

IAEA Peaceful Uses Initiative

Informal technical briefing
24 March 2015



IAEA

International Atomic Energy Agency

Briefing Objective and Structure

- Five years since PUI was launched in 2010.
- Share information on PUI, and highlight what has been achieved so far.
- Structure
 - Overview (DGOC)
 - Video: *“How the Atom Benefits Life”*
 - Presentation of major projects (TC, NA, NE, NS)
 - Comments and questions

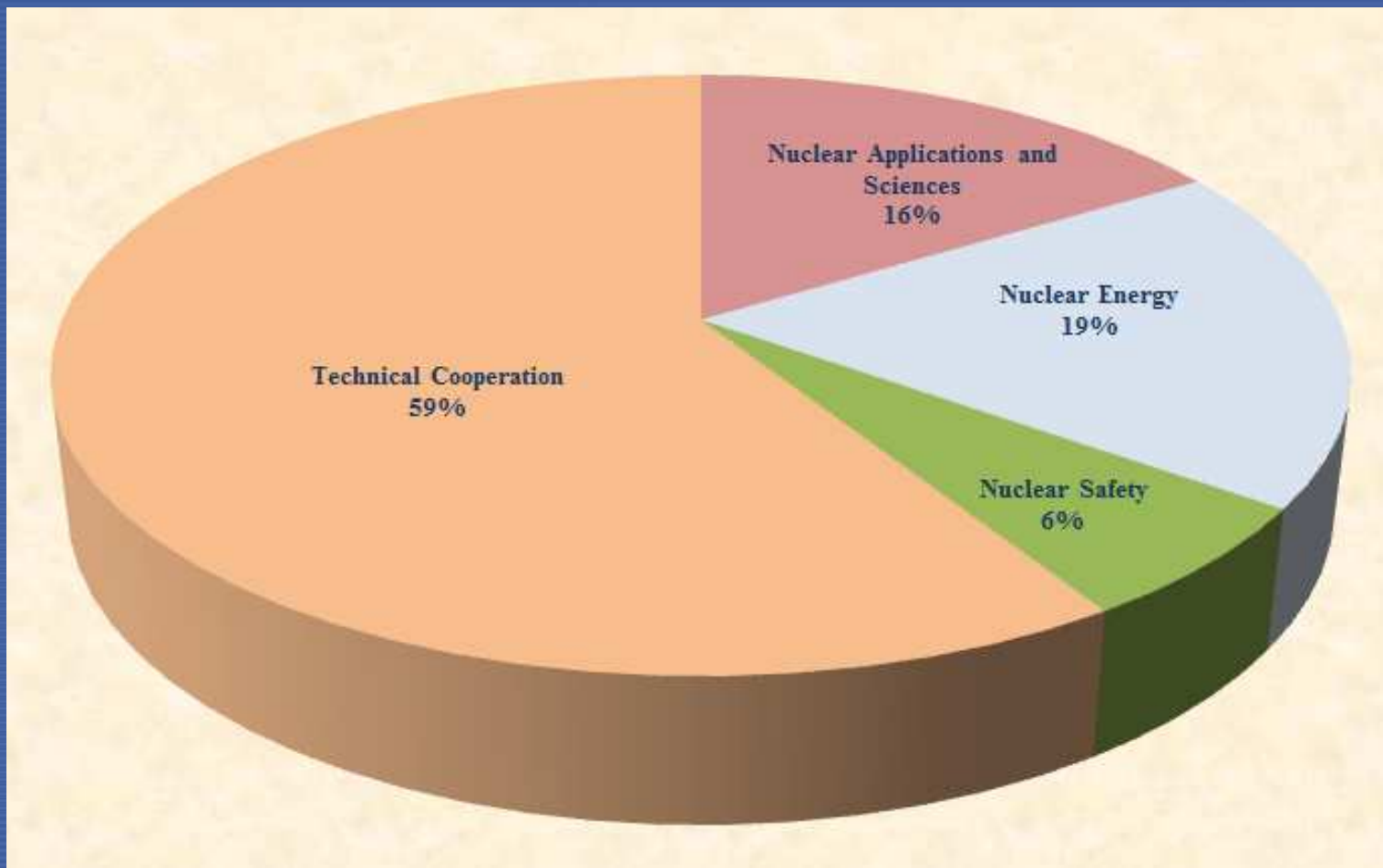
Overview and Status (I)

- Instrumental in raising additional extra-budgetary contribution for IAEA activities in peaceful applications of nuclear technology.
- Past five GC resolutions on TC and “nuclear science, technology and applications” welcomed the PUI and encouraged contributions.
- PUI not parallel mechanism to TCF, but supplements.

