Project Fiche No 2

Licensing and refurbishing of the national storage facility for radioactive waste at the Rudjer Boskovic Institute in Croatia

1. Basic information

1.1 CRIS Number: 2010/022-489

1.2 Title: Licensing and refurbishing of the national storage facility for radioactive waste at the Rudjer Boskovic Institute in Croatia

1.3 ELARG Statistical code: 03.64 - Nuclear Safety

1.4 Location: Croatia

Implementing arrangements:

1.5 Implementing Agency:

Central Finance and Contracting Agency
Ms Marija Tufekčić
Programme Authorising Officer
Ulica Grada Vukovara 284
10000 Zagreb, Croatia

1.6 Beneficiary (including details of SPO):

Main beneficiary:
Rudjer Boskovic Institute
Ms. Danica Ramljak, Director General
Phone: +385 1 4680 251
Fax: +385 1 4680 084
e-mail: director@irb.hr
Bijenicka c. 54, HR – 10000 Zagreb

Responsible person:
Mr. Branko Vekic, Head of the Radiation Protection Department at the Rudjer Boskovic Institute
Phone: +385 1 4561 071
Fax: +385 1 4680 098
e-mail: bvekic@irb.hr

Financing:

1.7 Overall cost (VAT excluded):	EUR 2 153 500
1.8 EU contribution:	EUR 1 855 000
1.9 Final date for contracting:	2 years following the date of the conclusion of the financing agreement.
1.10 Final date for execution of contracts:	2 years following the end date for contracting.
1.11 Final date for disbursements:	1 year following the end date for execution of contracts.

2. Overall Objective and Project Purpose

2.1 Overall Objective: Protection of the population against ionising radiation

2.2 Project Purpose: Improvement of the safety and security of the national radioactive waste storage facility in Croatia.

2.3 Link with AP/NPAA / EP/ SAA

Chapter 15 (Energy) of the Croatia 2009 Progress Report specifies that "the licensing of a new facility for the storage of institutional radioactive waste remains a key safety issue that needs to be addressed by the Croatian authorities".

2.4 Link with MIPD

Under the IPA Multi-beneficiary Multi-annual Indicative Planning Document (MIPD) 2009-2011[1], *Nuclear Safety and Radiation Protection (section 2.3.3.11)* is stipulated as one area of intervention. The following are stated as strategic choices under the respective priority for assistance: "The management of sealed radioactive sources, for example, dismantling of radioactive lightning rods, and the operation of centralised storage facilities for radioactive waste remain a key issue".

2.5 Link with National Development Plan:

Not applicable.

2.6 Link with national/ sectoral investment plans:

The Government of the Republic of Croatia, at its session on 10 April 2008, adopted the regulation on the conditions and method of storage of radioactive waste, spent sealed radioactive sources and ionising radiation sources which are not intended for further use ("Official Gazette", No. 44/08).
This Regulation prescribes the conditions and the method of storage of radioactive waste, spent sealed radioactive sources and ionising radiation sources which are not intended for further use, from the point of view of safety and security.

3. Description of project

3.1 Background and justification:

The Rudjer Boskovic Institute (IRB) operates the major radioactive waste storage facility in Croatia. This facility built in 1967 and further extended in 1987. The facility was originally aiming only at storing radioactive waste generated during research activities in the IRB. Since then, it accommodates all radioactive waste that has been generated in the territory of Croatia. By the Act of the Government of the Republic of Croatia as of 30/12/2009 this storage facility became national. The operator is the Radiation Protection Department of the IRB.

The volume of radioactive waste to be stored annually in this facility is rather limited: about 30 sealed radioactive sources of category 3 and 4 (according to the IAEA), 1000 smoke detectors, and some low level radioactive waste generated in medical establishments. In addition orphan sealed sources are

[1] C(2009)4518 of 16.06.2009.

stored in the facility (2-5 orphan sources are found on average every year). Finally the development of medical applications of radionuclides and a more extensive use of sealed radioactive sources should significantly increase the need for a safe and secured storage facility in Croatia in the future.

