

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	Distant Learning Certification Program for Hybrid Imaging (PET/CT and SPECT/CT)		
Field of activity			
Regional project category¹	<input type="checkbox"/> Transnational <input checked="" type="checkbox"/> Regional standard setting <input type="checkbox"/> Capacity building for developing countries <input type="checkbox"/> Joint TC activities with a regional or international entity		
Names and contact details of project counterparts and counterpart institutions (starting with the main counterpart)	<p><i>Dr. Javaid Irfanullah</i> <i>Director</i> <i>Nuclear Medicine, Oncology & Radiotherapy Institute Islamabad, Pakistan</i> <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. INMOL Institute of Nuclear Medicine & Oncology Lahore 3. PIMS Department of Radiology Pakistan Institute of Medical Sciences 4. ASNM Asian School of Nuclear Medicine 5. PIEAS Pakistan Institute of Engineering & Applied Sciences</p>		
Analysis of regional Gap / Problems/needs	<p>During the past several years there has been phenomenal growth in of hybrid imaging equipment like PET-CT, SPECT-Ct and PET-MR. The hybrid imaging procedures have revolutionized the diagnosis and treatment of various ailments. Hybrid imaging modality has edge over the conventional imaging techniques by virtue of providing the comprehensive physiological and morphological information simultaneously, which increases the diagnostic accuracy manifolds. Growing utilization of PET/CT, based on the fact that functional and morphologic correlative images produced by this methodology improve diagnostic accuracy. Similar progress is now being reported for SPECT/CT, a modality which is rapidly evolving from a somewhat under-utilized technical option to gain an acknowledged status for optimizing the diagnostic capabilities of single photon imaging, with potential impact on patient management.</p> <p>SPECT and CT are tomographic imaging procedures, each one with separately proven good diagnostic performance. SPECT produces computer-generated images of local radiotracer uptake, while CT produces 3-D anatomic images of X ray density of the human body. Combined SPECT/CT imaging provides sequentially functional information from SPECT and the anatomic information from CT,</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>obtained during a single examination. CT data are also used for rapid and optimal attenuation correction of the single photon emission data. By precisely localizing areas of abnormal and/or physiological tracer uptake, SPECT/CT improves sensitivity and specificity, but can also aid in achieving accurate dosimetric estimates as well as in guiding interventional procedures or in better defining the target volume for external beam radiation therapy.</p> <p>Diagnosis and characterization of disease by CT imaging is based on morphologic criteria such as size, texture and tissue attenuation. CT provides information regarding changes in organ size and tissue density, as well as their precise spatial localization and topographic landmarks. However, structural data do not necessarily correlate with the metabolic status of disease. On the other hand, nuclear medicine imaging is based on the bio-distribution of a radioactive agent over time and space, thus visualizing dynamic physiological and pathophysiological processes that define the functional characteristics of disease. Furthermore, whole body assessment is possible with a single radiation exposure, as the ionizing agent is administered to patients rather than being delivered from an external source to each region of the body to be evaluated, as performed with radiologic imaging (e.g. conventional X ray or CT). However, scintigraphic images lack accurate anatomic landmarks for precise localization and characterization of findings, in spite of the fact that specific radiopharmaceuticals are used for assessment and diagnosis of specific disease processes.</p> <p>Despite the advancement in the technical side there is still dire need for the proper teaching and training of human resource in the field of hybrid imaging. The reporting clinicians are usually Nuclear Physicians or Radiologists and the hybrid imaging results are required to be reported on their morphological findings as well as their metabolic activity. Sometime it is logistically impossible to have both specialists available in a single centre. In most of the Pakistan Atomic Energy Nuclear Medicine Centres there is dearth of qualified radiologists because of multiple constraints. Not only this there is no standardized or recognized certification or degree program in Asian region. The only learning option available is short course offered in some meeting or conference etc. To overcome this acute problem of shortage of qualified manpower in hybrid imaging, it is suggested that a new certification or degree program should be started with collaborative efforts of IAEA , PAEC and ASNM .</p>
Why should it be a regional project?	<i>As mentioned above, there is no harmonized teaching and training program available in most of the developing countries and in Asian region. The developing countries are booming with these techniques and as per statistics the installation and usage of the hybrid machine are on rise in the developing countries. newly established To develop a standardized</i>
Stakeholder analysis and partnerships	<i>The major stake holders in this project would be PAEC, IAEA and ASNM. 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. PAEC is torch bearer in teaching and training in Nuclear Medicine. The M. S Nuclear Medicine program of PAEC was the first of its kind teaching and degree program in the region. Through IAEA fellowship program fellows from various developing nations have acquired this degree. 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>

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	<input type="checkbox"/> Resource (providing expertise) <input checked="" type="checkbox"/> Target (receiving expertise)			
Funding and project budget	<i>Provide an estimate of the total project costs and the funding expected from each stakeholder:</i>			
		Euro	Comment	
	Government cost-sharing	10, 000 USD	(to be sent to the IAEA)	
	Counterpart institution(s)			
	Other partners			
	IAEA Technical Cooperation Fund (TCF):	Fellowships / Scientific visits / Training courses/ Workshops	50, 000 USD	
		Experts	30, 000 USD	
		Equipment	20, 000 USD	
		TOTAL	1.1Million USD	