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PROGRAMME ON SAFETY AND HEALTH AT  
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ENVIRONMENT

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## Outline for the Development of National Programmes for Elimination of Asbestos-Related Diseases

### Introduction

The term "asbestos" designates a group of naturally-occurring fibrous serpentine or amphibole minerals with current or historical commercial use due to their extraordinary tensile strength, poor heat conduction and relative resistance to chemical attack. The principal varieties of asbestos are chrysotile, a serpentine material, and crocidolite, amosite, anthophyllite, tremolite and actinolite, which are amphiboles.

Exposure to asbestos causes a range of diseases, such as lung cancer, mesothelioma, and asbestosis (fibrosis of the lungs), as well as pleural plaques, thickening and effusions. There is also evidence that it causes laryngeal and possibly some other cancers.

Taking into account the rising number of cases of asbestos-related diseases due to the intensive use of asbestos in the past and the fact that some countries still continue to use chrysotile asbestos and even increase its use, the Thirteenth Session of the Joint ILO/WHO Committee on Occupational Health (2003) recommended that special attention should be paid to the elimination of asbestos-related diseases in future collaboration between ILO and WHO<sup>1</sup>.

This document is intended to facilitate countries, particularly those that still use chrysotile asbestos, in establishing their national programmes for elimination of asbestos-related diseases. It also addresses countries' efforts to prevent asbestos-related diseases arising from exposure to the various forms of asbestos already in place and as a result of their use in the past. A national programme for elimination of asbestos-related diseases should include strategic policy, national profile, awareness raising, capacity building, an institutional framework, and a national plan of action for elimination of asbestos-

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<sup>1</sup> Report of the Committee JCOH/2003/D.4. *Thirteenth Session of the Joint ILO/WHO Committee on Occupational Health*. Geneva, 9-12 December 2003. International Labour Office; 2006; available at: <http://www.ilo.org/public/english/protection/safework/health/session13/report.pdf>

related diseases. Countries can use this document according to the specific national and local conditions and the available resources.

ILO and WHO will further assist individual countries by providing policy guidance, expert advice and international tools for elimination of asbestos-related diseases, such as methodologies for estimation of the disease burden attributable to asbestos, information about safer substitutes of asbestos and alternatives to asbestos-containing materials, overview of best national practices, training materials etc.

## **International basis for action**

Action on elimination of asbestos-related diseases has a sound international basis that includes primarily ILO international instruments, WHO recommendations and multilateral environmental agreements.

### *ILO standards*

The Occupational Cancer Convention, 1974 (No.139) requires Parties to “periodically determine the carcinogenic substances and agents to which occupational exposure shall be prohibited or made subject to authorization or control...” (Article 1). Parties to the Convention “shall make every effort to have carcinogenic substances and agents to which workers may be exposed in the course of their work replaced by non-carcinogenic substances or agents or by less harmful substances or agents; in the choice of substitute substances or agents account shall be taken of their carcinogenic, toxic and other properties” (Article 2)<sup>2</sup>.

The Asbestos Convention, 1986 (No.162) provides that “where necessary to protect the health of workers and technically practicable, national laws or regulations shall provide for one or more of the following measures - (a) replacement of asbestos or certain types of asbestos or products containing asbestos by other materials or products or the use of alternative technology, scientifically evaluated by the competent authorities as harmless or less harmful, whenever this is possible; (b) total or partial prohibition of the use of asbestos or certain types of asbestos or products containing asbestos in certain work processes.” (Article 10)<sup>3</sup> The Asbestos Convention prohibits the use of crocidolite and products containing this fibre, as well as spraying of all forms of asbestos.

The Chemicals Convention, 1990 (No.170) requires that “when in an exporting member State all or some uses of hazardous chemicals are prohibited for reasons of safety and health at work, this fact and the reasons for it shall be communicated by the exporting member State to any importing country” (Article 19)<sup>4</sup>.

