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# LIST OF OCCUPATIONAL DISEASES (revised 2010)

Identification and recognition  
of occupational diseases:  
Criteria for incorporating diseases  
in the ILO list of occupational diseases

Occupational  
Safety and Health  
Series

74

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**Occupational Safety and Health Series, No. 74**

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# Preface

The International Labour Organization's Recommendation concerning the List of Occupational Diseases and the Recording and Notification of Occupational Accidents and Diseases, 2002 (No. 194), was adopted at the 90th Session of the International Labour Conference. The Committee which was established and entrusted by the Conference in 2002 to work on Recommendation No. 194 requested the Governing Body of the International Labour Office (ILO) to update the list of occupational diseases annexed to this Recommendation in accordance with the mechanism stipulated in Paragraph 3 of the Recommendation as a matter of priority.

To this end, two Meetings of Experts were organized by the ILO, one in 2005 and one in 2009, which established a new list of occupational diseases. This new list was approved by the Governing Body at its 307th Session in March 2010. It replaces the one adopted in 2002 in the Annex to Recommendation No. 194 and can be referred to as the "List of occupational diseases (revised 2010)". This list of occupational diseases is designed to assist countries in the prevention, recording, notification and, if applicable, compensation of diseases caused by work.

The new list reflects the state-of-the-art development in the identification and recognition of occupational diseases. It includes a range of internationally recognized occupational diseases, from illnesses caused by chemical, physical and biological agents to respiratory and skin diseases, musculoskeletal disorders and occupational cancer. Mental and behavioural disorders have been, for the first time, specifically included in the ILO list. The list also has open items in all the sections dealing with the aforementioned diseases. The open items allow for the recognition of the occupational origin of diseases not specified in the list if a link is established between exposure to risk factors arising from work activities and the disorders contracted by the worker.

The Governing Body requested the Office to promote the application of this new list of occupational diseases and to involve experts appointed by governments, employers and workers in preparation for future updating of the list on the basis of the criteria listed in the "Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases", a document prepared by the Secretariat to facilitate the work of the 2009 Meeting of Experts. The Governing Body also recommended that the document should be published.

This publication is both a response of SafeWork to the recommendations of the 2009 Meeting of Experts and part of its efforts to promote the application of the new list of occupational diseases as requested by the Governing Body. It includes the newly established list of occupational diseases, the working document "Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases", and the reports of the two Meetings of Experts which developed this list.

Dr Shengli Niu, Senior Specialist on Occupational Health in SafeWork, carried out the Office's technical work on the development of the new list of occupational diseases and prepared this publication. It is our hope that this publication will enable readers to understand the basis on which the list of occupational diseases was updated, as well as facilitate the application of the 2010 list.

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ILO

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# Part I: List of occupational diseases<sup>1</sup> (revised 2010)

## 1. Occupational diseases caused by exposure to agents arising from work activities

### 1.1. *Diseases caused by chemical agents*

- 1.1.1. Diseases caused by beryllium or its compounds
- 1.1.2. Diseases caused by cadmium or its compounds
- 1.1.3. Diseases caused by phosphorus or its compounds
- 1.1.4. Diseases caused by chromium or its compounds
- 1.1.5. Diseases caused by manganese or its compounds
- 1.1.6. Diseases caused by arsenic or its compounds
- 1.1.7. Diseases caused by mercury or its compounds
- 1.1.8. Diseases caused by lead or its compounds
- 1.1.9. Diseases caused by fluorine or its compounds
- 1.1.10. Diseases caused by carbon disulfide
- 1.1.11. Diseases caused by halogen derivatives of aliphatic or aromatic hydrocarbons
- 1.1.12. Diseases caused by benzene or its homologues
- 1.1.13. Diseases caused by nitro- and amino-derivatives of benzene or its homologues
- 1.1.14. Diseases caused by nitroglycerine or other nitric acid esters
- 1.1.15. Diseases caused by alcohols, glycols or ketones
- 1.1.16. Diseases caused by asphyxiants like carbon monoxide, hydrogen sulfide, hydrogen cyanide or its derivatives
- 1.1.17. Diseases caused by acrylonitrile
- 1.1.18. Diseases caused by oxides of nitrogen
- 1.1.19. Diseases caused by vanadium or its compounds
- 1.1.20. Diseases caused by antimony or its compounds
- 1.1.21. Diseases caused by hexane
- 1.1.22. Diseases caused by mineral acids
- 1.1.23. Diseases caused by pharmaceutical agents
- 1.1.24. Diseases caused by nickel or its compounds
- 1.1.25. Diseases caused by thallium or its compounds
- 1.1.26. Diseases caused by osmium or its compounds

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<sup>1</sup> In the application of this list the degree and type of exposure and the work or occupation involving a particular risk of exposure should be taken into account when appropriate.

- 1.1.27. Diseases caused by selenium or its compounds
- 1.1.28. Diseases caused by copper or its compounds
- 1.1.29. Diseases caused by platinum or its compounds
- 1.1.30. Diseases caused by tin or its compounds
- 1.1.31. Diseases caused by zinc or its compounds
- 1.1.32. Diseases caused by phosgene
- 1.1.33. Diseases caused by corneal irritants like benzoquinone
- 1.1.34. Diseases caused by ammonia
- 1.1.35. Diseases caused by isocyanates
- 1.1.36. Diseases caused by pesticides
- 1.1.37. Diseases caused by sulphur oxides
- 1.1.38. Diseases caused by organic solvents
- 1.1.39. Diseases caused by latex or latex-containing products
- 1.1.40. Diseases caused by chlorine
- 1.1.41. Diseases caused by other chemical agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these chemical agents arising from work activities and the disease(s) contracted by the worker

*1.2. Diseases caused by physical agents*

- 1.2.1. Hearing impairment caused by noise
- 1.2.2. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves)
- 1.2.3. Diseases caused by compressed or decompressed air
- 1.2.4. Diseases caused by ionizing radiations
- 1.2.5. Diseases caused by optical (ultraviolet, visible light, infrared) radiations including laser
- 1.2.6. Diseases caused by exposure to extreme temperatures
- 1.2.7. Diseases caused by other physical agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these physical agents arising from work activities and the disease(s) contracted by the worker

*1.3. Biological agents and infectious or parasitic diseases*

- 1.3.1. Brucellosis
- 1.3.2. Hepatitis viruses

- 
- 1.3.3. Human immunodeficiency virus (HIV)
  - 1.3.4. Tetanus
  - 1.3.5. Tuberculosis
  - 1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants
  - 1.3.7. Anthrax
  - 1.3.8. Leptospirosis
  - 1.3.9. Diseases caused by other biological agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these biological agents arising from work activities and the disease(s) contracted by the worker

## **2. Occupational diseases by target organ systems**

### *2.1. Respiratory diseases*

- 2.1.1. Pneumoconioses caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis)
- 2.1.2. Silicotuberculosis
- 2.1.3. Pneumoconioses caused by non-fibrogenic mineral dust
- 2.1.4. Siderosis
- 2.1.5. Bronchopulmonary diseases caused by hard-metal dust
- 2.1.6. Bronchopulmonary diseases caused by dust of cotton (byssinosis), flax, hemp, sisal or sugar cane (bagassosis)
- 2.1.7. Asthma caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.8. Extrinsic allergic alveolitis caused by the inhalation of organic dusts or microbially contaminated aerosols, arising from work activities
- 2.1.9. Chronic obstructive pulmonary diseases caused by inhalation of coal dust, dust from stone quarries, wood dust, dust from cereals and agricultural work, dust in animal stables, dust from textiles, and paper dust, arising from work activities
- 2.1.10. Diseases of the lung caused by aluminium
- 2.1.11. Upper airways disorders caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.12. Other respiratory diseases not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the disease(s) contracted by the worker

### *2.2. Skin diseases*

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by other recognized allergy-provoking agents arising from work activities not included in other items

- 2.2.2. Irritant contact dermatoses caused by other recognized irritant agents arising from work activities not included in other items
- 2.2.3. Vitiligo caused by other recognized agents arising from work activities not included in other items
- 2.2.4. Other skin diseases caused by physical, chemical or biological agents at work not included under other items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the skin disease(s) contracted by the worker

### 2.3. *Musculoskeletal disorders*

- 2.3.1. Radial styloid tenosynovitis due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.2. Chronic tenosynovitis of hand and wrist due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.3. Olecranon bursitis due to prolonged pressure of the elbow region
- 2.3.4. Prepatellar bursitis due to prolonged stay in kneeling position
- 2.3.5. Epicondylitis due to repetitive forceful work
- 2.3.6. Meniscus lesions following extended periods of work in a kneeling or squatting position
- 2.3.7. Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three
- 2.3.8. Other musculoskeletal disorders not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the musculoskeletal disorder(s) contracted by the worker

### 2.4. *Mental and behavioural disorders*

- 2.4.1. Post-traumatic stress disorder
- 2.4.2. Other mental or behavioural disorders not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the mental and behavioural disorder(s) contracted by the worker

## **3. Occupational cancer**

- 3.1. *Cancer caused by the following agents*
  - 3.1.1. Asbestos
  - 3.1.2. Benzidine and its salts
  - 3.1.3. Bis-chloromethyl ether (BCME)

- 3.1.4. Chromium VI compounds
- 3.1.5. Coal tars, coal tar pitches or soots
- 3.1.6. Beta-naphthylamine
- 3.1.7. Vinyl chloride
- 3.1.8. Benzene
- 3.1.9. Toxic nitro- and amino-derivatives of benzene or its homologues
- 3.1.10. Ionizing radiations
- 3.1.11. Tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances
- 3.1.12. Coke oven emissions
- 3.1.13. Nickel compounds
- 3.1.14. Wood dust
- 3.1.15. Arsenic and its compounds
- 3.1.16. Beryllium and its compounds
- 3.1.17. Cadmium and its compounds
- 3.1.18. Erionite
- 3.1.19. Ethylene oxide
- 3.1.20. Hepatitis B virus (HBV) and hepatitis C virus (HCV)
- 3.1.21. Cancers caused by other agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these agents arising from work activities and the cancer(s) contracted by the worker

#### **4. Other diseases**

- 4.1. Miners' nystagmus
- 4.2. Other specific diseases caused by occupations or processes not mentioned in this list where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure arising from work activities and the disease(s) contracted by the worker



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## **Part II: Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases**

### *1*

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#### **Definitions of occupational diseases**

According to the Protocol of 2002 to the Occupational Safety and Health Convention, 1981 (No. 155), the term “occupational disease” covers any disease contracted as a result of an exposure to risk factors arising from work activity.

The ILO Employment Injury Benefits Recommendation, 1964 (No. 121), Paragraph 6(1), defines occupational diseases in the following terms: “Each Member should, under prescribed conditions, regard diseases known to arise out of the exposure to substances and dangerous conditions in processes, trades or occupations as occupational diseases.”

Two main elements are present in the definition of an occupational disease:

- the causal relationship between exposure in a specific working environment or work activity and a specific disease; and
- the fact that the disease occurs among a group of exposed persons with a frequency above the average morbidity of the rest of the population.



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## General criteria for identification and recognition of occupational diseases

The causal relationship is established on the basis of clinical and pathological data, occupational background and job analysis, identification and evaluation of occupational risk factors and of the role of other risk factors.

Epidemiological and toxicological data are useful for determining the causal relationship between a specific occupational disease and its corresponding exposure in a specific working environment or work activity.

As a general rule, the symptoms are not sufficiently characteristic to enable an occupational disease to be diagnosed as such without the knowledge of the pathological changes engendered by the physical, chemical, biological or other factors encountered in the exercise of an occupation.

It is therefore normal that, as a result of improvements in knowledge regarding the mechanisms of action of the factors in question, the steady increase in the number of substances employed, and the quality and variety of suspected agents, it becomes more and more feasible to make an accurate diagnosis, while the range of diseases recognized as occupational in origin is broadening.

The recognition of a disease as being occupational is a specific example of clinical decision-making or applied clinical epidemiology. Deciding on the cause of a disease is not an “exact science” but rather a question of judgement based on a critical review of all the available evidence, which should include a consideration of the following:

- *Strength of association.* The greater the impact of an exposure on the occurrence or development of a disease, the stronger the likelihood of a causal relationship.
- *Consistency.* Different research reports have generally similar results and conclusions.
- *Specificity.* Exposure to a specific risk factor results in a clearly defined pattern of disease or diseases.
- *Temporality or time sequence.* The exposure of interest preceded the disease by a period of time consistent with any proposed biological mechanism.
- *Biological gradient.* The greater the level and duration of exposure, the greater the severity of diseases or their incidence.
- *Biological plausibility.* From what is known of toxicology, chemistry, physical properties or other attributes of the studied risk or hazard, it makes biological sense to suggest that exposure leads to the disease.
- *Coherence.* A general synthesis of all the evidence (e.g. human epidemiology and animal studies) leads to the conclusion that there is a cause–effect relationship in a broad sense and in terms of general common sense.
- *Interventional studies.* Sometimes, a primary preventative trial may verify whether removing a specific hazard or reducing a specific risk from the working environment or work activity eliminates the development of a specific disease or reduces its incidence.

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## Criteria for identification and recognition of an individual disease

The exposure–effect relationship (relation between exposure and the severity of the impairment in the subject) and the exposure–response relationship (connection between exposure and the relative number of subjects affected) are important elements for the determination of a causal relationship. Research and epidemiological studies have greatly contributed in this respect. Better knowledge of the causal relationship has allowed us to achieve a better medical definition of occupational diseases. As a consequence, the legal definition of occupational diseases, which was rather a complex problem, is becoming more and more linked to the medical definition and criteria.

Legal provisions on compensation for victims vary from country to country. Article 8 of the Employment Injury Benefits Convention, 1964 [Schedule I amended in 1980] (No. 121), which indicates the various possibilities regarding the form of the identification and recognition of occupational diseases entitling workers to compensation benefits, states that:

Each Member shall:

- (a) prescribe a list of diseases, comprising at least the diseases enumerated in Schedule I to this Convention, which shall be regarded as occupational diseases under prescribed conditions; or
- (b) include in its legislation a general definition of occupational diseases broad enough to cover at least the diseases enumerated in Schedule I to this Convention; or
- (c) prescribe a list of diseases in conformity with clause (a), complemented by a general definition of occupational diseases or by other provisions for establishing the occupational origin of diseases not so listed or manifesting themselves under conditions different from those prescribed.

Point (a) is called the “list system”, point (b) is the “general definition system” or overall coverage system, and point (c) is generally referred to as the “mixed system”.

The “list system” covers only a certain number of occupational diseases, and has the advantage of listing diseases for which there is a presumption that they are of occupational origin. This simplifies the matter for all parties since it is frequently very difficult, if not impossible, to prove or disprove that a disease is directly attributable to the victim's occupation. It also has the important advantage of indicating clearly where prevention should focus.

The “general definition system” theoretically covers all occupational diseases; it affords the widest and most flexible protection, but leaves it to the victim to prove the occupational origin of the disease. In practice, it also often implies that arbitration on individual cases is necessary. Furthermore, no emphasis is placed on specific prevention.

Because of this marked difference between the “general definition” and “list” systems, the “mixed system” has been favoured by many ILO member States because it combines the advantages of the other two without their disadvantages.

## **Criteria for incorporating a disease into the ILO list of occupational diseases**

The List of Occupational Diseases Recommendation, 2002 (No. 194), was adopted at the 90th Session of the International Labour Conference in 2002.

The current list annexed to Recommendation No. 194 was based on Annex B: Proposed list of occupational diseases of the ILO code of practice on recording and notification of occupational accidents and diseases, 1996. This list of occupational diseases took into account the lists in force and national practice in 76 different States at the time of its preparation.<sup>1</sup>

The Committee on Occupational Accidents and Diseases which was established and entrusted by the 90th Session of the International Labour Conference in 2002 to work on the List of Occupational Diseases Recommendation, 2002 (No. 194), requested the Governing Body of the International Labour Office to convene the first of the tripartite meetings of experts referred to in Paragraph 3 of the Recommendation as a matter of priority.

