Workshop on Environmental Requirements and Market Access for Developing Countries: How to Turn Challenges into Opportunities?
Geneva, 3-4 July 2006

Electrical and Electronic Equipment and Energy-using Products

Issues note

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Wrap-up workshop of the UK-DFID-funded UNCTAD Project "Building Capacity for Improved Policy Making and Negotiation on Key Trade and Environment Issues" and 2006 Annual Session of UNCTAD's Consultative Task Force on Environmental Requirements and Market Access for Developing Countries

Geneva, June 2006

Executive summary

To comply with new regulations addressing post-consumer waste from electrical and electronic equipment (EEE), in particular in Europe and Japan, businesses have to incorporate waste management considerations (including the elimination of hazardous substances) into product design. This has important implications for producers, in particular suppliers of components and sub-assemblies, in developing countries. Many small and medium-sized enterprises risk being excluded from the supply chain. Work carried out as part of the UNCTAD/FIELD project "Building Capacity for Improved Policy Making and Negotiation on Key Trade and Environment Issues", funded by the UK Department for International Development (DFID), has assisted China, the Philippines and Thailand in analysing pro-active adjustment policies to the new requirements, taking into account the need to address growing volumes of domestic EEE waste and to control imports of used EEE. This work has been carried forward by the Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries through further exchanges of national experiences. This has resulted in a number of recommendations.

The recently-adopted EC Framework Directive for the Eco-design of Energy Using Products (EuP) Directive provides a framework for the setting of eco-design requirements for products eligible for "implementing measures", based on life-cycle thinking. The Directive may have important implications for developing countries, especially in Asia, depending on the implementing measures that are adopted in the future. Key questions include: which EuP will be covered by implementing measures and how will key developing country suppliers be able to participate in consultations?

Whereas the EuP Directive aims to improve the overall environmental performance of energy using products (EuP), greenhouse gas mitigation through increased energy efficiency of EuP is a key objective.

The CTF could play an important role in enhancing understanding of possible implications for developing countries of new environmental requirements for EEE and EuP, as well as promoting further exchanges of national experiences in pro-active adjustment policies and dialogues involving stakeholders in developed and developing counties.

This note complements the UNCTAD Trade and Environment Review 2006, Chapter II, Environmental requirements and market access for developing countries: the case of electrical and electronic equipment

Table of contents

I. INTRODUCTION

1. Part of the work carried out in the framework of the UNCTAD/FIELD project "Building Capacity for Improved Policy Making and Negotiation on Key Trade and Environment Issues", funded by the UK Department for International Development (DFID), has focused on experiences of selected developing countries in adjusting to developments in environmental requirements in the electrical and electronics equipment (EEE) sector.

2. Such work (consisting of studies as well as national and regional stakeholder consultations) has focused on the experiences of China, the Philippines and Thailand (See UNCTAD Trade and Environment Review, 2006).[1] The EEE sector is very relevant for these countries because EEE exports represents between one third (Thailand) and 70 per cent (the Philippines) of the value of total exports of these countries. At the same time, these three developing countries jointly account for approximately one-third of the value of EEE imports into major developed country markets. The importance of pro-active adjustments to developments in environmental requirements results not only from the need to compete successfully in international markets, but also to achieve national and international environmental objectives in the light of growing volumes of domestic EEE waste.

3. In May 2005, the secretariats of UNCTAD and the UN Economic and Social Commission for Asia and the Pacific (UNESCAP) jointly organized a workshop on *Exchanging National Experiences among the Principal Exporting Developing Countries - Environmental Requirements and Market Access for Electrical and Electronic Goods* (Bangkok, 25-27 May 2005)[2] to discuss the results of the DFID project and recommend follow up activities as part of the Consultative Task Force (CTF) on Environmental Requirements and Market Access for Developing Countries.[3] Representatives from Malaysia also participated in the exchange of national experiences. Workshop participants made a number of recommendations (see section V).

4. The above-mentioned project concerning EEE has focused on strategies in the area of post-consumer waste management. However, other environmental issues, in particular energy efficiency (which has strong implications for climate change[4]) are also important drivers of changes in environmental requirements in the EEE sector. The EC Framework Directive for the Eco-design of Energy Using Products (EuP Directive) aims to improve the overall environmental performance of energy using products (EuP, i.e. products that use energy to perform the functions for which they were manufactured), but is likely to give high priority to

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1 See UNCTAD Trade and Environment Review 2006, Chapter 2 (René Vossenaar, Lorenzo Santucci and Nudjarin Ramungul (National Metal and Materials Technology Centre, Thailand), *Environmental Requirements and Market Access for Developing Countries: the Case of Electrical and Electronic Equipment*) and commentaries by experts.

2 The meeting was held in response to recommendations by the CTF meeting in November 2004. UNCTAD: *Report of the First Substantive Meeting of the Consultative Task Force on Environmental Requirements and Market Access for Developing Countries*. Geneva, 5-6 November 2004. The report (UNCTAD/DITC/TED/2005/2) is available at the CTF website.

3 At the Committee on WTO Trade and Environment Committee (CTE Regular) meeting on 6 July 2005, the representative of Thailand made a statement on the outcome of the workshop, which was followed by a discussion.