The Resolution on Asbestos of the 95<sup>th</sup> International Labour Conference (2006) stipulates that the elimination of the future use of asbestos and the identification and proper management of asbestos currently in place are the most effective means to protect workers from asbestos exposure and to prevent future asbestos-related diseases and deaths. It also indicates that the Asbestos Convention, 1986 (No.162), should not be used to provide a justification for, or endorsement of, the continued use of asbestos. It encourages countries to ratify and give effect to the provisions of the Asbestos Convention, 1986, and the Occupational Cancer Convention, 1974; to promote the elimination of future use of all forms of asbestos and asbestos containing materials; to promote the identification and

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<sup>2</sup> ILO Occupational Cancer Convention, 1974 (No.139) and ILO Occupational Cancer Recommendation, 1974 (No.147); full text available at <http://www.ilo.org/ilolex/english/index.htm>

<sup>3</sup> ILO Asbestos Convention, 1986 (No.162) and ILO Asbestos Recommendation, 1986 (No.172), full text available at <http://www.ilo.org/ilolex/english/index.htm>

<sup>4</sup> ILO Chemicals Convention, 1990 (No.170) and ILO Chemicals Recommendation, 1990 (No. 177), full text available at <http://www.ilo.org/ilolex/english/index.htm>

proper management of all forms of asbestos currently in place; and to include measures in national programmes on occupational safety and health to protect workers from exposure to asbestos.<sup>5</sup>

#### *Multilateral environmental agreements*

There are two main multilateral environmental agreements that play an important role in international trade and management of asbestos. The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade includes all types of asbestos of the amphibole group in its Annex III of substances subject to the prior informed consent procedure<sup>6</sup>. The 2006 Conference of the Parties to the Rotterdam Convention decided that chrysotile asbestos meets the requirements and the criteria for inclusion in Annex III of the Convention and that the 2008 Conference shall further consider its inclusion in Annex III<sup>7</sup>. Furthermore, wastes that contain asbestos dust and asbestos fibres are considered a hazardous waste (Annex I, item Y36) under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal<sup>8</sup>, and are, therefore, subject to strict control.

#### *WHO recommendations*

The 58<sup>th</sup> World Health Assembly urged Member States to pay special attention to cancers for which avoidable exposure is a factor, particularly exposure to chemicals at the workplace and the environment.<sup>9</sup> Asbestos is one of the most important occupational carcinogens causing about half of the deaths from occupational cancer. In May 2007, the 60<sup>th</sup> World Health Assembly endorsed a global plan of action on workers' health 2008-2017 in which Member States requested the WHO Secretariat to include in its activities "a global campaign for elimination of asbestos-related diseases - bearing in mind a differentiated approach to regulating its various forms - in line with the relevant international legal instruments and the latest evidence for effective interventions..."<sup>10</sup>

WHO's assistance to countries to eliminate asbestos-related diseases will therefore be particularly targeted to those Member States that still use chrysotile asbestos, in addition to assistance in relation to exposures arising from historical use of all forms of asbestos<sup>11</sup>.

WHO, in collaboration with ILO and with other intergovernmental organizations and civil society, will work with countries towards elimination of asbestos-related diseases in the following strategic directions:

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<sup>5</sup> Resolution Concerning Asbestos. In: *Ninety-fifth International Labour Conference, Geneva, 31 May - 16 June 2006. Report of the Committee on Safety and Health*. Geneva, International Labour Conference (Provisional Record 20), Annex 20/69; available at <http://www.ilo.org/public/english/standards/relm/ilc/ilc95/pdf/pr-20.pdf>

<sup>6</sup> UNEP/FAO Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade; available at <http://www.pic.int/>

<sup>7</sup> UNEP/FAO/RC/COP.1/33 report of the Conference of the Parties to the Rotterdam Convention on the Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade on the work of its first meeting; Geneva, 20-24 September 2004; available at [http://www.pic.int/cops/reports/z33\)/English/COP%201-33%20e.pdf](http://www.pic.int/cops/reports/z33)/English/COP%201-33%20e.pdf)

<sup>8</sup> UNEP Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; available at <http://www.basel.int/>

<sup>9</sup> WHA 58.22 Cancer Prevention and Control, In: *Fifty-eight World Health Assembly, Geneva, 16 - 25 May 2005. Resolutions and Decisions*. Geneva, World Health Organization; available at [http://www.who.int/gb/ebwha/pdf\\_files/WHA58/WHA58\\_22-en.pdf](http://www.who.int/gb/ebwha/pdf_files/WHA58/WHA58_22-en.pdf)

<sup>10</sup> See paragraph 10 in the Annex of WHA 60.26 Workers' Health: Global Plan of Action, In: *Sixtieth World Health Assembly, Geneva 14-23 May 2007, Resolutions and Decisions*. Geneva, World Health Organization; available at [http://www.who.int/gb/ebwha/pdf\\_files/WHA60/A60\\_R26-en.pdf](http://www.who.int/gb/ebwha/pdf_files/WHA60/A60_R26-en.pdf)

