NTUA’s views regarding ERRICCA-2

ERRICCA-2 Kick-off Meeting
M.J. Anagnostakis, NTUA, Greece
Contents

- Progress during ERRICCA-1.
- Plans for Topic Building Materials.
- Some ideas for ERRICCA-2.
- 2nd European Radon Forum (Athens, Greece).
Progress on Topic: Building Materials, during ERRICCA-1

- Building Materials Data Base (BMDB) Design and Construction.
- Intercomparison of radon exhalation rate measurements from building structures (20 participants from 13 countries).
- Final meeting in Athens “Radon in the Living Environment, Athens 19-23 April 1999”.
Building Materials Data Base (BMDB)
### List of Materials Matching the Search Criteria

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Country</th>
<th>Origin Within Country</th>
<th>Laboratory</th>
<th>Internal Code</th>
<th>Ra-226 Concentration Bq/kg**-1</th>
<th>K-40 Concentration Bq/kg**-1</th>
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</thead>
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<td>Nuclear Engineering Section, NTUA</td>
<td>000000000111</td>
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<td>1111</td>
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Topic: Building Materials
Proceed with feeding the Data Base?

*If the answer is yes, then:*

- We need the Industry’s feedback, ideas and data.
- Sources and kind of data we are interested in?
- National representatives undertake the task of informing and distributing the BMDB within countries, during National Fora.
- National representatives undertake to collect in electronic form and in reports form all data.
Plans for ERRICCA-2 (II)
Building Materials Data Base
BMDB

- All data are sent to NTUA, in electronic form and as hardcopies (reports).
- NTUA undertakes to feed BMDB.
- A small group (2-3 persons) checks the BMDB integrity.
- Final version in CD-ROM.
- Distribution of BMDB through National representatives.
- Availability through the www site? (legal matters?)
Plans for ERRICCA-2 (III)
Standardisation of procedures

- What has been done so far.

- Which procedures need standardisation:
  - Radon exhalation from raw materials and structures.
  - Radon in water measurements.
  - Gamma spectroscopic determination of natural radioactivity of building materials.
  - Test of radon barrier materials (membranes, resins etc.)

- How shall we proceed with standardisation.

- Report(s) preparation?
Plans for ERRICCA-2 (IV)

Accreditation of laboratories conducting building materials measurements?

- Existing situation and standards.
- Existing experience from other laboratories.
- Invite specialists to give guidelines about accreditation.
- Necessary steps towards accreditation of a laboratory.
- What kind of measurements and procedures?
- Some steps are already taken by NES-NTUA.
Plans for ERRICCA-2 (V)
Intercomparisons

- There is experience on intercomparisons.
- Proposal of an intercomparison of raw building materials (radioactivity and radon exhalation rate).
- Who will undertake the leader(s) role(s) ?
- Proposal for other intercomparisons (*to follow*).
- Expenses ?
Plans for ERRICCA-2 (VI)
Easy techniques for the industry to estimate the Radiation Performance Index

- Is there an increasing interest from the building material industry for natural radioactivity measurements of building materials?
- These measurements are often undertaken by research laboratories and cost.
- Need for simple (pass no-pass) techniques?
- Is it of interest to the industry?
- Can we provide the industry with such tools?
Some ideas for ERRICCA-2
Plans for ERRICCA-2 (VII)
National Fora

- Not just small conferences where papers are presented, but meetings for exchange of experience.
- Focused on special issues (responsibility of the national representatives).
- The national representative should transfer experience gained from ERRICCA-2.
- Data for BMDB and radon related papers should be collected.
Plans for ERRICCA-2 (VIII)
Radon papers Data Base

- A Data Base to include all recent (?) publications on radon related matters.
- The data base could be available from the www site, containing:
  - Full reports
  - Links to publications, when copyright problems exist.
- NTUA may undertake the construction and feed of this data base.
- We need data from partners in electronic form.
Plans for ERRICCA-2 (IX)

some more ideas…

- Thoron measurement techniques.
- Thorium uses (e.g. turbine engines, thorium weld).
- Deposition-Recycling of materials from demolition of buildings and industries.
- TENORM materials (recycled iron, mineral wools etc)
- Correlation between Ra content and Rn exhalation from building materials.
- Building materials contaminated with artificial radionuclides
- Occupational exposure of building materials industry workers.
2nd European Radon Forum

Fall 2002, Athens, Greece
2nd European Radon Forum (I)

- **Venue:** Technological Park of Lavrio, ~60km from Athens, near Cape Sounio. Accommodation near Sounio).

- **Time:** autumn 2002 (September-October). It should be finalised until 30 June 2002.

- **Events:** two days meeting.

- **Provisionally:**
  - Intercomparison of radon in water at NES-NTUA.
  - Intercomparison of radon in soil gas and radon exhalation measurements from surface.
  - Extra days and extra cost.
2nd European Radon Forum (II)
Lavrio Technological and Cultural Park
2nd European Radon Forum (II)
Lavrio Technological and Cultural Park
2nd European Radon Forum (II)
Lavrio Technological and Cultural Park
Megalopolis lignite field basin

- Megalopolis lignite field basin ~300km from Athens.
- Field over an unexploited lignite mine with:
  - elevated natural background (~400Bq/kg $^{226}$Ra in soil),
  - radon in soil gas (500-1000kBq/m$^3$),
  - radon exhalation rate (~200 mBq/m$^2$sec),
  - and external gamma-ray dose rate (up to 500nGy/h).
- Discarded fly-ash deposition fields also exist in the area.
- Measurements: radon in soil gas, radon exhalation from soil surface, radon outdoors.
- One day excursion is needed.
2nd European Radon Forum (IV)
Megalopolis unexploited lignite field