Attracting a new generation of radiation protection professionals

Mihail Ceclan, UPB, Romania
Paul Livolsi, INSTN, France
On behalf of WP 10 partners

AGENDA

1. **WP 10 role within ENETRAP II**
2. **What was done for attracting a NG of RP-P**
3. **Conclusions**
4. **The most recent achievement**

1. WP 10 role within ENETRAP II

- ENETRAP II- managing the E&T matter in RP; many aspects&results
  √ HR aspect: a Need for HR with knowledge of RP science, and necessary competences, skills and appropriate attitudes on the work floor;
  √ the general objective vi of ENETRAP II: *Bring together national initiatives to attract early-stage RP researchers on a European level*

- WP 10 role is to attract a NG of RP-P:
  a) to develop an ENETRAP II approach on attracting a NG of RP-P
  b) to attract more YS by awaking their interest in radiation applications& RP already during their schooldays and later on during their out-of-school education
  c) to support YS & P in their need to gain and maintain high level RP knowledge, competences and skills

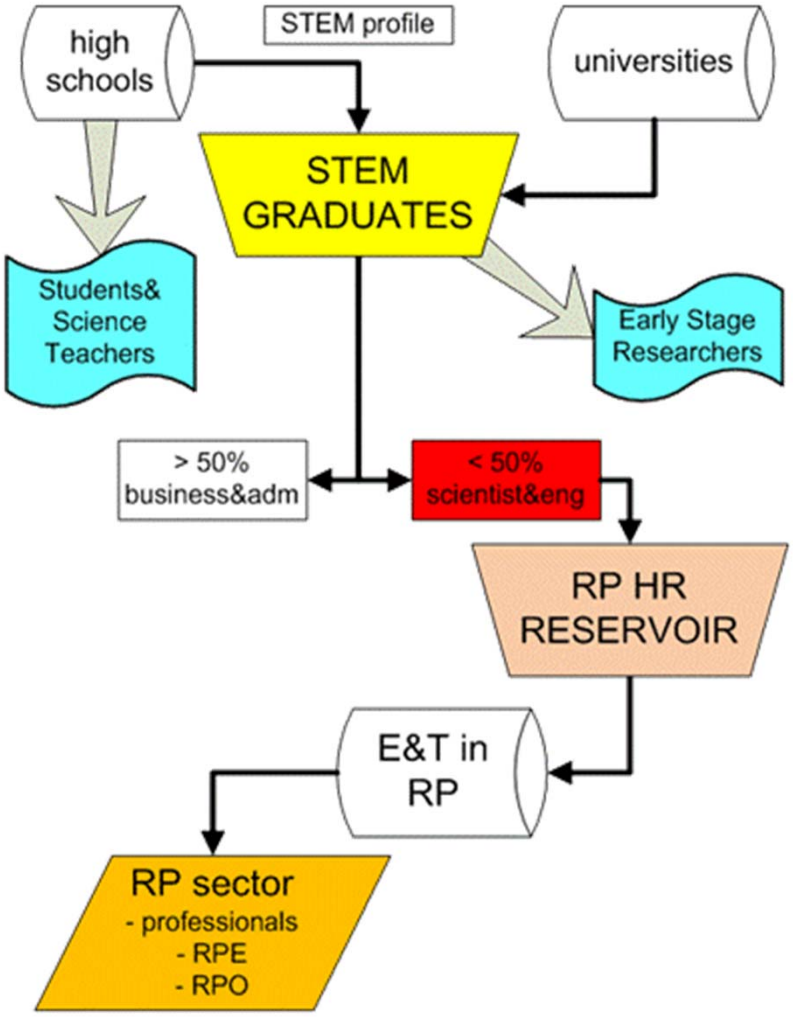
2. What was done for attracting a NG of RPP

- developed an WP 10 - ENETRAP II approach on attracting a NG of RP-P
- the main elements of the WP 10 - ENETRAP II of this approach are:
  - identifying the critical groups that would increase the number of RP-P and RPEs, RPOs
  - communication improvement with people at all walks of life
  - providing continuous PDP to targeted groups

2. What was done for attracting a NG of RPP

- *The* identification of the critical groups able to increase the number RP-P-*result of the analysis of feeding up process of RP HR reservoir*

- **The HR reservoir of RP** - is fed up by graduates of HS & univ. with Science-Technology-Eng. and Mathematics profile [STEM]
  - less than 50%-STEM graduates choose science &eng. carriers;
  - STEM graduates follow different ways (national legislation) towards RPE and RPO
- How would be addressed the HR shortage in RP :
  - if we want increase the downstream flow (RP-P, RPEs and RPOs) –should act upstream of HR reservoir of RP
  - reversing the trend of YS turning away from science
  - **the critical groups** that are able to increase the inlet flow into the RP HR reservoir and latter on to get more RPEs and RPOs are:
    - ✓ the **high school** ***students*** & ***science / STEM teachers***
    - ✓ the ***early-stage researchers***.