The Committee on Occupational Accidents and Diseases expected that, in addition to examining the Annex to the Recommendation, the existing national and other lists of occupational diseases, and the comments received from member States, the Meeting should consider all the amendments submitted on the Annex to the Conference Committee.

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<sup>1</sup> This list was proposed by the Informal Consultation on the Revision of the List of Occupational Diseases (Geneva, 9–12 December 1991). The Informal Consultation worked with a document based on the review of laws and practices on occupational diseases in the member States concerning their diagnosis, reporting and evaluation for compensation purposes. The proposed list was a reflection of the best scientific judgement of the consultants present; no comprehensive criteria documents were prepared for guidance on the inclusion of new items.

## Updating the list of occupational diseases

The Meeting of Experts on Updating the List of Occupational Diseases convened by the ILO Governing Body took place in December 2005 and worked on a proposed list of occupational diseases included in a working document prepared by the Office on the basis of:

- (i) all the amendments to the list of occupational diseases annexed to the List of Occupational Diseases Recommendation, 2002 (No. 194), submitted to the Committee on Occupational Accidents and Diseases of the 90th Session of the International Labour Conference in 2002;
- (ii) the replies to the Office questionnaire on the list of occupational diseases from governments, employers' and workers' organizations of the member States; and
- (iii) the analysis of about 50 national and other lists of occupational diseases collected by the Office and the evaluation of international scientific developments in the identification of occupational diseases.

The Meeting examined and made changes to the list proposed by the Office. The report of the Meeting included two proposed lists of occupational diseases, which reflected the positions of the Government and Worker experts, on the one hand, and the Employer experts, on the other hand. The differences were that the Employer experts' list included, as an introduction, a set of general criteria for identifying occupational diseases and had no open-ended items. This set of criteria was expected to be applied to all the individual disease items. The list of the Worker and the Government experts included open-ended items and no set of general criteria. The individual items in the two lists were identical.

The Governing Body decided at its 295th Session in March 2006 to convene another meeting of experts to complete the work accomplished by the Meeting already held in December 2005 as mentioned above. To that end, the Office was invited to proceed with consultations for the purpose of preparing a common ground before the convening of the next meeting.

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## Consultations for the purpose of preparing a common ground

The Governing Body requested the Director-General to make a proposal for the meeting during the 2008–09 biennium. The Office proposed to hold the meeting in October 2009, and that it would last for four days with the participation of seven Government, seven Employer and seven Worker experts from all over the world. The Governing Body approved the Office proposal at its 301st Session in March 2008. The next meeting of experts is scheduled to take place from 27 to 30 October 2009 at the ILO in Geneva, Switzerland.

Three preliminary informal consultations were conducted on 18 April 2007 (with the Employers), on 25 May 2007 (with the Workers) and on 21 September 2007 (with both the Employers and Workers). On the basis of these preliminary informal consultations, the first tripartite consultation was held on 4 April 2008. A second tripartite consultation took place on 12 May 2009.

At the first tripartite consultation, agreement was reached on a number of points regarding the revised list of occupational diseases. These included:

- (i) introducing a footnote after the title “List of occupational diseases” which may read: “In the application of this list, the degree and type of exposure, and the work or occupation involving a particular risk of exposure, should be taken into account when appropriate.”;
- (ii) keeping and modifying the open items in the list;
- (iii) making editorial changes to the list format including to signify that the diseases in the list are occupational by nature and caused by exposure arising from work activities;
- (iv) including no general criteria in the list. The general criteria proposed by the Employers at the 2005 Meeting of Experts are for the experts to use as a basis for their work during the 2009 Meeting;
- (v) consenting to the scope and contents of the revised list.

After the first tripartite consultation, the scope and contents of the revised list of occupational diseases were reviewed and agreed by the tripartite consultation participants. In this regard, all the Government Experts at the Meeting of Experts on Updating the List of Occupational Diseases (13–20 December 2005) were also consulted by email. The scope and contents of the revised list of occupational diseases, which is the common ground achieved through consultations, were reported to the Governing Body of the ILO at its 303rd Session in November 2008.

The Governing Body decided that the next Meeting of Experts on the Revision of the List of Occupational Diseases (Recommendation No. 194) should be held from 27 to 30 October 2009 in Geneva, Switzerland, and be attended by seven experts nominated after consultation with governments, seven experts nominated after consultation with the Employers’ group, and seven experts nominated after consultation with the Workers’ group of the Governing Body. Governments of the following countries were invited to

nominate experts to attend the meeting: Chile, Canada, China, France, Russian Federation, South Africa and Thailand. Should any of them fail to nominate a participant, the Governments of the following countries will be approached: Australia, Ecuador, India, Italy, Malaysia, Poland and Senegal.

The Governing Body also decided the following agenda for the Meeting:

To complete the work accomplished by the Meeting of Experts on Updating the List of Occupational Diseases (13–20 December 2005), on the basis of the common ground about the scope and contents of the revised List of Occupational Diseases achieved through the tripartite consultations conducted by the Office, further to the request made by the Governing Body at its 295th Session in March 2006.

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## The common ground achieved through tripartite consultations

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### Scope and contents of the revised list of occupational diseases

The definition of the term “occupational disease” in the Protocol of 2002 to the Occupational Safety and Health Convention, 1981 (No. 155), and the definition of occupational diseases in the Employment Injury Benefits Recommendation, 1964 (No. 121), will define the scope within which the updating of the list of occupational diseases annexed to Recommendation No. 194 by the Meeting will take place.

In view of the fact that open-ended items do exist in the current list annexed to Recommendation No. 194, modifications of these items will be based on the amendments submitted to the Committee on Occupational Accidents and Diseases of the 90th Session of the International Labour Conference in 2002 and be consistent with the definitions of occupational diseases referred to in paragraph 28 above.

The diseases included in Schedule I of the Employment Injury Benefits Convention, 1964 (No. 121), will all be included.

Individual diseases items in the lists proposed by the Employer experts and by the Government and Worker experts at the 2005 Meeting of Experts which did not raise any controversy during the 2005 Meeting of Experts will, in principle, be retained.

New occupational diseases not included in the lists proposed by the Employer experts and by the Government and Worker experts at the 2005 Meeting of Experts will not be considered unless there is a consensus among the experts at the forthcoming 2009 meeting.

In December 2008, the tripartite participants of the consultations identified the following problematic disease items and made the following proposals for modifications:

- 1.2. Diseases caused by physical agents
  - 1.2.5. Radiofrequency radiations
- 1.3. Diseases caused by biological agents
  - 1.3.7. Malaria
2. Diseases by target organ systems
  - 2.1. Occupational respiratory diseases
    - 2.1.8. Extrinsic Allergic Alveolitis to include mists from contaminated oils
  - 2.3. Occupational musculoskeletal disorders
    - 2.3.7. Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibrations, extreme postures of the wrist, or a combination of the three



- 2.4. Mental and behavioural disorders to be replaced by “psychological disorders”
  - 3. Occupational cancer
    - 3.1. Cancer caused by the following agents
      - 3.1.20. Formaldehyde
      - 3.1.21. Hepatitis B Virus (HBV) and C Virus (HCV)
      - 3.1.X. Crystalline silica (possible inclusion as a carcinogen)
- Open items 1.1.41, 1.2.8, 1.3.10, 2.1.12, 2.2.4, 2.3.8, 2.4.2, 3.1.2 and 4.2
- ... where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to agents arising from work activity and the disease(s) contracted by the worker.

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## **Decision-making process at the Meeting of Experts on the Revision of the List of Occupational Diseases Recommendation, 2002 (No. 194) (Geneva, 27–30 October 2009)**

Decisions to incorporate specific diseases in the updated List of Occupational Diseases need to take into account the following general criteria:

- (i) there is a causal relationship with a specific agent, exposure or work process;
- (ii) they occur in connection with the work environment and/or in specific occupations;
- (iii) they occur among the groups of persons concerned with a frequency which exceeds the average incidence within the rest of the population; and
- (iv) there is scientific evidence of a clearly defined pattern of disease following exposure and plausibility of cause.

These four general criteria for the identification of occupational diseases are not intended to be included in the updated List of Occupational Diseases itself. They will be considered in the review and examination of each and every individual diseases items to be incorporated in the updated List of Occupational Diseases by the experts who will participate in the Meeting of Experts on Updating the List of Occupational Diseases to be held in 2009.

Decision to incorporate an individual disease into the ILO List reflects the best expert personal judgement based on the expert's own knowledge and experiences. When proposing a new disease to be included in the ILO List, justification should be given. This disease should preferably have been included in national lists of occupational diseases or have been compensated in national practices in at least more than one country.

Based on the agreements reached through the tripartite consultations, it is essential for the success of the October 2009 Meeting of Experts that all experts at the Meeting endorse the above-outlined decision-making process as well as the proposed programme of work for the Meeting of Experts on the Revision of the List of Occupational Disease (Recommendation No. 194) (Geneva, 27–30 October 2009) with due consideration to the technical documents prepared by the Office which will serve as the basis for the work of the 2009 Meeting of Experts.



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# **Annex 1: Report of the Meeting of Experts on Updating the List of Occupational Diseases (Geneva, 13–20 December 2005)**

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## **Introduction**

At its 291st Session (November 2004), the Governing Body of the International Labour Office decided to convene a Meeting of Experts on Updating the List of Occupational Diseases. The Meeting was held in Geneva from 13 to 20 December 2005.

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## **Agenda**

The agenda of the Meeting, as approved by the Governing Body, was as follows:  
Examination and adoption of an updated list of occupational diseases which will replace the list of occupational diseases included in the Annex to the List of Occupational Diseases Recommendation, 2002 (No. 194).

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## **Participants**

Thirty experts were invited to the Meeting. Ten of these were appointed after consultations with the Governments of Australia, Canada, Chile, China, France, Italy, Russian Federation, Senegal, South Africa and Thailand. Ten were appointed after consultations with the Employers' group and ten after consultations with the Workers' group of the Governing Body. The Meeting was also attended by the representatives of the World Health Organization (WHO), the European Commission (EC), the International Organisation of Employers (IOE), the International Confederation of Free Trade Unions (ICFTU), the International Commission on Occupational Health (ICOH), the International Social Security Association (ISSA) and the International Council of Nurses (ICN).

The list of participants is annexed to this report.

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## **Opening address**

Ms Sally Paxton, Executive Director of the Social Dialogue Sector, ILO, opened the Meeting and welcomed all participants on behalf of the ILO Director-General, Mr Juan Somavia. She conveyed the greetings of Mr Assane Diop, Executive Director of the Social

Protection Sector, who was unable to attend the Meeting during the first week but would do so during the second. She expressed her deep gratitude to all participants for having agreed to serve as experts in the Meeting, acknowledging their great wealth of experience and knowledge on the subject of occupational diseases. She also welcomed observers from the above international organizations, thanking them all for their interest in the Meeting and their willingness to make a contribution to its work.

She emphasized the ILO's role in promoting decent work, that is productive work where rights were protected, adequate income was generated and social protection provided. However, work-related hazards existed in almost all occupations, with traditional hazards continuing but also with new ones emerging, such as those from new chemicals, musculo-skeletal hazards from rapidly expanding computer use, violence and mobbing.

Diseases caused by work had to be recognized so that their victims would be properly compensated and measures taken to improve working conditions and prevent recurrences. New physical, chemical, biological and psychosocial factors affecting workers' health were increasingly being identified, and the number of occupational diseases now included in various national compensation schemes had seen a steady increase in recent years. Within this changing framework, it was necessary to review the list of occupational diseases regularly and to add those newly identified as occupational in order to maximize the effectiveness of preventive strategies and appropriate compensation schemes. Finally, she reminded participants that they had been appointed as individual experts, serving in their own personal capacity and not representing any governments, groups or other interests.

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## **Election of the Chairperson and Reporter**

Mr Wayne Creaser, the expert nominated by the Government of Australia, was unanimously elected as Chairperson of the Meeting. Dr Chaiyuth Chavalitnitikul, the expert nominated by the Government of Thailand, was unanimously elected as Reporter of the Meeting.

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## **Presentation of the working documents**

Dr Jukka Takala, Director of the InFocus Programme on Safety and Health at Work and the Environment (SafeWork) and representative of the ILO Director-General, presented the working documents. Preparing for the updating of the list of occupational diseases had been an arduous task because of the complexity of the medical, technical, administrative and legal aspects, and it had not been easy to propose a universal solution. The Office had received replies to the questionnaire from constituents in more than 80 member States, and these had provided a solid basis for the Office to make proposals. The new list of occupational diseases established at this Meeting would be submitted to the Governing Body for its approval at its 295th Session in March 2006, and once approved would replace the list of occupational diseases annexed to Recommendation No. 194.

Dr Shengli Niu, Senior Specialist on Occupational Health, of SafeWork, and deputy representative of the Director-General, introduced the subject of occupational diseases. He described different occupational risk factors and traced the development of

ILO standards on occupational diseases. He presented to the Meeting the ILO Recommendations (Nos 3, 4, 121 and 194), Conventions (Nos 18, 42 and 121) and Protocol, 2002, relevant to the list of occupational diseases. He explained the mechanisms embodied in Convention No. 121 and Recommendation No. 194 for updating the list of occupational diseases. He emphasized that the definition of occupational diseases is usually spelled out in national legislation and drew the attention of the Meeting to the definitions of occupational diseases prescribed in Recommendation No. 121 and Protocol of 2002.

It was important to update the list of occupational diseases regularly in view of the emerging risk factors, improvement of diagnostic techniques and increased recognition of occupational diseases at the national and international levels. To provide the basis for the work of this Meeting, the Office had reviewed the international scientific development in identification of occupational diseases and had analysed about 50 of the most up to date national and other lists of occupational diseases, including the 2003 European Schedule of Occupational Diseases. The Amendments to the list of occupational diseases submitted at the 2002 International Labour Conference and about 160 replies received to the Office questionnaires from more than 80 countries and several international organizations were reviewed. On this basis the Office felt it would not be appropriate to propose a change to the format of the current list of occupational diseases included in the Annex to Recommendation No. 194, but to introduce the following changes to the list:

- Chemical agents: add ammonia, isocyanates, pesticides and sulphur oxides.
- Physical agents: add a new item on radiofrequency radiations and introduce a few modifications to the existing items.
- Biological agents: add tetanus, brucellosis, hepatitis B and C viruses, tuberculosis and human immunodeficiency virus (HIV).
- Target organ systems: add a section on mental and behavioural disorders and a few specific items under the sections of musculoskeletal disorders and skin diseases.
- Occupational cancer: add arsenic, beryllium, cadmium, erionite, ethylene oxide, formaldehyde, silica, hepatitis B and C viruses.

Dr Niu summarized the contents of the three working documents prepared for the work of the Meeting: the Report on the replies to the questionnaire (MEULOD/2005/1), the Amendments submitted during the 2002 International Labour Conference (MEULOD/2005/2) and the Technical background document (MEULOD/2005/3), which gave the technical justification for the new and modified items in the proposed list. He emphasized the importance of the key criteria for the proposed list, namely, having an adequate scientific basis (the strength of exposure-effect relationship and the magnitude of the risk factors) and the recognition of such diseases within national lists or the majority views of ILO constituents in their replies to the questionnaire.

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## Opening statements

The representative of the WHO said that updating the list of occupational diseases was important to the WHO since it was instrumental in improving public health and that the WHO would continue to work with the ILO on this issue. The representative of the EC informed the Meeting that the European Union had adopted an updated list of occupational diseases in 2003 which was non-binding. He said that new and emerging diseases were added and, at the current time, new diagnostic procedures for occupational diseases

were being developed. The representative of the ICOH said it was important to find new ways of diagnosing and monitoring occupational diseases with the aim of preventing them. He also said that a mechanism for updating the list more regularly should be discussed, and that his organization would fully collaborate with the ILO in this process.

One Worker expert considered that far too few workers' organizations had been consulted on the questionnaire. He understood that the proposed list was restricted to only those diseases where occupational connections were evident, and thus excluded many other diseases that might be work-related, and offered to work with the ILO in expanding the list.

