

Overview of United Nations Environment Programme's Documents on Best Available Techniques (BAT) and Best Environmental Practices (BEP)

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Cooperation (NACEC)
Workshop on Emissions Reduction

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Stockholm Convention

- United Nations Environment Programme's *Stockholm Convention on Persistent Organic Pollutants* (POPs)
 - Article 5 – *Medidas para reducir o eliminar las liberaciones derivadas de la producción no intencional*
 - Annex C identifies the following unintentionally-produced POPs:
 - dioxins and furans
 - hexachlorobenzene (HCB); and
 - polychlorinated biphenyls (PCBs)

Stockholm Convention Requirements for a National Action Plan (NAP)

- Article 5 (a)
 - *"Elaborará en un plazo de dos años a partir de la entrada en vigor del presente Convenio para dicha Parte, y aplicará ulteriormente, un plan de acción (measures to reduce or eliminate releases from unintentional production) ...En el plan de acción se incluirán los elementos siguientes:*

National Action Plan

- i. Una evaluación de las liberaciones actuales y proyectadas, incluida la preparación y el mantenimiento de inventarios de fuentes y estimaciones de liberaciones, tomando en consideración las categorías de fuentes que se indican en el anexo C;*
- ii. Una evaluación de la eficacia de las leyes y políticas de la Parte relativas al manejo de esas liberaciones;*
- iii. Estrategias para cumplir las obligaciones estipuladas en el presente párrafo, teniendo en cuenta las evaluaciones mencionadas en los incisos i) y ii);*

National Action Plan

- iv. *Medidas para promover la educación, la capacitación y la sensibilización sobre esas estrategias;*
- v. *Un examen quinquenal de las estrategias y su éxito en cuanto al cumplimiento de las obligaciones estipuladas en el presente párrafo; esos exámenes se incluirán en los informes que se presenten de conformidad con el artículo 15;*
- vi. *Un calendario para la aplicación del plan de acción, incluidas las estrategias y las medidas que se señalan en ese plan;*

Guidance for BAT and BEP (1)

- Article 5 (f) provides the following guidance on BAT and BEP:
 - *Por “mejores técnicas disponibles” se entiende la etapa más eficaz y avanzada en el desarrollo de actividades y sus métodos de operación que indican la idoneidad práctica de técnicas específicas para proporcionar en principio la base de la limitación de las liberaciones destinada a evitar y, cuando no sea viable, reducir en general las liberaciones...*
 - *Por “mejores prácticas ambientales” se entiende la aplicación de la combinación más adecuada de medidas y estrategias de control ambiental;*

Guidance for BAT and BEP (2)

- Article 5 (c) states:
 - *Al aplicar las mejores técnicas disponibles y las mejores prácticas ambientales, las Partes deberán tener en cuenta las directrices generales sobre medidas de prevención y reducción de las liberaciones que figuran en dicho anexo C y las directrices sobre mejores técnicas disponibles y mejores prácticas ambientales que se adopten por decisión de la Conferencia de las Partes;*
 - *Una Parte podrá utilizar valores de límite de liberación o pautas de comportamiento para cumplir sus compromisos de aplicar las mejores técnicas disponibles con arreglo al presente párrafo.*

Obligations for UPOPs (1)

- Article 5 (d) calls for Parties to:
 - *Promover y, de conformidad con ... su plan de acción, requerir el empleo de las mejores técnicas disponibles con respecto a las nuevas fuentes dentro de las categorías de fuentes que según haya determinado una Parte justifiquen dichas medidas ... centrándose especialmente en un principio en las categorías de fuentes incluidas en la parte II del anexo C.*
 - *En cualquier caso, el requisito de utilización de las mejores técnicas disponibles con respecto a las nuevas fuentes de las categorías incluidas en la lista de la parte II de ese anexo se adoptarán gradualmente lo antes posible, pero a más tardar cuatro años después de la entrada en vigor del Convenio para esa Parte.*
 - *Con respecto a las categorías identificadas, las Partes promoverán la utilización de las mejores prácticas ambientales.*

Obligations for UPOPs (2)