2. What was done for attracting a NG of RPP

- The RPWindow- was developed in answer to the need of communication improvement with persons at all walks of life

RPwindow: S 1

RADIATION PROTECTION WINDOW

ETRAP 2009: The panel of the session's on Building the future and attracting a new generation in Radiation Protection

WP 10: Collaboration for **building new innovative generations of specialists in radiation protection**
WP Leader: University Politehnica of Bucharest, Romania

Start here

2. What was done for attracting a NG of RPP

- **Task 10.2** The Analysis of human resources (HR) shortage in RP

RPwindow: S 2	Screen's structure	Version A

CONTENT

Your on-line source to get involved in nuclear&RP

→ click on the above title go to S3

Source: http://www.euronuclear.org/e-news/images/10_June_1_YGN_Day.jpg

How old are you?
Choose the suitable RPWindow

Secondary school students	→ go to S4
High school students	→ go to S5
Undergraduates	→ go to S6
Early stage researchers in RP	→ go to S7
Teachers	→ go to S8
RP steakholders	→ go to S9

2. What was done for attracting a NG of RPP

EARLY STAGE RESEARCHERS IN RP

WP10 specific questions for EARLY STAGE RESEARCHERS group:

- Would you like to become the scientists, and RP workers of the future?
- Would you like to take an interest in radiation research and radiation protection?
- Are you prepared to take leadership positions at universities and radiation applications in industry, medicine and research in Europe?

If you answered YES!

You have to know the three messages to the Young Generation of the ETRAP09 conference:

1. It is important not only to attract gifted people in RP (yellow people in the next picture), but also to retain the young generation in radiation protection.
2. We should not just review what current practice is, but we need to talk to the young people in our field and ask them what we need to do and what they are looking for.
3. We need to understand the young generation, review studies on their age/motivation. They do not think or act like us – they are different. They will typically move jobs every few years (Maurine McQueen, Bruce Power – Canada)

Attracting & engaging talented people in RP
Source: ajitchouhan.multiply.com/?&preview=&item_id=7...

- Your on-line source to develop you career in RP:

Topic	Link
Establishment of the ENETRAP Training Scheme in Radiation Protection	http://www.google.ro/search?q=ENETRAP+training+scheme&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a
Undergraduates Talks	http://www.jovenesnucleares.org/blog
RadioProtection Cirkus	http://www.rpcirkus.com
Master in Nuclear Science and Technology	http://www.upm.es/portal/site/internacional/template.PAGE/menuitem.01ef728ca98eb5b027286f10907c46a8/?javax.portlet.tpst=7cc1087dc6968f3727286f10907c46a8&javax.portlet.prp_7cc1087dc6968f3727286f10907c46a8=cod%3D2.1%26orden%3DCENTRO_IMPARTICION%26opcion%3Ddetalle&javax.portlet.begCacheTok=com.vignette.cachetoken&javax.portlet.endCacheTok=com.vignette.cachetoken
Knowledge Channel (Canal Saber)	http://www.csn.es/index.php?option=com_content&view=section&layout=blog&id=3&Itemid=4&lang=es

2 What was done for attracting a NG of RPP

- **Task 10.2** The Analysis of human resources (HR) shortage in RP

RP STAKEHOLDERS

WP10 specific questions for RP STAKEHOLDERS:

- **What kind of stakeholder are you?**
  - research organisations (public and private, power and medical applications, etc..)
  - customers (nuclear industry, medical sector, research, and non-nuclear industry);
  - nuclear regulatory bodies and associated technical safety organisations (TSO)
  - education and training (E&T) institutions, and, in particular, universities
  - civil society and international institutional framework (IAEA and OECD/NEA).

Did you started a collaboration at national level on enthusing and building innovative STEM/RP generations?