The current storage facility comprises three main rooms; two are used for the storage of radioactive waste and one for the dismantling of devices containing sealed radioactive sources, as well as for the treatment and conditioning of low level radioactive waste. The total available storage capacity is nearly 100 m³. Only one third has been used so far. The existing radioactive waste in store consists of:

- No sealed radioactive sources of category 1;
- 50 sealed radioactive sources of category 2;
- Several hundreds of sealed radioactive sources of category 3 and 4 (about 350 Ra-226 sources used earlier in brachytherapy and/or calibrations; about 120 sources of Co-60 used mostly as a level gauges; 170 lightening rods with 190 sources of Eu-152,154 and 8 sources of Co-60; 247 sources of Cs-137 used mostly for brachytherapy and/or level gauges; a few tens of Am-241 or Am-241/Be sources, Kr-85 sources, Co-57 sources, Fe-55 sources, Ni-63 sources, Sr-90 sources; a few hundreds of various U and Th chemicals; at least one hundred various sealed or open sources that were used in the Rudjer Boskovic Institute)
- About 23500 radioactive smoke detectors of category 5;
- 800 litres of liquid radioactive waste;
- 4-5 m^3 of low level waste from laboratory (paper, gloves, plastic).

With the exception of liquid waste, most of sealed sources are conditioned and packed in appropriate storage containers. However, some of them would still require characterisation and possibly re-packaging.

In order to systematically resolve the problem of radioactive waste at IRB, it is necessary to adequately dispose the previously used cyclotron which still has a certain degree of radioactivity (the dose rate is about 3 μSv/h in the centre of cyclotron and decreasing with the distance from centre). The radionuclide present in the materials of the old cyclotron is Co-60, which was created in the process of cyclotron's nuclear reactions with the materials of which the cyclotron was built (iron and copper). Decommission was done in 2007 so that all high radioactive materials are already stored in the storage facility. Plans and designs were developed in order to construct a foundation and platform for the old cyclotron, enclose it with a polycarbonate enclosure which would enable cyclotron's protection from rainfall and other atmospheric influences, and prevent its impact to the environment.[2]

Based on expert missions organised by the IAEA, this storage facility would need a number of improvements, e.g. installation of a new ventilation system, refurbishment of the rooms, improvement of the tightness (sealing) of the building, installation of a drainage system, stabilisation of the surrounding soil slopes, monitoring of the possible contamination of the surroundings, modernisation of a laboratory for handling radioactive materials, and installation of a modern security system.

However, in order to do so, activities need to be coordinated with the relevant regulatory bodies, i.e. the State Office for Radiological and Nuclear Safety and the IAEA.

[2] Remaining cyclotron weights 85 tons so it cannot be stored in radioactive waste facility, It is classified as a low level radioactive waste and cannot be treated as regular waste. Furthermore, because of it's weight a special platform has to be build.

3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact (where applicable)

Improvement of the safety and security of the storage of radioactive waste will contribute to protect man and the environment against ionising radiation in Croatia. The project is sustainable since it will be implemented by the Radiation Protection Department of the RBI which has been assigned to this task by the Governmental Decree. Since the project will enable a safe and secured storage of radioactive waste and in particular of sealed radioactive sources, it will reduce the risks of smuggling these radioactive products in the Western Balkan region. In this sense it has a significant cross border impact.

3.3 Results and measurable indicators:

Result No 1: Radioactive waste storage building upgraded according to international standards

- Technical solution (design studies) completed – see #3.5 *Conditionality and sequencing*
- All relevant safety analysis and environmental impact assessment reports approved
- Safety of radioactive waste storage facility improved
- Security of the radioactive waste storage facility enhanced

Measurable Indicators for result No 1:

- Designs developed and licensed
- Construction works executed
- Number of new cameras installed
- New security system installed

Result No 2: Previously used cyclotron relocated, as per the detailed design

- Technical solution (design studies) completed
- All relevant safety analysis and environmental impact assessment reports approved
- Cyclotron (low level radioactive waste) relocated within the IRB site

Measurable Indicators for result No 2:

- Designs developed and licensed
- Dismantling works executed and number of radioactive waste drums identified and stored
- Operation of the cyclotron in another zone of the IRB