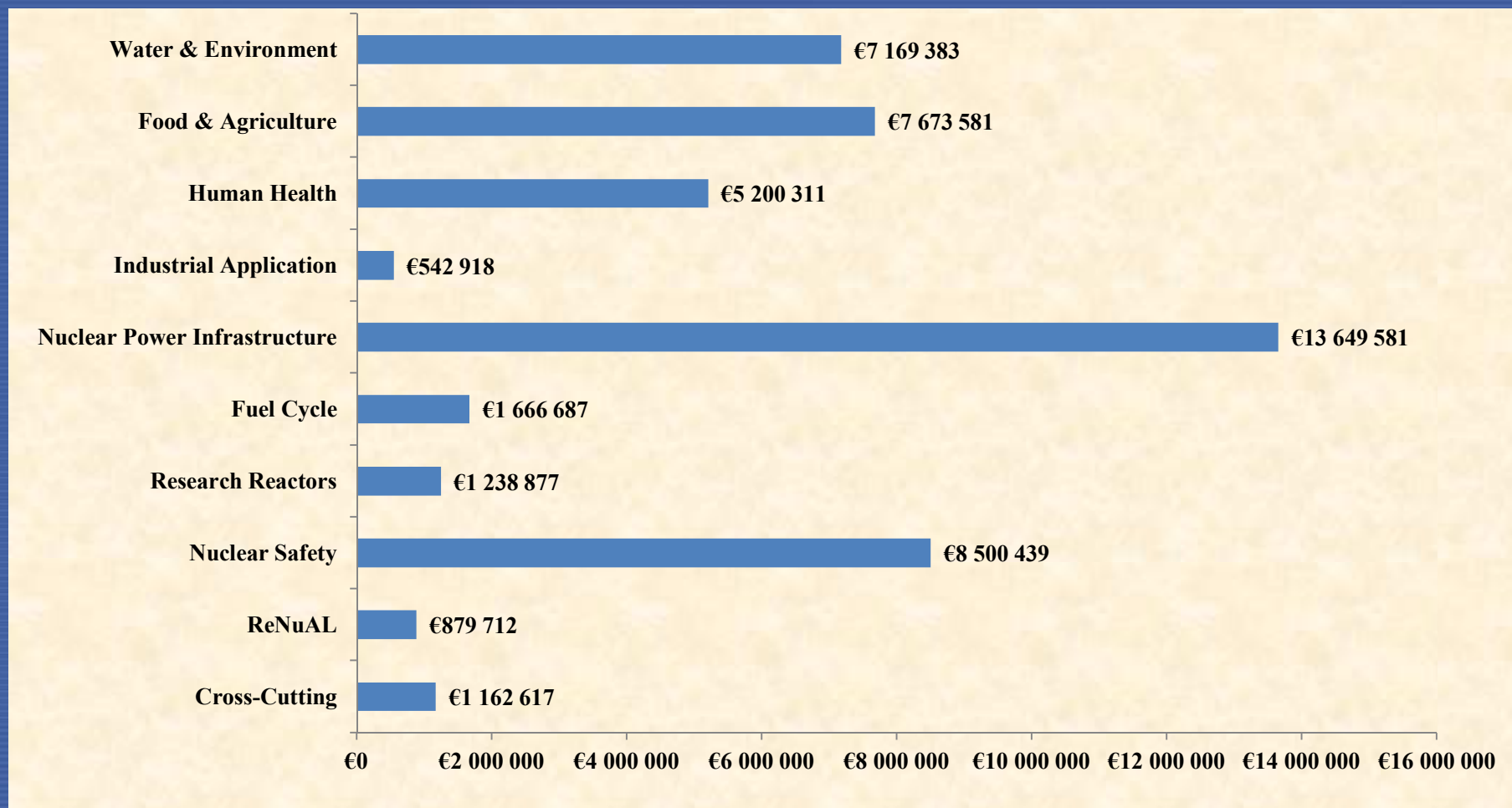
Overview and Status (II)

- **61 m** Euros from **13** Member States & EC:
 - Australia, Czech Republic, France, Hungary, Indonesia, Ireland, Japan, Kazakhstan, Korea, Monaco, New Zealand, Sweden, USA.
 - European Commission
- Over **170** projects have received PUI contributions, benefitting over **130** Member States.