4 Energy efficiency is without doubt the quickest, most effective and most cost-effective manner for reducing greenhouse gas emissions. European Commission, Directorate-General for Energy and Transport: *Doing more with less - Green Paper on energy efficiency*. Luxembourg, 2005

energy efficiency.[5] Many developed and developing countries have implemented programmes aimed at improving the energy performance of energy-using products (EuP) through mandatory and voluntary minimum energy performance standards (MEPS), energy labelling and the promotion of voluntary agreements. Pro-active adjustment strategies to new environmental requirements, including the promotion of eco-design, may assist developing countries in meeting new requirements and turning challenges into opportunities. This involves taking into account the benefits of, for example, greater energy efficiency and improved post-consumer management of products in both developed and developing countries. Such strategies may also contribute to the security of energy supply, an important policy objective for countries such as China and India.

5. The objective of this note is to aid the discussions at the workshop by providing some additional information and analysis on trends in environmental requirements and their possible implications for producers, in particular small and medium-sized enterprises (SMEs) in the EEE sector. The note focuses on two largely overlapping product categories: EEE and EuPs. The note pays special attention to implications of developments in environmental requirements for product design, either as an explicit objective of a specific regulation such as the EC EuP Directive or as a result of requirements transmitted to producers in developing countries through the supply chain.

II. SOME TRENDS IN ENVIRONMENTAL REQUIREMENTS

6. Chapter 2 of the UNCTAD Trade and Environment Review 2006 reviews EEE waste management legislation in several countries, in particular the Waste Electrical and Electronic Equipment (WEEE) Directive and the Restriction of certain Hazardous Substances in electrical and electronic equipment (RoHS) Directive of the EU, the Home Appliances Recycling Law (HARL) of Japan, and the Ordinance on the Return, Take-back and Disposal of Electrical and Electronic Appliances (ORDEA) of Switzerland. It is also noted, however, that policy responses to concerns about post-consumer waste vary from one country to the other. For example, the United States emphasizes industry-led initiatives and some guidelines for government procurements. In the United States and Canada a number of laws have nevertheless been implemented or proposed at local levels. The Review also analyses legislation in key developing countries.[6]

7. Section IV below focuses on the EuP Directive, which may, in principle, apply to most EuP also covered by the WEEE and RoHS Directives (in particular household appliances and office equipment), as well as to other categories of EuPs. The EuP directive explicitly focuses on eco-design requirements concerning energy efficiency as well as other environmental impacts. There may be cross-links between requirements emerging from the RoHS on the one hand and the EuP Directive on the other, to the extent that the EuP Directive may reinforce the need for material declarations and the need for both producers

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[5] The objectives of the EuP Directive are to (a) ensure the free movement of energy-using products within the European Union; (b) improve the overall environmental performance of these products and thereby protect the environment; (c) contribute to the security of energy supply and enhance the competitiveness of the EU economy, and (d) preserve the interests of both industry and consumers

[6] On 28 February, 2006, China's Ministry of Information Industry (MII) promulgated the “Management Methods for Controlling Pollution Caused by Electronic Information Products Regulation” (“China RoHS”). RoHS” provides a broad regulatory framework for substance restrictions, pre-market certifications, labelling and information disclosure requirements affecting a broad range of products, parts and components defined as "electronic information products" ("EIP"). Substance restrictions will become effective as of 1 March 2007. See, for example: http://www.aeanet.org/GovernmentAffairs/gabl_ChinaRoHSpage0905.asp

and suppliers of components and subassemblies to know the material composition of products[7] (see below).

8. Some important features of recent regulatory measures are the emphasis on producer responsibility and product design.[8] With regard to the latter, in Europe it has been estimated that over 80 per cent of all product-related environmental impacts are determined during the product design phase. Integrating environmental considerations as early as possible into the product development process is therefore considered to be the most effective way of introducing changes and improvements to products.[9]

9. Company-specific strategies and initiatives by national industries are also a driver of change, both in the area of waste management or energy efficiency.

10. The analysis of new requirements resulting from developments in the area of EEE waste management regulations has identified possible implications of recent trends in environmental requirements for producers in developing countries. The EuP Directive may, in certain cases, have similar implications. It should be noted, however, that the EuP Directive will have impacts only if specific categories of EuP are covered by implementing measures.

11. Some of these implications identified in the analysis of environmental requirements in the EEE sector include the following:

- The need to make adjustments in product design to meet requirements transmitted through the supply chain, in particular to facilitate reuse and recycling.[10]
- The need to provide information to customers in developed countries. For example, importers in developed countries will need information from suppliers concerning hazardous substances to ensure compliance of the final product with RoHS.[11] In the specific case of the EC EuP Directive, it will depend on whether implementing measures will require suppliers in developing countries to provide information (see below). SMEs, in particular, would face difficulties if they were requested to establish "eco-logical profiles".

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[7] European Commission: Workshop Series on Eco-design for Small and Medium-Sized Enterprises in the Electrical and Electronics Industry. Training materials, Chapter 4, From RoHS and WEEE to EUP http://www.ecodesignarc.info/servlet/is/813/

[8] As part of its ISO 14000 series on Environmental Management, the ISO has developed a Technical Report on Integrating environmental aspects into product design and development (ISO/TR 14062:2002), which describes concepts and current practices relating to the integration of environmental aspects into product design and development.

