The draft of the new International Basic Safety Standards (BSS):

Implications for the Assessment of Exposures to the Public and the Environment

Gerhard Proehl

EMRAS II Technical Meeting
Vienna, 24–28 January 2011

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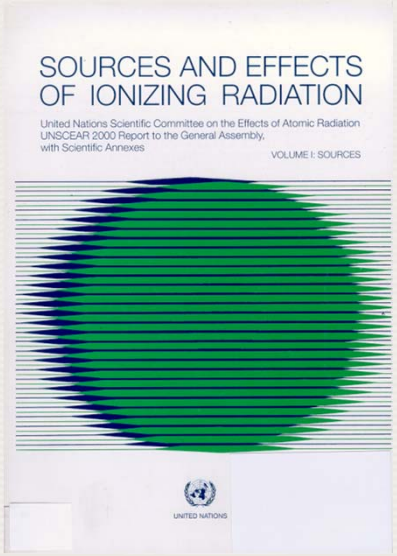
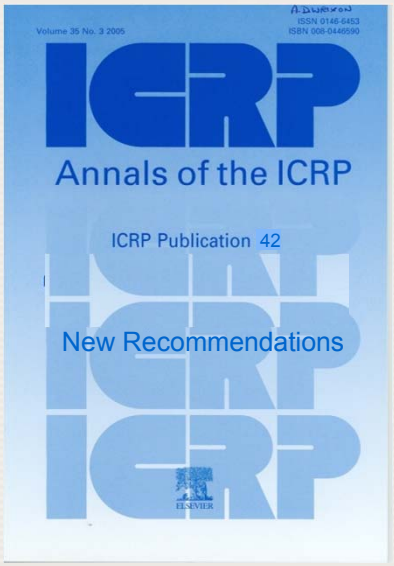
International Atomic Energy Agency