- Article 5 (e) further articulates that Parties are to:
 - *Promover, de conformidad con su plan de acción, el empleo de las mejores técnicas disponibles y las mejores prácticas ambientales:*
 - i. *Con respecto a las fuentes existentes dentro de las categorías de fuentes incluidas en la parte II del anexo C y dentro de las categorías de fuentes como las que figuran en la parte III de dicho anexo; y*
 - ii. *Con respecto a las nuevas fuentes, dentro de categorías de fuentes como las incluidas en la parte III del anexo C a las que una Parte no se haya referido en el marco del apartado d). (See preceding slide)*

SUMMARY* OF MEASURES for Unintentionally produced Persistent Organic Pollutants (UPOPs: PCDD/F, HCB, PCBs)

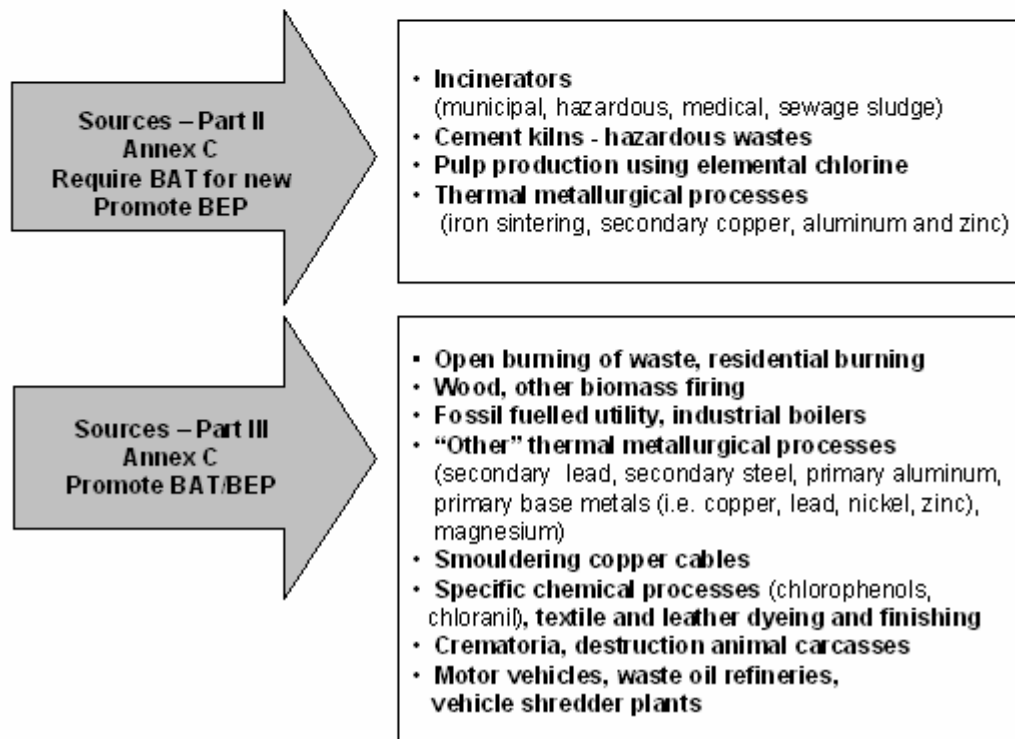
Revision 2007/01/17

*See Convention legal text for definitive details

- Develop **Action Plan** with implementation schedule, 2 years after entry into force for Party.
- **Inventory** current and projected releases.
- **Evaluate** laws and policies.
- **Develop and promote** strategies and **review** every 5 years. Consider UNEP BAT/BEP guidance documents for NAP priority sources of each Party.
- **Require BAT**** for new sources identified in Plan and **Part II Annex C** sources 4 years after entry into force for Party.
- **Promote BAT** for existing sources **Part II and Part III, Annex C**, and for new sources **Part III, Annex C**.
- **Promote BEP***** for new and existing sources **Part II and Part III, Annex C**.

** **Best Available Techniques (BAT):** most effective and advanced activities to limit, prevent or reduce releases (process description, available techniques, and achievable release levels).