[9] Commission of the European Communities, Proposal for a directive of the European Parliament and of the Council on establishing a framework for the setting of Eco-design requirements for Energy-Using Products and amending Council Directive 92/42/EEC: Explanatory Memorandum, COM(2003) 453 final, Brussels, August 2003. http://europa.eu/eur-lex/en/com/pdf/2003/com2003_0453en01.pdf

[10] According to Annex I of the EuP Directive eco-design criteria for reuse and recycling can be expressed through: number of materials and components used, use of standard components, time necessary for disassembly, complexity of tools necessary for disassembly, use of component and material coding standards for the identification of components and materials suitable for reuse and recycling (including marking of plastic parts in accordance with ISO standards), use of easily recyclable materials, easy access to valuable and other recyclable components and materials; easy access to components and materials containing hazardous substances.

[11] Typically, this may be through supplier material declarations - a document that discloses the part per million (ppm) levels of substances.

- Companies request their suppliers to provide material declarations, but these vary in terms of scope, content, type and format and often go beyond what is needed to assure compliance with government regulations.
- In the case of RoHS, large companies may be inclined to reduce the number of components and suppliers, in particular SMEs. Consequently, certain SMEs risk being excluded from the supply chain.[12]
- The need to find substitutes for restricted substances may pose difficulties for developing countries. For example, before suitable material substitution strategies can be formulated, an assessment has to be made of the elemental content of all materials employed in the products. Thai EEE producers, for example, have faced difficulties in finding competent suppliers and establishing cost-effective materials control programmes.
- The need to establish sufficient infrastructure, in particular for product testing and research and development (R&D).
- There is currently no internationally harmonized conformity assessment test for the complete removal of lead from EEE, which complicates technically and commercially compliance assurance by producers. See next section on testing.

Developing an international standard on testing procedures for regulated substances in EEE[13]

12. Certain test methods to determine regulated material content already exist, but there are a number of problems, in particular: (a) most testing methods are not appropriate for testing electrotechnical products; b) testing methods differ from each other; (c) methods are not internationally recognized and (d) not agreed upon by countries regulating substances in EEE (the EU RoHS, Japan, California, China RoHS).[14]

13. The International Electrotechnical Commission (IEC) TC 111 Working Group 3 is developing a standard on test procedures for the determination of six regulated substances in EEE.[15] These substances are lead, mercury, chromium VI, cadmium, and two types of brominated flame retardants (PBB, PBDE). The standard will define test procedures that will allow the EEE industry to determine the concentration of the regulated substances in EEE on a consistent global basis. An annex to the standard developed by IEC TC 111, WG 3 will provide practical guidance to disassembly, sample selection and application of the test methods defined in the standard. Work on the standard started in June 2005, the final draft international standards will be presented in July 2006, and publication is planned for October 2006

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[12] Similar effects can be observed as a result of stringent food safety requirements. See the issues note on horticultural products prepared for this workshop.

[13] Joe Johnson, Cisco Systems, NIST Workshop Presentation, 6 October 2005. Available at http://www.cstl.nist.gov/acd/RoHS/Presentations/Johnson100605.pdf

[14] Testing may be performed for a variety of reasons: (a) as an alternative to supply chain material declarations; (b) as a supplement to a material declaration; (c) as a "spot check" to confirm supplier compliance or (d) as a basis to assess compliance (enforcement).

[15] The IEC is the leading global organization that prepares and publishes international standards for all electrical, electronic and related technologies. These serve as a basis for national standardization and as references when drafting international tenders and contracts.

III. ELECTRICAL AND ELECTRONIC EQUIPMENT (EEE)

Consultations

14. Pro-active adjustment strategies require that developing countries with a key export interest in specific sectors take advantage of opportunities to provide comments on the design, implementation and review of environmental regulations that may affect their trade interests. There is also a need for developed countries to actively promote consultations with their developing country trading partners. Developing countries have, in general, not been active, or have faced difficulties, in providing comments. However, China submitted a comment proposing amendments of the Annex to the RoHS Directive. The UNCTAD Trade and Environment review recommends developing countries to participate in the modalities for the implementation of the RoHS Directive.

15. The UNCTAD Review also describes efforts by the European Union and some member States to assist developing countries in enhancing their understanding of EU Directives. These efforts have continued. For example, in order to help developing countries comply with EU requirements, the Trade Directorate of the EU under the Trans-regional EU-ASEAN trade initiative (TREATI) have been funding a series of workshops providing technical assistance and training for stakeholders from across the ASEAN region concerned with the export of EEE to the EU and compliance with the relevant standards and technical regulations. Very useful information can be found on the website developed for these workshops (http://www.eeestandards.com/index.htm). In these workshops, additional information is being provided, including in response to written questions by participants. With regard to RoHS, this allows stakeholders in developing countries to keep track of developments with regard to issues that were not yet clear when the Directive was enacted such as exceptions and threshold levels for controlled substances and he question how compliance would be enforced, as well as international efforts in the area of standards.

Lessons learned

16. A detailed analysis of adjustment policies in China, Malaysia,[16] the Philippines and Thailand is presented in the UNCTAD Trade and Environment Review 2006. This section presents a very brief comparative analysis of adjustment approaches.