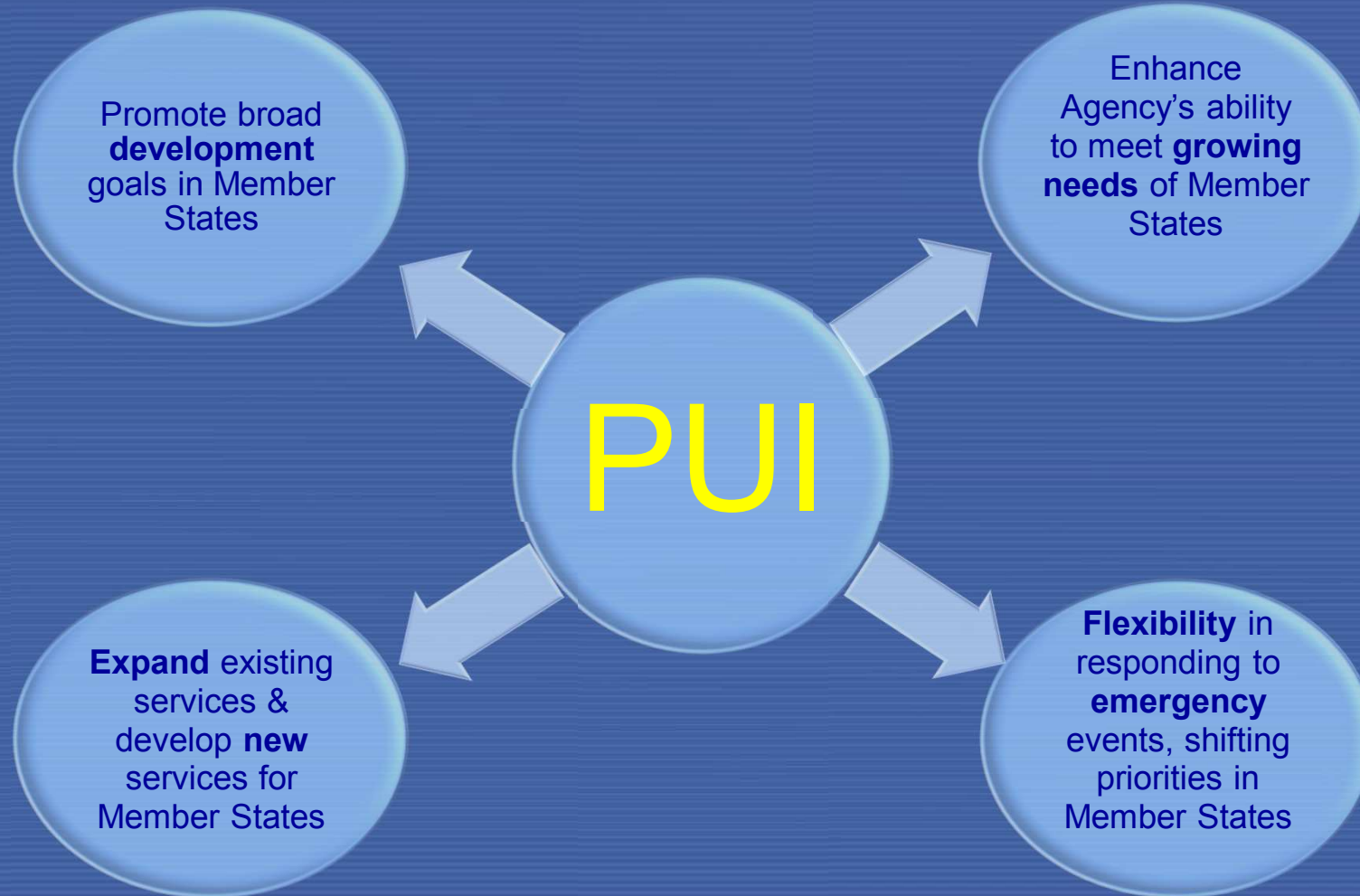
Contribution Breakdown: Departments



Contribution Breakdown: Theme



Benefits of PUI



Looking into the future

- DG statement to March 2015 Board:

“I hope to be able to continue with the PUI in future and look forward to continued support from Member States.”

PUI website:

<https://www.iaea.org/newscenter/focus/peaceful-uses-initiative>

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Dazhu Yang, Director
Department of Technical Cooperation



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Integrated and Sustainable Management of Shared Aquifer Systems and Basins of the Sahel

Objective: To provide the scientific basis for the preparation of a **Strategic Action Programme (SAP)** and **Shared Aquifer/basin Diagnostic Analysis (SADA)** for multipartite management of shared aquifers.

Main Activities

- Training:
 - Hydrochemistry and groundwater dating
 - Geographic Information Systems (GIS)
- Field expert missions on sampling
- 4500+ isotope/chemical analyses

Participating Member States

Algeria	Ghana
Benin	Mali
Burkina Faso	Mauritania
Cameroon	Niger
Central African Republic	Nigeria
Chad	Senegal
	Togo

Five Aquifers/Basins



- 1-Lullemeden
- 2-Liptako-Gourma Upper Volta
- 3-Chad
- 4-Senegalo-Mauritania;
- 5-Taoudeni

Partners:
- UNESCO
- BGR



Integrated and Sustainable Management of Shared Aquifer Systems and Basins of the Sahel

Expected Achievements:

- Improved conceptual hydrogeological models
- Scientific basis for shared Aquifer/basin Diagnostic Analysis (SADA) and Strategic Action Programme (SAP) for specifically selected trans-boundary aquifers.
- Enhanced capacity of national and regional institutions to apply isotopic techniques in the assessment and management of shared water resources.

Funding Status:

- Estimated budget: € 5,769,486 (2012-2016)
- Allocated: € 1,709,266 (€ 1,169,266 PUI)
- Funding gap : € 4,060,220

Marine benchmark study on the possible impact of the Fukushima radioactive releases in Asia-Pacific

Objective: To enable States in Asia-Pacific region to evaluate the extent and the **possible impact of the releases of radioactivity from the Fukushima Daiichi nuclear power plant** into the marine environment and make scientific assessments of the data.

Main Activities:

Capacity building in:

- marine sampling and analysis of marine radioactivity;
- monitoring the radiological impacts of nuclear discharges;
- assessment of radiological risks;
- quality management system;
- Data compilation and analysis



Collection of Sediment Samples, Philippines, Courtesy of the PNRI



Processing of Fish Samples for Cs-134/Cs-137 Analysis, Philippines, Courtesy of the PNRI

Marine benchmark study on the possible impact of the Fukushima radioactive releases in Asia-Pacific

Achievements:

- Enhanced marine sampling competences;
- Improved analytical capabilities;
- Increased capabilities on data interpretation, radio-ecological risk assessment, and modelling.
- Enhanced Regional Cooperation and Networking among participating countries.

Funding Status:

- Estimated budget: € 1,052,736 (2011-2015)
- Allocated: € 1,200,688 (€ 995,191 PUI)
- Funding Gap: € 150,000*

*This project was designed in 2011 with an estimated budget; however, additional cost was incurred during the implementation of the project due to, among other things, expansion of participation in some activities and the need for additional activities.