<sup>11</sup> As of May 2006 40 Member States of WHO have banned the use of all forms of asbestos, including chrysotile - see Asbestos: Protecting the Future and Coping with the Past, In: *World Social Security Forum, 29<sup>th</sup> ISSA General Assembly, Moscow, 2007*; available at <http://www.issa.int/wssf07/documents/pdf/reports/en/2-AP.pdf>

- by recognizing that the most efficient way to eliminate asbestos-related diseases is to stop the use of all types of asbestos;
- by providing information about solutions for replacing asbestos with safer substitutes and developing economic and technological mechanisms to stimulate its replacement;
- by taking measures to prevent exposure to asbestos in place and during asbestos removal (abatement);
- by improving early diagnosis, treatment, social and medical rehabilitation of asbestos-related diseases and by establishing registries of people with past and/or current exposures to asbestos.<sup>12</sup>

## Development of national programmes for elimination of asbestos-related diseases

In order to eliminate asbestos-related diseases, countries need political, information and operational tools as described below.

The **National Programme for the Elimination of Asbestos-Related Diseases (NPEAD)** is a consensus policy document that outlines the magnitude of the problem and the strategies for elimination of asbestos-related diseases. It also defines long-term objectives and targets, as well as the institutional framework for action and the directions for awareness raising and capacity building. The NPEAD defines the elimination of asbestos-related diseases as a priority in protection of workers' health, public health and the environment. Therefore, it should be based on a formal governmental decision. Ideally, such a decision should be made by the government cabinet, as it involves different ministries. The governmental decision about establishing a NPEAD should spell out the political commitment towards elimination of asbestos-related diseases, should define the main elements of NPEAD, such as strategic objectives and targets, mechanism for development, implementation and evaluation, leadership, role of different ministries and periodic reporting on the progress made. The outline for a NPEAD, containing suggestions for the key areas to be addressed under each section, is described below.

The **National Asbestos Profile** is an instrument for information. It defines the baseline situation with regard to consumption of the various types of asbestos, populations at risk from current and past exposures (taking into consideration the fact that some uses may have already been restricted or banned and some not), asbestos-related diseases, etc. It is updated periodically and serves as an instrument to measure the progress made towards the objectives and targets set by the NPEAD. The outline of a model national profile is shown in the Annex.

The **National Asbestos Workplan** is an operational tool to put in place measures to achieve the objectives and targets of the NPEAD. As such, it is developed, implemented and evaluated on a step by step basis, taking into consideration progress made in dealing with the various forms of asbestos, available resources, and specific conditions. The Workplan should be feasible and adapted to the national situation, it should include time-sensitive objectives and necessary mechanisms for accountability, monitoring and evaluation. This document should also incorporate provisions for committed national support and sufficient resources for planned activities to be carried out, ensure sustained action, and assign responsibilities. The Workplan needs to be updated periodically to reflect progress in achieving objectives and targets set up by NPEAD and changes in use regulations.

The implementation of a NPEAD requires an **intersectoral mechanism** such as a steering committee or a task force. This mechanism should have a clearly defined mandate, responsibilities and accountability to manage the development, implementation and evaluation of NPEAD. It should include representatives of the responsible governmental agencies, such as ministries of labour, health,

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<sup>12</sup> See document WHO/SDE/OEH/06.03, Elimination of Asbestos-related Diseases, WHO, Geneva, 2006; available at [http://www.who.int/occupational\\_health/publications/asbestosrelateddiseases.pdf](http://www.who.int/occupational_health/publications/asbestosrelateddiseases.pdf)

environment, industry, construction, trade, finance and others. It may also include academic experts, representatives of civil society, national insurance and compensation boards and other stakeholders. Depending on the national institutional framework, ministry of health, or other ministries may provide political leadership to the work of the intersectoral mechanism on elimination of asbestos-related diseases.

All these elements require prior **consultation** between governmental agencies concerned, industry, trade unions and other interested parties on the feasibility of objectives and targets, prevention strategies and responsibilities with a due consideration of local conditions and national situation. Countries may need to organize different forms of consultations in order to build a consensus for the establishment of the NPEAD, such as national workshops, information campaigns, and formal inter-agency consultations. In such consultations, priority should be given to protection of health and primary prevention of asbestos-related hazards over economic considerations. However, a consensus can only be reached when protection of health is backed up with political, legal, economic and social arguments.