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## General discussion

Employer experts considered that the list would provide a good basis for prevention purposes, but not both prevention and compensation. If compensation were the objective, the list would be insufficient as no definitions and causes were given. Concern was expressed about new and emerging diseases and that mechanisms should be explored to allow for the list to be updated more regularly.

Worker experts pointed out that the list in its present form would be quite difficult to use, especially for compensation, and suggested that a database be created that linked health effects with agents and occupations. Further guidance and definitions were therefore needed.

An Employer expert considered that for the list to be applied in all countries, it should take into account different national situations and legislative frameworks, especially in the area of compensation. He said the factors and agents that caused disease had to be identified, and expressed concern at making the list longer as this would make it less flexible. Another Employer expert said that causative factors had to be defined and that occupations and effects had to be documented, especially in the cases where diseases had multi-causal agents.

Government experts welcomed the work of the ILO and described the situations in their own countries. Although the ILO framework was feasible, there were some important differences between the ILO list and some national ones. However, for any list to work satisfactorily, it was important to be supported by diagnostic criteria.

A Worker expert was concerned about the case of poultry workers and their exposure to avian influenza, an example of a disease for which a wealth of documents existed but for which no planning of potential impact had been undertaken.

An Employer expert considered that with three distinct aims of Recommendation No. 194, the overall intended outcome of the list was far from clear. The precautionary approach applied in France and North America, for example, showed the difficulty of establishing occupational causation and hence grounds for compensation. A Worker expert pointed out that the aim of the Meeting of Experts was to examine the list annexed to Recommendation No. 194, which has both preventative and compensatory elements. He stated that if the list was to be compensation-based, the diagnoses, causation and other criteria pertaining to each disease had to be made extremely clear.

Dr Niu affirmed that the purpose of the Meeting was to update the list annexed to Recommendation No. 194, and Paragraph 2 of the Recommendation defines the role of the list of occupational diseases in the annex.

A Government expert considered that the proposed list, whilst positive in terms of prevention, might hinder tripartite agreement on compensation within member States

as detailed guidance on its application was not included. In the “no-fault” system of South Africa, for example, workers needed simply to state that they had suffered exposure and obtain the agreement of the employer in order to be eligible for compensation. Physicians provided limited help as far as prevention and compensation was concerned because they were often unable to recognize diseases whose causation was occupational. Doctors therefore needed to be trained to recognize occupational diseases.

A Worker expert referred to chemical, physical and biological elements that might affect working conditions and suggested that governments might take steps to standardize the classification of such factors in order to improve prevention.

Dr Niu thanked previous speakers and stated that their opinions might form the basis of subsequent practical guidance provided to member States. With regard to diagnostic criteria, the situation in member States had been reviewed and various countries already attached such criteria to their lists in order to ensure that these could function correctly.

The representative from the European Commission described the European Schedule of Occupational Diseases, which is included in a non-binding recommendation to member States; it also includes a series of specific preventative and compensatory recommendations. In addition, the European list was open-ended, enabling any other non-listed disease to be considered as occupational provided that causality could be demonstrated. Where doubts existed regarding causality for a particular disease, relevant information was incorporated in a second separate annex. Each Member State of the European Union was free to apply its own criteria depending on local specificities. Guidelines for diagnosis of diseases had been published and they were being updated, in order to facilitate a coherent implementation of the European list.

An Employer expert asked if specific recommendations could be provided for member States in terms of putting equal emphasis on prevention and compensation (as in the EU), since up until the present time, the focus had been on compensation. The Chairperson confirmed that, if appropriate, such recommendations could be included and asked for comments from the floor. Another Employer expert referred to Paragraph 2 of the List of Occupational Diseases Recommendation, 2002 (No. 194), and stressed the priority of prevention over compensation. Compensation could be awarded “if causation can be determined”. The Chairperson agreed that for the list to function successfully, it needed to be accompanied by guidance for use by member States and diagnosis criteria.

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## **Examination of the proposed list**

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### *1. Diseases caused by agents*

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#### *1.1. Diseases caused by chemical agents*

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Points 1.1.1 to 1.1.15 were accepted without comments.

Points 1.1.16 to 1.1.31 Employer experts commented that there was a mix in the agents listed, with some causing very serious problems, such as asphyxiants, and others that were mild irritants. There was some inconclusive discussion as to whether it was preferable to have a more generic classification or to name every substance in the list. One expert suggested adding platinum compounds to the list, and another the removal of “teeth” from point 1.1.22 on the grounds that this was too restrictive. The latter



amendment was supported and agreed and point 1.1.22 now reads: “Diseases caused by mineral acids”.

The Office explained that the item on asphyxiants (1.1.16) is a replica of an item from the existing list appended to the Employment Injury Benefits Convention, 1964 (No. 121). Moreover, the current order of points on the list had been based on replies received from member States to the questionnaire.

Point 1.1.32 “Diseases caused by ammonia”. All experts supported the inclusion of this point and it was accepted.

Point 1.1.33 “Diseases caused by isocyanates”. The Worker experts commented that technical background for this point could be strengthened, adding that much research had been done recently on secondary exposure of isocyanates and preventive measures. The Office confirmed the serious hazards from isocyanates and asked for details of this research. Experts generally agreed to the inclusion of this point, and it was accepted.

Point 1.1.34 “Diseases caused by pesticides”. The Worker experts supported the inclusion of this point, as it was such a major issue for workers’ health. Other experts agreed but thought it would be better to specify certain families of pesticides, or that more detailed definitions were required in the technical background paper. The representative from the WHO warned of the danger of specifying certain compounds, as pesticides were intentionally toxic and were frequently changed to ensure effectiveness. Several experts thought that the general term “pesticides” was suitably broad and was thus more useful as it was. Experts agreed to the point as written and it was accepted.

Point 1.1.35 “Diseases caused by sulphur oxides”. This was supported and agreed.

The Worker experts proposed the inclusion of a new point “Diseases caused by organic solvents” in the list. Studies in the Nordic countries had shown that painters exposed to organic solvents experienced not only skin and respiratory diseases, but also diseases to the central nervous system. By banning the use of organic solvents, the number of cases had dropped from 80 per year to five per year over a 15-year period, a good example of preventive medicine.

The Employer expert from France agreed about the toxicity of organic solvents. This had been accepted by the European Union and the substances were now included in Annex I of the EU list. However, he voiced concern about adding cognitive effects caused by organic solvents, as these would be quite difficult to substantiate. He warned that the addition should be carefully worded so as to take into account different situations in the world, and not just the EU one. Conversely, other experts stated that there was convincing evidence of the value of cognitive function testing for the identification of central nervous system damage by organic solvents. The representative of ICOH added that some workers were found to have been exposed to more than 30 organic solvents during the course of a workday. He described a study of a group of painters whose quality of life had deteriorated significantly compared to a similar group of carpenters in the same time period and who had not been exposed to organic solvents. It was agreed to add “Diseases caused by organic solvents” to the list.

The Employer experts proposed the addition of “Diseases caused by platinum or its compounds” to the list, since platinum and its compounds were very allergenic and caused both dermatitis and asthma. Experts generally supported this addition, and it was agreed.

The Worker experts proposed the addition of “Diseases caused by latex or latex containing products” to the list, since it had been proven that latex caused not only skin diseases, but asthma and upper respiratory tract diseases as well. An Employer expert agreed with the addition, and said that rhinitis was also caused by latex, especially to workers in the latex industry. Experts generally supported this addition, and it was agreed.

An Employer expert questioned why only certain irritants (such as oxides of nitrogen, oxides of sulphur and ammonia) were included in the list. He suggested that maybe a general group, under the name of “Irritants” should be considered as an addition. He explained that this would allow for the future inclusion of irritants, as was agreed in the case for adding pesticides, and thus serve prevention efforts better. The Chairperson explained that the substances mentioned above were not only irritants, but also corrosive in nature, as could be seen in the technical background document.

The Chinese Government expert proposed adding two new items, namely “Diseases caused by trichloroethylene” and “Diseases caused by chlorine”. The Worker experts voiced their support for these additions, but proposed the more general heading “Diseases caused by chlorinated compounds”. An Employer expert said that the term “halogen derivatives” was used in France; this was a big family of substances, and had many diseases in common. He said that in France, when dealing with halogen derivatives, the specific disease was considered. He said the task would also be more difficult if one were to look at carcinogens as all the derivatives were not considered as carcinogens according to the International Agency for Research on Cancer (IARC) list.

A Worker expert pointed out that diseases caused by trichloroethylene were already included in the current list of occupational diseases under item 1.1.11 “Diseases caused by the toxic halogen derivatives of aliphatic and aromatic hydrocarbons”, which included trichloroethylene. Other experts agreed that this was already covered and so this specific proposal was dropped.

Several experts supported the inclusion firstly of “Diseases caused by chlorine” and secondly of “Diseases caused by nickel or its compounds”, and these were included in the list. The latter would be placed in the list alongside diseases caused by other metals.

Point 1.1.36 “Diseases caused by any other chemical agents not mentioned in the preceding items 1.1.1 to 1.1.35 where a link is established between the exposure to these chemical agents arising from work activity and the disease contracted by the worker”. Experts differed in their views as to the usefulness and the purpose of including this and other so-called “catch-all” points in the list. Some Employer experts considered that very precise descriptions in the lists were vital, with strong and proven links between exposure and disease, while Worker experts and some Government experts believed that such general points were necessary to allow future inclusion of newly discovered diseases. In view of these polarized views, it was agreed that this item should be dealt with together with the open items in other sections later in the proceedings.

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## *1.2. Diseases caused by physical agents*

Points 1.2.1 and 1.2.2 were accepted without comment. There was general agreement to point 1.2.3 “Diseases caused by work in compressed and decompressed air” and this was accepted for inclusion in the list. Point 1.2.4 was also accepted without comment.

Point 1.2.5 “Diseases due to radiofrequency radiations”. Discussion focused on the scientific basis for this point, with several Employer experts claiming that there was a lack of medical knowledge about the effects of such exposures and difficulties in diagnosis. Dr Niu said that there had in fact been a lot of support for including this point in the text in the replies to the Office’s questionnaire. With the current controversy over risks from electromagnetic fields (EMF), the Office instead proposed radiofrequency radiations for inclusion in the list as there was well-established scientific data on the effects of radiofrequency radiations on workers. Several experts mentioned the proven thermal effects of such radiation, which resulted in tissue damage in humans such as cataracts and other diseases such

as male infertility. It was pointed out that the WHO and the International Commission on Non-Ionizing Radiation had data on the effects of such radiation.

An Employer expert proposed an amendment to the point so that it read “Diseases due to thermal effects of radiofrequency radiation”. However, it was pointed out that this would exclude diseases that may be caused by non-thermal effects of radiofrequency radiations. After much discussion, the amendment was withdrawn and the original Office text was accepted for inclusion in the list.

Point 1.2.6 “Diseases caused by optical (ultraviolet, visible light, infrared) radiations”. Several Employer experts were concerned about the practical difficulties of distinguishing between occupational and non-occupational exposure, for example to ultraviolet radiation, and assessing occupational exposure. An employer might be able to assess risks from artificial radiation, but it would be impossible to assess risks from natural radiation – for example, the risk of malignant melanoma from sunlight, to which workers may be exposed while on vacation.

The representative from the European Commission said that the equivalent European list only included cataracts caused by heat radiation and conjunctivitis caused by ultraviolet radiation. The preference of the EC was to have all optical radiation risks covered by a new Community directive and he welcomed the Office text. Government and Worker experts generally supported the text too, and the point was accepted for inclusion in the list.

Point 1.2.7 “Diseases caused by extreme temperature”. It had been proposed to shorten the text based on an amendment tabled at the International Labour Conference in 2002 by removing two illustrative examples – a simplification welcomed by Worker and several Government experts. Employer experts asked for further clarification of the term “extreme temperature”, adding that dryness, humidity, radiation, airflow and duration of exposure all had to be taken into account. Dr Takala explained that temperature limits or criteria would not be laid down but asked delegates to provide written examples and observations for inclusion in the report, as these could prove useful in future. After further discussion, the Office text was agreed and the point was accepted for inclusion in the list.

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### *1.3. Diseases caused by biological agents*

Point 1.3.1 “Brucellosis”. Experts agreed that many diseases had been identified as being caused by biological agents, but it was wise to keep this list of occupational diseases relatively short. There was broad support for brucellosis and the other four diseases to be included, therefore, as these were particularly common and significant ones, especially in agricultural and healthcare-related occupations.

The Government expert from Italy said that in Italy the proposed items in this section were classified as accidents, since they were caused by single sudden events rather than over prolonged periods.

This classification, which was mainly for compensation purposes, was thus based on the immediate causation, whereas the Office classification was based on final outcomes and followed other international practice. However, including brucellosis in the list of occupational diseases did not preclude Italy from addressing compensation issues in whichever way was deemed appropriate. The Government expert from Italy expressed support for inclusion of brucellosis and other diseases caused by biological agents in the list, requesting that Italy’s distinctive system should be noted.

There was general support for the Office position and brucellosis was accepted for inclusion in the list.

Point 1.3.2 “Diseases caused by hepatitis B virus (HBV) and C virus (HCV)”. Discussion centred on whether the Office text should be expanded to include hepatitis A, D and E, or whether it should be shortened so as implicitly to include all forms of hepatitis. Three proposed amendments were suggested. The first was just to include reference also to hepatitis A, which was known sometimes to have occupational causes, such as amongst sewage workers; the omission of hepatitis A might imply that it had been expressly omitted. The second amendment was to include reference to hepatitis A, D and E, which were all known strains of the disease.

The third amendment was simply to refer to hepatitis without further qualification. The representative of the WHO suggested modifying this amendment again so as to read “viral hepatitis”. This matched the wording of the International Classification of Diseases and was also a useful general term given that the family of hepatitis viruses was growing all the time. It was suggested that a more accurate term would be “non-malignant diseases caused by hepatitis viruses”, but Dr Niu explained that adding “non-malignant” would cause problems for other points in the list. Experts preferred the term “diseases caused by hepatitis viruses” to the other suggested amendments, and this term was accepted for inclusion in the list.

Point 1.3.3 “Diseases caused by HIV”. There was general support for this point on the grounds that it would help to focus on the occupational aspects of HIV and hopefully strengthen prevention and protection and, where appropriate, compensation. Worker experts emphasized that health workers were not the only ones who were exposed to HIV risks, but fire and rescue workers, prison staff and others were also at risk. Dr Takala added that the Office programme on HIV/AIDS, indeed, covered a wide range of employment sectors. The text was accepted for inclusion in the list.

Point 1.3.4 “Tetanus”. There was general support for the Office text. Tetanus was a widespread problem, especially affecting agricultural workers, and was preventable. Tetanus was accepted for inclusion in the list.

Point 1.3.5 “Tuberculosis”. There was general support for the Office text and tuberculosis was accepted for inclusion in the list.

The Chairperson asked for other proposals for this section on biological agents. The representative from the WHO proposed the inclusion of “Toxic (inflammatory) syndromes, such as inhalation fever, toxic pneumonitis, organic dust syndrome associated with exposure to bacterial and fungal contaminants – endotoxins, mycotoxins, (1->3)-B-D-glycans”. The rationale for the proposal was to ensure that there was scope to add other biological agents that were not bacterial or viral (such as proteins) that caused disease.

Some experts welcomed the proposal while others made suggestions for further changes to the text, including shortening it to just “Organic toxic dust syndrome”. After much discussion, the text “Toxic or inflammatory syndromes associated with exposure to bacterial and fungal contaminants” was accepted for inclusion in the text.

Malaria and anthrax were also proposed as additions to the list, and the representative of the WHO proposed two more, namely SARS and avian flu, explaining that nearly 40 per cent of all cases of SARS were occupational, as were most cases of avian flu. Several experts expressed fears about adding more and more diseases to the list, overburdening it, but certain well-known diseases could be added, where justified. Anthrax was agreed as appropriate for inclusion, but several experts expressed doubts about malaria, saying that it was considered to be endemic in some countries and therefore could not be classed as an occupational disease.

