

Expedition to the 30 km Chernobyl exclusion zone and the utilization of its experience in education and communication

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Hungarian expedition to Chernobyl – **background**

- Hungary is neighbouring country to Ukraine.
- The Hungarian public is hardly influenced by the accident.
- **It was not only an industrial and environmental but also a communication disaster.**
- There are still lot of misunderstanding and misinterpretation

- The share of nuclear power is 40% in Hungary.
- The lifetime extension of Hungarian NPP is planed.
- **It is crucial to give an objective, scientifically correct and authentic representation of the accident.**
- **We have to be pro-active in communication.**

Hungarian expedition to Chernobyl – End of May, 2005, **objectives**

- To gain **first-hand experience** concerning the actual dosimetry situation at the Chernobyl Nuclear Power Plant, its surroundings and the contamination level of the environment.
- To gather **information about the status of the power plant and the shelter.**
- To provide **in-service training** of young nuclear specialists by performing measurements in the field.
- **To make photos and film, to write a chapter in the Hungarian Chernobyl book usable in the communication.**

Hungarian expedition to Chernobyl – **scientific work**

- In order to make scientific work more efficient the **participants were divided into six groups:**
 - radiation protection,
 - TL dosimetry,
 - soil sampling,
 - ecological sampling,
 - survey of the condition of the buildings,
 - documentation (written, photo and video).
- Each group were directed and supervised by a senior expert.

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Actions to a better communication on Chernobyl in Hungary

Photo exhibition on the expedition to Chernobyl

- see the 7 panels in the poster session!
- Publishing of a photo album is planed (also in English)



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Aszódi, Pázmándi, Silye

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Actions to a better communication on Chernobyl in Hungary

New book published in December 2005

Zoltán SZATMÁRY, Attila ASZÓDI :
“Chernobyl / Facts, Reasons, Beliefs”

ISBN: 963 9548 68 5

– Chapters:

- Fictional report with the authors
- **Short overview on the nuclear power plants**
- **Basics of the radiation protection (incl. mathematical statistics!)**
- The Chernobyl accident
- Causes of the accident
- Consequences
- **Scientific expedition to Chernobyl**
- Contradictions in communication



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Actions to a better communication on Chernobyl in Hungary

25-minutes documentary film were produced from
the 12 hours records taken during the expedition.

- The film will be screened on the satellite broadcasting “DunaTV” in April 2006.
- *It is also available in English on DVD.*
- The 25-minutes documentary and a 45-minutes educational film will be distributed to the secondary schools in Hungary.

Key messages on Chernobyl accident – conclusions of the expedition

- The influence of the accident can be measured clearly within the 30-km exclusion zone; however, the level of the radioactivity is well manageable in most places.
- The environment is alive in the exclusion zone! It became beautiful and untroubled during the last two decades.
- **The Hungarian expedition performed wide-range of environmental and dosimetical measurements and collected numerous biological and soil samples.**
- **All the members of the expedition took part in a whole-body counting before and after the trip. No contamination was incorporated by anybody.**
- **At least two personal dosimeters were assigned to each participants. The average extra dose suffered in the exclusion zone was about 10-15 μSv per person – the dose equivalent to an X-ray examination of the lungs or to a 10-hour flight. The highest extra dose in 2 days was 25 μSv .**

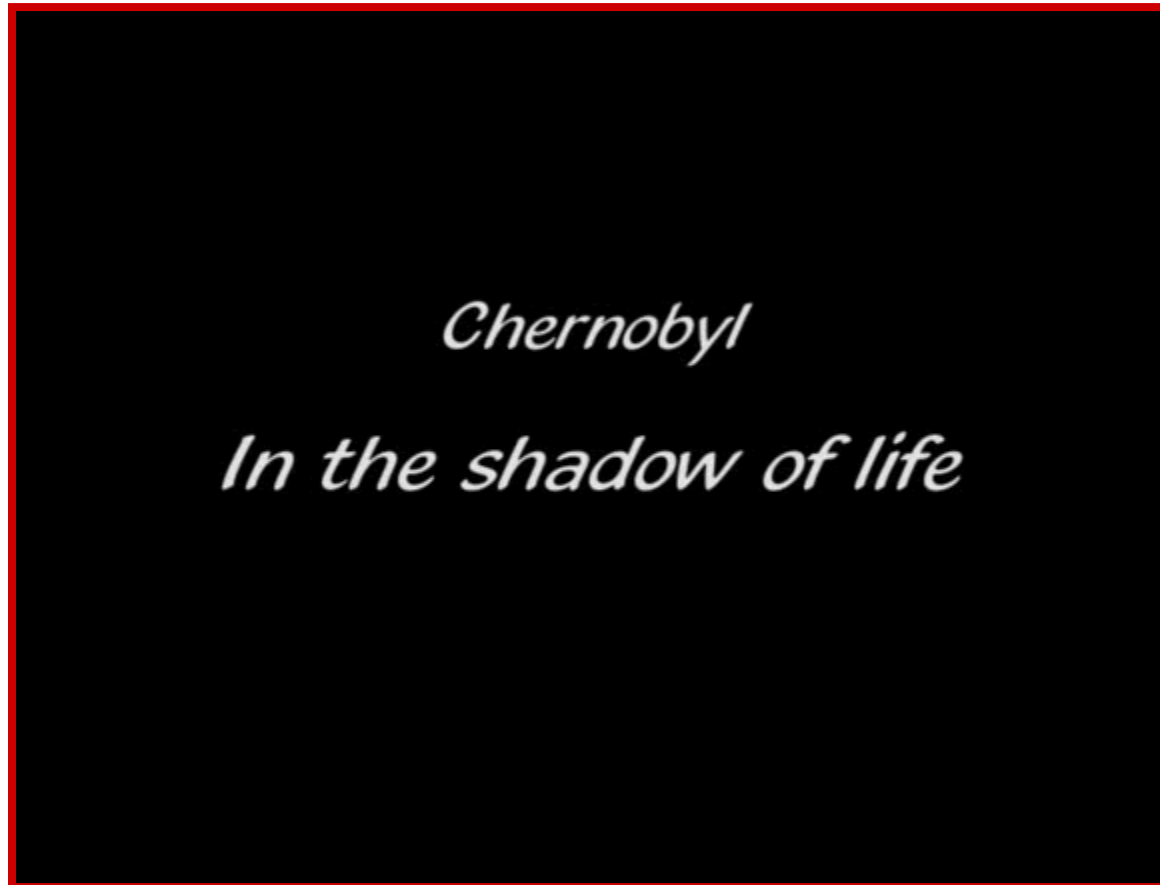
Key messages on Chernobyl accident – the technology

- Root cause of the accident: bad design of RBMK
 - positive void coefficient in a graphite moderated water cooled reactor at low power
 - ⇒ positive feedback, instability
 - the large brake loss-of-coolant accident (LOCA) is not a design bases accident in RBMK
 - no reactor pressure vessel
 - no containment
 - water-graphite reaction is possible
 - graphite fire is possible
- These design deficiencies are not present in a PWR unit.

Key messages on Chernobyl accident – health consequences in Hungary

- The average dose effect of the accident in Hungary:
 - +20% (0,5 mSv) to the annual natural background (2,5 mSv) in the first year;
 - altogether 1 mSv in 70 years (+1% to natural background).
- No provable effect in the cancer statistics (neither in thyroid cancer nor in children leuchaemia).

Documentary film on the expedition



The film will be available on the internet:

www.reak.bme.hu/aszodi/

www.reak.bme.hu/FINE/ - Hungarian YGN