UNSCEAR → ICRP → IAEA





Effects of radiation

Recommendations for protection

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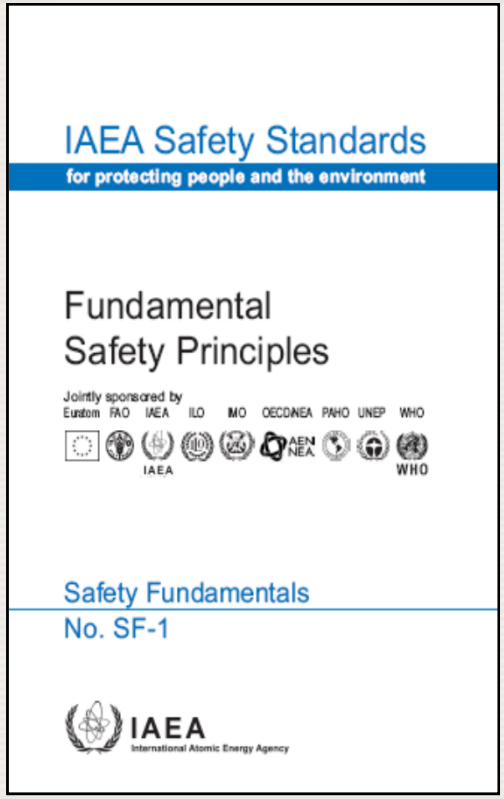
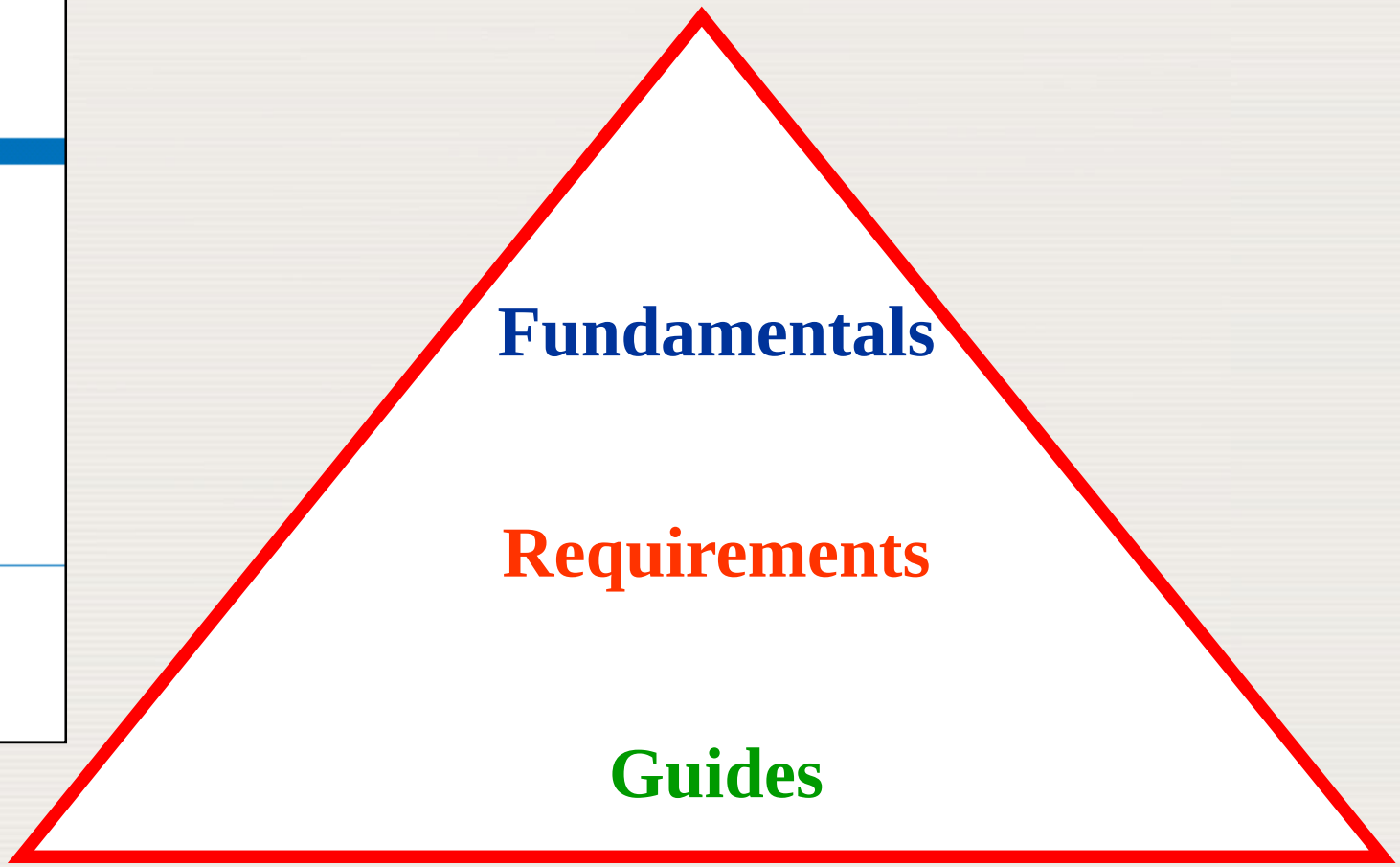
Hierarchy of International Safety Standards





Safety Reports and TECDOCs

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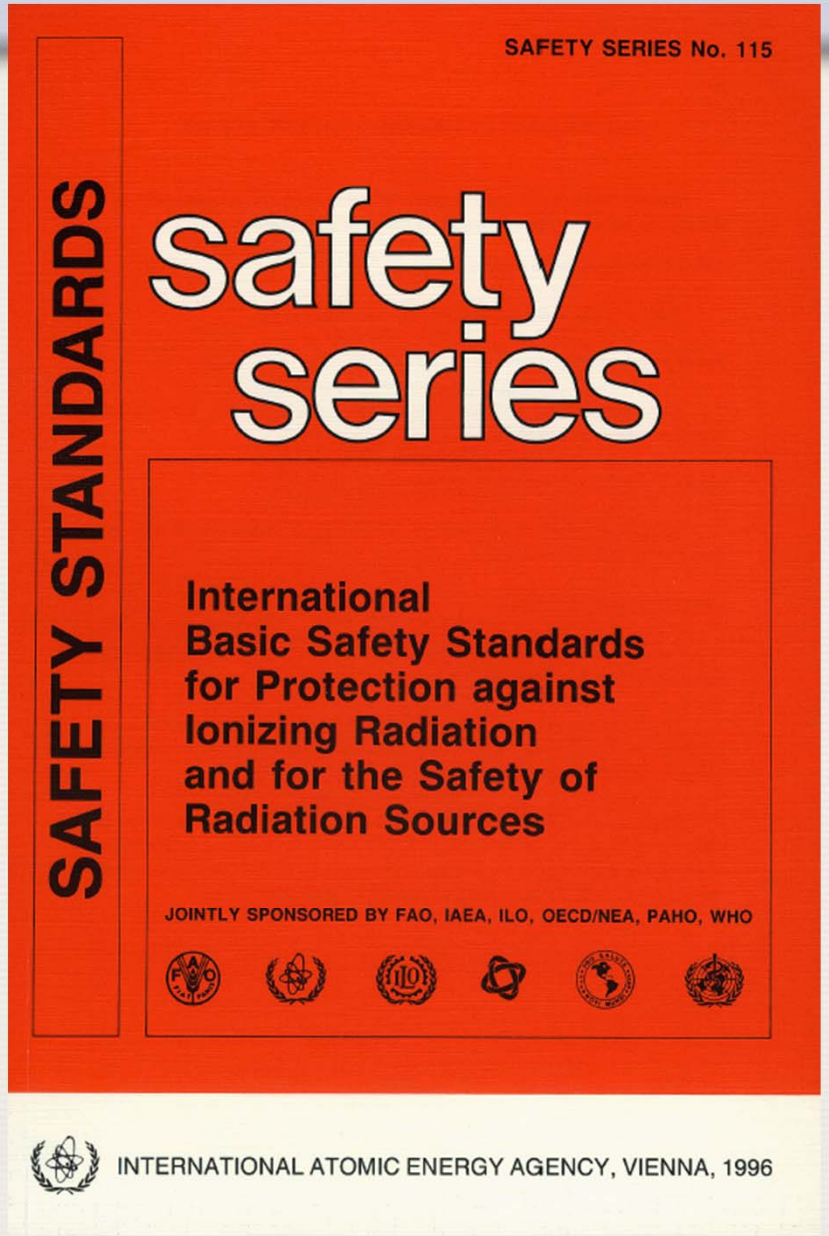
The Basic Safety Standards (1996)



