. Moreover, UNIDO in collaboration with the United Nations Environment Programme (UNEP) supported the launch of the global Resource Efficient and Cleaner Production



(RECP) network. The RECP network provides an innovative partnership model for cooperation with National Cleaner Production Centres and other service providers to scale-up RECP activities and achievements. The RECP network came into being in November 2010 with an inaugural membership of 41 organizations representing 37 developing and transition economy countries.

29. As an integrated part of the implementation of Montreal Protocol projects, UNIDO is assisting in the preparation of policies and legislation aimed at the elimination of ozone depleting substances. Hence, a number of capacity-building projects are being implemented by UNIDO in Eastern Europe, as well as Egypt, Mexico and the Syrian Arab Republic.

## **E. Linkages between chemicals, climate change and energy management**

30. Present global trends have given rise to a need to better understand the relevance of linkages among chemicals (such as HCFCs and POPs), climate change, carbon markets and energy management. The International Professional Development Event, held in Vienna in October 2010, helped to focus on such links, with the aim of increasing the overall efficiency of technical cooperation programmes in these areas.

31. Considerable effort is also being undertaken to promote and support the network of National Cleaner Production Centres (NCPCs) as a platform for climate-related technology transfer. Pilot projects for low-carbon production in agro-processing value chains are under way in the former Yugoslav Republic of Macedonia and Uganda, and a water management project was launched in Cambodia. A number of other initiatives are under preparation, following recent regional meetings of NCPCs in Europe and Central Asia, Latin America and Asia Pacific.

32. Projects on the destruction of ozone depleting substances (ODS) under the Montreal Protocol, such as the demonstration project in Mexico, have been identified as potential pilot projects showcasing links between chemicals and climate change concerns. The projects have a potential to integrate destruction technologies, and to access the carbon market due to obvious climate benefits. Based on the experience gained from the development of the demonstration project in Mexico, UNIDO is preparing additional proposals, for other countries including Algeria and Turkey.

33. Similarly, the HCFC phase-out management plans currently being prepared and implemented under the Montreal Protocol will bring an added focus on replacement technologies with minimal environmental impact thus delivering a direct climate benefit.

## **F. Resource efficient and cleaner production**

34. Support to the National Cleaner Production Centres (NCPCs) was continued and strengthened under the joint programme with the United Nations Environment Programme (UNEP) related to resource efficient and cleaner production.

During 2010, the programme extended its activities in Albania, Cape Verde and Republic of Moldova, while new initiatives were taken in Sri Lanka, Tunisia and Viet Nam. In addition, UNIDO supported NCPCs in contributing to the preparatory process and meeting of the nineteenth session of the Commission for Sustainable Development, and in particular for the development of a 10-year framework of programmes on sustainable consumption and production.

35. The global RECP network was created with the specific aim to capture and disseminate best practices for resource efficiency and cleaner production, in particular among NCPCs. In addition to the knowledge management system for cleaner production in the Latin American region, a comparable system for the Arab region was started. It is foreseen that these will converge and soon operate as regional chapters under the global RECP network, once it is fully operational.

## **G. Technology transfer**

36. Striving to increase cost-effectiveness, development impact and sustainability of its technical cooperation activities, UNIDO has been engaged in reviewing its existing platforms for technology transfer in order to enhance and maximize synergies at the project design and implementation stage. Under the green industry approach, the aim is to reduce the environmental impacts of industry processes and products through resource efficiency on a continuous basis.

37. UNIDO has a prominent lead in the integrated approach of transfer of environmentally sound technologies (TEST) in the Mediterranean region, which includes Egypt, Morocco and Tunisia. Following competitive bidding, the NCPCs of the participating countries have been selected to implement the TEST methodology, and UNIDO has conducted extensive training for NCPC staff prior to implementation. Additionally, two further projects have been developed to replicate the successes of the TEST projects in Honduras and Mexico. These projects relate to the overall water and sanitation objectives of the MDGs, and supported actions in these countries aimed at reducing effluents from industrial activities. The results of the projects will contribute to the wider aim of the joint programmes in which many other United Nations agencies participate. UNIDO is also consulting to develop a number of TEST concepts to be submitted to GEF.

38. The NCPCs have been involved wherever possible in the development of energy-related projects. A greater role will be played and pursued by NCPCs during the implementation of projects, especially within the framework of UNIDO-GEF industrial energy efficiency activities. In this way, NCPCs will be both beneficiaries of industrial energy efficiency and renewable energy capacity-building programmes, as well as providers of project execution services. In view of the new GEF funding cycle, the objective is to increase UNIDO technical operational capacity through the best performing and technically equipped NCPCs.

39. Through the Montreal Protocol, UNIDO has transferred new but well-proven technologies for elimination of ODS. As a result of these programmes, enterprises in developing countries were assisted with, and trained on the latest technologies. Through this project, beneficiaries have been able to sustain their production and markets while exploring new export markets. Conversion projects, such as those for

the air conditioning sector have been approved in Argentina, China, Jordan and the Syrian Arab Republic among others.

## **H. Global mercury partnership**

40. Since 2008, UNIDO has been an active member of the UNEP Global Mercury Partnership with a leading role in the area of artisanal and small-scale gold mining and participated in the areas of industrial use of mercury. Moreover, UNIDO contributes in these areas due to its vast practical and technical experience. The intergovernmental negotiation process to develop the forthcoming instrument on mercury is ongoing and UNIDO along with its partners assists Member States in implementing initiatives during the negotiation process and the development of the related treaty. Through awareness-raising, technology transfer and innovative marketing options, UNIDO, in collaboration with partners including UNEP and internationally recognized NGOs such as the Blacksmith Institute and the Alliance for Responsible Mining, works in the most affected regions to reduce mercury emissions by 50 per cent by 2017.