*Marine Sampling, Indonesia,
(Courtesy of the PNRI)*

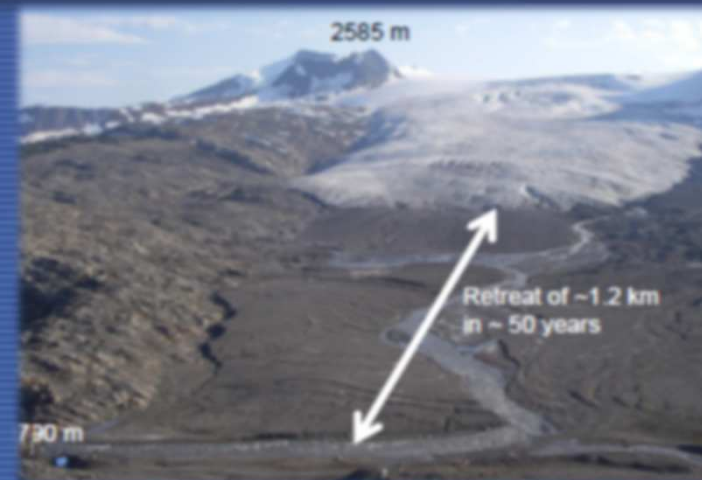
Impact of Climate Change and its Effects on Soil and Water Resources on Polar and Mountainous Regions

Objective: To improve understanding of the **impact of climate change on fragile polar and mountainous ecosystems** at the local and global scale for **enhanced agricultural water and soil management.**

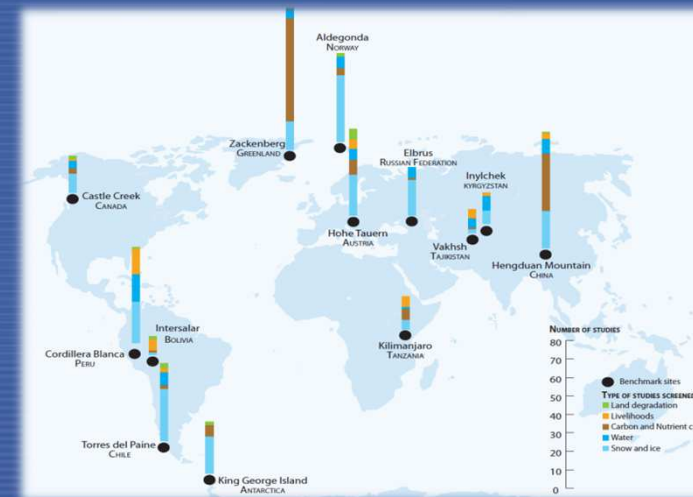
Argentina	Finland	Spain
Austria	Germany	Sweden
Belgium	Japan	Switzerland
Bolivia	Kyrgyzstan	Tajikistan
Brazil	Norway	Tanzania
Canada	Peru	U.K.
Chile	Russian Federation	U.S.A.
China		Uruguay

FAO, UNEP, UNU, EC, ICIMOD, UNESCO

Participating countries and international organizations



Glacier dynamics, Castle Creek Glacier, Canada

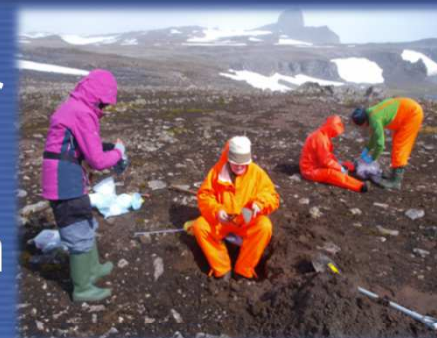


Selected 13 benchmark sites

Impact of Climate Change and its Effects on Soil and Water Resources on Polar and Mountainous Regions

Main Activities:

- **Training on:** sampling, remote sensing, weather station management, sediment redistribution, experimental approaches and data interpretation



Achievements:

- **Field investigations:** Over **500 kg samples** collected at **20+ sites in the Antarctic**, for analysis in Austria, Brazil, Belgium, Chile, Germany, Russia, Spain, Sweden and IAEA.



Funding Status:

- Estimated budget: € 1,685,800 (2014-2017)
- Allocated: € 372,750 (€ 182,750 PUI)
- Funding gap : € 1,313,050



Field work at King George Island Antarctic, Feb 2015

Addressing nutritional problems in Latin America and the Caribbean

Objective: To assess the **relationship between body fat and risk factors for non-communicable diseases**, using a stable isotopic technique e.g. diabetes.

Main Activities

- Training on assessment of body composition, energy expenditure and micronutrient status.
- New labs established in 6 countries.
- Collected data from over 1200 children aged 6-12 years
- Harmonization of data collection and procedures.
- Collection and analysis of data and specimens.
- Dissemination of results.



Children in Ecuador drinking a dose of deuterium oxide (Photo: E. Aguilar Lema, Ecuador)

Addressing nutritional problems in Latin America and the Caribbean

Achievements:

- Establishment of network of professionals from 16 countries
- New stable isotope laboratories established in 6 countries
- Information disseminated to the scientific and public health communities at international congresses
- Brazil, Chile and Mexico have taken practical steps in addressing nutritional issues, using data produced



*Newly established FTIR laboratory,
University of Costa Rica
(Photo: E. Quintana Guzmán, Costa Rica)*

Funding Status:

- Estimated budget: USD 1,070,980 (2009-2011)
- Allocated: € 553,315 (€ 129,202 PUI)
- Funding Gap: None (completed with available resources)

Fruit Fly Pest in the Balkans and the Eastern Mediterranean

Objective

- To increase awareness, cooperation and technical capabilities to prevent, detect and suppress established and exotic tephritid fruit fly pest outbreaks using the **Sterile Insect Technique (SIT)** in the Balkans and Eastern Mediterranean.