The Government expert from South Africa spoke strongly in favour of including malaria, because of the risks faced by game park workers and others where exposure to malaria was related to their work. However, other experts thought that it would be

extremely difficult to diagnose occupationally caused cases of malaria, especially in those countries where a large percentage of the population was already infected. Several experts spoke in favour of having malaria in the list in order to promote prevention, while others warned that the list of occupational diseases would be used for compensation purposes as well. An Employer expert said that workers should be compensated if justified, but he also agreed with other experts that it would be extremely difficult for employers to justify compensating workers with malaria in malaria-infested regions. Several experts agreed that it was a question of proving occupational, as opposed to non-occupational exposure. Nevertheless, it was felt that including malaria in the list would help to encourage preventive programmes. Malaria was therefore accepted for inclusion in the list of occupational diseases.

There had been a proposal to include leptospirosis in the list too. The Employer experts warned the Meeting about the danger of introducing new items on an ad hoc basis without proper technical background information. Diseases that were both occupationally and non-occupationally caused needed to be properly assessed and the list of occupational diseases should be kept to a manageable size. The Employers requested to have their concerns recorded. Leptospirosis was accepted for inclusion in the list, but discussion about other additions to the list, including SARS and avian flu, was deferred till later in the proceedings.

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## 2. *Diseases by target organ systems*

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### 2.1. *Occupational respiratory diseases*

Point 2.1.1 “Pneumoconioses caused by sclerogenic mineral dust (silicosis, anthraco-silicosis, asbestosis) and silicotuberculosis, provided that silicosis is an essential factor in causing the resultant incapacity or death”. The Government expert from South Africa sought clarification as to the use of the term “sclerogenic” as it was old-fashioned and he proposed replacing it with “fibrogenic”. He proposed a new text that was later amended to read: “Pneumoconioses caused by fibrogenic and non-fibrogenic mineral dusts and silicotuberculosis”. Several experts were concerned about the loss of detail in the proposed amendment, which was important given the seriousness of these risks.

After further discussion, Dr Niu explained that this point had been taken from Schedule 1 of the Employment Injury Benefits Convention, 1964 (No. 121). Given this, several experts said they preferred staying with the Office text, provided that it was copied exactly from the 1964 Convention. However, the Government expert from South Africa said it was important that a Meeting of Experts should be able to apply current knowledge and technology and should not have to maintain items on a list just because they have been there for a long time.

Point 2.1.7 “Chronic obstructive pulmonary diseases”. Employer experts asked for further clarification of this point, upon which it was explained that the disease was caused by a variety of agents, which would make for a very long list. After some discussion, Employer experts asked for further details about causes to be included, but others considered that because multiple factors contributed to the disease, causal agents should not be added to the item. An Employer expert responded by saying that he had no problem at all with keeping this item while recognizing that both occupational and non-occupational causes existed for the disease.

Discussion then focused on the word “sclerogenic” and whether to delete it from the text of point 2.1.1, or to replace it with the synonymous term “fibrogenic” on the grounds that the latter word was more widely used nowadays. Experts generally agreed that it was important to distinguish between the fibrogenic mineral dusts, such as silica and asbestos, and non-fibrogenic mineral dusts, such as talc and graphite. Fibrogenic dusts tended to be aggressive, but were not always so and a disease caused by such dusts might be present in a mild form in its early stages; the issue was more one of detection. While there were advantages in retaining the long-established term “sclerogenic”, the term “fibrogenic” had the advantage in that it was associated with dusts that caused both early and late-stage cases of lung fibrosis.

There was general support for including both fibrogenic and non-fibrogenic mineral dusts, but as separate items, while retaining some specificity in the text. Silicosis and asbestosis were retained as examples of pneumoconiosis caused by fibrogenic mineral dust. There was also agreement that the last part of the Office text for point 2.1.1 (from “provided” onwards) was too restrictive and should be deleted. The Chairperson therefore proposed dividing the Office text for point 2.1.1 into three separate points, which after further amendment read follows:

- Pneumoconioses caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis);
- Silicotuberculosis;
- Pneumoconioses caused by non-fibrogenic mineral dust.

After further discussion, the above three points were accepted for inclusion in the list. A Government expert (South Africa) suggested that silicotuberculosis be studied at a later date, bearing in mind that tuberculosis could be viewed both as a disease and as a complication stemming from silicosis. The Chairperson proposed that the ILO study this at a later date, and this proposal was accepted.

An Employer expert pointed out that siderosis (point 2.1.6) is generally regarded as a benign form of pneumoconiosis and to move it immediately after the new point “Pneumoconioses caused by non-fibrogenic mineral dust” seemed to be more logical. This was accepted by the Meeting.

Point 2.1.8 “Diseases of the lung caused by aluminium”. There was recent evidence to show that exposure to aluminium dust could cause pulmonary disorders, particularly amongst aluminium welders and in the aluminium smelting industry where “pot-room asthma” was recognized. The suggested links between aluminium exposure and neuro-toxic illnesses, that had symptoms similar to Alzheimer’s disease, were not so well established but research was continuing. Given the existing evidence for the respiratory effect of aluminium, point 2.1.8 was accepted for inclusion in the list. However, experts asked for this subject (including pot-room asthma) to be further reviewed by the ILO and for technical material to be produced for future revision of the list; this was agreed.

All other points under item 2, as per the Office text, were accepted for inclusion in the list.

There was a brief discussion about including rhinitis in the list, as this disease was similar to asthma. There was no common position about this, however, so it was agreed to add this item to an indicative list for future discussion.

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## 2.2. *Occupational skin diseases*

All points under this heading were accepted for inclusion in the list.

### 2.3. *Occupational musculoskeletal disorders*

The list was generally welcomed as useful for aiding prevention of musculoskeletal disorders and also recording them, although there would inevitably be some problems in assessing occupational as opposed to non-occupational causes. All points under section 2.3 were accepted with little discussion, with two exceptions. The first exception was point 2.3.2 “Chronic crepitant tenosynovitis of hand and wrist due to repetitive movements ...” etc., which was accepted with the removal of the word “crepitant”. The second exception was point 2.3.7 “Carpal tunnel syndrome”.

Employer experts questioned why point 2.3.7 was unqualified, unlike other points in section 2.3. Repetitiveness, rapidity of movement, force, vibration, temperature and posture were all causal factors of carpal tunnel syndrome, and it would be useful to have more precise wording on this point. Other experts preferred to retain the Office text, and after much discussion it was agreed by most experts to accept “carpal tunnel syndrome” – without further wording – for inclusion in the list. It was also proposed that the Office would consider this subject again and review the medical literature available on the subject for a future discussion. Dr Takala concurred with this proposal and asked all experts present to help the Office in moving the subject forward.

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### 2.4. *Mental and behavioural disorders*

The representative from ICOH was asked to provide an introduction to this subject. He started by explaining the term “mobbing”, which had come to be used in some countries in recent years but was less commonly used (in an occupational context) elsewhere in the world. In the occupational context, “mobbing” implied some form of systematic harassment and stigmatization, either between a supervisor and a subordinate or between workers, and was characterized by a sense of unjust treatment. Victims of mobbing often suffered ill health, such as depression and post-traumatic stress, and they sometimes responded by violent behaviour.

Worker experts asked for clarification of the use of “psychosomatic” in point 2.4.2, concerning mobbing. Dr Niu replied that, when preparing these proposals, the words “psychosomatic” and “psychiatric” had been used together as part of an attempt to harmonize the ILO list with the WHO *International Statistical Classification of Diseases and Related Health Problems*, 10th Revision (ICD-10). The two words were complementary, so the word “and” would be inserted into the text.

There was much subsequent discussion about the meaning of “mobbing” in an occupational context and how it could be diagnosed, since it was difficult to separate its occupational and non-occupational aspects. Although it was a new term to some countries, at least in an occupational context, the concepts behind it were familiar and different countries had different ways of dealing with the problems of mobbing as had been described – harassment, discrimination, workplace violence and other work-related stress – all of which were preventable. However, it was generally agreed that a shared understanding of the term was essential if the term was to be included in the list, and the Office was asked to produce more technical documentation on the subject.

Conversely, post-traumatic stress disorder was a recognized disease and was clearly understood internationally, although it was not included in the European Schedule of Occupational Diseases. A post-traumatic stress disorder resulted from an extremely violent or shocking event or series of events, and a wide range of workers might be affected, including police officers, emergency and rescue workers, firefighters and train

drivers. Many post-traumatic stress disorders lasted for a considerable period of time. It was acknowledged that stress itself was not a disease but might lead to one, and that different individuals had different levels of vulnerability faced with the same type of stress. Experts asked for more technical background material on this topic, too.

The representative from the WHO spoke of mental health as being an important part of general health, and noted furthermore that mental and behavioural disorders had proven physiological effects. Worker experts were concerned to improve the reporting of mental and behavioural disorders, noting that present notification of even well-known diseases was often poor. Reporting would then hopefully improve prevention, which was most important.

Point 2.4.1 “Post-traumatic stress disorder due to a stressful event or situation” was considered specifically. Employer experts proposed the addition of the word “extremely” before “stressful” to highlight that this disease occurred only on those occasions where very stressful and traumatic events occurred and not in normal stressful conditions. Worker experts then proposed deletion of all the words after “Post-traumatic stress disorder”, since this term was internationally recognized and had agreed clinical diagnostic criteria. This proposal was supported by several Government experts, and after further discussion was accepted by the Meeting. The term “Post-traumatic stress disorder” was therefore accepted for inclusion in the list.

Point 2.4.2. “Psychosomatic psychiatric syndromes caused by mobbing”. Employer experts were opposed to the inclusion of this point on the grounds that the subject was still ill-defined and that it would be very hard to distinguish between occupational, non-occupational and personal causes of the symptoms associated with mobbing. However, they recommended that knowledge about the subject should be developed so that it could be properly and fully discussed at a later date. Worker experts supported the Office text since this reflected recent changes in the world of work, where mental and behavioural disorders such as those caused by mobbing were becoming increasingly significant and well recognized. The Russian and Chilean Government experts supported inclusion of the point, as did the Canadian Government expert, based on the positive responses from most of its states.

The representative from the WHO said that mobbing affected not only mental health but also caused hypertension, coronary problems, dermatitis and muscle pain, and suggested adding a new point “diseases caused by psychological harassment” to the section on occupational diseases caused by agents. The Government expert from Italy suggested amending point 2.4.2 so that it read “Pathologies caused by stress due to work organization or psychological or psychosomatic disorders due to work organization.” This amendment was unacceptable to Employer experts, who repeated their concerns to have a clearer definition of the issues and asked the Office to prepare an evidence-based document on the subject as a matter of priority. The Office agreed to carry out further work and research on the subject.

After further debate, it was clear that it would be very difficult for the Meeting to reach a consensus and the Chairperson asked the Meeting to agree to the Employer experts’ recommendation that the proposed point 2.4.2 should not be considered for inclusion in the list, but that mobbing should be recognized as a key issue for a future discussion. Worker experts wanted to see the proposed point 2.4.2 included in the list, but reluctantly accepted the recommendation solely because the Meeting could not reach an agreement on the issue. The Government experts also accepted the recommendation. Therefore point 2.4.2 was not included in the list.

Point 2.4.3 “Any other mental or behavioural disorder not mentioned in the preceding items ... where a link is established between exposure to risk factors arising from work activities and the mental disorder contracted by the worker”. Most Government and Worker experts were in favour of retaining this or a similarly worded general point in



the list. Employer experts expressed their objections to the addition of this point to the list. After further discussion, the Meeting agreed that this and the other general points would be discussed together at a later stage in the proceedings.

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### 3. *Occupational cancer*

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#### 3.1. *Cancer caused by the following agents*

An Employer expert gave an overview of the causes of cancer in general. Cancer could be caused by a mixture of occupational, environmental and personal factors and distinguishing between such factors was almost impossible. However, some cancers were clearly occupational and victims should be compensated accordingly. The IARC had produced lists of known and suspected carcinogens, including group 1 proven carcinogens to humans. The IARC's group 1 carcinogens were considered as a starting point for considering which carcinogens should be included in the ILO's list of occupational diseases, but it was not possible simply to transfer them all. The representative of the IARC endorsed this, adding that where cancer involved workplace exposure to a carcinogen listed in the IARC's group 1, it should always be regarded as occupational.

Points 3.1.1 to 3.1.18. These were all accepted for inclusion in the list of occupational diseases, except for point 3.1.8.

Point 3.1.8. "Benzene and its toxic homologues". Employer experts proposed deleting the words "and its toxic homologues" since it remained uncertain whether the toxic homologues of benzene, such as toluene and xylene, were carcinogens. The whole phrase appeared in section 1.1.12, so the other toxic effects of these substances were already addressed by the list. Other experts agreed that there was still some uncertainty about the carcinogenicity of benzene's homologues, so it was decided to remove the additional words and only benzene was accepted for inclusion in this section of the list.

Regarding points 3.1.16 "Beryllium and its compounds" and 3.1.17 "Cadmium and its compounds", an Employer expert highlighted the need for discussion at a national level regarding risk levels in different countries.

Point 3.1.19 "Ethylene oxides". An Employer expert queried the use of the plural "oxides", since only one oxide was commonly known. The Chairperson informed the Meeting that this was a typographical error and that the final "s" would be removed. Otherwise, point 3.1.19 was accepted for inclusion in the list.

Point 3.1.20 "Formaldehyde". An Employer expert claimed that there was insufficient evidence for the carcinogenicity of formaldehyde and suggested the need for a better technical understanding of the issues before considering it further. The representative from the IARC refuted the Employer expert's claims, saying that there was clear consensus on evidence for the carcinogenicity of formaldehyde, and documents confirming this were available. A Worker expert confirmed that formaldehyde was regarded as a carcinogen in the United States. Another Worker expert called for formaldehyde to be included in the list because it was included in the IARC's group 1. Employer experts thanked their colleagues for the clarification and agreed to the inclusion of formaldehyde in the list. Point 3.1.20 was therefore accepted for inclusion in the list.

Point 3.1.21 "Hepatitis B virus (HBV) and C virus (HCV)". Worker experts asked why hepatitis A virus had been omitted. The representative of the IARC explained that there was no evidence of cancer being caused by hepatitis A, D or E. Worker experts accepted this and point 3.1.21 was accepted for inclusion in the list.

Point 3.1.22 “Silica”. Employer experts maintained that including silica in the list would be acceptable provided that it was linked to silicosis being present as well, since it was believed that silica was only carcinogenic if silicosis already existed. The representative from the IARC disagreed with this, stating that lung cancer was not limited to those workers already suffering from silicosis or silicotuberculosis but could occur as a result of any inhalation of crystalline silica. Several Government experts voiced their support for the Office text, as did Worker experts who reminded the Meeting that silica was listed as an the IARC’s group 1 carcinogen.

Employer experts queried whether there was sufficient evidence that silica was carcinogenic, and expressed their concern that if it was accepted as carcinogenic without a specific link to silicosis there could potentially be a large number of claims for compensation. Their argument was that everyone was exposed to silica in areas of daily life and, for it to have any effect, it would have to be inhaled in large quantities; such exposure would cause fibrosis or other tissue change and only then could cancer potentially occur. A Worker expert said that everyone was exposed to ionizing radiation every day, yet it was included in the list; it was the same case for silica.

Several compromise changes to the text were suggested, but after much debate it became clear that no consensus was going to be reached at this stage of the proceedings and the matter was adjourned.

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## 4. *Other diseases*

An Employer expert queried why there was just one point in this new section and whether it would be better placed elsewhere in the list and for section 4 to be deleted. The Office explained that, in previous sections, it was agents that caused the diseases but this was not the case for miners’ nystagmus, which was linked to working conditions (e.g. lack of lighting). The Worker experts were content to accept the new section 4 and expected that other diseases would be added to it in due course.

Point 4.1 “Miners’ nystagmus”. After explanation of what this disease entailed, several experts wondered whether it still existed. However, although the disease had virtually been eradicated with the introduction of electric lighting in mines, cases were still being reported, especially from small mines in developing countries. The point was accepted for inclusion in the list.

