Special Article

Need Southern Innovation Hubs – Can BAPA+40 Help?

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Successive scientific discoveries led to technological innovations of the kind that laid the foundation of the modern systems of production and later, with maturing of technologies, particularly in the class of general-purpose technologies, positive externalities induced citizens to consume technology-led products and services. Technology led to increased productivity, initially in the industrial production. Hence, technology-aided division of labour allowed mass production at the lower unit cost compared to the traditional production techniques. However, technology use in industrial production remained highly concentrated in a few countries that saw the birth of industrial revolution. The same was transported to the similar countries in the 'West', which were relatively well-off to take advantage of the technology-led industrialisation. They constituted the earlier industrialised countries. The rest remained technologically 'backward' with absolute dependence on the industrialised countries for finished manufactured products.

Beyond industrial production, modern science since the 19th century has helped in leapfrogging in medical sciences, communication and mobility. Developing countries could afford a miniscule fraction of a wide range of technologies that saw heavy consumption in the developed countries. The World Wars also meant for proliferation of military technologies in the 'first' world, have left the 'third' world to languish economically and politically. However, some countries in

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the developing world slowly and steadily emerged through efforts at technological learning and catch-up, and due to comparative advantages of labour supply started developing industrial sector, primarily to take advantage of low technology-intensive manufacturing. Nevertheless, in the recent decades, several developing economies have emerged as production bases in the category of medium and even high technology goods, and skill intensive services. This is particularly true of the 'emerging' Asia, including large developing countries like China, India and Indonesia in the more recent decades. Static comparative advantages did not restrict space for dynamic comparative advantages, and technological efforts towards technological learning (and at times innovations) proved to be successful endeavour.

Historically, knowledge flows were from the developed to the developing economies were overwhelmingly through the channels of skilled human capital. This did not benefit a large number of developing countries. With time, innovation systems in the advanced countries acquired mammoth size and scale further dwarfing technological abilities of the 'Southern' countries. Capitalist means of production took shape beyond the competitive market forces through rent seeking (oligopoly) domestically and internationally. Hence terms of trade for the developing countries could not improve beyond a point, even for the newly industrialised countries. All through, developing countries remained, therefore, at a point of disadvantage with regard to industrial production and its contribution to GDP. Only a few countries could garner the courage to channelize already strained national resources to scientific enterprise that is risky and uncertain. A select group of countries like India felt the need for investing in human capital generation and public patronage of science to reach a point of self-reliance in technology and also create a pool of researchers and professionals, who could shape the direction of technological change in the country. This strategy obviously paid off in the case of India, where it is often suggested that India's emergence was possible due to human capital and expertise in select knowledge-intensive sectors more than anything else. This is borne out by the fact that skill-intensive service sectors have influenced significantly growth prospects, and India's merchandise exports have become more technology-intensive over time.

Examples of East Asia, South East Asia, China and India suggest that technological determination pays strong premium in achieving high growth even when developing countries have bottlenecks like inadequate institutional frameworks, staggered economic reforms and poor infrastructure. R&D efforts, made in countries like South Korea, did not only help them emerge as a strong industrial production base, but contributed further towards active pursuance of science in frontier areas and enabled a thriving innovation ecosystem. India's success at promoting industrial technologies

has been modest, but a consistent effort at expanding the scientific base through public-funded institutions has been beneficial in terms of gaining niche and expertise in low-cost technology development across variety of fields like space, pharmaceuticals and chemicals. The adoption of the third industrial revolution vintage of technologies like automation and internet has been more because of push factors provided by open economy and internationalisation of production driven by large firms and MNCs. The transition to industrial societies took longer time for the earlier industrialised countries owing to relatively slow moving technology frontiers and lower network propensities. Thankfully, the emerging economies have been able to achieve technology-led transformations within a shorter time span by exploiting standardised technologies. Integration with the world economy helped in the process by enhancing resource capabilities and expanding market opportunities.

However, it would be naive to consider capability building in developing countries as exclusive efforts by the countries themselves. The fundamentally skewed world order restricted in many ways the access to technologies and innovations, and developed countries played a very limited role in strengthening S&T infrastructure in the developing countries; with only a handful of countries inheriting a chequered colonial legacy of education that too miserably lower than the requirement. The successful experience of select developing countries in post-war period in proactively pursuing science and higher education was considered forward looking and radical. It was also apparent that collective efforts in the Global South on knowledge-sharing and capacity-building could generate necessary impetus for relatively lagging countries to make a beginning in indigenous capability development in S&T.

However, the relevance of such efforts as part of the policy thrust and national enterprise moved beyond considerations of leaps in industrialisation and availability of technology-led goods and services. Development transitions and credible development outcomes in poverty alleviation and livelihood creation through industrialisation as well as improvement in health and habitat (by deploying scientific solutions and techniques) robustly caught the imagination of the poor and developing countries. However, with existing capacity gaps, technology can neither be leveraged for rapid economic growth nor in fulfilling promises of a welfare state.