Main Activities

- Training on fruit fly detection and surveillance, quarantine and pest risk analysis, and area-wide integrated fruit fly suppression
- Release of 352 million sterile pupae of Mediterranean fruit fly in the Neretva Valley, Croatia and delivered traps and attractants



Flies on mandarin (Neretva Valley, Croatia)



Trap deployment during a practical exercise (Adana, Turkey)

Fruit Fly Pest in the Balkans and the Eastern Mediterranean

Achievements:

- Reduced Infestation in mandarin export
- Mandarins from the Neretva Valley received “Controlled designation of origin” label by EU.
- Detection networks for exotic fruit flies installed at the ports of entry
- Reduced insecticide use in Neretva Valley

Funding Status:

- Estimated budget: € 686,600 (2012-2015)
- Allocated^{*} : € 1,171,780 (€757115 PUI)
- Funding Gap. None

**Additional funds were provided (including government cost sharing from the government of Croatia) for the purchase of flies which was not initially anticipated to be purchased through the TC project.*



Trap deployment during a practical exercise (Adana, Turkey)



Damaged Mandarins (Neretva Valley, Croatia)

Cancer Control Capacity Assessment and Evaluation (imPACT missions)

Objective:

- Provide a **situational analysis of a country's cancer control capacities** and recommend specific actions to address gaps.

Main Activities:

- imPACT Review Missions:
 - Conducted at the request of Member States.
 - Conducted by experts nominated by WHO, IARC and IAEA.
 - Provide a robust starting point for the integration of radiation medicine into comprehensive cancer control programmes at the national level.

Cancer Control Capacity Assessment and Evaluation (imPACT missions)

Achievements:

- Final report included findings and recommendations on each of the cancer control components, identified gaps and helped Member State to identify and develop priority actions.
- Where appropriate, recommendations from ImPACT review missions, related to the IAEA's mandate are being considered during the development of TC projects for the TCP cycle 2016-2017.
- PACT supported Member States in mobilizing resources and harness partners to implement recommendations.

Funding Status

- imPACT reviews require adequate human and financial resources
- Estimated budget and needs: € 450,000

Enhancing Regional Capacity for Ebola Virus Disease (EVD) Diagnosis Under High Bio-Safety Conditions

Objective:

- To enhance the capacity for **rapid, accurate and safe EVD diagnosis** in the African region

Main Activities:

- First coordination meeting, Feb 2015, Uganda with regional counterparts from 7 countries and partners.
- Provision of fully-equipped, transportable, and high bio-safety.
- Training of national teams to perform EVD diagnosis.
- Establishment of a network of EVD diagnostic teams;
- Production of high-quality, simple-to-use educational material.

Enhancing Regional Capacity for EVD Diagnosis Under High Bio-Safety Conditions (under RAF/0/042)

Achievements

- Improved regional capabilities to respond to devastating emerging zoonotic disease through operational national monitoring teams able to perform high-quality diagnosis of EVD, using RT-PCR under adequate bio-safety conditions.

Funding Status

- Estimated budget: € 2,792,700 (2014-2016)
- Allocated: € 1,121,560 (€ 871,560 PUI)
- Funding gap: € 1,671,140



Deployment of the bio-containment tent and its accessories (e.g. glove box on left)



Working area ready to be used for diagnosis, as well as for related training

Strengthening Africa's Regional Capacity for Diagnosis of Emerging or Re-emerging Zoonotic Diseases, Including Ebola Virus Disease (EVD), and Establishing Early Warning Systems

Objective: To enhance control of emerging zoonotic diseases in the African region, through safe and accurate early detection of pathogens in wildlife and livestock

Expected Achievements:

- Mechanisms for early identification of emerging zoonotic diseases operational, and strategies for sharing related diagnostic and epidemiological information within a regional network in place.

Funding Status

- Estimated budget: € 3,020,000 (2015-2019)
- Allocated: € 445,500 (€ 445,500 PUI)
- Funding gap: € 2,574,500

- **Builds on previous assistance which supported the transfer and application of ELISA and RT-PCR technologies in Africa.**
- **Compliment the efforts initiated in 2014 under Reserve Fund Project and Ebola proposal.**

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Jean-Pierre Cayol, Programme Coordinator
Department of Nuclear Sciences and Applications



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IAEA Water Availability Enhancement Project (IWAVE)

- **Objective**

- To help increase water availability through comprehensive, national assessments of water resources using isotope hydrology

- **Main Activities**

- Pilot Project in **Costa Rica, Oman and the Philippines** based upon geographical and hydrogeological diversity
- Workshops to identify current gaps in hydrological data, knowledge and capacity, data collection and interpretation



Technical Workshop
Oman IWAVE Project
of the
IAEA Water Availability Enhancement Project
9 – 13 July, 2012
Vienna, Austria

Participants:

Oman Ministry of Regional Municipalities and Water Resources:	Mr. Saif Ahmad Sulaiman Al-Hawali
	Mr. Salim Mohamed Abdullah Al-Khambashi
	Mr. Ahmad Salem Muhammad Al-Tamir
	Mr. Khalid Salem Al-Mushakhal
	Mr. Ahmad Saif Al-Darwish
	Mr. Saif Mohamed Salameh Al-Ya'qubi
	Mr. Ali Khassim Sulaiman Al-Madani
	Mr. Nohmani Boodi
	Mr. Philip Tridale
	Mr. Andrew Janszki
	Mr. Maurice Choufery
	Mr. Charles Dunning

IAEA Water Availability Enhancement Project (IWAVE)

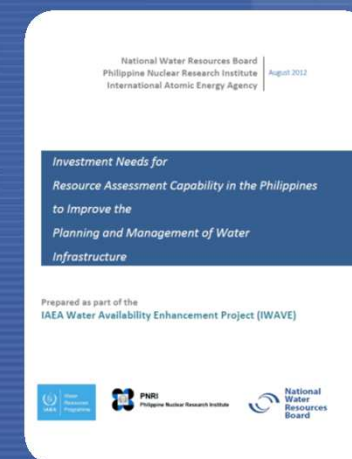
• Achievements

- Baseline hydrological data and maps in selected areas
- Trained human capacity in comprehensive water resources assessment
- Regional TC project in Latin America based on lessons learned from IWAVE
- Establishment of multi-agency national working groups