*** **Best Environmental Practices (BEP):** environmental control measures and strategies



INC Expert Group on BAT and BEP (1)

- 6th meeting of the Intergovernmental Negotiating Committee (INC), June 2002, established an Expert Group to
 - develop guidelines on BAT and provisional guidance on BEP relevant to the provisions of Article 5 of the Convention, for consideration by the Conference of the Parties (COP)
- 48 designated members (February 2003)
- Co-chaired by Mr. Sergio Vives (Chile) and Mr. Robert Kellam (United States)

INC Expert Group on BAT and BEP (2)

- Expert Group developed guidelines on BAT for 28 source categories and sub-categories and provisional guidance on BEP, through three meetings and intersessional work:
 - 1st meeting: March 2003 – Research Triangle Park, U.S.A.
 - 2nd meeting: December 2003 – Villarrica, Chile
 - 3rd meeting: October 2004 – Tokyo, Japan
- Various Expert Group members were tasked with preparation of specific BAT guidelines

COP Expert Group on BAT and BEP (1)

- 1st meeting of the Conference of the Parties (COP 1), May 2005, established a new Expert Group to
 - complete the tasks of further work on the enhancement or strengthening, where need be, of the best available techniques and best environmental practices guidelines and guidance document, for consideration by the Conference of the Parties at its third meeting
- 42 designated members and invited non-members
- Co-chaired by Mr. Yu Gang (China) and Mr. Bo Wahlstrom (Sweden)

COP Expert Group on BAT and BEP (2)

- Expert Group developed guidelines on BAT for 28 source categories and sub-categories and provisional guidance on BEP, through two meetings and intersessional work:
 - 1st meeting: November - December 2005 – Geneva, Switzerland
 - 2nd meeting: November 2006 – Geneva, Switzerland
- Revised draft version of BAT BEP documents being edited for submission to COP 3 for consideration
- COP 3 to be held 30 April – 4 May, 2007 in Dakar, Senegal

Canada's Contributions

- Canada contributed BAT guidelines for ten metallurgical sources
 - secondary production of copper, aluminium, zinc, lead and steel; iron sintering; magnesium; primary aluminium; smouldering of copper cables; primary base metals
- Canada also provided information documents for other identified sources
 - e.g., chemical production, boilers, crematoria
- Canada provided material for guidance on BEP, and is compiling various world standards for UPOPs

BAT/BEP List of Contents

- I. Introduction
 - Purpose, Document Structure, Using the Guidelines, Overview of Annex C Chemicals, Relationship to Basel Convention
- II. Consideration of Alternatives
- III. BAT and BEP: Guidance, Principles and Cross-cutting Considerations
- IV. Compilation of Summaries
- V. Guidance/Guidelines – Source Categories in Part II of Annex C
- VI. Guidance/Guidelines – Source Categories in Part III of Annex C

II - Consideration of Alternatives

- Consideration of alternatives in the Stockholm Convention
 - Under circumstances in which authorities determine best available techniques are to be applied, and *" al examinar las propuestas de construcción de nuevas instalaciones o de modificación importante de instalaciones existentes que utilicen procesos que liberan productos químicos de los incluidos en el presente anexo, deberán considerarse de manera prioritaria los procesos, técnicas o prácticas de carácter alternativo que tengan similar utilidad, pero que eviten la formación y liberación de esos productos químicos"*. See Annex C, Part V, section B, subparagraph (b).
- Consideration of alternatives for new sources: a checklist approach
- Other considerations of the Stockholm Convention
 - e.g., health, safety and environmental; social and economic

III - BAT and BEP: Guidance, Principles and Cross-cutting Considerations

- Guidance:
 - General guidance; Policy, legal and governance issues; Scientific and technical issues; Economic and social implications; New versus existing sources
- General principles:
 - Sustainable development; Sustainable consumption; Environmental management systems; Precautionary approach; Polluter pays; Pollution Prevention; Clean production; Life cycle analysis/management; Virtual elimination.
- Cross-cutting issues:
 - Formation of Annex C chemicals; Waste management considerations.

IV - Compilation of Summaries

- Compilation of all source category BAT guidelines/guidance.
- Each summary may include the following information, as appropriate:
 - A brief description of the source, its purpose and the processes involved;
 - Potential of the source for generation of UPOPs;
 - Best available techniques and best environmental practices to minimize emissions of UPOPs;
 - Primary and secondary measures that may assist in reducing emissions;
 - Alternatives, where applicable, that may be preferable to current processes and practices;
 - Achievable performance levels.