Objective

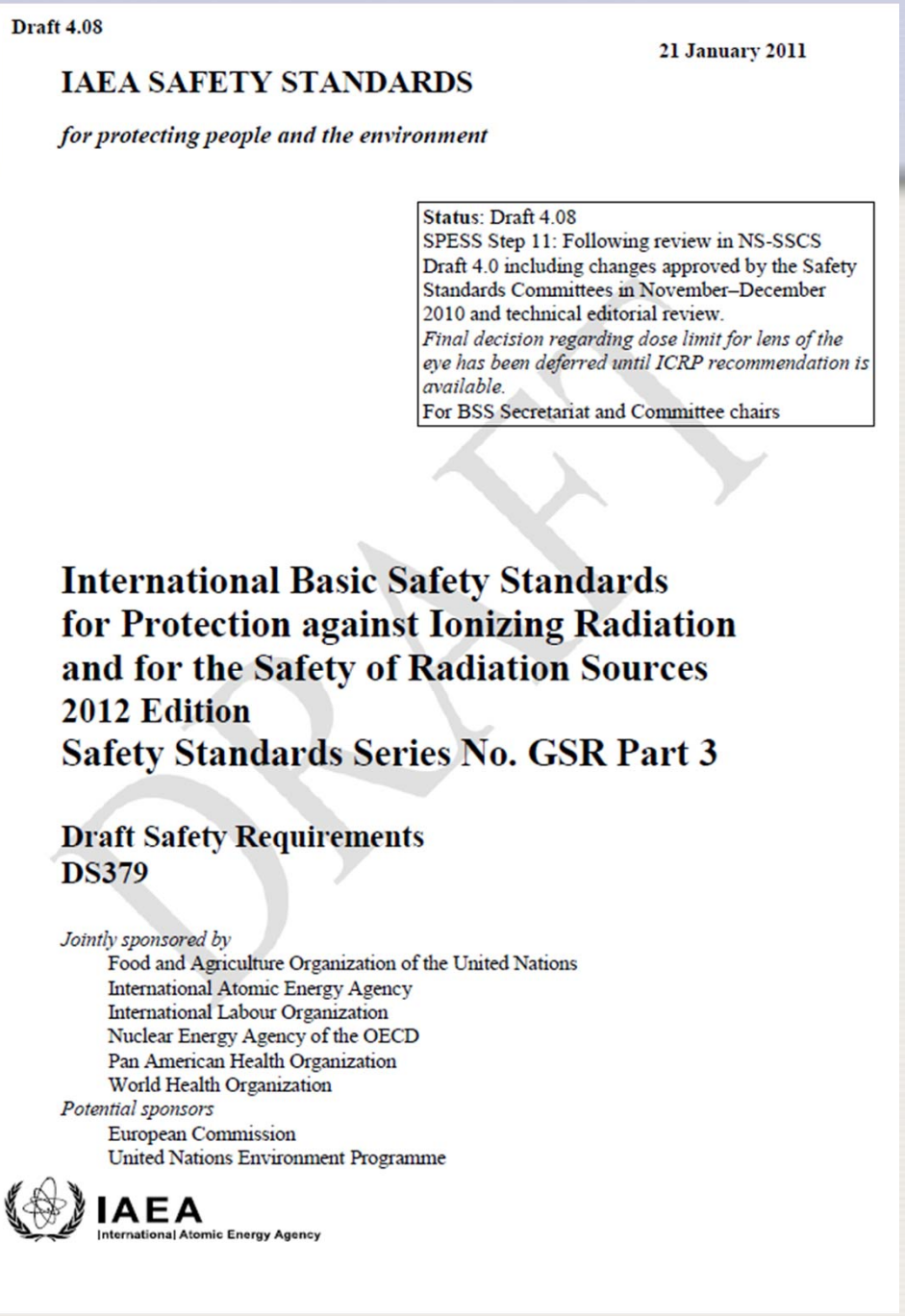
- Protection of people and the environment
- Safety of sources