• Funding Status

- Estimated Budget: €1.1 million (2010-2014)
- Allocated: €1 081 993
- Funding gap: None



Ocean Acidification International Coordination Centre (OA-ICC)

- **Objective**

- Communicate, promote and facilitate international activities on ocean acidification



- **Main Activities**

- Three key areas of action:
 - ✓ **SCIENCE** (global observing network, promotion of best practices, OA data management, inter-comparison exercises, OA databases)
 - ✓ **CAPACITY BUILDING** (training courses, distribution of material)
 - ✓ **COMMUNICATION** (web resources, publications, events and exhibits)

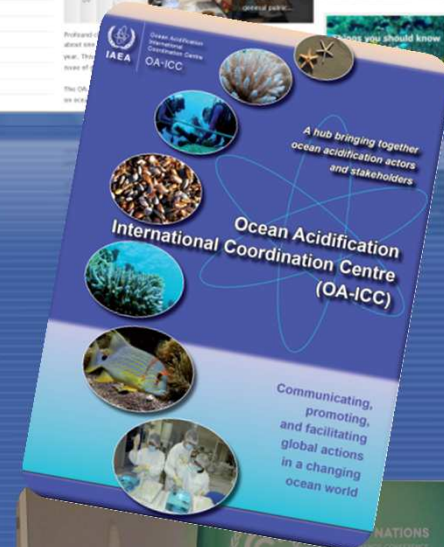
Ocean Acidification International Coordination Centre (OA-ICC)

• Achievements

- OA-ICC online open-access resources (web site, news stream, data bases, outreach material)
- Regional events (Latin America, Europe/North Africa)
- Expert meetings to advance OA science (data management, socio-economic impacts of OA)
- Outreach events and publications (e.g. UN Climate Change Conferences)

• Funding Status

- Estimated budget: €1.44 million (2012-2015)
- Allocated: €879 088
- Funding gap: €570 000



Building and Improving Animal Disease Diagnostic Capacities of Veterinary Laboratories in Asia by Transfer of Nuclear and Nuclear Related Techniques

- **Objective**

- Building and improving diagnostic capacities of veterinary laboratories at the regional level in six Asian Member States (Bangladesh, Mongolia, Myanmar, Nepal, Lao People's Democratic Republic, Pakistan)

- **Main Activities**

- Development of diagnostic platforms for the early and rapid diagnoses and control of transboundary animal and zoonotic diseases
- Provision of Standard Operating Procedures, guidance and technical support
- Proficiency testing
- Joint meeting of VETLAB Africa and Asia Networks

Building and Improving Animal Disease Diagnostic Capacities of Veterinary Laboratories in Asia by Transfer of Nuclear and Nuclear Related Techniques

- **Expected Achievements**

- Improved laboratory infrastructure
- Trained staff
- Quality assurance and control
- Laboratory quality management system



- **Funding Status**

- Estimated budget: €3.75 million (2014-2018)
- Allocated: €236 100
- Funding gap: €3 514 600



Contributing to Agricultural Development in West Africa Through the Control of Tsetse flies and Trypanosomosis

- **Objective**

- Establishment of a sustainable tsetse free zone in the Niayes of Senegal to increase food security for the farmers in the area

- **Main Activities**

- Feasibility studies
- Development of a strategy (eradication)
- Operational phase
 - ✓ Suppression of the fly population
 - ✓ Aerial release of sterile males until final eradication



Contributing to Agricultural Development in West Africa Through the Control of Tsetse flies and Trypanosomosis

- **Achievements**

- Tsetse fly eradicated in Block 1 of target area
- Tsetse fly suppressed up to 98% in Block 2 of target area
- Disease prevalence significantly reduced in the Niayes
- Expected annual benefits of €3 million for the farmers

- **Funding Status**

- Estimated budget: € 2.1 million (2010-2015)
- Allocated: € 2 081 448
- Funding gap: None



Renovation of the Nuclear Sciences and Applications Laboratories (ReNuAL) Project

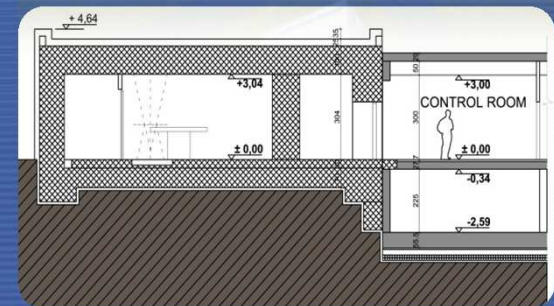


Objective

- Rebuild and upgrade the NA laboratories in Seibersdorf to respond to Member States' current and expected needs for the next 15-20 years

Renovation of the Nuclear Sciences and Applications Laboratories (ReNuAL) Project

- **ReNuAL Project Elements**
 - Construction of new laboratory buildings
 - ✓ Insect Pest Control Laboratory
 - ✓ Flexible Modular Laboratory
 - ✓ Dosimetry Bunker
 - Urgent equipment upgrades
 - Necessary infrastructure development
- **ReNuAL +**
 - Addresses additional lab needs
 - Eg. Bio-Safety Level 3 Capabilities



Renovation of the Nuclear Sciences and Applications Laboratories (ReNuAL) Project

- **Expected Achievements**

- Permit the laboratories to continue to meet the needs of an expanding number of IAEA Member States
- Expand capabilities to support capacity building & analytical services
- Flexibility to address future socio-economic challenges