17. China and Thailand are relatively more affected by environmental requirements in export markets because in these countries there is a relatively large number of SMEs and nationally-owned companies. Also, there is a higher level of integration of the industry and greater focus on end-product assembly. In these two countries, governments have been relatively more active in promoting adjustment and implementing legislation. Thailand, for example, has developed a pro-active approach, based on a public-private partnership approach by private-sector institutions, in particular the Electrical and Electronics Institute (EEI), the National Metal and Material Technology Centre (MTEC), government institutions and other stakeholders (See UNCTAD Trade and Environment Review 2006). Some initiatives to address the quickly escalating problem of domestic post-consumer EEE waste and to control second-hand EEE imports are also under way.

[16] See commentary by Bakar Jaafar and Siew Hai Wong.

18. The Philippines and Malaysia are relatively less affected by the new environmental requirements in export markets, because subsidiaries of transnational corporations (TNC) and large contract manufacturers dominate the EEE industry. Export-oriented production of EEE is mostly focused on components and there is a lower level of integration of the industry (e.g. in the Philippines most inputs are provided by parent companies). Governments in these countries have not yet played a very active role in facilitating the adjustment process of the industry, nor has there been much governmental action on addressing domestic post-consumer EEE waste; this is mostly left to company initiatives or programmes implemented at regional or municipal level.

19. Given the diversity of policy responses that have so far been adopted to problems that are in many respects common to all countries in the region, further information-sharing and exchanges of national experiences can play an important role in designing and implementing pro-active strategies and exploring sub-regional cooperation.

Recommendations following from the project

20. This section lists some of the key recommendations emerging from the project and the discussions at the Bangkok workshop

Recommendations to regulatory and standards-setting authorities and donors

- Disseminate, as early as possible, information on new environmental requirements or related concepts and frameworks and identify the likely implications for developing countries, in particular those with a key export interest in the products concerned.
- Prepare user-friendly manuals explaining the implications of new environmental regulations for developing countries as well as available technical cooperation/capacity building programmes to assist them in meeting new requirements and implementing domestic standards.
- In stakeholder consultations and regulatory impact assessments, address the implications for developing countries, especially SMEs.
- Be proactive in facilitating the participation of developing countries in stakeholder consultations.
- In designing flanking policies, pay attention to addressing the constraints of and offering opportunities for developing countries.

To governments and the business sector in developing countries

- Design proactive adjustment policies aimed at strengthening the capacities of the EEE industry to respond to market requirements and at addressing problems related to domestically generated post-consumer EEE waste and imports of second-hand equipment.
- Identify the implications for SMEs arising from changes in risk management along the supply chain, promote SME alliances to better cope with new requirements and develop flanking measures to support SMEs.
- Explore early-warning mechanisms on new environmental requirements. This should include the assessment of likely impacts and adjustments to be made.
- Implement cost-effective eco-design programmes. Pay more attention to the analysis of the “reverse” supply chain management, i.e. the re-use of products and components recovered from consumers and recycling facilities.

- Strengthen environmental management systems, paying more attention to product-related aspects (e.g. in the context of ISO 14001).
- Participate in further consultations with developed countries.

Recommendations to the CTF

- Continue to promote the exchange of national experiences on pro-active adjustment policies.
- Facilitate studies on implications of developments in supply change management for SMEs and the feasibility of the creation of alliances of SMEs.
- Help facilitate early interaction between developing and developed countries on standards and legislation.

IV. ENERGY-USING PRODUCTS (EuP)

21. This section describes the EuP Directive and discusses the possible implications of for developing countries. Even though it also addresses other environmental aspects,[17] the Directive's main focus is on energy efficiency of EuPs.[18] Therefore, this section also briefly analyses regulatory and other measures aimed at increasing the energy efficiency of EuPs in other countries.

The EC EuP Directive: possible implications for developing countries

22. The EuP Directive[19] provides a framework for setting eco-design requirements for EuP before they can be placed on the market.[20] As a Framework Directive it does not contain any immediate obligations for manufacturers, but it enables detailed implementing measures that the Commission, assisted by a Regulatory Committee, is to bring forward for specific products (see below and Annex I) over time, after impact assessments and consultations with stakeholders. The Directive was published in May 2005. Within two years the Commission, in consultation with stakeholders via a Consultation Forum (to be established in 2006) is required to publish a work programme for the following 3 years. Member States shall adopt regulations and administrative provisions necessary to comply with the Directive before 11 August 2007. It is envisaged that the first implementing measures creating eco-design obligations for some EuPs will be adopted in 2007. The European Commission has commissioned preparatory studies for a number of EuP categories (see annex 2).

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[17] The Directive does not deal with environmental impacts (such as climate change), but with environmental aspects of the product which can be correlated to those impacts (such as energy consumption and can be influenced in a substantial manner through product design. Annex I lists the following aspects: (a) consumption of materials, energy and of other resources; (b) emissions to air, water or soil; (c) pollution through physical effects (noise, vibration, radiation, electromagnetic fields); (d) generation of waste material; and (e) possibilities for reuse, recycling and recovery of materials and/or of energy.

[18] The Directive states that "although a comprehensive approach to environmental performance is desirable, greenhouse gas mitigation through increased energy efficiency should be considered a priority environmental goal pending the adoption of a working plan". A general principle is that the energy consumption of EuPs in stand-by or off-mode should be reduced to the minimum necessary for their proper functioning.