Point 3.1.22 “Silica”. The subject had been adjourned from the previous day. Since then, the Employer experts and representatives from the WHO and IARC had met to discuss the criteria for silica to be included in the list of occupational diseases. Like malaria, silica was an example of where conditions of occupational exposure were needed. The Employer experts therefore wanted to propose some new wording for insertion at the beginning of the list, to help clarify such conditions. The Worker and the Government experts asked for the Meeting to finish the agenda items before discussing such proposed new wording. The Employer experts said that the new wording would help to deal with the final items of the agenda.

The Chairperson then opened discussion on point 3.1.22. Employer experts said that they wanted the following statement at the beginning of the list of diseases:

All diseases listed below and any other diseases suspected of being occupational in origin need to meet general criteria for identification as an occupational disease as follows:

- they are in a causal relationship with a specific exposure or agent;
- they occur in connection with a specific work environment and in specific occupations;

- they occur among the groups of persons concerned with a frequency which exceeds that average morbidity of the rest of the population; and
- there is scientific evidence, including the strength of association with exposure to the risk, consistency in the laboratory and epidemiological data and the establishment of a clearly defined pattern of disease following exposure and plausibility of cause.

The Employer experts explained that the above wording came from Report V(1) for the International Labour Conference, 2002, “Recording and notification of occupational accidents and diseases”. The Employer experts also made it clear that they would not be able to move forward with the discussion until this wording was accepted.

The Government expert from South Africa pointed out that whilst no expert would disagree with the wording, it could not be placed at the start of the list since it mentioned suspected occupational diseases, which were not included in the list. The Government and Worker experts all confirmed that they wished to follow the agenda as was agreed on the first day of the Meeting and leave discussion on the proposed new wording until after these agenda items had been concluded. The Employer experts insisted that their proposed new wording would help deal with the remaining agenda items, and that it would add a contextual framework for the list.

The Chairperson returned to point 3.1.22 “Silica”. The Government expert from Canada proposed replacing the proposed Office text with “Crystalline silica” and all the Government and Worker experts supported this. The Employer experts, however, were not prepared to make a decision on this item without first discussing their proposed opening wording. The experts of the three groups requested that their positions be formally recorded.

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### *Other occupational diseases not specified in the list (the so-called “catch-all” points)*

Discussion then turned to the so-called “catch-all” points, namely those that were included in the proposed list and reproduced in Annex 1 at the end of sections 1.1 chemical agents (point 1.1.41), 1.2 physical agents (point 1.2.8), 1.3 biological agents (1.3.10), 2.1 occupational respiratory diseases (2.1.12), 2.2 occupational skin diseases (2.2.4), 2.3 occupational musculoskeletal disorders (2.3.8), 2.4 mental and behavioural disorders (2.4.2) and 3.1 occupational cancer (3.1.22). (*Annex 1a to the present publication.*) The Employer experts re-introduced their proposed wording, explaining that it was intended to replace all of the “catch-all” points listed above and cover all occupational diseases. It was claimed that the wording was scientifically sound and would cover all occupational diseases.

Government experts generally favoured keeping the original Office text, stating that it was for individual member States, not the ILO, to adhere to the first three criteria of the wording proposed by the Employer experts, especially for the purposes of compensation. The Worker experts concurred, stating that the catch-all points had been agreed at the International Labour Conference in 2002, admittedly by compromise, but it was not now possible for this Meeting to overturn the decision reached at the International Labour Conference in 2002. The Employer experts explained that new points had been added to the proposed list, such as post-traumatic stress disorder and musculoskeletal disorders, so it was legitimate to discuss them.

Dr Takala pointed out that catch-all points would remain in the list of occupational diseases, as they were already listed in Recommendation No. 194, unless there was consensus to change them.

Employer experts argued that the new updated list needed “instructions” about how to use it, that the proposed new wording would provide this and that it would be more useful for member States to have such a text included with the list. The wording could be placed at the end of the list if preferred. They also wanted to see guidelines to accompany the list, which would include such points as degree and type of exposure and diagnostic criteria for occupational diseases, as the representative from the WHO had suggested. They also queried the mandate of this Meeting to update the list if such proposals could not be made.

There was general agreement that it would be useful to have further guidance accompanying the updated list, and the WHO reiterated their willingness to help the ILO prepare such a document.

The Employer experts stated that they could not endorse the amended list without the abovementioned new wording that they had proposed. They strongly believed that such criteria were needed in the list for it to be appropriately used around the world. They therefore proposed that the Office develop more guidance on occupational diseases, so that the next level of work could begin in the near future.

In an attempt to reach a compromise, the Government experts then proposed alternative wording to that proposed by the Employer experts. The wording would appear at the end of the whole list, and would replace all the catch-all phrases, as listed above. The proposed wording would read:

Any other occupational diseases and/or disorders not mentioned in these categories where a link is established between exposure to the agent and/or risk factor arising from work activities and the diseases and/or disorders contracted by the workers.

The Worker experts accepted the proposal, but the Employer experts could not do so.

The Chairperson then asked the experts to indicate their position on each of the catch-all points, as listed above. The Worker and the Government experts supported all of the points, but the Employer experts could not do so.

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## **Proposals for further work by the ILO**

The Chairperson summarized the requests proposed by the participants for future Office work in the following areas: SARS and avian flu, rhinitis, mobbing, styrene, caesium carbide processing, passive smoking, physical and mental illness caused by work organization, chronic low back diseases, chronic neck and shoulder diseases, reproductive hazards, shoulder tendonitis and pot room asthma.

Worker experts considered that there were two issues that needed to be addressed, namely, to look at criteria that could be used when modifying the list and, secondly, the use to which the list was put. For the latter, the use of the list was clearly defined in Paragraph 2 of Recommendation No. 194. The Government expert from South Africa asked the Office to develop definitions of diseases in relation to occupations and diagnostic criteria where possible. The representative from ICOH voiced concern on developing criteria for individual diagnoses. He advised that the Office could develop general criteria, which would be more feasible.

Dr Takala warned against having too high an expectation as to what the Office could deliver, as it would be extremely difficult to justify the organization of another Meeting of Experts if the current one could not reach a consensus.

## Next steps

Dr Takala requested guidance from the Meeting on what should be reported to the Governing Body. The Government expert from China drew attention to all the good work accomplished at the Meeting, explaining that the current list was already an improvement on the list from 2002, and that this should be reported even if there was no consensus. He also urged the Office to take into account the differences between developing and developed countries, and that capacity building for developing countries should be seriously considered.

Employer experts said that this Meeting should be scientific in its approach rather than political. They also said that the proposed new wording would help an individual person using the list who was not an occupational physician. Dr Niu explained that, as indicated in Paragraph 2 of Recommendation No. 194, the list was intended to be used by national authorities when developing their own lists of occupational diseases for the purposes of prevention, etc. and not by individual clinicians.

Worker experts reiterated that the main aim of the list was primarily to aid prevention and reporting of occupational diseases, and that the list should serve as a guide to governments to prioritize their prevention activities. They agreed that when updating the list in the future, criteria along the lines proposed by the Employer experts would be useful, and other international lists, such as the IARC list, be taken into account.

The Employer experts stated that without endorsement of their proposed wording, they could not endorse the amendments to the list. During the course of subsequent discussion, Worker and Government experts restated their positions, adding that in their view, the Employer experts' new wording went beyond the mandate determined by the Governing Body for this Meeting. The Deputy Legal Adviser from the ILO confirmed this, saying that the addition of the new wording would modify Recommendation No. 194, and that such a change was only possible at the International Labour Conference. He also explained that if no consensus could be reached, there would be no updated list of occupational diseases.

Dr Niu repeated the procedure taken by the Office in preparing the proposed list as mandated by the 2002 International Labour Conference Committee. He added that the replies to the Office questionnaires from member States and the ILO constituents had been positive in relation to the catch-all points at the end of each section.

Employer experts questioned the advice given by the Deputy Legal Adviser from the ILO, reiterating that they would not be able to endorse the work of the Meeting without the inclusion of their proposed text. They claimed that the points in the amended list that they had accepted earlier in the proceedings were accepted on the expectation that their proposed new wording would be placed within the list. Worker experts could not agree with this approach and repeated that the Meeting did not have the mandate to do what the employers were asking, urging them to reconsider their view.

The Chairperson then conceded that no consensus would be reached, and that the reasons for this should be made clear to the Governing Body.

The Deputy Legal Adviser, answering a question put by the Chairperson, explained that usually the Governing Body approved publication by the Office of the output from meetings of experts, but it was different in this case. He said that the International Labour Conference had given the mandate for the List of Occupational Diseases to be regularly reviewed and updated by meetings of experts, and that the Governing Body would have to approve the list. On its approval, the new list would replace the preceding one and that would be communicated to the Members of the International Labour Organization. If it

were possible to reach consensus on an updated list, it would be hypothetically possible to amend the text at the level of the Governing Body.

Worker experts were very concerned that the Meeting's unsuccessful attempt at updating the list would lead to it not being updated for a long time. Moreover, they also felt that the credibility of the ILO was at stake, and the lack of consensus here was a very serious matter. As a way forward, they proposed placing the Employer experts' concerns in the report, but this too was unacceptable to the Employer experts.

Following the Deputy Legal Adviser's advice, the Government expert from South Africa proposed referring those areas where consensus could not be reached, including the proposed new wording from the Employer experts, to the Governing Body for a decision. Several Government experts voiced support for this proposal, as it would mean that the points agreed for addition to the list would not be lost and thus hard work at the Meeting not wasted. The Employer experts agreed to the proposal, as did the Worker and Government experts. The Deputy Legal Adviser, however, clarified that without consensus within the Meeting on the updated list there was no list for the Governing Body to approve.

Experts requested that the report submitted to the Governing Body should reflect the positions of the Government and Worker experts on one hand, and the Employer experts on the other. There were different views about how to present these positions in the report. A proposal was put forward for there to be two separate lists, one reflecting the position of the Government and Worker experts and the second reflecting the position of the Employer experts. A second proposal was to have just one list that reflected the positions of all experts. After some debate, the Government and Employer experts accepted the first proposal, while the Worker experts indicated that they would neither support nor oppose the proposal. Annex 1 to this report reflected the position of the Government and Worker experts; Annex 2 reflected the position of the Employer experts. (*Annexes 1a and 1b to the present publication.*)

Mr Assane Diop, Executive Director of the Social Protection Sector, ILO, addressed the Meeting on its final day, saying that he regretted not being able to attend the Meeting earlier in its proceedings. He had heard of the Meeting's progress so far and very much hoped that even at this late stage in the proceedings a consensus position would be reached, saying that this should be the aim of the Meeting.

On the request of the Government expert from Thailand, the Chairperson invited the Legal Adviser of the ILO to clarify the mandate of the Meeting. She recalled the independence of experts nominated to serve in meetings of experts based on their technical expertise, and the mandate given to the Meeting by the Governing Body, which was quite specific: the examination and adoption of an updated list of occupational diseases to replace the list included in the annex to the List of Occupational Diseases Recommendation, 2002 (No. 194), in line with the provision that the list should be regularly reviewed and updated. Addition of text that went beyond a list of diseases to extend to criteria for identifying them would be beyond the mandate given to the Meeting. Such a modification could be interpreted as amending a Recommendation or even a Convention, which could only be done by the International Labour Conference acting on an agenda item that had been decided upon by the ILO Governing Body. If the experts so agreed, they could in their report draw the attention of the Governing Body to the possible need to place such an item on the agenda of a future Conference. She also explained that if no consensus could be reached, there would be no updated list of occupational diseases, and that the Governing Body would only note the report of the Meeting; it would not enter into a substantive discussion of issues that had been referred to experts. The existing list of occupational diseases would be maintained if no consensus on an updated list were reached by the Meeting.

The Employer experts restated their disagreement with the legal advice given, and thanked the Government experts for their efforts in trying to resolve the stalemate. They still believed that the mandate of the Meeting, which was to update and replace the current list, should be understood as broad enough to allow for adding their proposed wording.

On a query made by the Worker experts asking whether or not a decision could be made by majority, the Legal Adviser explained that there were no formal rules for meetings of experts, and thus no formal definition of a majority or voting procedures. She also stated that even if this were possible, it would be difficult to make rules at the end of the Meeting as these would need to have been defined right at the beginning. She stressed the importance of the tradition of reaching decision by consensus in the ILO. The Government expert from South Africa concurred with the Legal Adviser, and proposed to proceed with the reading of the report as it was evident that no consensus could be reached in relation to the list.

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## **Discussion and adoption of the Report**

The Reporter introduced the draft Report of the Meeting. After examining the draft report paragraph by paragraph and its annexes, the experts adopted them as amended. Thereafter, the experts adopted the report as a whole.

20 December 2005

*(Signed)* Mr Wayne Creaser  
Chairperson

Dr Chaiyuth Chavalitnitikul  
Reporter

## **List of occupational diseases accepted by the Government and Worker experts**

### **1. Diseases caused by agents**

#### *1.1. Diseases caused by chemical agents*

- 1.1.1. Diseases caused by beryllium or its toxic compounds
- 1.1.2. Diseases caused by cadmium or its toxic compounds
- 1.1.3. Diseases caused by phosphorus or its toxic compounds
- 1.1.4. Diseases caused by chromium or its toxic compounds
- 1.1.5. Diseases caused by manganese or its toxic compounds
- 1.1.6. Diseases caused by arsenic or its toxic compounds
- 1.1.7. Diseases caused by mercury or its toxic compounds
- 1.1.8. Diseases caused by lead or its toxic compounds
- 1.1.9. Diseases caused by fluorine or its toxic compounds
- 1.1.10. Diseases caused by carbon disulphide
- 1.1.11. Diseases caused by the toxic halogen derivatives of aliphatic or aromatic hydrocarbons
- 1.1.12. Diseases caused by benzene or its toxic homologues
- 1.1.13. Diseases caused by toxic nitro- and amino-derivatives of benzene or its homologues
- 1.1.14. Diseases caused by nitroglycerine or other nitric acid esters
- 1.1.15. Diseases caused by alcohols, glycols or ketones
- 1.1.16. Diseases caused by asphyxiants: carbon monoxide, hydrogen cyanide or its toxic derivatives, hydrogen sulphide
- 1.1.17. Diseases caused by acrylonitrile
- 1.1.18. Diseases caused by oxides of nitrogen
- 1.1.19. Diseases caused by vanadium or its toxic compounds
- 1.1.20. Diseases caused by antimony or its toxic compounds
- 1.1.21. Diseases caused by hexane
- 1.1.22. Diseases caused by mineral acids
- 1.1.23. Diseases caused by pharmaceutical agents



- 1.1.24. Diseases caused by nickel or its compounds
- 1.1.25. Diseases caused by thallium or its compounds
- 1.1.26. Diseases caused by osmium or its compounds
- 1.1.27. Diseases caused by selenium or its compounds
- 1.1.28. Diseases caused by copper or its compounds
- 1.1.29. Diseases caused by platinum or its compounds
- 1.1.30. Diseases caused by tin or its compounds
- 1.1.31. Diseases caused by zinc or its compounds
- 1.1.32. Diseases caused by ozone, phosgene
- 1.1.33. Diseases caused by irritants: benzoquinone and other corneal irritants
- 1.1.34. Diseases caused by ammonia
- 1.1.35. Diseases caused by isocyanates
- 1.1.36. Diseases caused by pesticides
- 1.1.37. Diseases caused by sulphur oxides
- 1.1.38. Diseases caused by organic solvents
- 1.1.39. Diseases caused by latex or latex containing products
- 1.1.40. Diseases caused by chlorine
- 1.1.41. Diseases caused by any other chemical agents not mentioned in the preceding items 1.1.1. to 1.1.40. where a link is established between the exposure to these chemical agents arising from work activity and the disease contracted by the worker