## **I. Persistent organic pollutants**

41. The UNIDO project to dispose of polychlorinated biphenyl (PCB) stockpiles in Romania was completed in September 2010 and proved to be an outstanding achievement. The project helped to increase national capacity to manage PCBs in an efficient and environmentally sound manner, including enhanced human capacity, improved regulations, financing options and physical facilities for the management of PCBs. The development of a nationwide system also mobilizes relevant stakeholders to participate in implementing the PCB related obligations under the Stockholm Convention. The system facilitates their participation by improving the regulation, increasing awareness, establishing a financial mechanism for phase-out and disposal of PCBs and PCB wastes, and training local specialists in different aspects of PCB management. In addition, the project provides a replicable model of cooperation between the governments, public and private entities in addressing global environmental challenges. Similar projects are currently being implemented in Armenia, Nepal, Morocco, Mongolia, Peru and the former Yugoslav Republic of Macedonia while another project is scheduled for Algeria. As the Stockholm Convention continues to expand its list of chemicals, UNIDO will continue to develop projects on industry-related chemicals management in order to provide crucial innovative treatment processes and safe disposal technologies.

42. In March 2010, the construction of a facility in the Philippines commenced under a global programme, which aims to demonstrate the importance of removing barriers that impede adoption and successful implementation of available non-combustion technologies for destroying POPs. It is anticipated that the facility will be commissioned in December 2011. The project will enable the country to clean stockpiles of 1,500 tonnes of PCB-containing transformers and contaminated equipment. The project has also enabled the country to develop, implement and enforce the Code of Practice for the Management of PCBs, which will eventually prevent stockpiling of PCBs. In addition, it will serve as a learning centre for

disposal of PCBs for other Asian countries and stimulate similar technology-transfer projects for countries in the region.

## **J. Montreal Protocol**

43. UNIDO activities related to the Multilateral Fund for the Implementation of the Montreal Protocol are of paramount importance in achieving goals, related to environmental sustainability, by introducing sustainable environmental technology and securing compliance with the international agreements and protocols.

44. In addition, UNIDO plays a leading role in ensuring the transfer of non-ODS technologies to developing countries. In implementing Montreal Protocol projects, UNIDO considers zero ozone depleting potential, low global warming potential, efficiency energy consumption and reasonable cost-effectiveness ratio. In the refrigeration sector, UNIDO has been fostering the use of natural refrigerants such as hydrocarbons, carbon dioxide and ammonia. UNIDO has thus formulated the first two fully hydrocarbon domestic refrigeration projects and is a pioneer agency in promoting liquid carbon dioxide blowing technology as an advanced alternative solution for the manufacturing of flexible polyurethane foam. UNIDO also promotes the use of water in chiller compressors.

45. Likewise, UNIDO is a driving force in projects in the fumigant sector. Projects being implemented have supported farmers growing a wide range of products including flowers, strawberries, tobacco seedlings and horticulture crops, as well as companies involved in the food storage sector. In order to ensure the sustainability of projects and the safety of the environment for local producers and companies, UNIDO fosters the adoption of non-chemical alternatives to methyl bromide.

46. In 2010, UNIDO was the first implementing agency to submit an HCFC phase-out management plan (HPMP) for the former Yugoslav Republic of Macedonia. The HPMP paved the way for discussions on the structure, strategy and financing of the plan. Since then the UNIDO-developed HPMP for Croatia has also been approved. An increased adoption of holistic approaches in the development of elimination plans including the integration green industry initiatives has made the preparation and submission of HPMPs more complex. UNIDO has another 35 HCFC phase-out plans in its portfolio and these will shortly be submitted for approval to the Multilateral Fund.

47. In anticipation of the HCFC consumption freeze in 2013, individual phase-out activities are being carried out in order to mitigate the projected rise in consumption after 2013. Implementation began in 2010 for a number of stand-alone investment projects, including, an air-conditioning manufacturing company in Jordan, insulation foam manufacturing companies in Pakistan and several phase-out activities for the air-conditioning manufacturing sector in Argentina. A demonstration project focusing on a more environmentally sensitive supply chain was also recently launched in China.

48. UNIDO has also been focusing on the environmentally sensitive destruction of stockpiles of ODS and ODS-containing equipment. Work continued on the potential for ODS-destruction demonstration projects in Algeria, China, Lebanon, Mexico, Nigeria and Turkey.

49. Although the deadline for the complete phase-out of methyl bromide is 2015, the consumption of methyl bromide remains in certain sectors and crops where alternatives are not easily available. UNIDO projects for the elimination of methyl bromide are under way in Central and South America, West Asia and Africa and aim to introduce new available alternatives and when feasible, as environmental friendly as possible.

50. In 2010, the GEF approved a project in the Russian Federation to phase-out HCFCs and to promote HCF-free energy-efficient refrigeration and air-conditioning systems. It is the first of its kind to be launched by the GEF, which integrates the phase-out of HCFCs with climate change concerns, through the direct phase out of HCFCs and the energy savings accrued through the use of energy efficient technologies. Similar projects are planned for Azerbaijan, Kazakhstan and Ukraine.

#### **IV. Action required of the Board**

51. The Board may wish to take note of the information contained in the present document.

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