[19] For more information see: http://ec.europa.eu/enterprise/eco_design/index_en.htm

[20] Three existing EU Directives on minimum energy efficiency requirements have been brought within the EuP Directive i.e. those for hot water boilers (92/42/EEC), domestic refrigeration appliances (96/57/EC) and ballasts for fluorescent lighting (2000/55/EC). Two other directives have been repealed.

23. At this stage it is difficult to assess possible implications of the EuP Directive for producers in developing countries. However, the extent to which implementing measures will have implications for developing countries will, to a large extent, depend on factors such as:

- Which products will be selected for implementing measures?
- Will suppliers of components and subassemblies be affected by implementing measures?
- What will be the focus of eco-design criteria and life-cycle thinking?
- Does the option to present voluntary agreements or other self-regulation measures as alternatives to implementing measures have implications for producers in developing countries?
- How will manufacturers in developing countries have to demonstrate compliance?
- Will implications for developing countries be considered in impact assessments and cost-benefit analyses, including impacts on competitiveness and sustainable development?
- How can developing countries comment on the selection of EuPs to be covered by implementing measures and participate in stakeholder consultations concerning EuPs of export interest to them?

Selection of products eligible for implementing measures

24. The Directive is in principle applicable to any product using energy to perform the function for which it was designed, manufactured and put on the market. However, the intention of the Commission is that only a "limited number for well justified cases selected in conformity with the criteria laid down in the framework Directive" would be covered by implementing measures. Rather than listing EuP that may be covered by implementing measures, the Directive sets criteria for product selection[21] which are very much in line with the conditions and methodologies outlined in the Community Eco-label scheme.[22] The above-mentioned work plan is to set out an indicative list of product groups which will be considered as priorities for the adoption of implementing measures.[23] Annex II lists categories of EuPs that have been selected for assessment studies.

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[21] Products that may be covered by implementing measures should:
(a) Represent a significant volume of sales (indicatively more than 200,000 units a year within the Community);
(b) Have a significant environmental impact within the Community; and
(c) Present significant potential for improvement in terms of its environmental impact without entailing excessive costs. In general, product categories will be selected only if products available on the market have a wide disparity in the environmental performance, but with equivalent functionality.

[22] Commission Decision of 21/12/2001 establishing the Community eco-label working plan (OJ L 7 of 11.01.2002 p.28)

[23] However, during the transitional period the Commission may, after consulting the Consultation Forum, already introduce implementing measures starting with those products which have been identified by the European Climate Change Programme (ECCP) as offering a high potential for cost-effective reduction of greenhouse gas emissions, such as heating and water heating equipment, electric motor systems, lighting in both the domestic and tertiary sectors, domestic appliances, office equipment in both the domestic and tertiary sectors, consumer electronics and HVAC (heating ventilating air conditioning) systems.

Components and subassemblies

25. An important question for developing countries is whether and how implementing measures may affect suppliers of components and subassemblies. In principle, implementing measures may require the suppliers who place components and subassemblies on the market to provide the manufacturers of EuPs that are covered by implementing measures with relevant information on the material composition and the consumption of energy, materials and/or resources of the components or subassemblies (Article 11).

26. In addition, manufacturers and importers of EuPs in the European Union covered by implementing measures may, on their own initiative, seek additional information from suppliers in developing countries.

Eco-design criteria, life-cycle thinking

27. The Directive encourages manufacturers to design products with environmental impacts in mind throughout their entire life cycle. Annex I lists significant environmental aspects, in so far as they relate to product design, with reference to the following phases of the life cycle of the product: (a) raw material selection and use; (b) manufacturing; (c) packaging, transport, and distribution; (d) installation and maintenance; and (e) use. It makes sense to take these into account in product design. However, whereas the Directive does not seem to apply impose direct obligations on producers, the indirect implications for innovation and possible de facto discrimination against producers in developing countries need to be considered.

Voluntary agreements

28. The Directive provides the opportunity to present voluntary agreements or other self-regulation measures as alternatives to implementing measures. Such agreements shall be assessed on the basis of Annex VIII. Since openness of participation is one of the criteria for admitting voluntary agreements, it will be important to examine whether developing countries face constraints in participating in agreements that have significant implications for their trade interests.

Conformity assessment

29. Compliance will normally be based on self-declaration with the CE marking being the mechanism for identifying compliant products.[24]

30. Under certain conditions there is a presumption of conformity:

- Member States shall regard an EuP for which harmonized standards have been applied, as conforming to all the relevant requirements of the applicable implementing measure to which such standards relate.

[24] In order to obtain CE marking, the manufacturer or importer must (a) ensure that an assessment of the product's conformity with all the relevant requirements of the applicable implementing measure is carried out; (b) make sure that an "ecological profile" of the products is established in accordance with the requirements of the applicable implementing measure; and (c) maintain documentation.

- EuP which have been awarded the Community eco-label pursuant to Regulation (EC) No 1980/2000 shall be presumed to comply with the eco-design requirements of the applicable implementing measure insofar as those requirements are met by the eco-label. For the purposes of the presumption of conformity, the Commission may decide that other eco-labels fulfil equivalent conditions.
- Under certain conditions, the management systems of companies that participate in a Community eco-management and audit scheme (EMAS) shall be presumed to comply with the requirements of Annex V (Management system for assessing conformity) to the Directive

31. It is important to ensure that producers in developing countries that may be affected by implementing measures can benefit from these presumptions of conformity.

