SESSION 5.1 (SOCIAL SECTOR INNOVATIONS: HEALTH/EDUCATION)

Role of Universities in building research and innovation capacities in Nepal

Sohan Prasad Sha [a] & V. V. Krishna [b]

[a] PhD Candidate, Center for Studies in Science Policy(CSSP), School of Social Sciences, Jawaharlal Nehru University, New Delhi -110067, INDIA. Mobile: +91-9650965292 email: sohansha@gmail.com. [b] Professor at CSSP, School of Social Sciences, Jawaharlal Nehru University, New Delhi -110067, INDIA.

Abstract: Innovation is crucial for competitiveness of the economies and growth. Learning is an integral part for innovation. 'Innovation system' is a popular framework to study the dynamics of the innovation at various levels. The university/ education system is a major actor in the framework to enhance competencies in the economy. The paper explores the role of universities in building indigenous scientific community for least developed countries, like Nepal, towards making her own 'national innovation system'(NIS). NIS framework explores the interaction, linkages and the appropriate institutions, in developed nations as it is explicitly assumed, however, in the context of LCSs like Nepal, it is not only difficult but also largely inaccessible to unpack such trends. Thus, the modest attempt in the paper is to contextualize Nepal's specificities and evolution process in education system as a whole and henceforth, to contrast with historical experiences of newly industrialized nations and others to learn the transition towards NIS. The historical experiences will not only free our assumptions but it may open the possibility for 'new policy' imagination for LDCs through theoretically informed empirical analysis for approaching NIS framework.

Universities and innovation in informal settings: evidence from case studies in South Africa

Glenda Kruss and Michael Gastrow

Education and Skills Development programme, Human Sciences Research Council, South Africa, gkruss@hsrc.ac.za

Abstract: Technological and economic development benefits a minority of the global population, challenging universities to consider how a transformative framework of innovation for inclusive development can inform an expanded understanding of their 'third

mission'. However, there is little conceptually and empirically informed research available, a gap that stimulated exploratory qualitative research to open up the field, through four case studies of emergent practices in South Africa. The paper aims to identify conditions that facilitate and constrain interaction and knowledge flows between universities and marginalised communities around livelihoods in informal settings. Analysis highlights how actors are driven to interact with one another, to learn and develop new competences. Conditions in the national and local policy environment intersect with organisational conditions within universities and communities, and within the interaction itself, to shape outcomes that impact on livelihoods and development. The conclusion reflects how working concepts may be refined to inform further research.

Knowledge-based Economy and Innovation: Does Gender Gap in STEM Education pose a challenge for India?

Christabell P J

Assistant Professor, Department of Futures Studies, University of Kerala, Thiruvananthapuram, E-mail ID: christabell@keralauniversity.ac.in, Ph: +91 471 2305321 (Office), +91 9497850893 (Mobile)

Abstract: Knowledge and innovation are widely acknowledged as key drivers of growth and economic development. All the economies in the world are shifting into a new phase of development based on the production, communication and consumption of knowledge which is popularly known as "the knowledge-based economy" (KBE). In a KBE, a significant part of a nation's value consists of intangible assets, such as the value of its citizens' knowledge. In many countries attention is being given to the participation of students in tertiary Science, Technology, Engineering and Mathematics (STEM) education as industry, government, and academic leaders cite increasing STEM workforce as a top concern. India holds world's largest young population, but she must also be a possessor of the largest young work force with the highest level of knowledge skills in the world. The nation needs to increase the number of experts in STEM fields to drive innovation and keep the country competitive in the global economy. The gender gaps in entrance to and attainment of postsecondary STEM education have long been a concern to educators and policymakers. This concern is increasing because, in the modern technology-oriented world, full use of human resources is imperative to keep the nation competitive with other countries. It is in this context the present paper tries to examine how the gender gap in STEM participation pose a challenge to the future of KBE and the resultant innovations in the country. An empirical investigation on female participation in STEM education is attempted using factor analysis.

Challenges of Molecular Diagnostics Innovation System Development in India

Nidhi Singh and Prof. Dinesh Abrol

Abstract: This study, have been done to analyze the emergence and formation of molecular diagnostics innovation system in India. The study through empirical analysis finds India being a latecomer country in the field of molecular biology research and has not been able to keep up with the worldwide pace of development of technological innovation system and lacks in production and new technology development related capabilities in case of molecular diagnostic development. Investigations also indicate that as far as the current situation stands with regard to the development of value chain in the sphere of molecular diagnostics, even today the components essential for the development of indigenous technology development are mostly absent in India. Dependence on imports and lack of competition from domestic players to foreign firms in the supply of molecular diagnostics has resulted into high prices due to which these tests are unaffordable and thus, it is also unavailable to majority of population. Traditionally the development of diagnostics in domestic private sector pharmaceutical firms was overshadowed by drug and vaccine development due to low revenue returns. Although recently few start-up firms have begun to take interest in both manufacturing and R&D for developing diagnostics for tropical disease for example, specific disease related biomarkers, but their overall market share as compared to foreign firms is quite insignificant. Study also suggests that failures seem to be occurring at the end of both, discovery research as well as technology development which clears out that the practice and policy regime have been affected adversely by the belief that the new regime will create a market for knowledge enabling the industry and institutions to accelerate their activities of learning, competence building and innovation making. Therefore, the failures in alignment would have to be tackled by undertaking a suitable systemic correction of the policy regimes under perusal in the sphere of trade, industry building, science and innovation in India.

Innovation and Exclusion in Emerging Technologies: Understanding the Dynamics of Oncology Research and Innovation Systems in India.

Rajesh Kalarivayil

Assistant Professor, Department of Social Work, Tezpur University, Assam -784028, ***rajesh.wdr@gmail.com****, Ph. 08800120984*

Abstract: The present paper is an attempt to explore exclusion from the macro level in knowledge production and its links to inclusion at the micro level. This paper examines the recent trends in oncology research and innovation in India and its implications for access and inclusion of poor and marginalised communities. This paper maps biotechnology, nanotechnology and information communication technologies in the oncological research and innovation in India. The empirical analysis is performed on a unique data set of publications and clinincal trials related to oncological research. The trends indicate that research in oncology is drifting towards Molecular and cellular level particularly in biomarkers, nanomedicine and bioinformatics. The immediate effect of this drift is a decrease in the research in organ based cancers. This has also lead to an exclusion of epidemiologically relevant cancers like oral cancer and lung cancer which is predominantly prevalent among lower income groups in India.Technology platforms like nanomedicine, biomarkers and genetics receive high funding in research stage. However the extent to which public funding goes in to the utilization of the knowledge, product development and commercialization are not clear. Further there are no specific policies or guidelines towards the utilization of research taking place in these technology platforms.