Result No 3: Modernisation of a laboratory to handle radioactive materials

- Equipment identified and purchased
- Equipment for radioactive waste characterisation, dismantling activities, radioactive waste treatment and conditioning, and repackaging purchased and delivered

Measurable Indicators for result No 3:

- Modernisation approved by the relevant regulatory bodies
- Reduction of the volume of radioactive waste stored

Result No 4: Monitoring of the radioactivity in the vicinity of the storage facility for radioactive waste

- Identification of the equipment to be purchased
- Measuring equipment delivered and installed
- The existing IRB environmental monitoring system incorporates data from ionising radiation

Result No 5: Staff training and information of the public

- Organisation of courses and technical visits of storage facilities for institutional radioactive waste within the EU
- Selection and implementation of a public information programme concerning the safety and security of the newly refurbished and licensed storage facility for radioactive waste at the IRB.

Measurable Indicators for result No 5:

- Attendance certificates of the IRB staff in specific courses
- Reports on the comparison between management practices for radioactive waste and monitoring of the radioactivity in the vicinity of radioactive waste storage facilities at the IRB and at some other relevant storage facilities in the EU.

3.4 Activities:

Activity No 1: Upgrading of the radioactive waste storage building according to international standards (Contract 1 – Works)

- Preparation of the technical design for the refurbishment of the storage facility for radioactive waste including e.g. the installation of a new ventilation and/or air conditioning system, HEPA filters, shelves, internal rearrangement of shelves and drums, possible shielding, installation of permanent dose-rate meters, creation of a workshop for the dismantling of low and medium-level radioactive materials, improvement of the tightness of the building, installation of a drainage system, stabilisation of the surrounding soil slopes, and modernisation of the security system with a closed circuit television.
- Approval of the technical design by the relevant nuclear safety authorities (this activity should be conducted in close cooperation with the IAEA).
- Purchase and installation of the necessary equipment.
- Implementation of the technical design through works.

For more detailed information on the equipment which will be included in the works contract, please refer to Annex V. Details concerning preceding activities are described in 3.5 *Conditionality and Sequencing*

Activity No 2: Dismantling of the cyclotron building and management of the resulting radioactive waste (Contract 1 - Works)

- Finalisation of the technical design for the relocation of the cyclotron within the IRB site, the dismantling of the associated building and the management of the resulting low level radioactive waste, including the discarding of the materials that are below the clearance levels.
- Approval of the technical design by the relevant nuclear safety authorities (this activity should be conducted in close cooperation with the IAEA).
- Implementation of the technical design including the relocation of the cyclotron through works.

Details concerning preceding activities are described in 3.5 *Conditionality and Sequencing*

Activity No 3: Supervision of the works to be performed under activities No 1 and 3 (Contract 2 - Technical Assistance)

Activity No 4: Purchase and installation of equipment for radioactive waste characterisation, treatment, conditioning, repackaging and storage as well as for the monitoring of radioactivity in the vicinity (Contract 3 - Supply)

- Characterisation of radioactive waste currently in store and to be stored using portable radiation spectrometers and isotope identifiers (gamma, alpha and neutron) as well as and multichannel analyzers for activities to be performed in the hot laboratory.
- Compactor for solid radioactive waste.
- Transportable containers, drums and sorting boxes.
- Measuring equipment for the monitoring of the radioactivity in the vicinity of the storage facility that needs to be compatible with the existing IRB software system for environmental monitoring.

Activity No 5: Capacity building of the personnel of the IRB Radiation Protection Department (Contract 4 – Technical Assistance)

- Assistance to the personnel of the IRB Radiation Protection Department to prepare the relevant safety analysis required by the Croatian radiation protection and nuclear safety authorities. This activity has to be implemented in close collaboration with the IAEA technical cooperation programme.
- Assistance to the personnel of the IRB Radiation Protection Department to manage radioactive waste including characterisation, treatment, conditioning and repackaging operations. Particular attention should be paid to the determination of clearance levels for very low level radioactive waste. A detailed characterisation programme will have to be established since all radioactive waste currently in store will have to be removed from the building, possibly repacked or discarded and then placed again in the refurbished facility.
- Organisation of visits of operating storage facilities for institutional radioactive waste in the EU.
- Preparation of information material (booklets, periodical reports) on the risks of ionising radiation and the existence of a national storage facility for radioactive waste located in the premises of the IRB.