*1.2. Diseases caused by physical agents*

- 1.2.1. Hearing impairment caused by noise
- 1.2.2. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves)
- 1.2.3. Diseases caused by work in compressed and decompressed air
- 1.2.4. Diseases caused by ionizing radiations
- 1.2.5. Diseases caused by radiofrequency radiations
- 1.2.6. Diseases caused by optical (ultraviolet, visible light, infrared) radiations
- 1.2.7. Diseases caused by extreme temperature
- 1.2.8. Diseases caused by any other physical agents not mentioned in the preceding items 1.2.1. to 1.2.7. where a link is established between the exposure to these physical agents arising from work activity and the disease contracted by the worker

*1.3. Diseases caused by biological agents*

- 1.3.1. Brucellosis

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- 1.3.2. Diseases caused by hepatitis viruses
  - 1.3.3. Diseases caused by human immunodeficiency virus (HIV)
  - 1.3.4. Tetanus
  - 1.3.5. Tuberculosis
  - 1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants
  - 1.3.7. Malaria
  - 1.3.8. Anthrax
  - 1.3.9. Leptospirosis
  - 1.3.10. Diseases caused by any other biological agents not mentioned in the preceding paragraphs 1.3.1. to 1.3.9. where a link is established between the exposure to these biological agents arising from work activity and the disease contracted by the worker

## **2. Diseases by target organ systems**

### *2.1. Occupational respiratory diseases*

- 2.1.1. Pneumoconiosis caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis)
- 2.1.2. Silicotuberculosis
- 2.1.3. Pneumoconioses caused by non-fibrogenic mineral dust
- 2.1.4. Siderosis
- 2.1.5. Bronchopulmonary diseases caused by hard-metal dust
- 2.1.6. Bronchopulmonary diseases caused by cotton dust (byssinosis), or flax, hemp or sisal dust
- 2.1.7. Occupational asthma caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.8. Extrinsic allergic alveolitis caused by the inhalation of organic dusts, as prescribed by national legislation
- 2.1.9. Chronic obstructive pulmonary diseases
- 2.1.10. Diseases of the lung caused by aluminium
- 2.1.11. Upper airways disorders caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.12. Any other respiratory diseases not mentioned in the preceding items 2.1.1. to 2.1.11. where a link is established between the exposure to risk factors from work activity and the disease contracted by the worker

### *2.2. Occupational skin diseases*

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by recognized allergy-provoking agents not included in other items

2.2.2. Irritant contact dermatoses caused by other recognized irritant agents not included in other items

2.2.3. Occupational vitiligo

2.2.4. Skin diseases caused by physical, chemical or biological agents not included under other items

2.3. *Occupational musculoskeletal disorders*

2.3.1. Radial styloid tenosynovitis due to repetitive movements, forceful exertions and extreme postures of the wrist

2.3.2. Chronic tenosynovitis of hand and wrist due to repetitive movements, forceful exertions and extreme postures of the wrist

2.3.3. Olecranon bursitis due to prolonged pressure of the elbow region

2.3.4. Prepatellar bursitis due to prolonged stay in kneeling position

2.3.5. Epicondylitis due to repetitive forceful work

2.3.6. Meniscus lesions following extended periods of work in a kneeling or squatting position

2.3.7. Carpal tunnel syndrome

2.3.8. Any other musculoskeletal disorders not mentioned in the preceding items 2.3.1. to 2.3.7. where a link is established between exposure to risk factors arising from work activity and the disorders contracted by the worker

2.4. *Mental and behavioural disorders*

2.4.1. Post-traumatic stress disorder

2.4.2. Any other mental or behavioural disorder not mentioned in preceding item 2.4.1. where a link is established between exposure to risk factors arising from work activities and the mental disorder contracted by the worker

**3. Occupational cancer**

3.1. *Cancer caused by the following agents*

3.1.1. Asbestos

3.1.2. Benzidine and its salts

3.1.3. Bis chloromethyl ether (BCME)

3.1.4. Chromium VI and chromium VI compounds

3.1.5. Coal tars, coal tar pitches or soots

3.1.6. Beta-naphthylamine

3.1.7. Vinyl chloride

3.1.8. Benzene

3.1.9. Toxic nitro- and amino-derivatives of benzene or its homologues

3.1.10. Ionizing radiations

- 3.1.11. Tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances
  - 3.1.12. Coke oven emissions
  - 3.1.13. Compounds of nickel
  - 3.1.14. Wood dust
  - 3.1.15. Arsenic and its compounds
  - 3.1.16. Beryllium and its compounds
  - 3.1.17. Cadmium and its compounds
  - 3.1.18. Erionite
  - 3.1.19. Ethylene oxide
  - 3.1.20. Formaldehyde
  - 3.1.21. Hepatitis B Virus (HBV) and C Virus (HCV)
  - 3.1.22. Cancer caused by any other agents not mentioned in the preceding items 3.1.1. to 3.1.21. where a link is established between exposure to these agents arising from work activity and the disease contracted by the worker
- 4. Other diseases**
- 4.1. Miners' nystagmus

## **List of occupational diseases accepted by the Employer experts**

All the diseases listed below and any other diseases suspected of being occupational in origin need to meet general criteria for identification as an occupational disease as follows:

- they are in a causal relationship with a specific exposure or agent;
- they occur in connection with a specific work environment and in specific occupations;
- they occur among the groups of persons concerned with a frequency which exceeds the average morbidity of the rest of the population; and
- there is scientific evidence, including the strength of association with exposure to the risk, consistency in laboratory and epidemiological data and the establishment of a clearly defined pattern of disease following exposure and plausibility of cause.] (Paragraph proposed by the Employer experts to replace points: 1.1.41., 1.2.8, 1.3.10., 2.1.12., 2.2.4., 2.3.8., 2.4.2. and 3.1.22. in Annex 1: List of occupational diseases accepted by the Government and Worker experts.)

### **1. Diseases caused by agents**

#### *1.1. Diseases caused by chemical agents*

- 1.1.1. Diseases caused by beryllium or its toxic compounds
- 1.1.2. Diseases caused by cadmium or its toxic compounds
- 1.1.3. Diseases caused by phosphorus or its toxic compounds
- 1.1.4. Diseases caused by chromium or its toxic compounds
- 1.1.5. Diseases caused by manganese or its toxic compounds
- 1.1.6. Diseases caused by arsenic or its toxic compounds
- 1.1.7. Diseases caused by mercury or its toxic compounds
- 1.1.8. Diseases caused by lead or its toxic compounds
- 1.1.9. Diseases caused by fluorine or its toxic compounds
- 1.1.10. Diseases caused by carbon disulphide
- 1.1.11. Diseases caused by the toxic halogen derivatives of aliphatic or aromatic hydrocarbons
- 1.1.12. Diseases caused by benzene or its toxic homologues
- 1.1.13. Diseases caused by toxic nitro- and amino-derivatives of benzene or its homologues
- 1.1.14. Diseases caused by nitroglycerine or other nitric acid esters

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- 1.1.15. Diseases caused by alcohols, glycols or ketones
  - 1.1.16. Diseases caused by asphyxiants: carbon monoxide, hydrogen cyanide or its toxic derivatives, hydrogen sulphide
  - 1.1.17. Diseases caused by acrylonitrile
  - 1.1.18. Diseases caused by oxides of nitrogen
  - 1.1.19. Diseases caused by vanadium or its toxic compounds
  - 1.1.20. Diseases caused by antimony or its toxic compounds
  - 1.1.21. Diseases caused by hexane
  - 1.1.22. Diseases caused by mineral acids
  - 1.1.23. Diseases caused by pharmaceutical agents
  - 1.1.24. Diseases caused by nickel or its compounds
  - 1.1.25. Diseases caused by thallium or its compounds
  - 1.1.26. Diseases caused by osmium or its compounds
  - 1.1.27. Diseases caused by selenium or its compounds
  - 1.1.28. Diseases caused by copper or its compounds
  - 1.1.29. Diseases caused by platinum or its compounds
  - 1.1.30. Diseases caused by tin or its compounds
  - 1.1.31. Diseases caused by zinc or its compounds
  - 1.1.32. Diseases caused by ozone, phosgene
  - 1.1.33. Diseases caused by irritants: benzoquinone and other corneal irritants
  - 1.1.34. Diseases caused by ammonia
  - 1.1.35. Diseases caused by isocyanates
  - 1.1.36. Diseases caused by pesticides
  - 1.1.37. Diseases caused by sulphur oxides
  - 1.1.38. Diseases caused by organic solvents
  - 1.1.39. Diseases caused by latex or latex-containing products
  - 1.1.40. Diseases caused by chlorine
- 1.2. *Diseases caused by physical agents*
- 1.2.1. Hearing impairment caused by noise
  - 1.2.2. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves)
  - 1.2.3. Diseases caused by work in compressed and decompressed air
  - 1.2.4. Diseases caused by ionizing radiations
  - 1.2.5. Diseases caused by radiofrequency radiations
  - 1.2.6. Diseases caused by optical (ultraviolet, visible light, infrared) radiations
  - 1.2.7. Diseases caused by extreme temperature
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1.3. *Diseases caused by biological agents*

- 1.3.1. Brucellosis
- 1.3.2. Diseases caused by hepatitis viruses
- 1.3.3. Diseases caused by human immunodeficiency virus (HIV)
- 1.3.4. Tetanus
- 1.3.5. Tuberculosis
- 1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants
- 1.3.7. Malaria
- 1.3.8. Anthrax
- 1.3.9. Leptospirosis

**2. Diseases by target organ systems**

2.1. *Occupational respiratory diseases*

- 2.1.1. Pneumoconioses caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis)
- 2.1.2. Silicotuberculosis
- 2.1.3. Pneumoconioses caused by non-fibrogenic mineral dust
- 2.1.4. Siderosis
- 2.1.5. Bronchopulmonary diseases caused by hard-metal dust
- 2.1.6. Bronchopulmonary diseases caused by cotton dust (byssinosis), or flax, hemp or sisal dust
- 2.1.7. Occupational asthma caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.8. Extrinsic allergic alveolitis caused by the inhalation of organic dusts, as prescribed by national legislation
- 2.1.9. Chronic obstructive pulmonary diseases
- 2.1.10. Diseases of the lung caused by aluminum
- 2.1.11. Upper airways disorders caused by recognized sensitizing agents or irritants inherent to the work process

2.2. *Occupational skin diseases*

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by recognized allergy-provoking agents not included in other items
- 2.2.2. Irritant contact dermatoses caused by other recognized irritant agents not included in other items
- 2.2.3. Occupational vitiligo

2.3. *Occupational musculoskeletal disorders*

- 2.3.1. Radial styloid tenosynovitis due to repetitive movements, forceful exertions and extreme postures of the wrist

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- 2.3.2. Chronic tenosynovitis of hand and wrist due to repetitive movements, forceful exertions and extreme postures of the wrist
  - 2.3.3. Olecranon bursitis due to prolonged pressure of the elbow region
  - 2.3.4. Prepatellar bursitis due to prolonged stay in kneeling position
  - 2.3.5. Epicondylitis due to repetitive forceful work
  - 2.3.6. Meniscus lesions following extended periods of work in a kneeling or squatting position
  - 2.3.7. Carpal tunnel syndrome
  - 2.4. Mental and behavioural disorders
  - 2.4.1. Post-traumatic stress disorder

### **3. Occupational cancer**

- 3.1. *Cancer caused by the following agents*
  - 3.1.1. Asbestos
  - 3.1.2. Benzidine and its salts
  - 3.1.3. Bis chloromethyl ether (BCME)
  - 3.1.4. Chromium VI and chromium VI compounds
  - 3.1.5. Coal tars, coal tar pitches or soots
  - 3.1.6. Beta-naphthylamine
  - 3.1.7. Vinyl chloride
  - 3.1.8. Benzene
  - 3.1.9. Toxic nitro- and amino-derivatives of benzene or its homologues
  - 3.1.10. Ionizing radiations
  - 3.1.11. Tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances
  - 3.1.12. Coke oven emissions
  - 3.1.13. Compounds of nickel
  - 3.1.14. Wood dust
  - 3.1.15. Arsenic and its compounds
  - 3.1.16. Beryllium and its compounds
  - 3.1.17. Cadmium and its compounds
  - 3.1.18. Erionite
  - 3.1.19. Ethylene oxide
  - 3.1.20. Formaldehyde
  - 3.1.21. Hepatitis B Virus (HBV) and C Virus (HCV)

### **4. Other diseases**

- 4.1. Miners' nystagmus



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*List of participants and observers*

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Dr Georges H. Coppée, expert



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## **Annex 2: Report of the Meeting of Experts on the Revision of the List of Occupational Diseases (Recommendation No. 194) (Geneva, 27–30 October 2009)**

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### **Introduction**

At its 301st Session (March 2008), the Governing Body of the International Labour Office decided to convene a Meeting of Experts on the Revision of the List of Occupational Diseases (Recommendation No. 194). The Meeting was held in Geneva from 27 to 30 October 2009.

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### **Agenda**

The agenda of the Meeting, as approved by the Governing Body at its 303rd Session (November 2008), was as follows:

To complete the work accomplished by the Meeting of Experts on Updating the List of Occupational Diseases (13–20 December 2005), on the basis of the common ground about the scope and contents of the revised list of occupational diseases<sup>1</sup> achieved through the tripartite consultations conducted by the Office, further to the request made by the Governing Body at its 295th Session in March 2006.

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<sup>1</sup> Scope and contents of the revised list of occupational diseases:

- (1) The definition of the term “occupational disease” in the Protocol of 2002 to the Occupational Safety and Health Convention, 1981 (No. 155), and the definition of occupational diseases in the Employment Injury Benefits Recommendation, 1964 (No. 121), will define the scope within which the updating of the list of occupational diseases annexed to Recommendation No. 194 by the Meeting will take place.
- (2) In view of the fact that open-ended items do exist in the current list annexed to Recommendation No. 194, modifications of these items will be based on the amendments submitted to the Committee on Occupational Accidents and Diseases of the 90th Session of the International Labour Conference in 2002 and be consistent with the definitions of occupational diseases referred to in the above paragraph (1).
- (3) The diseases included in Schedule I of the Employment Injury Benefits Convention, 1964 (No. 121), will all be included.
- (4) Individual diseases items in the lists proposed by the Employer experts and by the Government and Worker experts at the 2005 Meeting of Experts which did not raise any controversy during the 2005 Meeting of Experts will, in principle, be retained.
- (5) New occupational diseases not included in the lists proposed by the Employer experts and by the Government and Worker experts at the 2005 Meeting of Experts will not be considered unless there is a consensus among the experts at the forthcoming 2009 meeting.

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## **Participants**

Twenty-one experts were invited to the Meeting. Seven of these were appointed after consultations with the Governments of Canada, Chile, China, France, Russian Federation, South Africa and Thailand. Seven were appointed after consultations with the Employers' group and seven after consultations with the Workers' group of the Governing Body. The Meeting was also attended by the representatives of the European Commission (EC), World Health Organization (WHO), International Organisation of Employers (IOE), International Trade Union Confederation (ITUC), International Council of Nurses (ICN), International Commission on Occupational Health (ICOH) and the International Social Security Association (ISSA).

The list of participants is annexed to this report.

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## **Opening address**

Mr George Dragnich, Executive Director of the Social Dialogue Sector of the ILO, opened the Meeting and welcomed all participants on behalf of the ILO Director-General, Mr Juan Somavia. He conveyed the greetings of Mr Assane Diop, Executive Director of the Social Protection Sector, who was unable to attend the Meeting. He expressed his gratitude to the experts for having agreed to serve for the Meeting with their valuable expertise. He also welcomed observers from the international organizations, thanking them for their willingness to contribute to the success of the Meeting.

He emphasized the significance of social dialogue for the improvement of working conditions, including the issues related to occupational diseases. He pointed out that the objective of the Meeting was to revise the list of occupational diseases annexed to Recommendation No. 194 on the basis of the tripartite consultations carried out by the Office and of the work done by the Meeting of Experts in December 2005.