Target audience

- Governments and regulators
- Health authorities
- Professional bodies
- Service providers
- Technical support organizations

Latest draft
21 January 2011

Approval by the IAEA Board of Governors is planned for mid 2011



Draft 4.08

21 January 2011

IAEA SAFETY STANDARDS

for protecting people and the environment

Status: Draft 4.08
SPESS Step 11: Following review in NS-SSCS
Draft 4.0 including changes approved by the Safety Standards Committees in November–December 2010 and technical editorial review.
Final decision regarding dose limit for lens of the eye has been deferred until ICRP recommendation is available.
For BSS Secretariat and Committee chairs

International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources
2012 Edition
Safety Standards Series No. GSR Part 3

Draft Safety Requirements
DS379

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Why a revision?

- Started in 2006, when the publication of the new ICRP recommendations was anticipated
- Assimilate the new recommendations in ICRP 103 (2007) which replaced ICRP 60 (1991)
- Specific issues
  - Strengthening requirements related to
    - safety of sealed sources
    - medical exposures
  - Include education and training
  - Requirements on suppliers
  - *Protection of the environment*

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Protection against radiation risks

- Development is co-sponsored by
  - FAO, ILO, OECD/NEA, PAHO, WHO
- Establish basic requirements for
  - Occupational exposure
  - Medical exposure
  - Public exposure
- Application
  - The basis for legislation in many countries

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Public exposure

- Planned exposures
  - E.g. Licensing of a new nuclear installation
  - Dose limit: 1 mSv/a
- Emergency (was “intervention” in the old BSS)
  - Accident, malicious acts
  - Reference level: 20 - 100 mSv
- Existing exposures (was “intervention” in the old BSS)
  - Residual radioactive material from past activities, NORM, legacies
  - Late phase of an emergency
  - Reference level: 1 - 20 mSv/a

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Protection of the Environment

General issues

- Prevention of radiological effects on flora and fauna
- Man is an integral part of the environment
- Ensure the sustainable use of natural resources – now and in the future
  - Agriculture
  - Forestry
  - Fisheries
  - Tourism

Requirements

- Consider Protection of the Environment
  - Registration and licensing
  - Setting discharge limits
  - Protection of the environment is one factor during optimization in existing and emergency exposure situations

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Implications

- Impact to environment cannot be considered in isolation
- Link to humans through the use of resources in unpopulated areas
  - Sea: fishing,
  - Soil: agriculture, forestry, tourism
- Integrated approach is needed

