New Hopes and Serious Potentials for a Collaborative Network on Cognitive Science and Technology among ECO Member Countries

Economic Cooperation Organization (ECO) is an intergovernmental regional organization established in 1985 by Iran, Pakistan and Turkey for the purpose of promoting economic, technical and cultural cooperation among the member states.

In 1992, the Organization was expanded to include seven new members, namely: Islamic Republic of Afghanistan, Republic of Azerbaijan, Republic of Kazakhstan, Kyrgyz Republic, Republic of Tajikistan, Turkmenistan and Republic of Uzbekistan.

Over the past 20 years the member states have been collaborating to accelerate the pace of regional development through their common endeavors. Besides shared cultural and historic affinities, they have been able to use the existing infrastructure to further fortify their resolve to transform their hopes and aspirations into a tangible reality (ECO Official Website, 2011).

Having consensus on emergence of essential needs for scientific cooperation for regional development, all the ECO member states signed the charter of the ECO Science Foundation (ECOSF) during the third ECO Summit held in Islamabad in March 1995. The 1st ECOSF Board of Trustees meeting of the Foundation was held in Islamabad in December 2011. The ECOSF will serve for building up a reservoir of highly skilled, scientific and technical manpower and facilitate promotion of scientific and technical research among the member states of ECO. The headquarters of the Foundation are located in Islamabad and for the time being, it is housed in the Pakistan Science Foundation building. ECOSF has planned to make its activity more visible with a Regional Conference on Science & Technology tentatively in September 2012. The conference will also include a lead lecture on cognitive science with emphasis on “critical thinking”.

Cognitive science is the interdisciplinary scientific study of the mind and its processes. It evaluates what cognition is, what it does and how it works. It includes research on intelligence and behavior, especially focusing on how information is represented, processed, and transformed (in different dimensions such as perception, language, memory, reasoning, decision making and emotion) within nervous systems (human or animal) and machines (e.g. computers). Cognitive science interconnects multiple research disciplines, including psychology, artificial intelligence, philosophy, neuroscience, linguistics, anthropology, sociology, and education (Thagard, 2008). U.S. National Science Foundation in an outstanding report in 2002 labeled cognitive science along with nanotechnology, biotechnology, and information technology as “Converging Technologies for Improving Human Performance”. This report put emphasis on potential uses of Cognitive Science and Technologies (CSAT) in improving health, providing wealth and overcoming disability for humankind and all nations. "Understanding of the mind and brain will enable the creation of a new species of intelligent machine systems that can generate economic wealth on a scale hitherto unimaginable. Within a half-century, intelligent machines might create the wealth needed to provide food, clothing, shelter, education, medical care, a clean environment, and physical and financial security for the entire world population. Intelligent machines may eventually generate the production capacity to support universal prosperity and financial security for all human beings. Thus, the engineering of the mind is much more than the pursuit of scientific curiosity. It is more even than a monumental technological challenge. It is an opportunity to eradicate poverty and usher in the golden age for all humankind" (USNSF, 2002).

Based on ECO missions with final goal focused to happiness and prosperity of ECO region inhabitants, ECOSF could not ignore importance of CSAT. Unfortunately, CSAT is completely underdeveloped in ECO member states. There are some good activities in Turkey and Iran regarding CSAT, but to our best knowledge other member states do have shortage of organized activities under an interdisciplinary umbrella named CSAT. Despite underdeveloped backgrounds, there is existing potential in the region for collaborations focusing on promotion of CSAT. In the ECO region, we have shared human genetic pools, commonalities in language, similarities in culture, close ties in religious beliefs, and resemblance in external environment and ecology. These collaboration assets will foster positive outcomes of mutual investments on CSAT by ECO member states and ECOSF is an excellent forum to facilitate this process.

There are several potential topics for joint studies and activities focusing on development of CSAT understructure in ECO member states such as the following:

1. Cognitive Understructure of Complex Human Related Issues: Economic and scientific development is one of the main focuses of all the nations. Humans as the main resource and target have a critical role in all aspects of development. Cognitive understructures of humans, who can provide, serve and accept this development, could be

a target for studies and interventions. There are some other complex social issues and better understanding of their cognitive elements could provide a valuable tool for their management. Regional integrity, trust and cooperation, racism, fundamentalism and intolerance, terrorism, environmental protection, and finally welfare and happiness are among these complex human-related issues that could be the target for CSAT studies and interventions.

2. Transcultural Differences in Cognitive Processing: There are limited, but robust, published studies that show serious similarities among countries in the central and south west Asia (mainly ECO members) along with serious transcultural differences in comparison to western and far eastern countries in different cognitive processing (Ekhtiari, et al., 2009). Decision making and judgment, social cognition and interpersonal relations, life-time cognitive development, emotional processing, and morality and religiosity are hot potential topics for transcultural studies in the field of cognitive science in the region. These studies could shed light on the nature of international conflicts, misunderstandings and intolerance between north and south and west and east that usually have an active side in our region.

3. Interactive Role of Cognition, Language and Culture: Multicultural and multilingual nature of the ECO region, yet with commonalities, provides unique opportunities to study bidirectional interaction of the language and culture on one side and human cognition on the other side.

4. Interaction between Genetics and Cognition: Most of the published studies on the role of the genetic elements in human cognition and behavior are from western countries. Unique and untouched regional genetic backgrounds and diversity will provide great opportunities for providing a better understanding of genetic basis of cognition and neurocognitive disorders and may lead to newer insights.

5. Common Brain Disorders in the Regions: Neurovascular and neurodegenerative disorders, traumatic brain injuries, infectious brain diseases, psychiatric disorders and drug addictions consist main part of health burden in the region. Researchers and scientists from the clinical wing of CSAT work on these brain disorders all over the world. Regional collaborations focusing on ecologically and culturally validated prevention, diagnosis, assessment and intervention methods will reduce pain and enhance quality of health and medical care in the region.

6. Advanced Technologies in Neuroscience: Neuroscience, as a main part in CSAT, is one of the most rapidly growing sciences. Regional collaborations and exchanges will provide opportunities to bridge the gap in advanced technologies in neuroscience between ECO member states and industrialized countries. Cellular and molecular neuroscience, structural and functional neuroimaging, and electrical and magnetic brain stimulation techniques could be the target for this technologic cooperation.

Providing a data bank on sharable technical and human resources in different related fields of CSAT in ECO member states commissioned by ECOSF for exchange and cooperation in the field of CSAT among member states, could be the first step in establishment of a regional collaborative network. Governmental funds for joint research projects, arranging multinational collaborative research teams on different domains, organizing long term or short term educational courses, publishing scientific journals and newsletters and holding expert meeting and congresses for scientific exchange via CSAT department, division or chapter of ECOSF could be the next steps. These steps can be expedited in collaboration with newly established ECO Educational Institute (ECOEI), Ankara, Turkey.

We believe that governmental and intergovernmental investment for development of CSAT within ECO member states should be one of the priorities to reach to ECO missions with final goal focused on happiness and prosperity of ECO region inhabitants. We hope regional cooperation for development of cognitive science will start with ECOSF initiatives and have a significant role to bring health and wealth to the member states.

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