He highlighted the importance of the work of the Meeting as the world's working population and their families would benefit from the output of the Meeting. He was confident that the experts would work as a skilled team, putting together their knowledge and experience in producing a single revised list of occupational diseases, based on consensus. Finally, he reminded participants that they had been appointed as individual experts, serving in their own personal capacity and not representing any governments, groups or other interests.

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## **Election of the Chairperson and Reporter**

Ms Eva Anna Karpinski, the expert nominated by the Government of Canada, was unanimously elected as Chairperson of the Meeting. Dr Rui Chen, the expert nominated by the Government of China, was unanimously elected as Reporter of the Meeting.

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## **Presentation of the working documents**

Dr Sameera Al-Tuwaijri, Director of the Programme on Safety and Health at Work and the Environment (SafeWork) and representative of the ILO Director-General,

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presented the working documents. The list of occupational diseases proposed by the Office was built on the work of the 2005 Meeting of Experts and was agreed upon thanks to the very constructive process of tripartite consultations which took place before the current Meeting. The working documents represented the consensus achieved during the tripartite consultations. The new list established at this Meeting would be submitted to the Governing Body for its approval at its 307th Session in March 2010, and once approved would replace the list of occupational diseases annexed to Recommendation No. 194.

Dr Shengli Niu, Senior Specialist on Occupational Health of SafeWork, deputy representative of the ILO Director-General, made an introductory presentation and explained the process which led to the proposed list of occupational diseases. He gave an overview of the global situation on occupational diseases and reviewed the historical development of relevant ILO standards. He also outlined the mechanisms embodied in Recommendation No. 194 for the updating of the list of occupational diseases.

Regular review and updating of the list of occupational diseases was essential in order to reflect the latest development in scientific knowledge and technology advancements. The Office started the preparation for updating the list of occupational diseases soon after the adoption of the List of Occupational Diseases Recommendation, 2002 (No. 194). This included the evaluation of the scientific development in the identification of occupational diseases, the analysis of national and other lists of occupational diseases and the comments received from member States. The 2005 Meeting of Experts examined the amendments made to the list of occupational diseases at the 2002 International Labour Conference, as well as the responses to the questionnaire from the member States. While substantive progress was achieved for the updating of the list, the Meeting could not complete the task fully.

Dr Niu described the steps taken after the 2005 Meeting for the preparation of the current Meeting. As requested by the Governing Body, the Office carried out consultations with employers, workers and governments. The agreement reached by these consultations included the following points:

- to introduce a footnote after the title “list of occupational diseases” which reads “In the application of this list the degree and type of exposure, the work or occupation involving a particular risk of exposure should be taken into account when appropriate.”;
- to keep and modify the open items in the list;
- to make editorial changes to the list format including to signify that the diseases in the list are occupational by nature and caused by exposure arising from work activities;
- not to include general criteria in the list. The general criteria proposed by the Employers at the 2005 Meeting of Experts are for the experts to use as a basis for their work during the 2009 Meeting; and
- to consent to the scope and contents of the revised list.

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## General discussion

The Worker experts pointed out the importance of agreements reached through consultation meetings, in particular as regards the open items. The Worker experts were prepared to accept the agreed contents in the proposed list during the consultations, including the new wording as a block, if the Employer and Government experts would also agree.



The Employer experts stated that they would not like to revisit issues agreed upon during the consultations. They considered that problems encountered at the previous Meeting should be avoided and that the updating of the list on a more regular basis in the future should be emphasized. The Employer experts accepted the agreed contents of the proposed list along the same lines as the Worker experts and that only the problematic items should be revisited. They would not propose any new changes.

The Government experts accepted the proposal from the Worker experts.

The Meeting adopted the list of occupational diseases which did not include those problematic items identified during the tripartite consultations.

The Worker experts expressed their agreement with the four paragraphs in section 8, “Decision-making process at the Meeting of Experts on the Revision of the List of Occupational Diseases Recommendation, 2002 (No. 194) (Geneva, 27–30 October 2009)” of the document entitled “Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases” (MERLOD/2009/4) including the criteria in paragraph 34.

The Worker experts considered that in the preparation of future updates, the Office should take a proactive approach, looking into national lists and new occupational diseases. Basically they supported the decision-making process outlined in the abovementioned four paragraphs. Systematic reviews should be carried out by applying the principles embodied in this section. Furthermore, the Office should collect information from other organizations, such as the WHO and the International Agency for Research on Cancer (IARC), and share them in advance with the ILO tripartite experts.

The Employer experts considered the documents prepared by the Office were of good quality. The Office document on criteria (MERLOD/2009/4) was very helpful for the work of this Meeting and they proposed that this document should be published.

Dr Niu explained that, a first version of the document on the criteria had been prepared for the tripartite consultation which was conducted in 2008. This document on criteria was then updated as the process of consultation went on. It addressed two different issues which were: (i) the scientific evidence generally used for establishing a causal relationship between diseases and work; and (ii) the agreement reached during the various stages of the consultations conducted by the Office. If this document is to be published, a review would be necessary.

The representative of the ICOH underlined the importance of the ILO list for diagnostic purposes, as well as for prevention. The ILO’s work would require both a strong scientific basis as well as a policy umbrella. The concept of the list of occupational diseases would evolve with time and a faster and more dynamic process of updating would be needed. He offered the ICOH’s support by using its worldwide network in reviewing the list on a regular basis. Concrete steps would include: to monitor continuously the development of new occupational diseases through an expert group; to establish an international repository of new data; to produce international guidance on the identification, diagnosis and recognition of occupational diseases; and to develop criteria for those who are allowed to diagnose occupational diseases.

An Employer expert emphasized the significance of the work done after the 2005 Meeting, particularly the criteria for incorporating diseases into the ILO list. This document (MERLOD/2009/4) was developed jointly by experts representing the governments, employers and workers, and should become an official document which would guide future work. Having a single list for prevention and compensation purposes was a challenge. In one case, the approach was essentially medical, in the other case, a mix of medical, political and social factors were to be considered. The role of environmental factors needed to be addressed as regards both the working and general environment. A systematic approach

should be taken in collecting the information on progress made worldwide, mobilizing various channels including other international organizations and member States.

The representative of the EC commented that there were several aspects involved in the list of occupational diseases. The establishment of a national list was a first step, and then diagnosis guides were to be developed. These would be required to be harmonized globally in a similar manner to the work done for the classification and labelling of chemicals through the development of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). He suggested that the European Agency for Safety and Health at Work (EU-OSHA) could contribute to the work of the ILO through its data-collection work.

The representative of the WHO informed the Meeting of the adoption of a global action plan on workers' health by the 2007 World Health Assembly and underlined the importance of the work of this Meeting. He also reported the WHO work in progress on the international classification of diseases and its linkage with the list of occupational diseases. He expressed the WHO's commitment to work closely with the ILO in improving occupational health worldwide.

A Worker expert reminded the Meeting of the main task given to them. He highlighted the importance of the tripartite process in the current and future ILO work on the list. He welcomed the idea of continuous monitoring and information depository as long as these were linked with the tripartite Meetings of Experts. The development of international diagnostic criteria, such as for musculoskeletal disorders would be useful as systems are different from country to country. He supported the establishment of a panel of experts involving experts appointed by governments, workers and employers on occupational diseases which would work on the basis of criteria listed in section 8 of MERLOD/2009/4.

An Employer expert endorsed what the Worker expert said. More dynamic processes and efforts by the ILO would be required. A number of lists were developed by a number of people with different criteria. There was a need to clarify what criteria were used for the ILO list. In the interest of openness, the ILO should publish these criteria, namely the document MERLOD/2009/4, to show what was the basis for the new list.

The Meeting agreed that the criteria document "Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases" should be published as an official ILO publication, to enable others to understand on what basis the list had been updated.

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## **Examination of the problematic disease items**

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### *Point 1.2.5. "Diseases caused by radio frequency radiation"*

The Employer experts did not support the inclusion of this item in the list as there was no conclusive scientific evidence, but acknowledged that a number of studies were under way. An in-depth French study reviewed relevant international reports on radio frequency radiation and concluded that there was no conclusive evidence that it caused diseases but thermal effects were recognized. In the study, cardiovascular effects were found but they lacked evidence on the causal relationship between exposure and effects.

The Worker experts suggested the use of the term "electromagnetic fields" or to add the term "microwave radiation". They considered that electromagnetic field effects should not be restricted to thermal effects and burning. There was evidence on reproductive health effects. Long-term effects such as carcinogenic effects should not be excluded either.

A representative of the WHO informed the Meeting of their project on electromagnetic fields (EMF). She explained that radio frequency included electromagnetic fields with frequencies ranging from 100 kilohertz (kHz) to 300 gigahertz (GHz), and this therefore included microwaves. The WHO EMF project found only thermal effects based on the exposure limits established by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). While reproductive effects were found with high-level exposure, no link had yet been established for cancer. At low-level exposure, no health effects were found. A major review by ICNIRP concluded that there was no established link between reproductive health and radio frequency radiation below the limits established by ICNIRP or by IEEE (Institute of Electrical and Electronics Engineers).

A Worker expert argued that many European countries included the effects of electromagnetic fields in their respective lists. Several clusters of workers, in particular radar workers, had reproductive health effects, especially on men, and these had been recognized and were compensable in his country.

The Government expert from Thailand stated that her country recognized diseases due to exposure to non-ionizing radiation which included radio frequency radiation.

The representative of the EC commented that some EU Member States included electromagnetic fields in their lists as the EU recommendation was not obligatory. The EC had established a scientific committee to review the effects of electromagnetic fields and the report was expected to be available in 2011.

A Government expert from China informed the Meeting that their study on radio frequency radiation did not show consistent evidence. He considered that further studies would be needed.

There was no consensus on this item and it was decided not to include diseases caused by radio frequency radiation in the list.

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### *Point 1.3.7. “Malaria”*

The Worker experts considered that malaria had a similar nature to other diseases included in section 1.3 and should be included in the list. Malaria was a major occupational hazard and not only was considered as an issue for workers travelling to affected areas and laboratory workers but also as one related to large working populations. Many workers in South America, Africa and Asia such as those in logging and construction camps were at high risk of infection to malaria. Adding it to the list would have immense impact on prevention.

An Employer expert stated that malaria is a public health issue except in the case where certain workers were sent to malaria endemic areas, or in the case of laboratory workers working with blood and blood products. It was not included in the European list. On the same ground, if it was included, other diseases could be included such as H1N1. Distinction of occupational and non-occupational cases was difficult. If malaria was to be included, criteria should be added. Nevertheless, malaria was covered under the item 1.3.10 (open item).

The representative of the EC concurred with the Employers’ point of view, even though he understood the statistical significance of the disease. The inclusion of malaria would establish a precedent to cover a public health issue. The EU list did not include it.

The representative of the ICOH supported the Workers’ view and suggested to find ways, such as a qualifier, to clarify the limitation to occupational exposure.

A Government expert from China explained a case of outbreak of malaria among the railway construction workers and supported its inclusion to those engaged in outdoor work in malaria endemic areas and laboratory workers.

The Government expert from the Russian Federation could not support the inclusion of malaria in the list. While no malaria cases were found in the Russian Federation and outlying areas in 2008–09, it was difficult to clarify the place of infection when migrant workers were found to be infected with malaria, because most of the workers infected could not identify the place of infection.

The Government expert from South Africa spoke in favour of the inclusion of malaria. This was important for truck drivers for example, who travelled outside the country and got infected. She suggested the addition of criteria.

The Government expert from Thailand confirmed the importance of malaria in the south of her country and understood well the Workers' view. She explained that even though malaria was endemic in this region, there had been no claims for compensation. She still considered that the coverage of malaria was taken care of by item 1.3.10 (open item) and therefore was sufficient.

Since no qualifiers were provided for clarification of the limitations to occupational exposure conditions as first suggested by the Government expert from South Africa, the experts did not agree on the inclusion of malaria in the list.

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*Point 2.1.8. “Extrinsic allergic alveolitis caused by the inhalation of organic dusts arising from work activities to include mists from contaminated oils”*

The Worker experts emphasized that extrinsic allergic alveolitis was not only caused by organic dusts but also by contaminated oils.

An Employer expert stated that extrinsic allergic alveolitis was recognized as an occupational disease known as Farmers' lung for many years. As explained in the document MERLOD/2009/5, oils contaminated by bacteria, fungus and other biological agents could cause the disease. The proposed wording concerned only a particular industry while exposure to similar hazards could be foreseen in other sectors of activity. He proposed therefore the following generic wording “Extrinsic allergic alveolitis caused by the inhalation of organic dusts, or microbially contaminated aerosols, arising from work activities”.

This proposal was supported by both the Worker experts and Government experts, and therefore adopted. Extrinsic allergic alveolitis caused by the inhalation of organic dusts or microbially contaminated aerosols arising from work activities was decided to be included in the list.

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*Point 2.3.7. “Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three”*

The Worker experts supported the inclusion of carpal tunnel syndrome in the list, as it was a recognized and well-known occupational disease. Furthermore diagnostic criteria were also available.

The Employer experts and Government experts also supported this inclusion. Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three was decided to be included in the list.

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*Point 2.4. “Mental and behavioural disorders”  
to be replaced by “psychological disorders”*

The Worker experts indicated that they agreed with the replacement since the term “Mental and behavioural disorders” caused confusion.

The Employer experts acknowledged their willingness to reach a consensus but stated that, after reassessing the current wording, they felt that the term “psychological disorders” was likely to create even more confusion. An advantage of using the term “mental and behavioural disorders” was that its definition could be taken from the DSM (Diagnostic and Statistical Manual of Mental Disorders)–IV. They noted that the term “psychological disorders” covered a very wide range of disorders and were willing to keep the original wording.

A Government expert from Chile underlined the need for respecting the International Classification of Diseases in order to benefit from their definitions. Therefore the introduction of new wording could not be supported.

A Worker expert could not agree to the use of DSM-IV as this would limit it only to mental disorders. He pointed out that the term “psychological disorders” had a wider meaning which included stress and depression. To use the term “mental disorders” in the list would narrow the scope.

A representative from the WHO drew the Meeting’s attention to the fact that clinical diagnosis was based on clinical entities, and the change of wording could create confusion among physicians and might lead to a negative impact on prevention. He suggested keeping the current wording.

The Worker experts maintained their view that “psychological disorders” were the appropriate wording. In view of the fact that both the Employer and Government experts agreed to keep the current wording “mental and behavioural disorders”, the Worker experts accepted that there was no consensus on the proposed replacement wording. Therefore, “mental and behavioural disorders” would not to be replaced by “psychological disorders” and would remain in the list without any change.

Point 3.1.20. “Formaldehyde”

The Employer experts considered that formaldehyde was ubiquitous. This was a difficult issue as shown in the technical background document (MERLOD/2009/5). Even though IARC had included formaldehyde as a carcinogen, the criteria used by IARC were not compatible with the criteria agreed upon by this Meeting of Experts. Furthermore the role of IARC was to identify hazards while a risk evaluation was needed to take a timely and appropriate decision. Thus, they believed it should not be included in the list. While IARC classification was considered important, they pointed out that other sources of information should also be examined.

The Worker experts stated that formaldehyde had been evaluated three times by IARC. The data presented by IARC on both humans and rats showed that formaldehyde was a group 1 carcinogen. The European furniture industry made a joint declaration of employers and workers on lowering exposure to protect workers and users. The declaration was based on the IARC assessment. Studies carried out in the United States and

Denmark also provided evidence for nasal cancer. A 33-year study, from 1970 to 2003, showed that specific professions, in this case, embalmers and funeral home workers, were significantly affected by cancer linked to exposure to formaldehyde.

The representative from the IARC informed the Meeting of the outcome of an IARC evaluation concluded the day before. This evaluation reconfirmed that formaldehyde was a group 1 human carcinogen with strong evidence on nasopharyngeal cancer and moderate evidence on leukaemia.

An Employer expert stated that they could not react on a verbal report on a study just completed, while acknowledging the study may provide useful information. The Employer expert emphasized that it would be necessary to examine relevant documents carefully before taking a position.

The Meeting did not reach consensus on the inclusion of formaldehyde under the section “Cancer caused by the following agents” and formaldehyde was not to be included in the list.

