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Indian Diaspora: Policies and Challenges of Technology and Knowledge Transfer

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Indian Diaspora: Policies and challenges of Technology and Knowledge Transfer

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Diasporas play an important role in the economic development of their countries of origin by promoting trade, transferring new knowledge and skills and above all mobilising investment. In our country, there is an immense scope for technology and knowledge transfer that can help brain gain and circulation to enhance our soft power and promote collaborative research for meeting the development challenges. Prime Minister Narendra Modi said “Let us view our Diaspora not only in terms of ‘Sankhya’ but let us see it as ‘Shakti’.”

We are witnessing that the reducing gap between the developed and developing countries as a result of leveraging the strengths of the migrant human capital of researchers, entrepreneurs, scientists, technologists and professionals. The challenge is in evolving diaspora friendly policies in employment, knowledge partnerships, and entrepreneurship policies. The return of expatriates to the home country can certainly be beneficial provided an ecosystem is created that fosters strong research and development, better employment and investment opportunities and also infrastructural facilities.

Indian diaspora has recently gained recognition among our policy makers and the Pravasi Bharatiya Divas (PBD) is being observed as contribution of Overseas Indian community in the nation’s development since 2003. Further, Indian alumni are being encouraged to contribute to our universities through a Government of India Scheme called Global Initiative of Academic Networks (GIAN). These are some efforts of diaspora engagement. There is a strong need to examine the process of knowledge and technology transfer through global experiences and how these can be contextualised through our policies in the social sector that will impact the way we productively engage with our diaspora.

This paper will examine the challenges, policies and strategies for knowledge and technology transfer of our human capital that will help contributing towards nation building and developing a sustainable knowledge society.

Keywords: Technology and Knowledge transfer, Academic networks, Innovation, Entrepreneurship and Indian Diaspora.

Introduction

A diaspora is —that part of people, dispersed in one or more countries other than its homeland, that maintains a feeling of transnational community among a people and its homeland (Chander, 2001, p. 1020).

....the mobilization of knowledge and skills of these expatriate professionals can play an even more effective role [in] facilitating economic development in their countries of origin [than individual or collective remittances] (Johnson and Sedaca, 2004, p. 73).

Diasporas, in many ways helps the countries of their origin not only in the area of economic development by promoting trade and mobilising investment, but also helps in creating business opportunities, promoting foreign direct investments and transferring knowledge and skills. Indian diaspora constitutes a significant economic, social and cultural force in the world today as according to an estimate their number is over 28 million in the world (FICCI, 2013). The traditional thinking of the policy makers that perceived nationals living abroad as a loss is witnessing a distinct shift as today they are being recognized as an asset.

Though, several states around the world seeks for diaspora engagement, however only few of these have succeeded in actively engaging their diaspora for mutual benefits and interests. This is evidenced in terms of strengthened bilateral relations between host and home nation apart from providing aid in the development activities of native states. The Indo-US Civil Nuclear Deal is a case in point, as ethnic Indians in United States successfully lobbied for clinching of the N-deal (Singh, 2013). Further, Indian diaspora is contributing a lot to India especially in the terms of investment, foreign trade, transfer of technology and knowledge and cultural linkages between the nations apart from adding to the revenue through remittance with an estimate of \$ 69 billion (World Bank Report, 2015). However, the benefits accruing through diaspora population needs to be channelized properly to capitalize on it. And, therefore, there is a requirement of dedicated policies for diaspora engagement.

Indian diaspora is not a recent phenomenon as it continued since colonial period. However, their acknowledgement as an asset is a new aspect of 21st century and several policy shifts were done for integration of diaspora to nation's development through knowledge and technology transfer in particular.