## **Model National Programme for Elimination of Asbestos-Related Diseases**

### **I. Introduction and purpose**

This section should outline the magnitude of the problem, provide public health and other arguments for focusing on elimination of asbestos-related diseases as a priority and note the linkage to the relevant international binding and non-binding instruments.

#### *Health aspects*

A short summary of the health effects of asbestos, which can be based on WHO and ILO documents. Exposure to asbestos causes asbestosis, pleural plaques, thickening and effusions, lung cancer, mesothelioma, laryngeal and possibly other cancers with varying latency periods. This part should specifically underline that although the incidence of asbestos-related diseases is related to fibre type, fibre dose and industrial processing of asbestos, all types of asbestos are known human carcinogens and no threshold has been identified for the carcinogenic risk of chrysotile asbestos that accounts for 95% of all uses of asbestos today<sup>13</sup>.

#### *Magnitude of the problem*

This section should highlight the most important figures from the national asbestos profile, including a summary of the national inventory of main past and current uses of chrysotile and other forms of asbestos and asbestos-containing materials. Such an inventory can be prepared using customs information and domestic data on industrial products. This section should also deal with the number of exposed workers and the levels of exposure. High-risk groups, industries and occupations need to be clearly identified. Estimates of the future burden of disease attributable to current and past asbestos exposure may be more useful to determine potential health impacts than actual incidence and prevalence of reported asbestos-related diseases. Asbestos-related malignant diseases have very long latency period (up to 40 years) and currently they may not be manifest in countries that have recently increased their use of asbestos.

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<sup>13</sup> See: (i) WHO. Environmental Health Criteria 53: Asbestos and Other Natural Mineral Fibres. Geneva. World Health Organization, 1986; (ii) WHO. Environmental Health Criteria 203: Chrysotile Asbestos, Geneva, World Health Organization, 1998; and (iii) IARC. IARC Monographs, Supplement 7: Asbestos. Lyon, International Agency for Research on Cancer, 1987.

### *Economic aspects*

This section should include strategic economic arguments for elimination of asbestos-related diseases, *e.g.*, direct costs, such as avoiding treatments costs and compensation claims (reference to the experience of other countries may be given here<sup>14</sup>), costs for demolition of buildings containing asbestos, costs for ensuring adequate health protection when working with asbestos already in place, and indirect costs, such as loss of potential income from asbestos-containing tourist facilities, depreciation of house stock built with asbestos etc.

### *Social aspects*

This section should address current and expected social impacts of the use of asbestos and asbestos-containing materials that need to be taken into account to ensure a just transition during the conversion to non-asbestos substitutes and technologies. Data should be presented on the number of jobs related to the import and domestic production of asbestos (in asbestos-producing countries) and asbestos-containing materials, specific social networks and communities which are dependent on the consumption of asbestos. The social justice and equity aspects should be also tackled here, since living with asbestos may put some communities in a position of social disadvantage.

## **II. Political and legal background**

Any national and international political decisions and statements that call for the elimination of asbestos-related diseases should be included here, *e.g.*, resolutions and policy documents of WHO, ILO and UNEP. Reference should also be made to existing pieces of national legislation which directly or indirectly legitimise action for elimination of asbestos-related diseases, as well as obligations arising from international legal instruments.

Additionally information should be provided about the status of ratification by the country and/or the level of transposition of the provisions of the international legal instruments into the national legislation (ILO Convention No.139 and Recommendation No. 147 on Occupational Cancer; ILO Convention No. 162 and Recommendation 172 on Asbestos; Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade).

This section should also include reference to any enforceable national occupational exposure limits for the various forms of asbestos and how they compare to the best practice of other countries<sup>15</sup>.

## **III. Strategy for elimination of asbestos related diseases**

### *Preventive strategies*

Bearing in mind that there is no evidence of a threshold for the carcinogenic effect of both chrysotile and amphibole forms of asbestos and that increased cancer risks have been observed in populations exposed to very low levels, the most efficient way to eliminate asbestos-related

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<sup>14</sup> For example, in United States a special fund was established for compensation of asbestos victims to which the insurers and companies contributed US\$ 114 billion. The costs of the estimated 400,000 European asbestos cancer deaths expected over the next few decades is US\$ 528 billion.