Sustainable development considerations

32. The EuP Directive recognizes that sustainable development, apart from environmental impacts, also requires proper consideration of the health, social and economic impact of the measures envisaged. The Directive seems to favour a reasonable balancing of environmental, economic and social objectives. For example, one of the criteria that implementing measures have to meet is that there shall be no significant negative impact on industry's competitiveness. However, it will be necessary to give adequate consideration to possible implications for developing countries. The Directive includes a number of provisions that may help to address developing countries' concerns. For example, in principle, the setting of an eco-design requirement shall not have the consequence of imposing proprietary technology on manufacturers.

Energy efficiency regulations for EuP

33. Many developed and several developing countries have implemented programmes aimed at improving the energy performance of energy-using products through mandatory and voluntary minimum energy performance standards (MEPS) and energy labelling. Well-designed MEPS can transform markets by removing inefficient products and increase the economic welfare of most consumers without seriously limiting their choice of products. Similarly, energy labels assist consumers in making informed choices about the products they buy and reducing their energy bills. A large number of countries have implemented mandatory MEPS which also apply to imported products. As in the case of waste from EEE, policy responses vary from country to country. In addition to Government regulations, several countries have promoted voluntary industry agreements and codes of conduct. Energy efficiency regulations for EuPs have initially focused on household appliances. MEPS increasingly also cover commercial and industrial equipment (which may, however, constitute less important export items for developing countries)

34. Over 50 countries already have MEPS programmes and more programmes are under development.[25] This includes some 10 developing countries that have mandatory MEPS: Brazil, China, Costa Rica, Egypt, Iran, Jamaica, the Republic of Korea, Mexico, Philippines Singapore, Thailand, Tunisia and Venezuela. Programmes vary widely in terms of product coverage and performance requirements. For more detailed information see Annex I.

[25] Comprehensive information can be found on the website of the Collaborative Labeling and Appliance Standards Program (CLASP) available at http://www.clasponline.org/worldwide.php.

35. Over the years, such requirements have become more comprehensive and stringent, for example by bringing an increasing number of products under the scope of the MEPS regulations and by making performance levels more stringent. In the United States, emphasis has moved from voluntary approaches to mandatory MEPS and, although states still play a key role in establishing MEPS, a number of these standards have now become federal law. Federal MEPS have now been given pre-emption over state standards.

36. The coverage and stringency of MEPS vary from country to country. Australia, Canada, Japan and the United States, for example, have stringent MEPS for a broad range of EuP. In Australia, the Greenhouse Gas Office has a general policy to adopt the highest MEPS available worldwide. In the United States, the Energy Policy and Conservation Act (EPCA) and the Energy Policy Act of 2005 (EPAct) require the Department of Energy (DoE) to set appliance efficiency standards at levels that achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified.

37. With regard to the European Union, it has been argued that MEPS programmes have so far been less ambitious than those of some other developed countries in terms of number of standards set and performance levels they demand.[26] However, as mentioned before, the EuP Directive represents a new approach by setting eco-design requirements for products eligible for "implementing measures".[27] One of the aims of the directive is to apply the requirements for energy efficiency while, at the same time, avoiding negative consequences of other aspects of the environment or other stages in the life cycle of EuP. The Directive is a key component in the Community strategy for Integrated Product Policy. It should now be possible to establish energy-efficiency requirements for a larger range of EuP.

V. CONCLUSIONS

38. Developing countries with a key export interest in EEE need pro-active adjustment strategies to meet environmental requirements in international markets and address domestic environmental problems, in particular by reducing and facilitating the management of post-consumer waste and increasing energy-efficiency during use. There is an irreversible trend in world markets towards more energy-efficient products which are easier to recycle and re-use. This has important implications for product design and suppliers of components and subassemblies in developing countries. Whereas developing countries can derive important benefits from this trend, there is also a risk that many SMEs may be excluded from the supply chain. CTF can play a role in enhancing the understanding of the implications of new environmental requirements for developing countries, including through dialogues involving stakeholders in developing and developed countries and promoting exchanges among developing countries of national experiences in pro-active adjustment strategies.

39. Annex III shows that China and other developing countries, in particular in South East Asia, figure prominently among the principal non-EU suppliers of EuP to the EU market. It therefore seems important to involve these countries in stakeholder consultations concerning implementing measures in the context of the EuP Directive. These countries need to keep track of developments in preparatory studies (see annex 2).

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[26] See: Supplementary memorandum by the UK Department for Environment, Food and Rural Affairs (DEFRA). http://www.publications.parliament.uk/pa/ld200405/ldselect/ldsctech/999/4110317.htm

[27] European Commission, Directorate-General for Energy and Transport: Doing more with less - Green Paper on energy efficiency. Luxembourg, 2005.