1. Understanding the Indian Diaspora:

Earlier, the diaspora was seen as a concept of forced exile but now it is seen as more generic concept and is used to describe a transnational population where the cultural origins of that group are said to have arisen in a land other than that in which they now reside and whose social, economic and political networks cut across borders and are even global. Today, there is no inconsistency between being responsible citizens of the host country while continuing to maintain social and cultural links with one's homeland. It is equally important to understand that, not all the displaced, migrated populations are identified as Diasporas. Though all the diasporas are result of migration but not all the migration are called as diasporas (Skeldon, 1997). The crucial elements that make the concept meaningful and legitimate to use, is their self mobilisation around their awareness of themselves as Diaspora (Sahoo & Maharaj, 2007: 113). The continuing existence of migrant community with their 'self awareness', 'self imagination' and 'connectedness', to the country of origin, not only lead to the formation of Diaspora but also helps in the organisation of diasporas.

The Indian Diaspora is a generic term to describe the people who migrated from territories that are currently within the borders of the Republic of India. It also refers to their descendants. The Diaspora is currently estimated to number over twenty million, composed of "NRIs" (Indian citizens not residing in India) and "PIOs" (Persons of Indian Origin who have acquired the citizenship of some other country). The Diaspora covers practically every part of the world. As per the Report of the High level Committee on Indian diaspora 2001, the largest percentage of the populace is concentrated in South East Asia region (32%). The next bigger concentration is in Gulf region with 19%, however, it is almost half of the South East Asia. USA is home to 10 percent of Indians. Latin American & Caribbean and UK both has 7 percent of Indian people, closely followed by Mauritius & Reunion and South Africa both with 6 percent of Indians. Other regions where Indians live are-Canada with 5 percent, Asia Pacific with 4 percent, other European countries with 3 percent and least number of Indians in East Africa with just 1 percent.

There are three categories of overseas Indians.

- **NRI's:** Indian citizens staying abroad for indefinite period for whatever purpose
- **PIO's:** Overseas Indians who have become citizens of the countries of their settlement.
- **SPIO:** Stateless Persons of Indian Origin who have no documents to substantiate their Indian Origin (Majority in Myanmar and Sri Lanka).

Contemporary flows from India are of two kinds: The first is the emigration of highly skilled professionals, workers and students with tertiary and higher educational qualifications migrating to developed countries, particularly to the USA, UK, Canada, Australia and New Zealand. This flow started after Indian independence and gathered momentum with the emigration of IT professional in the 1990s. The second is the flow of unskilled and semi-skilled workers going mostly to the Gulf countries and Malaysia, following the oil boom in the Gulf countries, mainly from Kerala and other south Indian states (MOIA, 2012). Of late, however northern states in India like Uttar Pradesh and Bihar have also emerged as the leading states of origin for such migration.

2. Diaspora and Development:

Due to globalization, the influence and impact of diasporas has increasingly become important especially in the areas of policy and in some cases on politics. It is important to see the relationship between the diaspora and nation's development and there are two different views about the relationship between diaspora and countries of origin. The first view is the "balanced growth" approach. The liberal economic theory suggests that, by alleviating unemployment and providing economic support through remittances and development of migrants' skills, migration enhances development in countries of origin, narrows intercountry income disparities, and eventually makes migration unnecessary. While the systemic view does not agree that migration, through remittances and return of skills, automatically accelerates development in the country of origin. According to systems theory, migration often distorts the development process through "brain drain" and widening of income disparities (Singh, 2012). Diaspora should not be seen only as either positive or negative in its contextual sense. For example, the remittances sent back to the home country by the diaspora can be significant for the local economy yet the fact of the migration that created that diaspora itself reflects a lack of development in the homestate and can and does have negative consequences, for example, on families of migrant workers (Rajan, 1999). Both the views are important and the applicability of both the views depends upon the socio economic environment of the countries of origin as well as to the countries of destination. But, the relationship between diaspora and development is a two way approach, and there are two levels broadly on which diaspora and development interacts:

- First, the effect of diaspora in development, in terms of family remittance transfers; demand of services, such as telecommunications, consumer goods, or travel; capital

investment and charitable donations to philanthropic organizations (Brinkerhoff, 2008: 208).