3.5 Conditionality and sequencing:

The safety of the technical design of activities No 1 and 2 will have to be assessed by the IAEA through the technical cooperation programme. All possible comments from the IAEA and possibly the SORPNS will have to be taken into consideration in order to establish the final design.

For works activities, legal requirements resulting from the Regulation on Environmental Impact Assessment will be respected. Procedures necessary to comply with requests of the Regulation will be conducted prior to the beginning of the implementation of the work contract.

The tendering procedure will not be launched as long as there is no written agreement between the beneficiary (the IRB) and the nuclear safety authorities (the SORPNS) and any other relevant body involved in the licensing of the storage facility. This agreement should address the following issues:

- The documentation to be provided for the licensing of the refurbished storage facility and the dismantling of the cyclotron;
- The follow up of the progress of work;
- The approval of clearance levels for very low level solid radioactive waste;
- The organisation and content of training courses;
- The content of the public information activities.

It is of paramount importance that prior to the start of the project a preliminary technical design for activities No 1 and 2 has been drawn up by the IRB so that the IAEA can assess its relevance from the safety point of view. Only the finalisation of the technical design is part of this IPA project.

Based on the results of the technical design that will be performed under "Contract 1 - Works" a precise list of equipment to be purchased and installed will be established and tendered via "Contract 3 - Supply". The works will follow the delivery of equipment. The "Contract 4 - Technical Assistance" should be implemented from the start of the project. The "Contract 2 - Technical Assistance" will be implemented contemporaneously with the works.

3.6 Linked activities

The International Atomic Energy Agency (IAEA) has already approved technical assistance for a national project on Management and Safe Storage of Spent and Disused Sealed Sources (CRO/9/009). The project objective is to establish safe management and storage of spent and disused sealed sources from medical, industrial and research activities. As the IRB storage facility for radioactive waste is becoming a national one, additional support from the IAEA will be requested through the next Technical Cooperation cycle national project “National Radioactive Waste and Processing Facility”.

The same agency (IAEA) undertook an expert mission (Project number: CRO/3002) in order to review the safety of the current IRB storage facility for radioactive waste. The recommendations of this expert's mission constitute the basis for this project proposal The safety report and the report leading to a justification for not requiring an environmental assessment report are required for licensing by SORPNS (“Official Gazette”, No. 44/08, Article 5) and shall be completed in accordance with the directives of the Agency On the 05/03/2010 a coordination meeting was held on the premises of the Agency, where representatives of IRB, SORP and the Agency were present. An expert mission visited IRB in May 2010 to assess activities necessary to achieve the improved conditions and both aforementioned reports shall be completed by August 2010.

3.7 Lessons learned

This project is part and parcel of a rather long series of PHARE/IPA projects that aimed in improving the treatment/conditioning and storage of institutional radioactive waste in a number of Central and Eastern European Countries. This kind of task is not easy in the sense that storage of radioactive waste is a very sensitive political issue and several countries (e.g. Lithuania and Bulgaria) failed to create such a facility due to the opposition of the public. In Croatia too, the government planned, a few years ago, to construct such a facility outside Zagreb on a land owned by the Ministry of Interior but failed due to the opposition of the public. The establishment of a national treatment/conditioning and storage facility for radioactive waste in the premises of the Rudjer Boskovic Institute is not the best one, from the safety point of view, however it is the only one that could be accepted by the public at present. Therefore, the part of the project that concerns the communication to the public is crucial for its successful implementation.