VI. SUGGESTED ISSUES FOR DISCUSSION AND FOLLOW-UP

Suggested issues for discussion

40. Experts may wish to discuss issues such as the following:

- How should CTF follow up on the work carried out so far in the area of EEE?
- What are the implications of ongoing standardization efforts on testing procedures for the determination of regulated substances in EEE (such as IEC TC 111 Working Group 3) for producers in developing countries?
- What lessons can be learned from recent experiences with bilateral efforts to help enhance understanding among stakeholders in developing countries with a key export interest, such as the Trans-regional EU-ASEAN trade initiative (TREATI)
- What should be the key issues addressed in further exchanges of national experiences in designing and implementing pro-active adjustment policies in the area of management of waste from EEE in the light of external and domestic environmental requirements?
- How can cost-effective eco-design strategies assist developing countries in coping with environmental requirements and achieving national objectives in the areas of energy efficiency (including security of energy supply) and waste management?
- How can developing countries promote preparedness for the EuP Directive?
- What should the role of CTF be in analysing the possible implications for developing countries of new legislation in the area of EuP, in particular the EC EuP Directive?

Possible future CTF activities

41. Project-based activities are envisaged as follow-up to the already completed work carried out as part of the DFID-funded project and the CTF.

42. Such activities will, in principle, focus on exchanges of national experiences in designing and implementing pro-active adjustment policies between a small number of interested developing countries with a key export interest in EEE (which could include countries that have already participated in recent project activities). The activities would be carried out under the umbrella of CTF, in cooperation with current and possible new partners.

43. Policy dialogues should help clarify the conceptual, strategic and practical issues related to appropriate adjustment strategies to environmental requirements at the national level and assist in promoting partnerships and developing detailed guidelines for such activities. Beyond the life-time of the CTF-sponsored activities, the appropriate international organizations and development partners interested in participating in these consultations could then follow up with capacity-building support to help implement the adjustment policies and measures.

44. The CTF could also help to facilitate stakeholder consultations on standards and regulations, as well as pro-active adjustment policies, involving developed and developing countries.

ANNEX I: EuP LEGISLATION (MEPS) IN SELECTED COUNTRIES

Australia

45. In Australia, one of the objectives of the 1998 National Greenhouse Strategy (http://www.greenhouse.gov.au/government/ngs/index.html) is the promotion of improvements in the energy efficiency of domestic appliances and commercial and industrial equipment by extending and enhancing the effectiveness of MEPS and labelling. MEPS are established through State-based legislation because the Australian constitution has given States clear responsibility for resource management issues, including energy (http://www.energyrating.gov.au/meps1.html). A full list of products regulated for energy efficiency (MEPS and/or energy labelling) is available on http://www.energyrating.gov.au/productmenu.html.

Canada

46. Canada's Energy Efficiency Act and Energy Efficiency Regulations provide for MEPS for a wide range of energy-using products, with the objective of eliminating the least energy-efficient products from the Canadian market. The Federal Regulations, which are administered by Natural Resources Canada (NRCan), apply to dealers (manufacturers or importers) who import regulated products into Canada or ship them from one Canadian province to another. For the products covered in the Federal Regulations, the MEPS levels apply equally where the products are incorporated into other products. Information is available on http://oee.nrcan.gc.ca/regulations/home_page.cfm

European Union

47. In the European Union, energy efficiency strategies concerning EuP have focused largely on a combination of labelling and voluntary agreements. There are relatively few MEPS. Three existing EU Directives on MEPS for specific products (hot water boilers, domestic refrigeration appliances and ballasts for fluorescent lighting) have been brought within the EuP Directive. The EuP Directive is the result of a merger of two draft Directives in August 2003: (a) the Framework Directive on energy efficiency for end use equipment (EER), aimed to help achieve commitments under the Kyoto Protocol on combating climate change. The aim of this proposal was to set specific requirements for energy consumption of products targeted in so-called "implementing measures" and (b) the Framework Directive on impact on the environment of electrical and electronic equipment (EEE), which was based on Life Cycle Thinking (LCT), allowing the manufacturer to find the optimal balance between economic, social, technical and environmental requirements when designing his products. The EuP Directive tries to combine the principle of Life Cycle Thinking (LCT) with the setting of more specific requirements in the EER (Charter, 2006).[28]

Japan

48. Japan does not have MEPS; instead it operates the “Top Runner” standards programme, adopted in 1998. This program aims to improve energy efficiency of appliances

[28] Martin Charter, Director, The Centre for Sustainable Design, University College for the Creative Arts. Energy-using Products (EuP), Directive and Business Implications. Asia Eco-Design Electronics, 10th April 2006, Emerald Hotel, Bangkok, Thailand

by setting target values, based on the current highest efficiency level of each type of product available on the market. Manufacturers and importers have to ensure that the average (sales weighted) efficiency of all their appliances meet this standard by a specified date (the target year). The programme allows a continuum for improvement over time, making manufacturers constantly increase the efficiency of appliances. The Top Runner standards are voluntary as there is no minimum level, however penalties can be evoked if the average efficiency target is not met. So far, the programme is believed to have been quite successful with most manufacturers gearing up to meet the targets. When the target year is reached, new target levels can be established (This section is based on CLASP).