- **Funding Status**

- Estimated budget: **€31 million** (2014-2017)
- Allocated: €10.4 million regular budget, €3.3 million extra budgetary
 - **€879 712** pledged through PUI
- Funding gap: **€17 million** extrabudgetary funding
 - Funding for new buildings is the priority
 - Funding to be committed by June 2015 to ensure the project stays on schedule

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John Kinker, Nuclear Support Systems Coordinator

Department of Nuclear Energy



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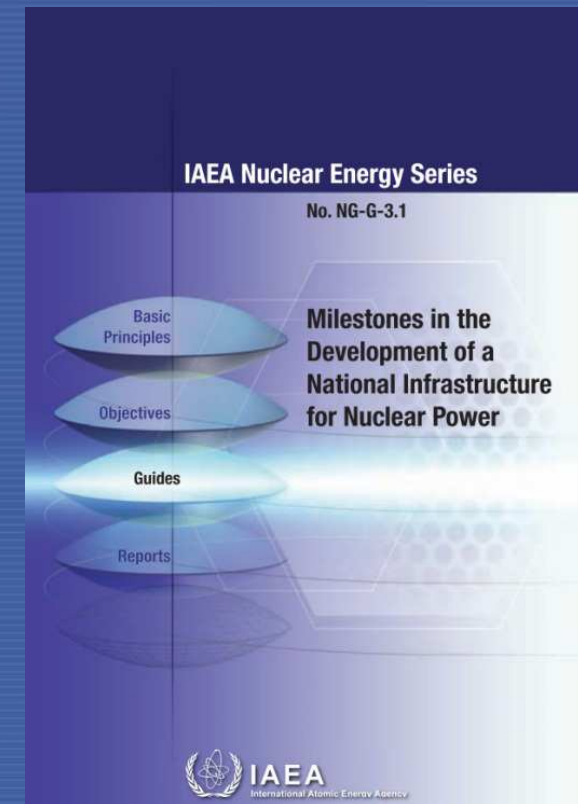
Strengthening Nuclear Power Infrastructure Development in Member States

Objectives

- Strengthen the **Milestones approach**
- Ensure comprehensiveness of **cross-cutting guidance** by filling gaps
- **Encourage sharing** of lessons-learned amongst MS

Main Activities

- **Develop/update Agency guidance** in topical areas of nuclear infrastructure development
- **Promote information sharing on nuclear power development** through workshops, conferences and other events
- **Expand INIR Missions**



Strengthening Nuclear Power Infrastructure Development in Member States

Achievements

- Better decision making and planning by governments for new programmes
- Complete and comprehensive IAEA guidance documents
- Improved INIR mission programme
- Improved transparency and a culture of openness around nuclear power development through sharing of experience and lessons learned



Funding Status

Estimated Budget:	€2 288 000	(2012 – 2015)
Allocated:	€1 741 000	
Funding Gap:	€ 547 000	



Turkey hosted an INIR Mission in November 2013

Enhancing Capacity Building for the Development of Nuclear Power Infrastructure (eLearning Component)

Objective

- Develop human resource training services to improve technical knowledge in Member States considering the introduction of a nuclear power programme

Main Activities

- Create a **basic course-module**:
“Implementing a Nuclear Power Programme”
- Create a **series of advanced course-modules** based on the milestones infrastructure issues
 - 12 modules completed and 4 under preparation



Enhancing Capacity Building for the Development of Nuclear Power Infrastructure (eLearning Component)

Achievements

- Improved knowledge and awareness of infrastructure issues and nuclear power project management among embarking Member States
- Improved effectiveness of “live” training activities by using e-learning as preparation
- Improved availability, dissemination and use of IAEA guidance through web-accessible media



Funding Status (for eLearning Component only)

Estimated Budget:	€ 1 051 000 (2012 – 2017)
Allocated:	€ 1 051 000
Funding Gap:	None

Increasing the global supply of Nuclear Education & Training programmes through research reactor facilities

Objectives

- Help research reactor operators in developing countries to **develop regional programmes that emphasize hands-on training**
- **Link regional providers** with MS that need training for young professionals
- **Provide real-time access via Internet** to give students experience in research reactor exercises

Main Activities

- Develop a **group fellowship training programme** on research reactors in Asia and the Pacific region
- Support the EERRI group fellowship training programme
- Develop a **Compendium** on “Research Reactors Utilization for Higher Education Programmes”
- Establish the Internet Reactor Laboratory (IRL) Project



Control room of the ISIS Research Reactor in Saclay, France, from where GC Participants in Vienna witnessed live experiments broadcast via the internet. (Photo: CEA-INSTN)

Increasing Nuclear Education & Training Programmes through Research Reactor Facilities

Achievements

- Nuclear School on Reactor Physics & Nuclear Applications for Asia-Pacific Region organized by Malaysia and Indonesia (April 2015)
- In cooperation with TC, two editions of the EERRI Group Fellowship Training Programme on research reactors were supported (2014)
- Compendium on “Research Reactors Utilization for Higher Education Programmes” under preparation
- IRL Project established in Latin America and Europe (online by the end of 2015)



Funding Status

Estimated Budget:	€ 1 704 000	(2011 – 2016)
Allocated:	€ 712 000	
Funding Gap:	€ 992 000	

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Pil-Soo Hahn, Director

Department of Nuclear Safety and Security



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Practical Intervention Techniques to Reduce Public Doses at Uranium Mining and Milling Legacy Sites

- **Objective**

- To provide **regulators** with the knowledge **to develop and implement site specific, low cost mitigation techniques** to protect the public – now and in the future.
- Project duration: June 2013 – June 2016 (3 years)