If you answered NO!,
please be informed about The ENETRAP II approach to enthuse and build innovative RP generations:

- Collaboration between different STEM/RP stakeholders could be organized, at national level, as following:
  - education and business can work hand in hand for the benefit of young people and the EU STEM/RP sectors;
  - Enthusing YG to consider a career in the science, technology, engineering, mathematics/STEM, and RP sector is an undertaking based on a partnership between the private sector and the Government with the single purpose of upgrading the content of science and STEM/RP teaching in EU secondary and high schools. By uniting in this way, we can bring practical STEM and RP into the classroom;
  - Secondary and High Schools have a key role to play in encouraging young people to consider a career in the science, engineering, and RP sector
  - Activities include apprentice training, research partnerships with universities and RP movies offered by industry or universities for secondary and high schools
- influence the influencers first, in order to influence the age 13 - 19 students. That means to have more specialist science/STEM teachers by providing them continuous professional development programme;

Romanian RP stakeholders meeting
Bucharest, November 17th 2011

- Your on-line source for RP collaboration:

Network	Link
ENETRAP: European Network on Education and Training in RAdiological Protection	http://enetrap2.sckcen.be/en/Project_summary
EUTERP: EUropean Training and Education in Radiological Protection-Platform	https://www.euterp.eu
RONET -ROmanian Nuclear network for Education and Training	
ENEN -European Nuclear Education Network	http://www.enen-assoc.org/
The Grid-Network- decision makers, and schools directly involved in innovation in the area of science education	http://www.grid-network.eu
STELLA project- educational authorities, school heads and science teachers in fostering and adopting innovative practices within the field of science education	http://www.stella-project.de

Go to content (S2)

3. The most recent achievement

- a specific support action for the targeted group, ***high school science teachers&students*** from National College Mihai Viteazul from Bucharest, Romania, to understand better RP by participation at the European RP event: "Les ateliers de la radioprotection" held in Grenobme, March 2011;

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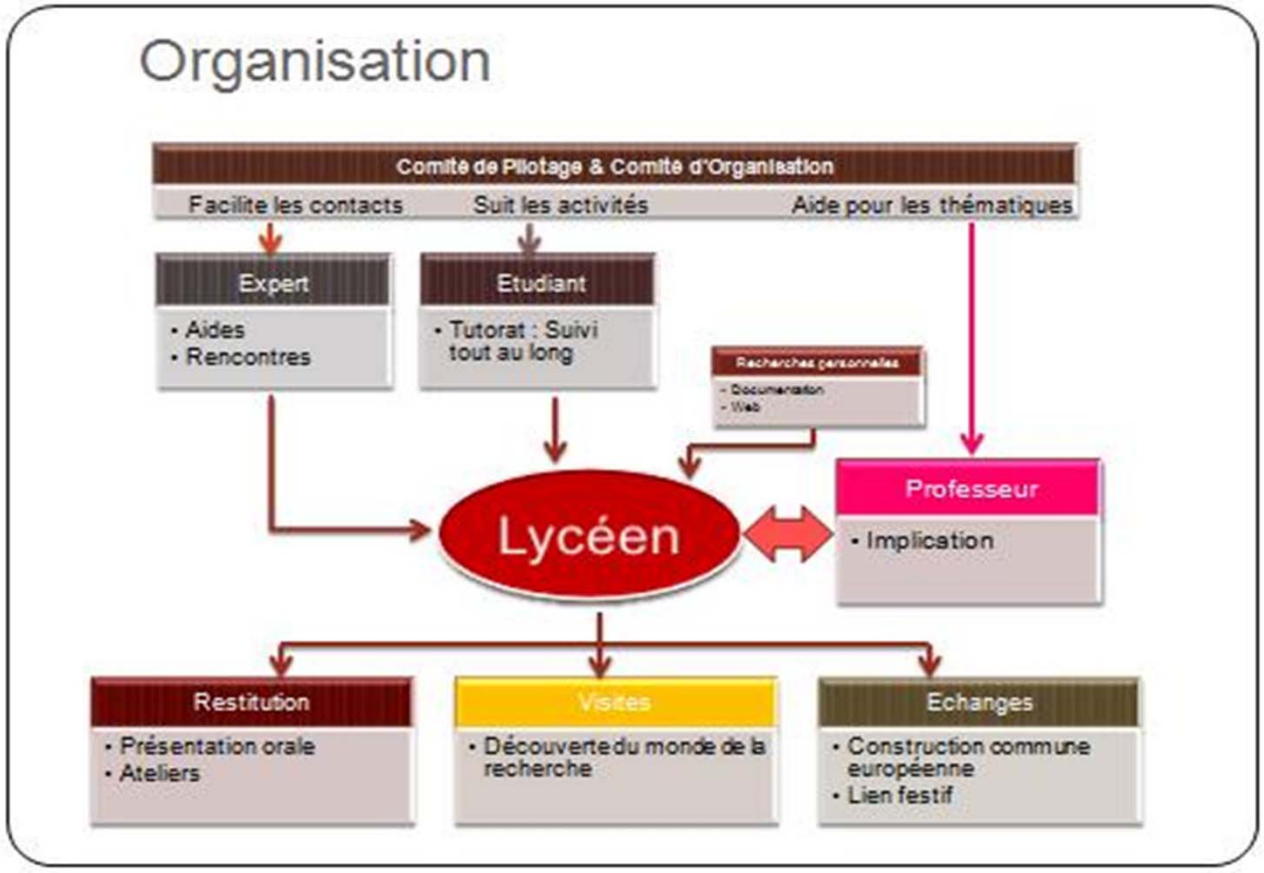