V and VI: Source Category BAT Guidelines/Guidance

- General format and content of the source category guidelines/guidance
 - Process or Activity Description
 - Sources of Unintentional POPs
 - Alternative Processes or Options
 - Primary and Secondary Measures
 - Emerging Research
 - Summary of Measures
 - Achievable Performance Levels

Identified Source Categories

- Annex C of the Convention identifies UPOPs source categories in two parts:
 - Part II: Source Categories – that have the potential for comparatively high formation and release of these chemicals
 - Part III: Source categories – that may also give rise to unintentional formation and release of these chemicals

Part II Source Categories

- a) Waste incinerators, including co-incinerators of municipal, hazardous or medical waste or of sewage sludge
- b) Cement kilns firing hazardous waste;
- c) Production of pulp using elemental chlorine or chemicals generating elemental chlorine for bleaching;
- d) The following thermal processes in the metallurgical industry:
 - i. Secondary copper production;
 - ii. Sinter plants in the iron and steel industry;
 - iii. Secondary aluminium production;
 - iv. Secondary zinc production.

Part III Source Categories

- a. Open burning of waste, including burning of landfill sites;
- b. Thermal processes in the metallurgical industry not mentioned in Part II;

Note – BAT guidelines developed for:

- Secondary lead production; Secondary steel production; Primary base metals; Primary Aluminium; Magnesium
- c. Residential combustion sources;
 - d. Fossil fuel-fired utility and industrial boilers;
 - e. Firing installations for wood and other biomass fuels;
 - f. Specific chemical production processes releasing unintentionally formed persistent organic pollutants, especially production of chlorophenols and chloranil;

Part III Source Categories (continued)

- g. Crematoria;
- h. Motor vehicles, particularly those burning leaded gasoline;
- i. Destruction of animal carcasses;
- j. Textile and leather dyeing (with chloranil) and finishing (with alkaline extraction);
- k. Shredder plants for the treatment of end of life vehicles;
- l. Smouldering of copper cables;
- m. Waste oil refineries.

Emission Levels Associated with BAT for Metallurgical Sources

- *Section V.D: Thermal processes in the metallurgical industry*
 - (i) Secondary copper production: < 0.5 ng I-TEQ*/Nm³.
 - (ii) Sinter plants in the iron and steel industry: < 0.2 ng I-TEQ/Nm³.
 - (iii) Secondary aluminium production: < 0.5 ng I-TEQ/Nm³.
 - (iv) Secondary zinc production: < 0.5 ng I-TEQ/Nm³.
- *Section VI.B: Thermal processes in the metallurgical industry not mentioned in Annex C, Part II*
 - (i) Secondary lead production: < 0.1 ng I-TEQ/Nm³.
 - (ii) Primary aluminium production: < 0.1 ng I-TEQ/Nm³.
 - (iii) Magnesium production: N/A
 - (iv) Secondary steel production: < 0.1 ng/Nm³
 - (v) Primary base metals smelting: < 0.1 ng/Nm³

* I-TEQ: International Toxic Equivalent

Summary and Conclusions (1)

- Unintentionally produced Persistent Organic Pollutants (UPOPs) in the Stockholm Convention include
 - Polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/PCDF)
 - Hexachlorobenzene (HCB)
 - Polychlorinated biphenyls (PCB)
- United Nations Environment Programme (UNEP) guidance documents on UPOPs Best Available Techniques, Best Environmental Practices (BAT/BEP) include comprehensive descriptions of 28 potential sources, and associated options to reduce or eliminate releases to the environment

Summary and Conclusions (2)

- In accordance with the Convention, each Party is to:
 - Prepare Action Plan for UPOPs
 - Consider UNEP BAT/BEP guidance documents (proposed for adoption by Conference of the Parties (at COP 3, April-May 2007))
 - Promote BAT/BEP and require BAT for new sources specified in Part II, Annex C of Convention, if Party identifies source as priority in their Action Plan, and within four years of Convention entry into force for that Party
 - Promote BAT/BEP for existing sources for sources in Part II and Part III, Annex C
- Application of BAT/BEP for UPOPs will have co-benefits of reductions of environmental releases of other pollutants (such as Particulate Matter), and reduction of exposure of workers and the public to UPOPs and these other pollutants - more eco-efficient, cleaner production for sustainable development