- Second, development affects migration, in the sense that closer economic integration symbolized by freer trade and investment can speed up change in developing countries, affecting the scale of international migration itself.

3. Development Outcomes of Diaspora Engagement:

The impact of diaspora's on their countries of origin has several dimensions especially in terms of investment, trade, remittances, trade, philanthropy, networks and so on, but the focus of the present paper is mainly on the impact of diaspora's in transferring knowledge and technology in their countries of origin. Since these impacts are not mutually exclusive, it may be pertinent to cover all these aspects.

3.1 Remittances: The principal focus of the economic benefits to the countries of origin through their diaspora's is in the form of remittances- private transfers from the migrant population to their families. There is growing evidences that the remittances are the single largest source of foreign net flows (Kapur, 2005). As per the latest World Bank Report (2015), remittances to developing countries amounted to \$431.6 billion in 2015, an increase of 0.4 percent over \$430 billion in 2014. India retained its top spot in 2015, attracting about \$69 billion in remittances, down from \$70 billion in 2014. For many developing countries, remittances are an important source of family (and national) income and are the largest source of external financing. The total value including unofficial remittance flows – money and goods sent through family, friends, informal or semi-formal channels is thought to be much higher. Of all transfer flows to the developing countries over the past decade, only migrant remittances showed a positive growth tendency, while flows to capital markets, foreign direct investment and public development aid have receded (Ludger Pries in Sahoo and Maharaj, 2007: 302). It is also important to mention that, remittances do not automatically contribute to national development. According to the International Organization for Migration (IOM), remittances tend to follow through three spending phases- a) family maintenance and housing improvement, b) conspicuous consumption (spending resulting from tension, inflation or in a crisis situation or at times ostentatious expenditure as well), and c) productive activities (improvement of land, education or health) (Sorenson et al., 2002: 14- 15). A large percentage of remittances do not extend to the third

phase. According to the World Bank, remittances can (i) reduce recipient household poverty, with spill over to other households (ii) increase investment in education and health as well other productive activities (iii) reduce child labour; and (iv) increase entrepreneurship (Ozden and Schiff, 2005). The presumption that remittances have a positive effect on development must be read with the underlying assumption that underdevelopment, emigration and remittances are correlated by definition (Gamlen, 2006). Thus, remittances are very important and stable source of incomes for many families as well as a source of foreign exchange for many developing countries. Along with this, remittances provide a significant role especially in cases of natural disasters by sending more money home. For instances, in case of Nepal Earthquake, remittances increased by 20.9 percent in 2015 as against 3.2 percent in 2014.

3.2 Trade and Investments: There is evidence of that indicates strong correlation between the presence of diaspora residing in a country and trade ties to the country of their origin. Another significant role that diasporas plays is in the economic development of their countries of origin through investment. Diasporas plays a dual role when it comes to investment: either directly investing into their countries or by persuading non -diasporas to invest in their countries of origin. The diasporas have unique ownership advantages which ranges from their expertise in the area, networks which they have developed over the time as well as their ability to forecast new developments in their countries of origin. They can also combine this knowledge with the skills, knowledge and networks they have cultivated abroad, yielding important synergistic advantages (Wescott and Brinkerhoff, 2006: 9). They can act as important intermediaries between traditional development actors, and between Diasporas and local communities. Within the diaspora also, there is only a minority who have skills, knowledge and willingness to become direct investors in their countries of origin. But, the others can contribute in the forms of buying shares, buying bonds or putting funds in the deposit accounts of their countries of origin. World Bank calculated that the Diaspora's from the developing countries have savings that amounted to \$400 billion in 2009 (Ratha & Mohapatra, 2011). A few countries mainly Ethiopia, India, Israel and Kenya have issued diaspora bonds especially for the diaspora markets, and some of them have been quite successful in leveraging money from the diasporas. For example, India's first diaspora bond issue helped to tackle a balance of payments crisis after sanctions were imposed following India's first nuclear test; the bond in India raised approximately \$ 11 billion (Ratha & Mohapatra, 2011). However, available information suggests that investment by its

Diaspora in the Indian economy is still very low. Total amount of investments by Indian expatriates (NRIs) over the period 1991-2001 is put at \$2.6 billion out of the total \$100 billion FDI in India (Wei and Balasubramanyam, 2006: 3).

