

Regional Project Concept Template (Category A)

The information contained in this template should be uploaded to the PCMF IT platform by the Chair of the relevant regional cooperative agreement or the NLO of the Member State submitting the concept by **31 May 2012** at the latest. Based on this information the IAEA will assess whether this project concept is in line with the TC quality criteria and requirements. Concepts positively appraised will be further developed into full project documents during the design phase.

Region:			
Regional/Cooperative agreement (if applicable)	RCA	Priority no. given by regional/cooperative agreement (for concepts proposed under the auspices of regional cooperative agreements)	
Title	Hybrid nuclear medicine imaging (PET/CT) in cancer management		
Field of activity			
Regional project category¹	<input type="checkbox"/> <i>Transnational</i> <input type="checkbox"/> <i>Regional standard setting</i> <input checked="" type="checkbox"/> <i>Capacity building for developing countries</i> <input type="checkbox"/> <i>Joint TC activities with a regional or international entity</i>		
Names and contact details of project counterparts and counterpart institutions (starting with the main counterpart)	<p><i>Dr. Shazia Fatima</i> <i>Principal Medical Officer</i> <i>Nuclear Medicine, Oncology & Radiotherapy Institute Islamabad, Pakistan</i></p> <p>MAIN COUNTERPART INSTITUTIONS:</p> <p>1. NORI Nuclear Medicine Oncology & Radiotherapy Institute 2. INOR Institute of Nuclear Medicine , Oncology & Radiotherapy, Abbotabad 3. IRNUM Institute of Radiotherapy and Nuclear Medicine , Peshawar 4. NMC Nuclear Medicine Centre, Rawalpindi 5. SIH Shifa International Hospital 6. NESCOM Hospital</p>		
Analysis of regional Gap / Problems/needs	<p>Pakistan Atomic Energy Commission (PAEC) since its inception is playing a vital role in health sector of Pakistan. The commission is pioneer in using the nuclear and other advanced techniques for diagnosis and treatment of cancerous and allied diseases and is actively involved in the national cancer awareness, prevention, diagnosis and treatment program. PAEC is putting a lot of emphasis on peaceful applications of nuclear energy and has so far established 13 nuclear medicine, radiotherapy and cancer hospitals throughout the country whereas 6 new cancer hospitals are in different phases of construction at different cities. NORI is one of the thirteen Nuclear Medicine and Oncology Centers run by PAEC. This is a 100 bed hospital established in 1982 at Islamabad. A population of about 14 million of Islamabad, District Rawalpindi, Chakwal, Attock, Jehlum and Azad Kashmir is being benefited from this institute. The setup is provided with one Cobalt 60 and one Linear accelerator machine for radiotherapy in oncology department. While the Nuclear Medicine department of NORI has one dual headed & two single headed camera, a Gamma probe and a dose calibrator. The NORI is the only full-fledged tertiary care Cancer hospital specifically designed for diagnosing and treating the cancer patients. PET-CT has revolutionized many fields of medical diagnosis, by adding precision of anatomic localization to functional imaging, which was previously lacking from</p>		

¹ See the document entitled "Policy and Procedures for TC Regional Projects" at:
http://pcmf.iaea.org/DesktopModules/PCMF/docs/2014_15_Docs/notes/Regional_TC_Project_Policy.pdf

	<p>pure PET imaging. PET/CT provides physicians with superior information for determining tissue characterizations and classifications, staging of cancers, restaging of cancers, patient prognosis and monitoring the effectiveness of cancer therapies. The power of PET resides in its ability to capture physiology and thereby obtain crucial diagnostic information unavailable from high resolution pictures of the anatomy. Radiation Therapy Treatment Planning is another highly promising area for PET/CT. Unfortunately there is no PET-CT facility available not only in NORI butt in the entire northern part of Pakistan. Cancer treatment and management is one of the health priority areas in the millennium development goals of Pakistan. Efforts have been made to increase the public awareness, to strengthen early diagnosis facilities and to comprehensively manage the disease. The first public sector PET-CT of the country was acquired through a TC project with help from IAEA. This facility is draining only to the central part of the country and northern & southern parts of Pakistan are still lagging behind in comprehensive cancer management because of unavailability of this expensive facility. The logistics of availing FDG production from the existing cyclotron facility in Lahore does not permit the efficient and timely delivery. The patients face numerous problems for getting their ET scan done from the facility available in country. The logistic and financial problems usually result in test no being done and hence resulting in the compromised management and outcome of the patient being treated.</p>
Why should it be a regional project?	<p><i>The PET-cyclotron services are already available in the central Punjab, however it is logistically impossible to avail that facility for the patient belonging to the Northern part of the country including capital territory, province of Kyhber Pakhtun Khawa and Azad Kashmir. The entire northern part of country is devoid of this quintessential diagnostic facility. Availability of this facility will help in better patient management.</i></p>
Stakeholder analysis and partnerships	<p><i>The major stake holders in this project would be government of Pakistan (PAEC) and IAEA. The PAEC has a long track record and commitment towards peaceful use of nuclear techniques and all the Nuclear Medicine centres are the metaphor of this commitment. The cancer awareness, diagnosis and management are the major priority areas of all the PAEC medical centres. IAEA through its various program, is providing help to its member states in utilizing nuclear techniques for betterment of human health. The Technical cooperation and nuclear sciences application departments of IAEA are providing technical help for introduction of new health related nuclear techniques, infrastructure for those application and human resource development through their TC projects and CRPs. PAEC and IAEA have long history of cooperation and commitment towards each other's goals. This cooperation and commitment is being reflected in the TC projects and CRPs awarded by IAEA and conducted in PAEC establishments.</i></p>
Overall objective (or developmental objective)	<ul style="list-style-type: none"> • <i>Cancer eradication by comprehensive management of cancer patients through early diagnosis and state-of-art follow-up facilities with introduction of PET-cyclotron facility in the northern part of Pakistan.</i>