<sup>15</sup> International Programme of Chemical Safety (IPCS). Chrysotile, International Chemical Safety Data Card 0014, March 1999; available at [http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/\\_icsc00/icsc0014.pdf](http://www.ilo.org/public/english/protection/safework/cis/products/icsc/dtasht/_icsc00/icsc0014.pdf)

diseases is to stop using all types of asbestos<sup>16</sup>. Continued use of chrysotile asbestos cement in the construction industry is a particular concern, because the workforce is large, it is difficult to control exposure and in-place materials have the potential to deteriorate and pose a risk to those carrying out alterations, maintenance and demolition. In its various applications, asbestos can be replaced by some fibre materials and by other products which pose much less or no risk to health. Materials containing asbestos should be encapsulated and, in general, it is not recommended to carry out work that is likely to disturb asbestos fibres. Measures should be taken to avoid replacement of non-asbestos products with those containing asbestos, for example car brake pads.

When working with asbestos already in place, it is necessary to apply strict engineering measures to control exposure, such as encapsulation, wet processes, local exhaust ventilation with filtration and regular cleaning. Determining the form of asbestos (e.g. chrysotile or amphiboles) and monitoring of the level of exposure accordingly is also necessary to assess the effectiveness of engineering measures. The use of personal protective equipment - special respirators, safety goggles, protective gloves and clothing - and the provision of special facilities for their decontamination are also needed for persons involved in work with asbestos.

Medical surveillance should be organized for early detection of any symptoms and health conditions resulting from asbestos exposure and the assessment of the adequacy of exposure control measures according to the ILO<sup>17</sup> and WHO recommendations<sup>18</sup>. It is also necessary to establish national registries of workers exposed to the various forms of asbestos with data storage for at least 40 years. The registries should contain information on the exposure records (intensity, frequency and duration of exposure), medical examinations data, as well as information on the employer and the undertaking.

Measures for controlling exposure to asbestos and medical surveillance require significant resources, and may be very difficult to carry out, particularly in countries with constrained resources, limited expertise and infrastructure for occupational health practice and insufficient level of general protection of health and the environment. The enforcement of such measures may be practically impossible in small- and medium- sized enterprises and in the informal economy. Also, even the strictest occupational exposure limits are associated with health risks for asbestos-related diseases as no threshold has been identified for carcinogenic risks of asbestos. Therefore, the national strategy for elimination of asbestos-related diseases should strive towards stopping the use of all forms of asbestos and replacing it with safer substitutes.

The preventive strategy should envisage measures to encourage voluntary efforts by industry and be based on cooperation and consultation with the interested parties at national and enterprise levels. It should set up a framework for elimination of asbestos-related diseases, promote partnerships, commitments and cooperation.

### *Strategic actions*

#### National level

Action at the national level should create a political, regulatory and social environment and appropriate institutional framework conducive to elimination of asbestos-related diseases. Such action would include:

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<sup>16</sup> See document WHO/SDE/OEH/06.03, Elimination of Asbestos-related Diseases, WHO, Geneva, 2006; available at [http://www.who.int/occupational\\_health/publications/asbestosrelateddiseases.pdf](http://www.who.int/occupational_health/publications/asbestosrelateddiseases.pdf)

<sup>17</sup> ILO. Code of Practice on Safety in the Use of Asbestos. International Labour Organization, Geneva, 1984; available at <http://www.ilo.org/public/english/protection/safework/cops/english/index.htm>

<sup>18</sup> Wagner, G.R., Screening and surveillance of workers exposed to mineral dusts. World Health Organization, Geneva, 1996; available at <http://whqlibdoc.who.int/publications/9241544988.pdf>