Further Information

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References

- UNEP Stockholm Convention on POPs website:
 - <http://www.pops.int>
- Advance Draft Guidelines on BAT and Provisional Guidance on BEP (October 2006):
 - http://www.pops.int/documents/meetings/bat_bep/EGBATBEP2/meetingdocs/EGBATBEP2_3.pdf
- Secretariat for the Stockholm Convention on POPs:
 - scc@chemicals.unep.ch



Thank you!



Annex 1: Intergovernmental Negotiating Committee (INC) Expert Group Representatives (February 2003)

Country/Organization	Name of Expert	Country/Organization	Name of Expert
Algeria	Prof. Barkahoum Alamir	Germany	Dr. Steffi Richter
Gabon	Mr. Jean-Batiste Babadounga	Germany	Dr. Ute Karl
Kenya	Mr. Francis Njuguna Kihumba	Iceland	Dr. Estefán Einarsson
Nigeria	Prof. Oladapo A. Afolabi	Italy	Ms. Laura Manduzio
Zambia	Mr. Nelson Manda	Japan	Shinichi Sakai
Fiji	Ms. Vandana Naidu	New Zealand	Dr. Simon Buckland
Iran	Dr. Taghi Ebadi	Republic of Korea	Mr. Seuk Woo KANG
Mongolia	Mr. Sharav Dagva	Sweden	Ms. Michaela Braun
Saudi Arabia	Mr. Sulaiman Mohammed Al Zaben	Switzerland	Mr. Peter Hofer
Singapore	Mr. Lim Kew Leong	United Kingdom	Mr. Mike Collins
Kazakhstan	Mr. Marat Ishankulov	United States	Mr. Robert Kellam
Poland	Jerzy Stanisław MICHALIK	United Nations Industrial Development Organization	Mr. Zoltan Csizer
Serbia and Montenegro	Ms. Branka Andric	UNEP	Ms. Heidelore Fiedler
Argentina	Dr. Juan Carlos Colombo	International POPs Elimination Network	Mr. Jack Weinberg
Chile	Mr. Sergio Vives	International POPs Elimination Network	Mr. Fernando Bejarano
Dominican Republic	Ms. Indhira de Jesús Salcedo	Greenpeace International	Ms. Pat Costner
Mexico	Ms. Cristina Cortinas de Nava	World Wildlife Fund	Ms. Gwynne Lyons
Venezuela	Dr. Fernando Morales Garcia	International Council on Mining and Metals	Mr. Denis Kemp
Australia	Mr. David J. Atkinson	International Council of Chemical Associations	Mr. William Carroll
Austria	Ms. Susanna Eberhartinger	World Chlorine Council	Dr. Arseen Seys
Canada	Mr. Patrick G. Finlay	The European Cement Association	Mr. Wilhem Van Loo
Denmark	Mr. Erik Thomsen	Invited expert	Mr. Jose Luis Izquierdo
Finland	Ms. Hilla Hyytiä	Invited expert	Mr. Don Litten
France	Emmanuel Fiani	Invited expert	Dr. Brian K. Gullett

48 representatives

Annex 2: Conference of the Parties (COP) Expert Group Representatives (1st meeting, November 2005)