4. Indicative Budget (amounts in EUR)

					SOURCES OF FUNDING								
			TOTAL EXP.RE	TOTAL PUBLIC EXP.RE	IPA COMMUNITY CONTRIBUTION		NATIONAL PUBLIC CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB (1)	INV (1)	EUR (a)=(b)+(e)	EUR (b)=(c)+(d)	EUR (c)	% (2)	Total EUR (d)=(x)+(y)+(z)	% (2)	Central EUR (x)	Regional/ Local EUR (y)	IFIs EUR (z)	EUR (e)	% (3)
Contract 1		X	700 000	700 000	595 000	*85*	105 000	15	105 000				
Contract 2		X	73 500	73 500	63 000	*85*	10 500	15	10 500				
Contract 3		X	900 000	900 000	765 000	*85*	135 000	15	135 000				
Contract 4	X		480 000	480 000	432 000	*90*	48 000	10	48 000				
TOTAL IB			480 000	480 000	432 000	*90*	48 000	10	48 000				
TOTAL INV			1 673 500	1 673 500	1 423 000	*85*	250 500	15	250 500				
TOTAL PROJECT			**2 153 500**	**2 153 500**	**1 855 000**	**86**	**298 500**	**14**	**298 500**				

Amounts net of VAT

(1) In the Activity row use "X" to identify whether IB or INV

(2) Expressed in % of the **Public** Expenditure (column (b))

(3) Expressed in % of the **Total** Expenditure (column (a))

5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of contract	Project Completion
Contract 1	Q3 2011	Q1 2012	Q3 2013
Contract 2	Q4 2011	Q1 2012	Q3 2013
Contract 3	Q2 2011	Q4 2011	Q2 2012
Contract 4	Q2 2011	Q1 2012	Q3 2013

6. Cross cutting issues (where applicable)

6.1 Equal Opportunity

The public procurement process will be open to all interested contractors.

Participation will be open to both: female and male personnel. Records on staff participating in training and other project activities (e.g. project progress reports) will reflect this statement.

6.2 Environment

Envisaged project will ensure adequate management of radioactive waste, which will contribute to the radiological safety and eliminate possible negative effects of radioactive waste on the environment.

6.3 Minorities

Based on the fundamental principles of promoting equality and combating discrimination, participation in the project will be guaranteed on the basis of equal opportunity for minorities.

ANNEXES

I- Log frame in Standard Format

II- Amounts contracted and Disbursed per Quarter over the full duration of the project

III- Description of Institutional Framework

IV- Reference to laws, regulations and strategic documents

V- Details per EU funded contract

ANNEX 1: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number IPA: 2010/022-503 2010 IPA Horizontal Programme on Nuclear Safety and Radiation Protection	
Licensing and refurbishing of the national storage facility for radioactive waste at the Rudjer Boskovic Institute in Croatia	Contracting period expires: 2 years following the date of conclusion of the financing agreement	Disbursement period expires:1 year following the end date for execution of contracts
	Total budget : **EUR 2 153 500**	IPA budget: **EUR 1 855 000**

Overall objective	**Objectively verifiable indicators**	**Sources of Verification**	
• Protection of the population against ionising radiation	• System of RAW storage at Rudjer Boskovic being adequate and conforming the requirements form Safety Assessment	• IAEA mission report	
Project purpose	**Objectively verifiable indicators**	**Sources of Verification**	**Assumptions**
• Improvement of the safety and security of the national radioactive waste storage facility in Croatia. •	• Number of public and non-public institutions (including IRB) and bodies which will use services of the IRB RAW storage • Raised public awareness	• Project final report • IAEA mission report	• Cooperation among relevant authorities
Results	**Objectively verifiable indicators**	**Sources of Verification**	**Assumptions**
1 RAW storage building upgraded according to international standards 1.1 Technical solution (design studies) completed 1.2 Conditions of RAW storage improved 1.3 Security of the RAW storage enhanced 1.4 Safety of radioactive waste storage facility improved 2 Previously used Cyclotron relocated, as per the detailed design 2.1 Designs (studies) completed 2.2 Cyclotron relocated within the IRB site. 2.3 Safety analysis and environmental impact assessment reports approved. 3 Modernisation of a laboratory to handle radioactive materials 3.1 Equipment has been identified and purchased 3.2 Equipment for radioactive waste characterisation 4 Monitoring of the radioactivity in the vicinity of the storage facility for radioactive waste	• Designs developed • Construction works executed • Number of new cameras installed • New security system installed • Designs developed and licensed • Dismantling works executed and number of radioactive waste drums identified and stored • Operation of the cyclotron in another zone of the IRB • Modernisation approved by the relevant regulatory bodies • Reduction of the volume of radioactive waste stored • Attendance certificates of the IRB staff in specific courses	• Project progress report • Safety report • Training evaluation • Annual Croatian report to IAEA	• Cooperation with other governmental bodies and institutions • Experts available