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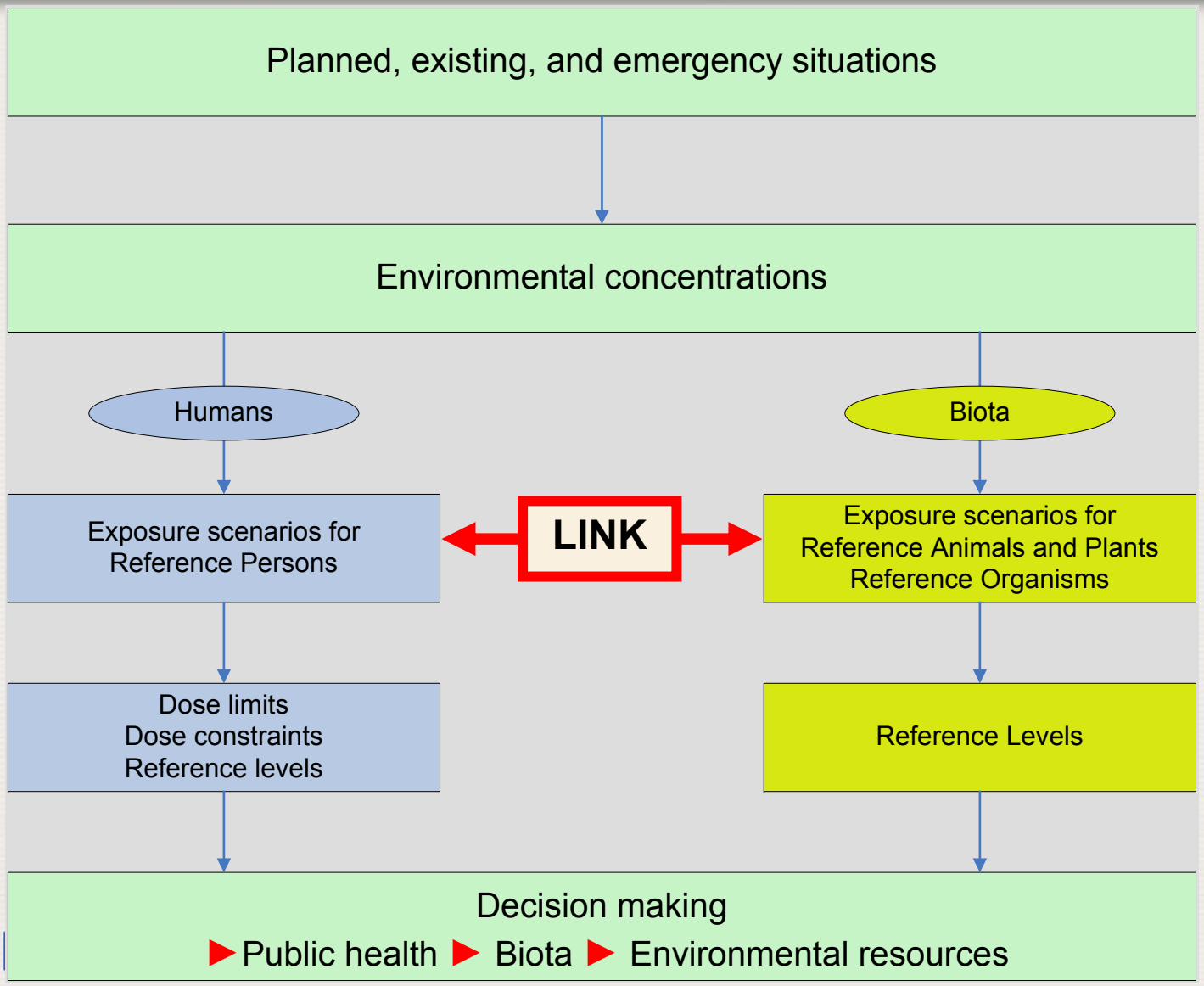
Integration of human and environmental protection



Issues related to public and environmental exposure

- Applications
  - Routine discharges
  - Accidental releases
  - Uranium mining
  - NORM contaminations
  - Legacies
  - Long-term safety studies for waste disposals
- Ecosystems
  - Terrestrial
  - Freshwater
  - Marine
  - Urban areas
- Climates
  - Temperate
  - Tropical
  - Arctic
- Living habits
  - Africa
  - America
  - Asia
  - Australia
  - Europe

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Recent developments

Demand for assessment tools

- Increasing applications of nuclear technologies
- Awareness of impacts of NORM contaminations

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Implications for modelling

- Requirements for assessment models
  - Simple
  - Transparent
  - Harmonized
  - Widely applicable
  - Conservative, but not too pessimistic
- Requires a sound scientific base
  - Achieve knowledge on underlying transfer and exposure processes
  - Explore possibilities and limitations of simple models
  - How far can harmonization go?

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EMRAS II and follow-up

- The EMRAS II programme will conclude in 2011
- The intention is to continue activities on environmental modelling and radiation safety
- A new programme will be designed during this year
- Questionnaire to ask for needs and ideas
- Setup a programme that meets the requirements for modelling in radiation safety
- Kick-off meeting of the new programme planned for 1st quarter 2012

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Thank you
for your attention!

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