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### *Point 3.1.21. “Hepatitis B virus (HBV) and hepatitis C virus (HCV)”*

Employer experts preferred the addition of a qualifying clause which would refer to the presence of a hepatitis or of a cirrhosis. The Worker experts did not accept the addition of the qualifier. The Government experts agreed to include this item without qualifier. The Meeting decided to include hepatitis B virus and hepatitis C virus in the list by consensus.

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### *Point 3.1.X. “Crystalline silica” under “3.1. Cancer caused by the following agents”*

The Employer experts stated that they would only accept cancer caused by crystalline silica with a qualifier “in the presence of silicosis”.

The Worker experts strongly supported the inclusion of crystalline silica under the “Cancer caused by the following agents” section. Although silicosis was an important marker for exposure, silicosis should not be a precondition. They emphasized that in a large number of jurisdictions, silica was accepted as a carcinogen and that it was inappropriate to provide a diagnostic criteria in this context. The list was not about the diagnosis of individual cases.

The Government expert from the Russian Federation referred to the research in the Russian Federation which concluded that lung cancer could occur in the absence of silicosis. He underlined that enough expertise existed and each group could further examine the issue towards possible consensus.

The Employer experts maintained their position that silicosis was a precondition for crystalline silica to be included. They emphasized the importance of social connotations in examining the issue which was not only medical.

The Worker experts expressed their disappointment for not being able to reach a consensus to include crystalline silica in the list without a caveat.

The inclusion of crystalline silica under “3.1. Cancer caused by the following agents” was not accepted.

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## Discussion on the future work

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### *Potential new occupational diseases*

A Worker expert suggested the production of silicon carbide as a cause of lung cancer. He proposed a review of the scientific basis for the next Meeting. Another Worker expert suggested PCBs to be included into the list of carcinogens. In Europe, PCBs were used in the construction industry during 1950–70. It was found to affect the environment as well as the health of construction workers since many workers were exposed to the agent when removing materials.

The Government expert from the Russian Federation proposed to look into new technology including nanotechnology. According to research in the United States, United Kingdom and the Russian Federation, it could affect the environment as well as the health of workers. The agent could be absorbed through the surface of skin and may cause cancer and other diseases. There were many projects using nanotechnology with huge investment and worker protection may be necessary. A Government expert from China supported this proposal. He pointed out that there was a need for paying attention to new occupational hazards such as biological enzymes.

The Government expert from France proposed to examine reproductive disorders caused by reproductive toxic substances, cancer of the larynx due to all forms of asbestos. Problems of shoulders, particularly the rotator cuff syndrome, which was one of the most prevalent musculoskeletal disorders, should also be looked into.

The representative of the IARC supported these proposals which included asbestos-related cancer and PCBs as human carcinogen group 1. Furthermore he suggested the following items which were addressed in IARC's recent monographs:

- Vol 97: 1,3-butadiene.
- Vol 99: o-Toluidine; MOCA (4,4'-Methylenebis(chloroaniline)), dyes metabolized to benzidine.
- Vol 100c: asbestos and cancer of the larynx, leather dust (was previously boot and shoe manufacture).
- Vol 100f: strong inorganic acids (was previously strong inorganic acids containing sulfuric acid); PCB 126.

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### *Decision-making process*

A Worker expert underlined the usefulness of the documents prepared by the Office, particularly the technical background papers. He suggested the following process:

- submitting items for consideration two years before the next Meeting;
- incorporation of suggestions and comments;
- full literature review;
- inclusion of scientific evidence into the technical background papers; and
- consensus prior to the Meeting.

He added that new information from IARC should be examined. He also requested the WHO to provide guidance on diagnosis and prevention of the diseases on the list and on national lists of occupational diseases.

An Employer expert stressed that the updating of the list of occupational diseases should be done by the ILO. It was not the responsibility of the IARC or WHO to prepare the list of occupational diseases. The scope of the list must be relevant to Recommendation No. 194. He stressed that the list should be revised by tripartite experts. In this connection more thought should be given to the organization of a duly established process for updating the list through social dialogue.

An Employer expert considered that the list should be a dynamic list and more regular meetings would be necessary. Working group discussions should be organized, possibly electronically, to avoid lengthy debate at the Meeting of Experts. The criteria for the current revision should be used. He proposed a cut-off date on the use of evidence and in addition the Office should produce background documentation.

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### *Timing of further updating of the list*

An Employer expert stated that constant review of relevant information was essential. Information from various sources should be collected and evaluated systematically. Working groups could communicate through the Internet preparing for the future debates.

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### *Other activities by the ILO*

The Worker experts believed that the development of guidance on diagnosis, prevention and application of the list should be a priority. The Employer experts supported this proposal made by the Workers.

Dr Niu, thanked the commitment of the tripartite group for the current and future work on updating the list of occupational diseases. The Office would follow up on the international developments. Careful consideration would be required on the decision-making process. The work of updating the list should be based on scientific evidence and expert tripartite consultations should be held regularly. The establishment of a panel of experts was a good proposal. As the only international organization to produce the list of occupational diseases, the ILO should continue to work on the list with its member States to promote the application of the list. The proposals for future work from this Meeting would be included in the report to the Governing Body.

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## **Discussion and adoption of the list of occupational diseases and the report of the Meeting**

The Reporter introduced the draft report of the Meeting. The Meeting first adopted the list of occupational diseases item by item, followed by the list as a whole.

The Chairperson informed the Meeting of the need to ensure the consistency between the English and French versions of the list, as it would be appended to a Recommendation. She explained that, for this to occur, an editorial group would have to be set up, and thus welcomed nomination from the Employer and Worker experts. The Employer experts nominated Dr Litchfield and the Worker experts nominated Mr Robertson. The



editorial group, which would work through electronic means, would be completed by the Chairperson and the Reporter, both Government experts.

Mr Guido Raimondi, the ILO Legal Adviser, said that this would ensure the consistency between the normative text in the official languages of the instrument, namely English and French. As the list would replace the annex of Recommendation No. 194, the setting up of this group was a very welcome step. He would support the work of the editorial group by providing advice from a legal perspective when needed and appropriate.

After examining the draft report paragraph by paragraph and its annex, "List of occupational diseases", the experts adopted them, as amended. Thereafter the experts adopted the report and its annex as a whole.

30 October 2009

*(Signed)* Ms Eva Anna Karpinski  
Chairperson

Dr Rui Chen  
Reporter

## **List of occupational diseases<sup>1</sup>**

- 1. Occupational diseases caused by exposure to agents arising from work activities**
  - 1.1. Diseases caused by chemical agents*
    - 1.1.1. Diseases caused by beryllium or its compounds
    - 1.1.2. Diseases caused by cadmium or its compounds
    - 1.1.3. Diseases caused by phosphorus or its compounds
    - 1.1.4. Diseases caused by chromium or its compounds
    - 1.1.5. Diseases caused by manganese or its compounds
    - 1.1.6. Diseases caused by arsenic or its compounds
    - 1.1.7. Diseases caused by mercury or its compounds
    - 1.1.8. Diseases caused by lead or its compounds
    - 1.1.9. Diseases caused by fluorine or its compounds
    - 1.1.10. Diseases caused by carbon disulphide
    - 1.1.11. Diseases caused by halogen derivatives of aliphatic or aromatic hydrocarbons
    - 1.1.12. Diseases caused by benzene or its homologues
    - 1.1.13. Diseases caused by nitro- and amino-derivatives of benzene or its homologues
    - 1.1.14. Diseases caused by nitroglycerine or other nitric acid esters
    - 1.1.15. Diseases caused by alcohols, glycols or ketones
    - 1.1.16. Diseases caused by asphyxiants like carbon monoxide, hydrogen sulphide, hydrogen cyanide or its derivatives
    - 1.1.17. Diseases caused by acrylonitrile
    - 1.1.18. Diseases caused by oxides of nitrogen
    - 1.1.19. Diseases caused by vanadium or its compounds
    - 1.1.20. Diseases caused by antimony or its compounds
    - 1.1.21. Diseases caused by hexane
    - 1.1.22. Diseases caused by mineral acids

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<sup>1</sup> In the application of this list the degree and type of exposure, the work or occupation involving a particular risk of exposure should be taken into account when appropriate.

- 1.1.23. Diseases caused by pharmaceutical agents
  - 1.1.24. Diseases caused by nickel or its compounds
  - 1.1.25. Diseases caused by thallium or its compounds
  - 1.1.26. Diseases caused by osmium or its compounds
  - 1.1.27. Diseases caused by selenium or its compounds
  - 1.1.28. Diseases caused by copper or its compounds
  - 1.1.29. Diseases caused by platinum or its compounds
  - 1.1.30. Diseases caused by tin or its compounds
  - 1.1.31. Diseases caused by zinc or its compounds
  - 1.1.32. Diseases caused by phosgene
  - 1.1.33. Diseases caused by corneal irritants like benzoquinone
  - 1.1.34. Diseases caused by ammonia
  - 1.1.35. Diseases caused by isocyanates
  - 1.1.36. Diseases caused by pesticides
  - 1.1.37. Diseases caused by sulphur oxides
  - 1.1.38. Diseases caused by organic solvents
  - 1.1.39. Diseases caused by latex or latex-containing products
  - 1.1.40. Diseases caused by chlorine
  - 1.1.41. Diseases caused by other chemical agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these chemical agents arising from work activities and the disease(s) contracted by the worker
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- 1.2. *Diseases caused by physical agents*
  - 1.2.1. Hearing impairment caused by noise
  - 1.2.2. Diseases caused by vibration (disorders of muscles, tendons, bones, joints, peripheral blood vessels or peripheral nerves)
  - 1.2.3. Diseases caused by compressed or decompressed air
  - 1.2.4. Diseases caused by ionizing radiations
  - 1.2.5. Diseases caused by optical (ultraviolet, visible light, infrared) radiations including laser
  - 1.2.6. Diseases caused by exposure to extreme temperatures
  - 1.2.7. Diseases caused by other physical agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these physical agents arising from work activities and the disease(s) contracted by the worker

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### 1.3. *Biological agents and infectious or parasitic diseases*

- 1.3.1. Brucellosis
- 1.3.2. Hepatitis viruses
- 1.3.3. Human immunodeficiency virus (HIV)
- 1.3.4. Tetanus
- 1.3.5. Tuberculosis
- 1.3.6. Toxic or inflammatory syndromes associated with bacterial or fungal contaminants
- 1.3.7. Anthrax
- 1.3.8. Leptospirosis
- 1.3.9. Diseases caused by other biological agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to these biological agents arising from work activities and the disease(s) contracted by the worker

## **2. Occupational diseases by target organ systems**

### 2.1. *Respiratory diseases*

- 2.1.1. Pneumoconioses caused by fibrogenic mineral dust (silicosis, anthraco-silicosis, asbestosis)
- 2.1.2. Silicotuberculosis
- 2.1.3. Pneumoconioses caused by non-fibrogenic mineral dust
- 2.1.4. Siderosis
- 2.1.5. Bronchopulmonary diseases caused by hard-metal dust
- 2.1.6. Bronchopulmonary diseases caused by dust of cotton (byssinosis), flax, hemp, sisal or sugar cane (bagassosis)
- 2.1.7. Asthma caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.8. Extrinsic allergic alveolitis caused by the inhalation of organic dusts or microbially contaminated aerosols arising from work activities
- 2.1.9. Chronic obstructive pulmonary diseases caused by inhalation of coal dust, dust from stone quarries, wood dust, dust from cereals and agricultural work, dust in animal stables, dust from textiles, and paper dust arising from work activities
- 2.1.10. Diseases of the lung caused by aluminium
- 2.1.11. Upper airways disorders caused by recognized sensitizing agents or irritants inherent to the work process
- 2.1.12. Other respiratory diseases not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the disease(s) contracted by the worker

2.2. *Skin diseases*

- 2.2.1. Allergic contact dermatoses and contact urticaria caused by other recognized allergy-provoking agents arising from work activities not included in other items
- 2.2.2. Irritant contact dermatoses caused by other recognized irritant agents arising from work activities not included in other items
- 2.2.3. Vitiligo caused by other recognized agents arising from work activities not included in other items
- 2.2.4. Other skin diseases caused by physical, chemical or biological agents at work not included under other items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between the exposure to risk factors arising from work activities and the skin disease(s) contracted by the worker

2.3. *Musculoskeletal disorders*

- 2.3.1. Radial styloid tenosynovitis due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.2. Chronic tenosynovitis of hand and wrist due to repetitive movements, forceful exertions and extreme postures of the wrist
- 2.3.3. Olecranon bursitis due to prolonged pressure of the elbow region
- 2.3.4. Prepatellar bursitis due to prolonged stay in kneeling position
- 2.3.5. Epicondylitis due to repetitive forceful work
- 2.3.6. Meniscus lesions following extended periods of work in a kneeling or squatting position
- 2.3.7. Carpal tunnel syndrome due to extended periods of repetitive forceful work, work involving vibration, extreme postures of the wrist, or a combination of the three
- 2.3.8. Other musculoskeletal disorders not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between exposure to the risk factors arising from work activities and the musculoskeletal disorder(s) contracted by the worker

2.4. *Mental and behavioural disorders*

- 2.4.1. Post-traumatic stress disorder
- 2.4.2. Other mental or behavioural disorders not mentioned in the preceding item where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between exposure to the risk factors arising from work activities and the mental and behavioural disorder(s) contracted by the worker

**3. Occupational cancer**

- 3.1. *Cancer caused by the following agents*
  - 3.1.1. Asbestos

- 
- 3.1.2. Benzidine and its salts
  - 3.1.3. Bis-chloromethyl ether (BCME)
  - 3.1.4. Chromium VI compounds
  - 3.1.5. Coal tars, coal tar pitches or soots
  - 3.1.6. Beta-naphthylamine
  - 3.1.7. Vinyl chloride
  - 3.1.8. Benzene
  - 3.1.9. Toxic nitro- and amino-derivatives of benzene or its homologues
  - 3.1.10. Ionizing radiations
  - 3.1.11. Tar, pitch, bitumen, mineral oil, anthracene, or the compounds, products or residues of these substances
  - 3.1.12. Coke oven emissions
  - 3.1.13. Nickel compounds
  - 3.1.14. Wood dust
  - 3.1.15. Arsenic and its compounds
  - 3.1.16. Beryllium and its compounds
  - 3.1.17. Cadmium and its compounds
  - 3.1.18. Erionite
  - 3.1.19. Ethylene oxide
  - 3.1.20. Hepatitis B virus (HBV) and C virus (HCV)
  - 3.1. 21. Cancers caused by other agents at work not mentioned in the preceding items where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between exposure to these agents arising from work activities and the cancer(s) contracted by the worker

#### **4. Other diseases**

- 4.1. Miners' nystagmus
- 4.2. Other specific diseases caused by occupations or processes not mentioned in this list where a direct link is established scientifically, or determined by methods appropriate to national conditions and practice, between exposure arising from work activities and the disease(s) contracted by the worker

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# LIST OF OCCUPATIONAL DISEASES (revised 2010)

## Identification and recognition of occupational diseases: Criteria for incorporating diseases in the ILO list of occupational diseases

In today's increasingly complex world of work, the number of chemical, physical, biological and psychosocial factors affecting workers' health is constantly on the rise. Diseases caused by work need to be identified, and those suffering from them properly compensated. Preventive action at the workplace is essential. It is therefore important to establish a list of occupational diseases and to update it regularly in order to maximize the effectiveness of preventive strategies and appropriate compensation schemes.

As the only United Nations agency to develop and adopt an international list of occupational diseases based on agreement between representatives of governments and employers' and workers' organizations, the International Labour Organization (ILO) established an updated list in March 2010. This new list reflects the latest developments in the identification and recognition of occupational diseases. The ILO list is designed to assist countries in the prevention, recording and notification of diseases caused by work and, if applicable, compensation for them.

This publication includes the new ILO list of occupational diseases, the criteria for incorporating diseases in the list, and the reports of the two Meetings of Experts which developed this latest list.

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