3.3 Philanthropy: Yet another way in which diaspora contributes is through philanthropic engagement in many areas. Philanthropy has a pivotal role in advancing global equity, acting beyond the broader concerns of government and the narrower interests of business. These investments not only contribute in monetary resources, but also new skills, fresh thinking, and innovative approaches to global problems. Kathleen Dunn (2004:12) has observed that, 'Diaspora philanthropy has grown dramatically in the twentieth century, organising itself beyond the scope of providing the relief funds for natural disasters to one of the most important financial and social resources to developing countries'. Some diaspora organizations and individuals seek no personal return on investment, but rather pursue charitable enterprises. Such enterprises range from very small-scale, one-off efforts of community groups to more organized and durable efforts; from the donations of single individuals to powerful networks of like-minded donors. There is absence of any systematic data relating to the contributions made by the diaspora the areas of philanthropy. In India, there is no mechanism to collect data on Diaspora philanthropy, nor is such type of data are kept or interpreted by the government authority or any other research organization.

3.4 Technology, Knowledge and Skills Transfers: In many countries, the diaspora acts as a trust, connecting critical components of the public and private sectors to expertise not available within the country and compensating to some degree for the departure of highly skilled emigrants. Some skills and knowledge-transfer initiatives rely on the temporary (and occasionally permanent) return of skilled diaspora members to the country of origin to teach and train-although these initiatives are hard to scale up because of their high cost and the difficulty of detaching professionals from their regular jobs abroad for meaningful periods of time¹.

Some of the domains in which Indian Diaspora have contributed to endogenous economic development are *inter alia* - IT, diamonds, health and education, medicine and engineering.

¹ Kathleen Newland and Sonia Plaza, in "What We know About Diasporas and Economic Development"; Policy Brief, Migration Policy Institute, No.5, September 2013

This has generally picked up momentum after the economic liberalization in India in the nineties. Recently, the government has taken steps to facilitate diaspora investment, by instituting a “one-stop-shop” for simplified procedural requirements.

Migration encourages a flow of human capital from a relatively poor country to a developed country especially in the area of education, health, communication and technology. In the past, there was a widely held view that the flow of skilled labors from the country can severely affects the productivity of the country by slowing endogenous economic growth and increase inequality as the earnings of the remaining highly skilled workers rise and those of the less skilled fall (ESCAP, 2005, Todaro and Smith, 2006). However, recent and more optimistic views allow for potentially direct, favourable and positive effects as migrants do/may return after a while, embodying a brain gain; and skilled migrants may post remittances—a major source of disposable income that can relax credit constraints on human and physical capital investment (Rapoport, 2008). Along with the remittances, the other important areas where Diasporas can contribute in their countries of origin through technology and knowledge transfer. The knowledge and technology transfer’s Diasporas are related to the personnel with higher education and specialized skills. Knowledge and technology transfer have been a great concern for company, government and institutions. Technology transfer can be defined as inflow of technical knowledge to the market where it is sold and bought (Andrzej, 2005). It is pertinent to note that knowledge transfer is a key tool of technology transfer, technology cannot be transfer if there are no knowledge of what to be transferred. Therefore, knowledge transfer and technology transfer most work together at the same rate of development to achieve transfer. There must be knowledge for technology to be transfer. According to RCUK (2006), knowledge transfer means the two-way transfer of ideas, research results, expertise or skills between one party and another that enables the creation of new knowledge and its use in. The skills and knowledge transfer depends highly on the temporary return of skilled diasporas to teach and train people in their countries of origin. However, these initiatives are difficult to scale up because of high cost and difficulties to detach from their regular jobs abroad for a substantial period of time.