New Zealand

49. New Zealand's appliance and equipment energy efficiency programmes are closely linked technically, commercially and administratively to those of Australia. MEPS requirements for appliances are mostly contained in joint Australian and New Zealand standards.[29] New Zealand has recently notified amendments to its "Energy Efficiency (Energy Using Products) Regulations 2002" to the TBT (G/TBT/N/NZL/20, 21 and 22). For more information see: http://www.mfe.govt.nz/issues/energy/efficiency.html

United States

50. Several interesting developments are observed in the United States:

- *A move from voluntary targets to MEPS*. In 1975, The Energy Policy Conservation Act (EPCA) directed the U.S. Department of Energy (DOE) to develop voluntary appliance efficiency targets. However, the National Energy Conservation Policy Act of 1978 (NECPA) directed DOE to set MEPS in replacement of the EPCA voluntary targets.
- *The increasing role of federal MEPS.* The NEPCA gave federal MEPS pre-emption over state standards. The National Appliance Energy Conservation Act of 1987 and amendments of 1988 (NAECA) strengthened the pre-emption of federal MEPS over state standards.
- *The growing number of MEPS*. In January, 2006, the DoE released a five-year plan outlining how it will address the appliance standards rulemaking backlog and meet all of the statutory requirements.[30] The DoE claims that it "is aggressively implementing process improvements to speed up the development and issuing of appliance standards rulemakings".

[29] Asia-Pacific Economic Cooperation Energy Standards Information System, APEC-ESIS (http://www.apec-esis.org/home.php).

[30] http://www.eere.energy.gov/buildings/appliance_standards/2006_schedule_setting.html

ANNEX II: EXAMPLES OF EuP PRODUCTS

51. The "Eco-design of EuP methodology" study provides some examples of EuP that are being evaluated to assess whether they could be covered by implementing measures. The European Commission has recently commissioned preparatory studies for the following products:

- Boilers and combi-boilers (gas/oil/electric)
- Water heaters (gas/oil/electric)
- Personal computers (desktops and laptops) and computer monitors
- Imaging equipment: copiers, faxes, printers, scanners, multifunctional devices, consumer electronics, televisions
- Battery chargers and external power supplies
- Office lighting
- (Public) street lighting
- Residential room conditioning appliances (airco and ventilation)
- Electric motors (1-150 kW) and water pumps (in commercial buildings, drinking water pumping, food industry, agriculture), circulators in buildings
- Fans for ventilation (non residential buildings)
- Commercial refrigerators and freezers, including chillers, display cabinets and vending machines
- Domestic refrigerators and freezers
- Domestic dishwashers and washing machines

ANNEX III: TRADE IN EuP

52. This Annex provides, for illustrative purposes, a very preliminary indication of developing countries' share in EU25 imports of selected EuP from outside the Community, focusing on appliances and some other products, but excluding parts and components.[31]

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Table 1
European Union-25, 2005: Imports of selected EuP from outside the EU
Value (millions of euros), share of top 3 suppliers and (other) key developing country suppliers in imports from outside the EU (percentages)

EuP category	Exra-EU25 imports (million euros)	Top 3 suppliers from outside the EU25 and their share in extra-EU 25 imports (%)	Other key developing country suppliers and their share in extra-EU 25 imports (%)
Boilers (HS 840211-840220; 840310)	218..6	Turkey (34.1); Switzerland (15.8); Rep of Korea (9.3)	-
Refrigerators (HS 841819-841869)	1976.1	Turkey (23.3); China (23.1); Rep of Korea (20.7)	Thailand (6.0); Brazil (2.8)
Dishwashing machines (HS 842211)	109.8	China (47.2); Turkey (39.6); Rep of Korea (8.1)	-
Washing machines (HS 845011-845090)	451.2	Turkey (54.0); Rep of Korea (23.1); China (16.8)	-
Computers (HS 8471)	40046.3	China (42.2); United States (16.2); Taiwan, Prov of China (10.7)	Singapore (6.4);Thailand (3.8); Malaysia (3.7)
Vacuum cleaners (HS 850910)	816.4	China (73.6); Malaysia (11.0); United States (5.4)	Rep of Korea (5.4)
Television receivers (HS 8528)	5780.1	Turkey (27.2); China (26.1); Japan (9.1)	Taiwan Prov of China (7.8); Rep Korea (5.5); Thailand (2.7)
Air conditioning (HS 841510-841583)	2728.7	China (42.6); Thailand (19.6); Japan (14.8)	Rep Korea (9.6); Malaysia (6.4)
Lamps (HS 851310, 8539, 9405)	3935.1	China (72.6); United States (5.8); Japan (3.2)	India (2.3); Hong Kong SAR China (2.3)
Photocopying apparatus (HS 900911-900930)	3085.2	China (51.1), Japan (34.3); United States (3.2)	Rep of Korea (2.9); Hong Kong SAR China (2.4)
Motors (HS 8501)	2412.7	China (25.4); USA (17.9); Switzerland (15.9)	Brazil (3.4)

Source: calculations based on the European Commission: Export Helpdesk for Developing Countries. http://exporthelp.europa.eu/

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[31] Many EuPs used by households (such as refrigerators, clothes-washing machines, room air conditioning equipment and desktop computers) and as office equipment (such as facsimile and photocopying machines) are covered by the RoHS Directives as well as MEPS, energy labels and other instruments discussed in this paper and are also possible candidates for EuP implementing measures. The building sector has large potential for enhanced energy efficiency and many new requirements are emerging concerning lighting, heating and cooling equipment. Such EuP are being increasingly covered by some energy efficiency programmes and are likely to be targeted by the EuP Directive. The EuP may cover industrial applications, which are, however, not covered by the RoHS Directive. The transportation sector is not covered by the RoHS EuP Directives, but is subject to a range of energy efficiency regulations.