The United Nations Conference on Technical Cooperation among Developing Countries in Buenos Aires in 1978 was held in the backdrop of the call for a New International Economic Order. This conference concluded with the adoption of a milestone Buenos Aires Plan of Action (BAPA). The capacity gaps that existed in the developing countries were furthering through uneven distribution of resources of mere trade flows that followed principles of

static comparative advantages were unable to bridge effectively. Against this background, it was considered appropriate that technical cooperation among developing countries be given utmost importance as a means of building communication and in promoting wider and more effective cooperation among developing countries. It also stressed that such processes are vital force for initiating, designing, organising and promoting cooperation among developing countries so that they can create, acquire, adapt, transfer and pool knowledge and experience for their mutual benefit and for achieving national and collective self-reliance essential for their social and economic development. The emphasis was seen as a confirmation of the potential of cooperation in knowledge and capacity-building exercise that was already taking place between Southern countries.

In many, ways such collaborations and cooperation were spontaneous and strongly adhered to principles of mutual benefit. Many developing economies that had acquired better scientific and technical expertise had been offering technical solutions as well as skill development in partner-countries in the years following decolonisation. India's efforts in this regard are very noteworthy. The spread of technical cooperation among developing countries has laid solid foundation for deeper engagement and multiple modalities of South-South Cooperation which would prove immensely useful in the following years.

Today, technical cooperation and capacity-building efforts under the SSC have become much more sophisticated and technically robust and are nearly approaching an ecosystem approach where development partnerships have extended to sharing of ideas and collective efforts at creating accommodating space for agriculture productivity, health sector cooperation, skill development, regional value-chains, climate change, mitigation, etc. The variety in approaches and proliferation of partnerships is a definite acknowledgement of the fact that thematic development cooperation under the SSC is serving an important role in driving economic growth in developing countries. This is evident from the fact that S-S trade has significantly gone up and increasingly developing countries are relying on each other for attracting investments and development assistance. It has to be kept in mind that beyond trade linkages, development assistance and investment have formed a key source of S-S technological flows and skill development. This form of technical cooperation among developing countries breaks away from past experiences of technical cooperation. The challenge hereafter is to see that institutional linkages, both in the public and the private sector, are taken more seriously under S-S cooperation that goes beyond grants, loans and investment to foster knowledge and innovation linkages.

Next year we shall be celebrating BAPA+40 (the Second High-level United Nations Conference on South-South Cooperation), and developing

countries are expected to reassemble at Buenos Aires on March 2019 to draw a roadmap for SSC in the 21st Century. As discussed in this paper, the nature of resource and knowledge flows in the global economy has changed dramatically and rules of exchange of the last century may no longer be valid. At the same time, fast moving technological frontiers have enabled cooperation and exchange even without the mediation of the States. In the early avatars of industrial revolution, that were confined to the 'North', demonstration effect strongly propagated adoption and proliferation of technologies. However, 'South' has always suffered from capacity gaps and a liner process of industrialisation and technology acquisition and innovation has been absent due to resource and institutional bottlenecks. With rising confidence in the SSC, it must be acknowledged that much of it has focussed on enhancing economic cooperation and arm's length capacity development. However, SSC needs to evolve further into nurturing strong institutional linkages in the Global South to promote S&T and innovations. In fact, resources must flow into such activities under the larger framework of SSC that can build institutional networks and Southern innovation ecosystems (beyond boundaries) to overcome difficulties of widespread market and systemic failures in individual Southern countries. Institutional collaboration can lead to Southern innovation hubs across a variety of domains. The premium of successful attempts would be game changing. BAPA+40 must consider laying a roadmap and recommendation for creation of 'innovation hubs' in the South suiting the needs of the 21st Century thereby maturing from technical cooperation paradigm of the previous century.

STRENGTHENING MARINE WORLD HERITAGE IN SUDAN

From 9 to 12 October 2018, World Heritage managers from the Africa and Arab region met at Sanganeb Marine National Park and Dungonab Bay – Mukkawar Island Marine National Park in Sudan. The focus was on sharing expertise in balancing conservation with reduction of poverty among local communities dependent on the heritage area. The Sanganeb Marine National Park was inscribed on the World Heritage List in 2016 and includes a highly diverse system of coral reefs, mangroves, seagrass beds, beaches and islets. Dungonab Bay hosts a globally significant population of dugongs while the site provides a habitat for seabirds, marine mammals, fish, sharks, turtles and manta rays. World Heritage managers from the Banc d'Arguin National Park in Mauritania and iSimangaliso Wetland Park in South Africa shared their experience on the use of World Heritage status to leverage jobs, generate income, ecotourism and attract necessary support for environmental protection.

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