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Secondary school students

170 participants

- France
  - Poitiers : Lycées du bois d'amour et Aliénor d'Aquitaine
  - Boulogne Billancourt : Lycée Notre Dame
  - Montbéliard : Lycée Viette
  - Echirolles - Grenoble : Lycée Marie Curie
- Germany
  - Marbourg : Lycée Martin Luther
- Belarus
  - Gomel : Ecole 46
  - Khoïniki : Ecole Soudkovo
- Ukraine
  - Kiev : Ecole 118
- Romania
  - Bucarest : Collège National "Mihai Viteazul " - ENETRAP II WP10

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PROGRAMME: Day 1

- **The Radiation Protection of the workers and patients at hospital**
  - Working in a nuclear medicine service
  - Optimization approach for the protection of the workers to the hospital
  - Determination of areas in a radiology room and radiological classification of the staff
  - The role of the distance
- **Evolution of the Radiation Protection until now**
- **Life in the contaminated territories**
  - Life in the contaminated territories, presentation of the Ecological Reserve of State of Polessié
  - Testimony of inhabitants incomes to live in the exclusion zone
  - survey of the effect of the radioactivity on a culture of yeasts
  - Work of information with the population: Balance and perspectives (25 years after the Tchernobyl disaster)
- **Workshops presented by each high school**
- **Exercises with the firemen** team specialised in radiological intervention CMIR

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PROGRAMME: Day 2

- **Visits of technical** facilities:ILL, ESRF, Arc Nucleart at CEA, CORYS
- **The radiological situation in Japan**
- **Protection of the staff**
  - The dosimetry of staff at the hospital
  - Radiation Protection of the aircraft staff

- **Radiation Protection at the hospital** (protection of the patients)
  - RP in a nuclear medicine service: Protection of the staff and patients
  - Calculation of dose received by the patient during an exam (scale of comparison)
  - The biologic effects of the ionizing radiations
  - The different radiation; the protection in the medical environment
  - The use of the radioactivity in hospital environment, the risks induced by this use and the protection of the patients and the staff against these risks
- **Perception of the public / ethical**
  - Perception of the nuclear energy by the general public
  - The Radiation Protection; philosophical approach

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PROGRAMME: Day 3

- **Radiation Protection in medicine**
- **Surveillance of the environment / radioactive waste**
  - The surveillance of the radioactivity in the environment
  - Wastes from nuclear medicine and Protection of the environment
  - The management of the radioactive wastes
- **Surveillance of the environment and management of the radioactive waste**
  - Radioactivity: The accident of Tchernobyl from1986 to our days
  - Chemical and radiological analysis of the spring water of the region of Gomel
  - Radioactivity and Radiation Protection; focus on the management of the radioactive waste
  - The professions in relation with the Radiation Protection
- **The education and training in Radiation Protection**. Testimonies of students of the European Masters degree in Radiation protection

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Key points of success

- Sharing experience and obtain key of reading of RP domains (units, concepts…)
- Not to numerous participants (160 – 220): manageable
- All volunteers (teachers, high school students and experts)
- Organized and supported by:
  - national authorities and research institutions
  - RP associations
  - academic organization
- One language
- Related to works performed during the scholarly year (since September)
- Reduce the gap between young generation and expert: RP student role
- Place has to have:
  - Low cost hostel
  - Nuclear facilities available for visits
  - Interesting sight seeing and activities for young generation…

3. The most recent achievement

International High School event on Radiation Protection

Les ateliers de la radioprotection / Radiation Protection workshops

Grenoble 21-23 March 2011

Thank you

mceclan04@yahoo.com
paul.livolsi@cea.fr

4. Conclusions

- the WP 10-ENETRAP II developed a **coordinated approach on attracting NG of RP-P**
- by RPWindow and communication improvement – ENETRAP II would attract more YS& early-stage researchers by awaking their interest RP
- ENETRAP II supports the targeted groups (YS &YP through the RP Action Plan;
- the RP Action Plan- is leveraging and capitalizing the results of WP 10, WP4 and WP6 (RPWindow, ERPTS, the database of RP training events and providers);
- the RP Action Plan- offered to the targeted group ***high school students &science teachers,*** from National College Mihai Viteazul, Bucharest, Romania, the opportunity to understand better RP, by participation at European RP event: "*Les ateliers de la Radioprotection*"