



**ELEMENTS TO BE TAKEN INTO ACCOUNT FOR AN  
APPROPRIATE ASSESSMENT OF THE EFFECTIVE DOSE TO  
PUBLIC IN CASE OF RELEASE OF BULK AMOUNT OF  
CONTAMINATED WATER INTO THE SEA**

**International Experts' Meeting on Radiation Protection after the  
Fukushima Daiichi Accident  
IAEA Headquarters, Vienna, Austria**

**17–21February 2014**

Rustem PACI  
Ida MURAJ



*Zyra e Mbrojtjes nga Rrezatimet*

Vienna 17 -21 Feb 2014



1. Environment assessment is one very important issues related to protection of environment from radionuclide's. Protection of environment is directly related to protection of public
2. CLEARANCE is part of a process to determine the environment protection from the point of view of regulatory control, is intended to establish limits for which radioactive materials under regulatory control can be removed from this control
3. Clearance of bulk amounts of contaminated waters, with activity concentrations lower than the clearance levels it does not need further consideration taking into account all pathways of exposure to public
4. Situations is becoming more complex if is a mixture of radionuclide's
5. For bulk amount it is very important the activity concentrations of each radionuclide for a mixture of radionuclide's taking into account the worst scenarios



Releases of radionuclide from PP in case of emergency facilities are primarily to air ground and to water.

Emissions to air will result in the deposition of particles, radionuclide and increased of radionuclide from the plume with distance from the source.

Mobile radionuclide such as the inert gases will disperse quickly and reach background concentrations a short distance (a few km) from the source.

Most of the radionuclide released are particle reactive and partition either from water to sediment or from air to soil.



For an appropriate assessment of dose to public and workers (occupational staff) it is necessary that following elements shall be taken into account for release of the bulk amount of contaminated water into the sea.

These element will help the process of calculation the effective dose to populations.

Activity concentrations or Total activity and types of radionuclide released , type of radionuclide ,types of radiations, Radio toxicity, salt extracting, swimming, natural evaporations and raining, Fish concentration and fish migrations, Currency in the water and distributions in the water , Fishing process ,Depth, speed of sink,



## Elements to be taken into account for pathways

1. Activity concentrations or Total activity
2. Types of radionuclide released ,
3. Types of radiations,
4. Radio toxicity,
5. Salt extracting process,
6. Swimming,
7. Natural evaporations and raining,
8. Fish concentration and fish migrations,
9. Currency in the water and distributions in the water ,
10. Fishing process ,
11. Depth,
12. Speed of sink
13. Other activities near place of realease.



A conservative assessment taking into account all pathways and calculations of the dose will give us a clear idea about the protection of the public. And this dose shall be less than 1 mSv per annum and even more optimized to reduce further the stochastic effect.

In the dose calculation the conservative approach allows, to play the worst scenario for the public contaminations.

Calculations based in the worst scenarios will help the regulators to more satisfied for the dose released to public.



Thank you for attention

Vienna 17 -21 Feb 2014