4.1 Identification of the equipment to be purchased 4.2 Measuring equipment delivered and installed 4.3 Data on environmental dose monitoring transferred to IRB software and staff trained 5 Staff training and information of the public. 5.1 Organisation of courses and technical visits of storage facilities for institutional radioactive waste within the EU. Selection and implementation of a public information programme concerning the safety and security of the newly refurbished and licensed storage facility for radioactive waste at the IRB.	• Reports on the comparison between management practices for radioactive waste and monitoring of the radioactivity in the vicinity of radioactive waste storage facilities at the IRB and at some other relevant storage facilities in the EU.		
Activities	**Means**	**Costs**	**Assumptions**
1. Upgrading of the radioactive waste storage building according to international standards.for radioactive waste. 1.1 Approval of the technical design by the relevant nuclear safety authorities (this activity should be conducted in close cooperation with the IAEA). 1.2. Dismantling of the cyclotron building and management of the resulting radioactive waste. 1.3. Purchase and installation of the necessary equipment. 1.4. Implementation of the technical design through works. 2. Dismantling of the cyclotron building and management of the resulting radioactive waste 2.1. Finalisation of the technical design for the relocation of the cyclotron within the IRB site. 2.2 Approval of the technical design by the relevant nuclear safety authorities (this activity should be conducted in close cooperation with the IAEA). • 2.3.Implementation of the technical design including the relocation of the cyclotron through works. 3. Supervision of the works to be performed under activities No 1 and 3 4. Purchase and installation of equipment for radioactive waste characterisation, treatment, conditioning, repackaging and storage as well as for the monitoring of radioactivity in the vicinity. . 4.1 Characterisation of radioactive waste that are currently in store (and to be stored) by using the appropriate equipment. a 4.2 Purchase and installation of HEPA filters and fume hoods for the hot laboratory.	• Contract 1 – Works for Activity 1 • Contract 1- Works for Activity 2 • Contract 2 – Technical assistance for Activity 3 • Contract 3- Supply for Activity 4	**EUR 700 000** **EUR 73 500** **EUR 900 000** **EUR 480 000**	• Active participation of relevant stakeholders in training sessions • Timely and dully delivered equipment • Respecting of agreed deadlines

4.3 Compactor for solid radioactive waste 4.4 Transportable containers, drums and sorting boxes. 4.5 Measuring equipment for the monitoring of the radioactivity in the vicinity of the storage facility. 5. Capacity building of the personnel of the IRB Radiation Protection Department. 5.1 Assistance to the personnel IRB Radiation Protection Department to prepare the technical design of the upgraded storage facility for radioactive waste, including the relevant safety analysis and environmental impact assessment reports. 5.2. Assistance to the personnel of the IRB Radiation Protection Department to manage radioactive waste including characterisation, treatment, conditioning and repackaging operations. 5.3 Organisation of visits of operating storage facilities for institutional radioactive waste in the EU 5.4 Preparation of information material (booklets, periodical reports) on the risks of ionising radiation and the existence of a national storage facility for radioactive waste located in the premises of the IRB.	• Contract 4- Technical Assistance for Activity 5		
		Pre conditions	**safety assessment**

ANNEX II: Amounts (in €) Contracted and disbursed by quarter for the project

Contracted	**Q3 2011**	**Q4 2011**	**Q1 2012**	**Q2 2012**	**Q3 2012**	**Q4 2012**	**Q1 2013**	**Q2 2013**	**Q3 2013**	**Q4 2013**	
Contract 1			700 000								
Contract 2			73 500								
Contract 3		900 000									
Contract 4			480 000								
Cumulated		**900 000**	**2 153 500**								
Disbursed											
Contract 1			150 000		200 000		200 000		150 000		
Contract 2			44 100						29 400		
Contract 3		400 000		500 000							
Contract 4			200 000		180 000				100 000		
Cumulated		**400 000**	**794 100**	**1 294 100**	**1 674 100**	**1 674 100**	**1 874 100**	**1 842 100**	**2 153 500**		