- (a) political commitment to the elimination of asbestos-related diseases, *e.g.*, prepare a national report on elimination of asbestos-related diseases to be presented to the Government or the Parliament, including information about past and current use, estimates of the health, economic and social consequences of continuing use of chrysotile asbestos and proposals for a package of measures to be taken to phase out its use and to prevent/contain the epidemic of asbestos-related diseases;
- (b) ratification of international legal instruments (ILO conventions No 162 and 139, Basel and Rotterdam conventions) and development of specific laws and regulations to prevent exposure to the different forms of asbestos, to phase out their use and to ensure the prevention of asbestos-related diseases;
- (c) introduction of fiscal mechanisms to reduce the use of chrysotile asbestos, *e.g.*, import and excise duties, loans for conversion to non-asbestos technologies, establishment of a national fund for elimination of asbestos-related diseases with contribution from duty holders, insurance and compensation boards, governmental subsidy, etc.;
- (d) updating and enforcement of occupational exposure limits for various forms of asbestos, *e.g.*, align national occupational exposure limits to those listed in the IPCS Chemical Safety Card for Chrysotile, establishment of resources for determining the mineralogical form of asbestos and for measuring and monitoring its concentration in the air, introduction of practical tools for assessment and management of the risk from potential exposure and creation of a national reference laboratory;
- (e) provision of an effective system of inspection and enforcement of technical standards and safety measures through strengthening the authority of the enforcement agencies in the areas of labour, building maintenance and construction, environment, public health, accreditation and standardization; provision of guidelines for enterprises and economic undertakings for management of asbestos-related health risks, etc.;
- (f) organization of early detection, notification, registration, reporting and compensation of asbestos-related diseases through improving diagnostic capacities for early detection of asbestosis and non-malignant asbestos-related disorders, clinical and pathological diagnosis of mesothelioma; establishing the causal relationship between lung and laryngeal cancer with exposure to asbestos; inclusion of all asbestos-related diseases in the national list of occupational diseases and development of diagnostic and exposure criteria for their recognition; establishing a fund for compensation of victims of asbestos-related diseases;
- (g) provision of governmental advisory services to industry, trade and other economic undertakings, workers and their organizations and building owners on the use of safer substitutes for asbestos, application of preventive measures, and raising awareness about the risks related to the use of asbestos;
- (h) enhancement of international collaboration to stimulate the transfer of know-how on alternatives to asbestos and best practices for prevention of asbestos-related diseases.

#### Regional (provincial) level

Local authorities should be involved in the efforts for elimination of asbestos-related diseases. Local authorities are usually responsible for issuing building licences, monitoring the housing stock, landfills etc. In addition, municipalities may employ workers for building maintenance, reparation and demolition works that may involve exposure to asbestos. Local authorities may be able to take the following actions:

- (a) introduce requirements for the use of safer substitutes for asbestos products and/or prohibit and enforce the prohibition of the production and use of chrysotile asbestos and asbestos-containing products;

- (b) ensure that work involving potential exposure to the various forms of asbestos, *e.g.*, demolition of structures containing asbestos, reparation and removal of asbestos from structures in which it is liable to become airborne, are carried out only by certified employers or contractors;
- (c) take measures to dispose properly of asbestos-containing waste - wetted, transported covered, buried at special landfills and impregnated with agents that form a crust resistant to erosion;
- (d) increase awareness among the general public of the hazards of demolition, removal and reparations of friable asbestos insulation in buildings and disseminate information about the risks related to the presence of undisturbed asbestos in buildings;
- (e) organize medical surveillance of municipal workers who might be exposed to asbestos in their work.

#### Enterprise level

Actions at this level should aim at reducing and eliminating the risks of exposure to asbestos. Enterprises can take the action in the following directions:

- (a) replace chrysotile asbestos with safer substitutes and prevent potential exposure to any other type of asbestos already in place;
- (b) promote the elimination of the use of chrysotile asbestos among their contractors and suppliers;
- (c) monitor the work environment for contamination with various forms of asbestos;
- (d) ensure compliance with exposure limits and technical standards for working with asbestos;
- (e) establish engineering measures for control of the exposure to asbestos at source;
- (f) provide special training for workers involved in activities with potential exposure to asbestos;
- (g) provide appropriate personal protective equipment;
- (h) ensure registration and medical surveillance of workers exposed to asbestos.

Detailed guidance on actions to be taken at the enterprise level can be found in the ILO Code of Practice on Safety in the Use of Asbestos (1984)<sup>17</sup> and in the Practical Guide on Best Practice to Prevent or Minimize Asbestos Risks in Work that involves (or may involve) Asbestos: For the Employer, the Workers and the Labour Inspector, developed by Senior Labour Inspectors Committee of the European Union (2006)<sup>19</sup>

#### **IV. Institutional framework and principal partners**

The NPEAD should be developed, implemented and evaluated in collaboration between principal stakeholders including governmental agencies, various national institutions, organizations and bodies responsible for and operating in the field of occupational safety, public health and environmental protection. This section of the document should also include a description of the general responsibilities of each of the principal stakeholders.