Country/Organization	Name of Expert	Country/Organization	Name of Expert
Argentina	Lic. Luis Alberto Tournier	Norway	Ms. Christel Benestad
Armenia	Mrs. Anahit Aleksandryan	Oman	Mr. Saeed bin Ali Al-Zedjali
Australia	Mr. Chris Mobbs	Papua New Guinea	Ms. Katrina Solien
Austria	Mr. Siegmund Böhmer	Philippines	Dr. Genandrialine L. Peralta
Benin	M. Chabi Séké Morakpai	Portugal	Ms. Lina Margarida Guerreiro Morals Pereira
Botswana	Mr. Moore Moffat	Republic of Moldova	Mr. Fliur Z. Macaev
Brazil	Mr. Carlos Eduardo Komatsu	Rwanda	M. Aloys Kamatari
Canada	Mr. Patrick G. Finlay	Spain	Mr. Ignacio Quintana San Miguel
Chile	Mr. Alex Kurt Berg Gebert	Sweden	Dr. Bo Wahlström
China	Dr. Gang YU	Switzerland	Dr. Hans-Peter Fahrni
Czech Republic	Prof. Dr. Ivan Holoubek	Thailand	Mr. Nares Chersuwan
Djibouti	M. Ahmed Houssein Bouh	Tunisia	Mr. Lotfi Ben Said
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Finland	Ms. Hille Hyytia	Uruguay	Ing. Quim. Marisol Mallo
France	M. Emmanuel Fiani	Venezuela	Mr. Tomas Perruolo
Germany	Dr. Steffi Richter	Yemen	Dr. Gamal Abdo Allozy
Ghana	Mr. Sam Adu-Kumi	UNEP	Dr. Heidelore Fiedler
Iceland	Mr. Stefan Einardsson	World Bank	Dr. Catalina Marulanda
Japan	Dr. Shinichi Sakai	ARNIKA Association	Mr. Jindrich Petrlik
Kenya	Mr. Francis Kihumba	CEMBUREAU and WBCSD	Dr. Willem van Loo
Latvia	Dr. Ruta Bendere	Environmental Health Fund (EHF)	Mr. Jack Weinberg
Mali	Mr. Bakary Toure	International Council of Chemicals Association (ICCA)	Dr. William F. Carroll
Mexico	Ing. José Maria Lorenzo Alonso	Global Alliance for Incinerator Alternatives (GAIA)	Mr. Emmanuel Maria C. Calonzo
Mongolia	Ms. T. Tuul	WORLD CHLORINE COUNCIL (WCC)	Dr. Arseen Seys
New Zealand	Dr. Louise Wickham	World Wide Fund for Nature (WWF)	Mr. Clifton Curtis
Nigeria	Prof. Oladapo A. Afolabi		

42 members and 9 invited non-members

Annex 3: Conference of the Parties (COP) Expert Group Representatives (2nd meeting, November 2006)

Country/Organization	Name of Expert	Country/Organization	Name of Expert
Argentina	Lic. Luis Alberto Tournier	Norway	Ms. Christel Benestad
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Austria	Mr. Siegmund Böhmer	Philippines	Dr. Genandrialine L.Peralta
Benin	M. Chabi Séké Morakpai	Portugal	Ms. Lina Margarida Guerreiro Morals Pereira
Botswana	Mr. Moore Moffat	Republic of Moldova	Mr. Fliur Z. Macaev
Brazil	Mr. Carlos Eduardo Komatsu	Rwanda	M. Aloys Kamatari
Canada	Mr. Patrick G. Finlay	Spain	Mr. Ignacio Quintana San Miguel
Chile	Mr. Alex Kurt Berg Gebert	Sweden	Dr. Bo Wahlström
China	Dr. Gang YU	Switzerland	Dr. Hans-Peter Fahrni
Czech Republic	Prof. Dr. Ivan Holoubek	Thailand	Mr. Nares Chersuwan
Djibouti	M. Ahmed Houssein Bouh	Tunisia	Mr. Lotfi Ben Said
Fiji	Ms. Razia Zahina ZARIFF	United Kingdom	Ms. Nicola Lettington
Finland	Ms. Sirpa Silander	Uruguay	Ing. Quim. Marisol Mallo
France	M. Emmanuel Fiani	Venezuela	MSc. Tomas Jose Perruolo
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Iceland	Mr. Stefan Einardsson	IPEN	Mr. Jack Weinberg
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Mexico	Ing. José Maria Lorenzo Alonso	CEMBUREAU and WBCSD	Dr. Willem van Loo
Mongolia	Ms. T. Tuul	International Council on Mining and Metals (ICMM)	Dr. Dennis Kemp
New Zealand	Dr. Louise Wickham	UNEP	Dr. Heidelore Fiedler
Nigeria	Prof. Oladapo A. Afolabi	World Bank	Ms. Catalina Marulanda

42 members and 10 invited non-members