4. Benefits and Challenges of Technology & Knowledge Transfer:

Transfer of technology has played a key role in the economic and industrial development of any nation. It seems that Less Developed Countries (LDCs) can increase their productivity

and efficiency levels through the acquisition of technical knowledge and skills from the developed countries. The expansion of networks and the transfer of knowledge are often cited as very important outcomes of Diasporas. Technology transfer brings the world together as one large market place. When technology transfer are properly transferred across the world from the developed nations to the less developed ones, economic vibrancy will be seen and nations will draw closer to one another making the world look like a large global market place. Internationalization of domestic market is also a benefit to technology transfer. The benefit of knowledge transfer is enormous; this is why developed countries continue to invest a lot of resource in their universities and R & D centres (Odigie & Hua, Undated). Developed countries have over the years encouraged the transfer of knowledge from the university to companies by creating partnership policy. This policy will encourage how knowledge transfer could be translated into practice. In the developing countries of the world, this aspect of transfer is lacking greatly, simply because of lack of funding from the government. The technology and knowledge transfer has been a great challenge for the developing countries because of their lack of appropriate infrastructure and mismatch in the educational development. But over the years, developing countries have tried to encourage the participation of Diaspora in the area of knowledge and technology transfers. For instance, in many developing countries, medical professions have realized their inability to train their health care professionals with adequate skills and knowledge. But, the medical professionals who been trained abroad and acquired particular skills are now been able to bring new trainings, skills and equipment's to their countries of origin. The diaspora members are also funding the medical services, innovations to their homeland (MPI, 2013). For example, the Ghana health project, reached their 21,000 health workers and students who took part in training and education projects which was provided by over 100 *Ghanaian* Diasporas living in Europe. The other area where technology transfers can be beneficial is in the form of maintaining Diaspora Networks. (IOM, 2013). Diaspora networks are really important and useful for the countries of origin because it does not involve the physical presence of Diasporas in their countries of origin. For example, Chile has been able to connect with their Chileans Diaspora living abroad through network i.e *Chile Global- The Talent Network for Innovation*. This network reinforces the development of economic clusters of Chile through connecting their links with Chileans residing abroad who contribute their time, expertise, skills, knowledge to help globalize Chileans companies. *Chile Global* designs and finances business projects which introduces innovation both in production and service sectors and

promotes technology and knowledge transfer from and to Chile (Dovelyn & Newland, 2012). Other initiatives of knowledge and technology transfer follow the model of business incubators. Most people are aware about the role of Indian diaspora in developing IT sector in India, led by the success of engineers as well as entrepreneurs in Silicon Valley. *The Indian diaspora based in Antwerp, Belgium* led to the domination of Indian diamond jewelry industry in the labor market. India currently has 65 percent share of the world diamond market in terms of its value, and 85 percent share in terms of volume and 92 percent share of product. This flow of rough diamonds would not have been possible in India without the penetration of Indian Diaspora into the closed world of diamond trading in Antwerp (Shaw, 2013).

Another success story of stimulating the growth of country by transfer of technology and knowledge is the private hospital sector and medical tourism. *Dr. Prathap Reddy*, a practicing cardiologist returned back to India and opened a 150 bed private hospital in Chennai in 1983. Since, then Apollo hospitals have grown to 8500 beds in 50 hospitals and are one of largest health care group in Asia. The Apollo hospitals have integrated medical services from health insurance to hospital administration to providing diagnostic services and are also involved in many philanthropic projects.