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<sup>19</sup>DG Employment, Social Affairs and Equal Opportunities of the European Commission; the guide is available in 20 languages at [http://ec.europa.eu/employment\\_social/health\\_safety/asbestos\\_en.htm](http://ec.europa.eu/employment_social/health_safety/asbestos_en.htm)

Stakeholders may include:

- ministries responsible for health, labour, environment, industry, mines (in the case of asbestos-producing countries), transport, construction, science and technology, as well as national agencies and organizations such as national institutes and inspectorates responsible for occupational health, public health and the environment;
- organizations of employers, workers and civil society;
- professional associations, *e.g.*, National Association on Occupational Health, National Safety Council, National Hygiene Association, National Lung Association, National Asbestos Awareness Association, Radiological Society, other professional associations and public interest groups;
- workers' compensation and social security bodies;
- research, development and training institutions.

## V. Knowledge management

### *National asbestos profile*

A comprehensive National Asbestos Profile, as described in greater detail in Annex 1, should be appended to the NPEAD document. The Profile should be a compilation of all relevant information reflecting the current situation. It should serve as a baseline for measuring progress made towards the objectives of the NPEAD. For this reason, the Profile should be updated periodically. In this section the NPEAD can indicate the frequency of the update and assign responsibility for this task.

### *Information about substitutes, alternative technologies and technical solutions*

This section should deal with how information about asbestos substitutes and non-asbestos solutions will be collected, updated, evaluated and made available to the concerned and interested parties in the country.<sup>20</sup>

### *Registry of workers exposed to asbestos*

A central registry of all workers exposed to asbestos, including past exposures should be established and maintained. The registry should contain information about the enterprise, occupation, form of asbestos, level and duration of exposure.

### *Mobilization of resources*

This section should provide strategic directions for releasing the existing resources for elimination of asbestos-related diseases and identifying further resources if necessary. Particular efforts are needed for strengthening the capacities and mobilizing the resources of ministries and enforcement agencies involved in the programme, as well as in local authorities and at the enterprise level. Such work should also include training and licensing of contractors for asbestos abatement. There may be a need for increasing the level of expertise in practical measures for detecting potential exposure to the different forms of asbestos, measuring their concentrations in the air and preventive measures. Furthermore, it may be necessary to provide training of health professionals on screening, clinical and pathological diagnosis, recognizing and reporting asbestos-related diseases.

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<sup>20</sup> Fibre substitutes that have been evaluated by WHO are listed in the Summary Consensus Report of WHO Workshop on Mechanisms of Fibre Carcinogenesis and Assessment of Chrysotile Asbestos Substitutes, 8-12 November 2005, Lyon, France. Geneva, World Health Organization; 2005; available at [http://www.who.int/ipcs/publications/new\\_issues/summary\\_report.pdf](http://www.who.int/ipcs/publications/new_issues/summary_report.pdf)

## VI. Programme implementation

An intersectoral mechanism for coordination and steering the development and implementation of the NPEAD (committee or task force) should be established as described above. The tasks of such mechanisms could be:

- to provide guidance for the development, implementation and evaluation of NPEAD;
- to ensure collaboration of the different stakeholders in implementing the national programme;
- to promote the programme objectives into the agenda of the government agencies concerned, private sector, workers, employers and the general public;
- to monitor and evaluate the progress made towards achieving the programme objectives and targets;
- to adopt plans of action for the different phases of the NPEAD implementation;
- to report to the government on the completion of the different phases of the programme and to recommend amendments and modifications of the NPEAD.

It is advisable to incorporate the activities related to the implementation of NPEAD into the work plans of participating governmental agencies, institutions and partners. It might be extremely useful to designate a focal point or a steering committee for providing leadership to the national program and to establish specific working groups for its major components. The members of this committee should be required to declare if they have any conflict of interests that might influence their attitudes in the work of the committee.

A specific budget should be allocated to the NPEAD. This budget may be in the form of a lump sum from the government, or through pooling together resources of the participating organizations. It might be useful to establish a special fund for implementation of the programme, *e.g.*, using the import and excise duties on asbestos and asbestos-containing materials, contributions from workers' compensation and insurance funds, governmental contribution, international assistance and voluntary donations.

