



# **BULGARIAN EXPERIENCE WITH FUKUSHIMA EVENT IN MARCH 2011 LESSONS LEARNED**

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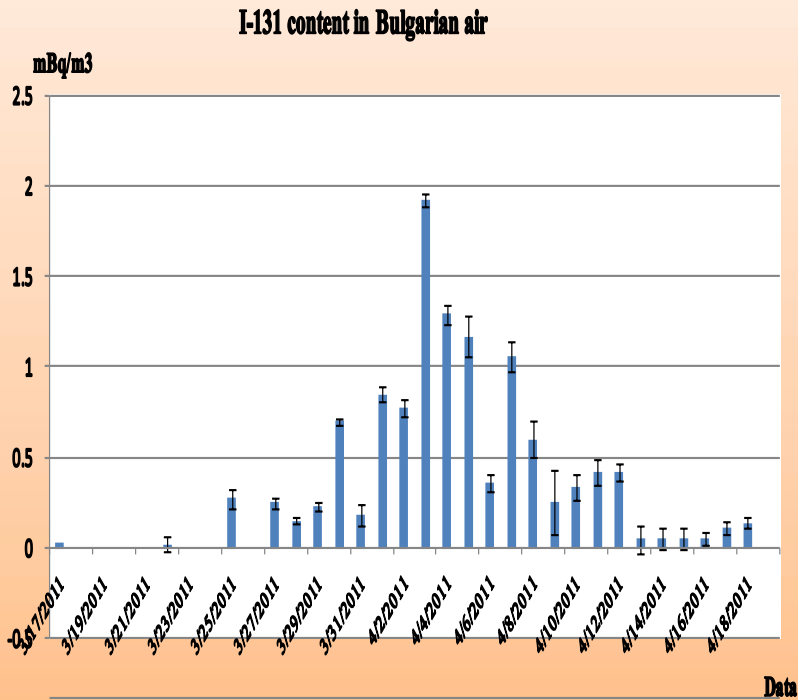


# MAIN QUESTION & RESPONSABILITY

1. What happens?  
What is the risk for Bulgarian citizen?  
How to assess this risk?
  - Emergency Response Centre (ERC) of Bulgarian Nuclear Regulatory Agency (BNRA)
    - access of nuclear safety,
    - access of radiation situation,
    - collecting all data and informing public.
2. What to do for those returning from Japan ?
  - National Centre of Radiobiology and Radiation Protection (NCRRP) - Ministry of Health.
    - Sampling and providing investigation for background level determination
    - Sampling and measurements of daily air depositions
    - Public dose assessment
    - Decision making for radiation protection
3. How to inform the Bulgarian citizens about the obtained results and decision made.



# Environmental monitoring & Exposure doses



I<sup>131</sup> content (mBq/m<sup>3</sup>) in air (17.03-18.04)

The time required for transferring of I-131 from Japan to Bulgaria is  $14 \pm 2$  days. It was registered for the first time on the 25th of March. We sampled at least 350 m<sup>3</sup> air every day and performed gamma spectrometry analyses at least 16 hours. The specific activity of I<sup>131</sup> vary between  $0.052 \pm 0.017$  mBq/m<sup>3</sup> and  $1.92 \pm 0.18$  mBq/m<sup>3</sup> (Figure 1). The activity of Cs<sup>137</sup> and Cs<sup>134</sup> is MDA to  $0.63 \pm 0.06$  mBq/m<sup>3</sup> and MDA to  $0.0477 \pm 0.046$  mBq/m<sup>3</sup>, respectively. We measured traces of Cs<sup>136</sup>, Te<sup>132</sup> and I<sup>132</sup>.

For the period of approximately one month the estimated doses are between  $0.00006 \mu\text{Sv/d}$  and  $0.0015 \mu\text{Sv/d}$  and **total dose for one month  $0.0063 \mu\text{Sv}$ .**

*There was no need for radiation protection of the population due to inhalation of radionuclides.*



# Medical and Societal Aspects



- Health surveillance: WBC of 25 people returning from Japan
- Ad hocks were prepared guides for the Black sea border control and for the personnel of Bulgarian embassies in Japan and Asia region.
- Following the rumors for possible increasing of radioactivity in the environment some people in the country took medicines “to protect” their health. Our experiences show that the general public does not know the health effects arising from a radiological emergency situation. They also do not understand the data from the radiation monitoring. It is obvious that in such situation it is necessary to use clear explanations of the situation and of the recommended protective measures.

•Very useful was the exchange of information with other rad. prot. authorities: IAEA, ECURIE, EURDEP and CTBTO.



# Conclusions and Lessons Learned

1. The first detected Iodine-131 in Bulgaria was on 25th of March 2011. The **time required for transferring** from Japan to Bulgaria is **14±2days**
2. For the period from 25.03-19.04.2011 (~1 month) the doses of the public exposure are less than 0.01  $\mu\text{Sv}$ . **There is no need for radiation protection due to inhalation of radionuclides.**
3. It may be worthwhile to have **informational leaflets** for the possible pathways by which people could be exposed to radiation and the risk.
4. Trained staff outside NCRRP and BNRA should be available for providing information and answering questions. It is useful to organize **education and training for health professionals.**
5. The **exchange of information with other radiation protection authorities** was very useful to enhance the credibility in national radiation protection measures.