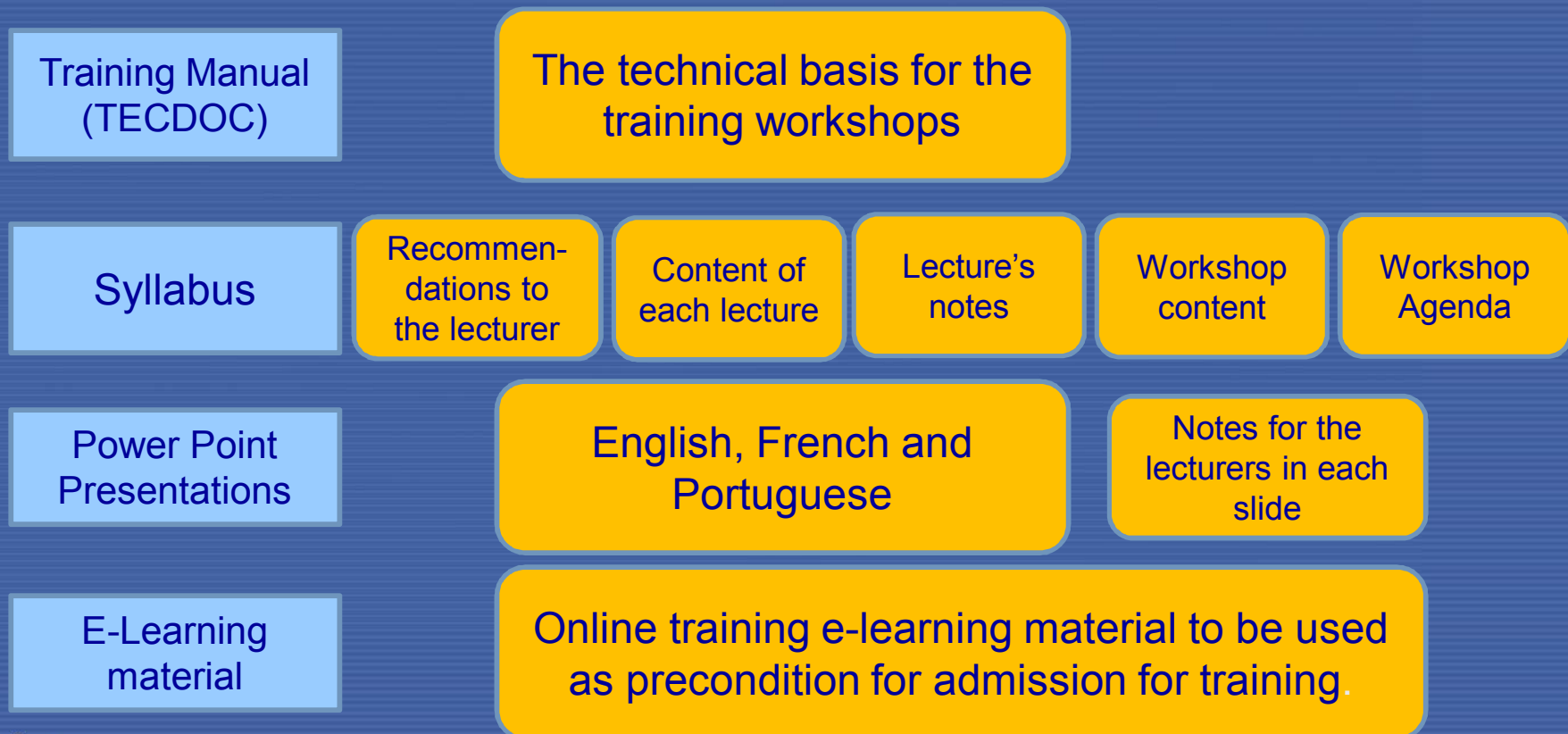
- **Main Activities**

- Development of course **training manual** (TecDoc) and associated **training materials**
- Workshops (English, French and Portuguese) for affected Member States **in Africa**



Practical Intervention Techniques to Reduce Public Doses at Uranium Mining and Milling Legacy Sites

In June this year it is planned to have in place training packages, which will consist of



Practical Intervention Techniques to Reduce Public Doses at Uranium Mining and Milling Legacy Sites

- **Achievements**

- Enhanced understanding of **public health risks, low-cost / quick-fix mitigation options** for the management of Uranium legacy sites to reduce public exposure now and in the future
- Better understanding of the **management of legacy uranium tailings.**
- **Improved safety of legacy sites**

- **Funding Status**

- Estimated budget: € 505,350 (duration: June 2013 – June 2016)
- Allocated: €505,350 (**€ 420,000 through PUI**)
- Funding gap: None



Developing a Network for Transport Safety in the Mediterranean Region

- **Objective**

- To establish a **sustainable system** of **mutual support, cooperation and coordination** in normal and emergency transport of radioactive material.

- **Main Activities**

- **Creation of a regional network**
- **Development of a harmonised approach** for regulatory compliance
- Development and implementation of
 - ✓ **the actions** contained in the plan of action for the **regional network**
 - ✓ **national plans of action** for transport



Developing a Network for Transport Safety in the Mediterranean Region

• Achievements

- 12 MSs of the region have completed the **self-assessment**
- Better understanding of the existing issues
- **Cooperation between the CAs** in the region
- **Awareness and cooperation between agencies** responsible for the authorisation
- **Cooperation with other networks** (i.e., EACA, FNRBA, ANNuR)

• Funding Status

- Estimated budget: € 525,250
(duration: June 2013 – June 2016)
- Allocated: €525,250
(€ 372,400 through PUI)
- Funding gap: None