The programme could be implemented step-by-step as follows:

**preparatory phase** - the goal of this phase is to build up political commitment for starting the programme (accumulate data on current and past uses of the various forms of asbestos, particularly uses that have been already banned, those that are subject to restrictions and those that are not, as well as on morbidity and mortality from asbestos-related diseases; develop sufficient level of awareness of health risks posed by asbestos hazards; framing arguments, conducting feasibility studies and consultations; establishing inter-sectoral mechanisms; obtaining governmental approval; etc.) and to ensure that workers are fully protected from exposure to asbestos (introduce authorization of works involving asbestos, amend building codes with requirements for prevention of asbestos exposure; develop and introduce asbestos information and education campaigns, etc.);

**first phase** - the goal of this phase is to reduce substantially the use of chrysotile asbestos and the number of exposed workers in the country, focusing first on the uses of most health concern identified in the preparatory phase (introduce restrictions on the import, manufacture and use of asbestos, replace asbestos with safer alternatives wherever possible, increase awareness about asbestos and asbestos-related diseases);

**second phase** - the goal is to phase out the use of chrysotile asbestos, make financial resources available for stopping the use of asbestos, strengthen legal, financial and enforcement mechanisms; create further incentives for the use of safer materials, ensure access to information and expert advice; improve registration and compensation of asbestos-related diseases;

## VII. Monitoring and evaluation

**Evaluation criteria** and indicators for monitoring progress in implementing NPEAD should be developed by the national intersectoral mechanism (steering committee/task force on elimination of asbestos-related diseases). This section should either describe these criteria or mandate their development and monitoring.

**Indicators** may include those related to:

- a. **Outcome (impact):** Such indicators should allow for answering the following questions: Are the key outcomes established by the preventive strategy being met? Are over-exposures being reduced? Are dust control technologies being introduced? Are health and hazard surveillance systems established? The specific outcomes should be related to the overall strategy.

*Examples:* reduction of asbestos consumption per year; reduction of number of workers exposed to asbestos; estimated burden of asbestos-related diseases; level of public awareness about health risks arising from different uses of asbestos.

- b. **Process:** These indicators help answer the following questions: Are actions or processes that support prevention taking place? Has there been appropriate training, information dissemination, professional certification (*e.g.*, laboratories, occupational health professionals, x-ray classification using the ILO 2000 System). Are the quality and quantity of workplace inspections improving? Again, these indicators should be linked to the prevention strategy.

*Examples:* number of physicians trained in diagnosis of asbestos-related diseases; percentage of asbestos workers covered with medical surveillance; number of labour inspectors and professionals from occupational health services trained in risk assessment and management of asbestos exposures; number of workers and employers trained in prevention of asbestos-related diseases; existence of national registry of workers exposed to asbestos; existence of system for authorization of works involving asbestos; amount of fund raised for the NPEAD; number of enterprises signing up to voluntary initiatives to reduce and eliminate the use of asbestos.

- c. **Administration:** Is the program coordination and administration effective and efficient?

*Examples:* number of meetings of the steering committee per year; average level of attendance of meetings; rate of technical implementation of the individual activities; rate of financial implementation; percentage of activities completed by the deadline; evaluation of programme performance by committee members, partners and stakeholders

The coordinating or steering committee should discuss progress on the NPEAD execution at least annually and formulate recommendations aiming at its further improvement.

## ANNEX

### National Asbestos Profile

**(First Profile to be included in the NPEAD; Profile to be updated periodically)**

1. Current regulations on the different forms of asbestos
2. Import and consumption of asbestos per year (total and per major uses and forms)
3. Import of asbestos-containing materials
4. Domestic production of asbestos (if applicable)
5. Domestic production of asbestos-containing materials
6. Estimated total number of workers exposed to asbestos in the country
7. Full list of industries where exposure to asbestos is present in the country and list of industries with the largest numbers of workers potentially exposed to asbestos
8. Industries with high risk of exposure (where overexposure is documented as exceeding occupational exposure limits) and estimated total number of workers at high risk
9. Estimate of the burden of diseases related to asbestos: disability adjusted life years (DALYs) and deaths attributable to asbestos exposure
10. Prevalence of asbestosis (total number of workers with diagnosed asbestosis, asbestos-related lung cancer and mesothelioma to-date) – national data, a breakdown by industries if available
11. Incidence of lung cancer among workers exposed to asbestos
12. Incidence of mesothelioma
13. Estimates on the percentage of house stock and vehicle fleet containing asbestos
14. Total number of workers eligible for compensation for asbestos-related diseases, such as, asbestosis, lung cancer and mesothelioma and numbers of individuals compensated yearly
15. National enforceable occupational exposure limits for chrysotile asbestos
16. The system for inspection and enforcement of the exposure limits
17. Estimated economic losses due to asbestos-related diseases
18. Major studies on epidemiology of asbestos-related diseases in the country

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