ANNEX III: Description of Institutional Framework

The Rudjer Boskovic Institute (IRB) is the largest Croatian research centre in sciences and science applications. In the multi-disciplinary environment of the Institute more than 500 academic staff and graduate students work on problems in experimental and theoretical physics, chemistry and physics of materials, organic and physical chemistry, biochemistry, molecular biology and medicine, environmental and marine research, electronics, informatics and computer science.
The RAW storage facility at the IRB is an integral part of the Radiation Protection Department.
Some of the areas Radiation Protection works in are:

- Dosimetry
- Radiological Environmental Protection
- Radiation Emergency Preparedness and Response
- Radioactive Material Management
- Radioactive Waste Management
- The regular checking of the effectiveness of protective devices and techniques
- Maintaining staff awareness of exposure levels
- Ensuring that departmental contamination and environmental monitors are checked and calibrated regularly
- Investigation of reports of overexposure

Institutional set-up for radiation protection in Croatia is constituted of the following structures. Regulatory authority is comprised of two governmental bodies: State Office for Radiation Protection (SORP) and Ministry of Health and Social Welfare (MHSW). SORP is responsible for licensing and approves carrying out of practices involving sources of ionising radiation, procurement, import, export, transport and transit of ionising radiation sources and authorises the use of ionising radiation sources. It also maintains and supervises records on ionising radiation sources and records concerning exposed workers, level of irradiation of exposed workers as well as the level of irradiation of persons subject to medical exposure and other persons. MHSW is responsible for enforcement through its sanitary inspection. On 19 February 2010, Croatian Parliament adopted the Law on Radiological and Nuclear Safety, by which a new regulatory body will be established: State Office for Radiological and Nuclear Safety. Operating of the new institution is planned to start soon. The merging process of the State Office for Nuclear Safety and the State Office for Radiation Protection is in progress and until the formal start of functioning of the new body, existing bodies continue to perform their activities as before, i.e. SORP will continue to perform activities connected to this Project.

ANNEX IV: Reference to laws, regulations and strategic documents

1. Act on Radiation Protection and the Safety of the Ionizing Radiation Sources ("Official Gazette" No. 64/06)
2. Regulation on the conditions and method of disposal of radioactive waste, spent sealed radioactive sources and ionising radiation sources which are not intended for further use" ("Official Gazette" No. 44/08)
3. General framework for emergency response is given by the "State plan and program of ionising radiation protection measures and emergency interventions" ("Official Gazette" No. 49/08)
4. Government of the Republic of Croatia's Act from 30/12/2009 on definition of the location for storing of radioactive waste, spent sealed radioactive sources and ionising sources which are not intended for further use (central storage)
5. IAEA mission report CRO/3002

ANNEX V: Details per EU funded contract:

The following four contracts are expected to be concluded to implement this project:
- Contract 1 - Works contract for an EU contribution of EUR 595 000 following a tender launched in the third quarter of 2011;
- Contract 2 - Service contracts (TA) for an EU contribution of EUR 63 000 following a tender launched in the fourth quarter of 2011;
- Contract 3 - Supply contract for an EU contribution of EUR 765 000 following a tender launched in the second quarter of 2011; and
-Contract 4 – Service contract (TA) for an EU contribution of EUR 432 000 following a tender launched in the second quarter of 2011.

The implementation of this project will be decentralised.

It has to be noted that project is rather complex having in mind the inter-linkages between works, supply and service contracts. All contracts will be tendered, awarded and implemented in accordance with the PRAG. As regards works contract it contains certain elements of supply (ventilation, cameras) but this equipment is being installed in parallel with construction works i.e. it presents integral part of the construction activities. According to PRAG practice in such cases it is allowed to have supply component under work contracts. Also works contract is the design – build one i.e. the contractor is expected to provide for the design studies first and once those are prepared execute the works.