While the diaspora can offer substantial advantages to the development of its country of origin, the diaspora as a development alternative also has some important limitations. Institutional capacity is one of them: mechanisms for transferring knowledge and skills require often significant technical and financial resources (Johnson and Sedaca, 2004). In addition, the usefulness of diaspora volunteers is dependent upon their ability and willingness to provide their services, especially on a volunteer basis. And some influential diaspora groups choose to contribute in a way that does not necessarily benefit the country as a whole but rather benefits smaller segments of society. One example is the *IIT (India Institute of Technology)* alumni associations of the Indian diaspora in the U.S. that donate predominantly to their universities rather than to education at large (High Level Committee on the Indian Diaspora, 2001). The extent to which a diaspora group chooses to be involved in its country of origin also depends on the infrastructure and institutions in the homeland—these are the prerequisite for successful investment, entrepreneurial activity, and even philanthropy. Yet another limitation results from ineffective follow-up mechanisms (Gevorkyan and Grigorian, 2003). While providing assistance and money to the country of origin is important, it is

equally important that this assistance be utilized properly. Some of the barriers of technology transfer to developing countries includes; loss of intellectual property, exploitation of indigenous employees, lack of infrastructure, employees attitudes, government policy/legal protection, geographical location, environment, etc.

For knowledge transfer to take place in developing countries there should be linkages between higher educational institution and companies. A strong partnership between higher educational institutions and industry will strengthen knowledge transfers. The problem in India is that most academics do not have the time to research into problem from industries/companies because of their work load. This has contributed to the lack of interest by companies to collaborate with universities. Intellectual property right have also been a great concern especially to the academic, this has caused a great challenge in the transfer of knowledge. Another challenge of knowledge transfer is the attitude of the business world, they believe that academic do not know much about the business world and so their problems cannot be solved by them. This belief by the business world has made companies not to collaborate with university because they see it as a waste of time and resources (Odigie & Hua, Undated). Also, the area of hidden knowledge has been a great challenge to knowledge transfer. The developed countries hide some of their knowledge from other developed countries and developing countries; this has been a barrier of technology and knowledge transfer companies and countries. Lack of incentives of knowledge transfer from universities to companies is also a barrier. Academic are not paid proportionate to the work done in solving problems.

5. Policy Perspectives and Strategy for Diaspora Engagement in India

The effects of a diaspora are strongly mediated by policies and conditions in the country of origin. Several countries of origin have attempted to formulate policies of Diaspora engagement in order to use their overseas communities as a resource for development. Such policies range from securing better welfare conditions for their migrants abroad to promoting investment and contributions to development. To begin with, it is important to ask first is whether India has a Diaspora policy? Is it stated or written somewhere? Is it clear, transparent and evident in India's dealing with the Diaspora? Looked at formally, there is no 'white-paper' on 'Indian Diaspora Policy'. Neither for that matter, there is no specific policy paper on Indian Migration Policy in the public domain, except for the Emigration Act, 1983 (Singh,

2012). This does not mean that India does not have a specific policy on Diaspora engagement. It is the view of this paper that India does have a robust Diaspora engagement policy and one that is evolving with the active involvement of the Diaspora itself. This consultative process is mentioned in addresses by the Prime Minister and the Minister for Indian Overseas Affairs at the (Pravasi Bhartiya Divas) PBD, which is one of the best forums for Diaspora engagement. It is also significant to mention that, the transformation of ideological climate in India towards Diaspora engagement has begun especially after 90's with the success of IT industry. The Ministry of Overseas Indian Affairs (MOIA) is a unique experiment in Diaspora engagement. India in fact is only the 11th country in the world to have set up a separate 'Diaspora Ministry'. The MOIA was established in 2004 to "promote, nurture and sustain a mutually beneficial and symbiotic relationship between India and overseas Indians" (MOIA, 2009). The MOIA is the nodal Ministry for all matters relating to Overseas Indians comprising Persons of Indian Origin (PIO), Non-Resident Indians (NRIs) and Overseas Citizens of Indian (OCI) as also handle all aspects of emigration and return of emigrants. The mission is to establish a robust and vibrant institutional framework to facilitate and support mutually beneficial networks with and among Overseas Indians to maximise the development impact for India and enable Overseas Indians to invest in and benefit from the opportunities in India. This Ministry has now been merged within the Ministry of External Affairs to avoid duplication and efficiency in dealing with foreign workers-related issues and emergencies which require having better diplomatic back-up and coordination.