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Analysis of objectives	<pre> graph TD A[Cancer management of the patient is compromised] --> B[Multiple follow-up PET scan to re-evaluate patient at each intervention adds to already existing financial constraints] A --> C[Financial constraints on part of patient to travel and stay in another city for a PET Scan] A --> D[Logistical difficulty for patients to get PET-CT done at 400-500 km distance] D --> E[Only facility available cannot accomodate the workload of the entire country] D --> F[PET-CT facility not available in Northern part of Pakistan] F --> G[Cancer population of Northern part of Pakistan being drained in 3 NM & O centers of PAEC] </pre>
Role of nuclear technology and the IAEA	<p><i>PET-CT has revolutionized many fields of medical diagnosis, by adding precision of anatomic localization to functional imaging, which was previously lacking from pure PET imaging. PET/CT provides physicians with superior information for determining tissue characterizations and classifications, staging of cancers, restaging of cancers, patient prognosis and monitoring the effectiveness of cancer therapies. The power of PET resides in its ability to capture physiology and thereby obtain crucial diagnostic information unavailable from high resolution pictures of the anatomy. Radiation Therapy Treatment Planning is another highly promising area for PET/CT. IAEA will be providing will help in capacity building via provision of infrastructure and human resource for the available facility.</i></p>
Project duration	<pre> graph TD A[01-01-2014 Building and infrastructure] --> B[Human resource development •Recruitment of human resource •Trainings of the human resource] B --> C[01-01-2015 Procurement and installation of PET-Cyclotron] C --> D[Awareness of Referring physicians through seminar symposia] D --> E[Commissioning of the project 01-01-2016] </pre>

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Requirements for participation	NA																																
Participating Member States	<p>Country: Pakistan (NORI)____ Role:</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Resource (providing expertise)</p> <p><input type="checkbox"/> Target (receiving expertise)</p> <p>Country: Pakistan (INOR)____ Role:</p> <p><input type="checkbox"/> Resource (providing expertise)</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Target (receiving expertise)</p> <p>Country: Pakistan (IRNUM)____ Role:</p> <p><input type="checkbox"/> Resource (providing expertise)</p> <p><input type="checkbox"/> <input checked="" type="checkbox"/> Target (receiving expertise)</p>																																
Funding and project budget	<p>Provide an estimate of the total project costs and the funding expected from each stakeholder:</p> <table border="1"> <thead> <tr> <th colspan="2"></th><th>Euro</th><th>Comment</th></tr> </thead> <tbody> <tr> <td colspan="2">Government cost-sharing</td><td>10 million USD</td><td>(to be sent to the IAEA)</td></tr> <tr> <td colspan="2">Counterpart institution(s)</td><td></td><td></td></tr> <tr> <td colspan="2">Other partners</td><td></td><td></td></tr> <tr> <td rowspan="3">IAEA Technical Cooperation Fund (TCF):</td><td>Fellowships / Scientific visits / Training courses/ Workshops</td><td></td><td></td></tr> <tr> <td>Experts</td><td></td><td></td></tr> <tr> <td>Equipment</td><td>30 Million USD</td><td></td></tr> <tr> <td colspan="2">TOTAL</td><td>40 Million USD</td><td></td></tr> </tbody> </table>					Euro	Comment	Government cost-sharing		10 million USD	(to be sent to the IAEA)	Counterpart institution(s)				Other partners				IAEA Technical Cooperation Fund (TCF):	Fellowships / Scientific visits / Training courses/ Workshops			Experts			Equipment	30 Million USD		TOTAL		40 Million USD	
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