Some of the important points on Indian policy of Diaspora engagement are listed below: Regarding citizenship laws, India does not permit Dual citizenship, however its OCI Card scheme provides for life-time visa free travel and full residency and employment rights for Persons of Indian origin who are citizens of other countries. Given India's concerns and pressure from its Diaspora, India evolved its own model, which it called the 'Overseas Citizenship of India (OCI)', which is actually a Card (the OCI card) and is a follow up of the earlier grant of a 'Person of Indian Origin' or PIO Card. This was a hybrid between a dual and single citizenship. India deprived OCIs of political rights, while it conferred economic privileges; even those were also restricted in some ways. OCI, therefore, is "not to be misconstrued as a 'dual citizenship'. OCI does not confer political rights". Similarly, voting rights have not been accorded to Persons of Indian origin who are citizens of other countries, however Non-Resident Indians (NRIs - Indian Passport holders settled overseas) have been

recently restored their right to vote by amending rules for registration of voters located overseas. The Indian Diaspora holding PIO or OCI cards have the right to purchase property in India (except farm and plantation). Tax Incentives Reduced customs duty regime for transfer of residence of Overseas Indians returning back to India are available including the retention of NRI status upto three years after return. Provisions for transfer of funds for philanthropy and tax exemption for the same are available. Portable Benefits Through the provision of SSAs (Social Security Agreements) pensionary benefits of Indian workers and professionals working overseas are both portable and can be totalised in countries where SSAs have been executed. There are many general Laws to promote investments from Indian Diaspora, several provisions have been put in place ranging from special incentives for Bank deposits, investments in the Share Market, and certain special provisions for OCIs and NRIs for Foreign Direct Investment. Also, to encourage employment of overseas Indians, amendments to rules for doctors, scientists, academics and accountants have been or are in the process of being amended. The government of India has launched some schemes over the years for welfare of overseas Indians. To list, some of them includes, Indian Community Welfare Fund, PIO/OCI Card PIO card, Pravasai Bhartiya Bima Yojna, Pravasai Bhartiya Divas and Pravasi Bhartiya Kendra, Mahatma Gandhi Pravasi Suraksha Yojna, OIFC – Economic engagement, Global INK for Knowledge transfer, IDF – Philanthropy, ICM – migration policy research, SSAs/HRMP, Voting Rights, Gender Initiative – Assistance for women against fraud NRI marriages, Youth – Know India programme/Youth Clubs/Scholarships. Though, most of the steps taken by the Indian government to attract diaspora are extremely meaningful but the diaspora engagement policy especially when it comes to strengthening the knowledge and technology transfers needs to be improved. The lack of government participation and partnership with universities and research & development project (R&D) has been a great draw-back to the progress in knowledge transfer. University and R&D project are not well funded by government. Most of the universities have always being involved in the tradition way of lecturing/teaching without more involvement with companies for research and innovations. Developing countries should be involve in the development of knowledge based economy and increase demand for innovation which has brought about new challenges for universities to move beyond their traditional role of educational institution and develop more outreach activities in partnership with company's (Etzkowitz and Leydesdorff, 1997; Etzkowitz and Leydesdorff, 2001; Etzkowitz and De Mello, 2003). To attract the Indian alumni to engage with the Indian

universities and connecting to the youth Diaspora through the channel of educational institutions, the government of India has launched some programs such as Study India Programme, Scholarship Programme For Diaspora Children (SPDC), Overseas Indian youth club and most recent is the Global Initiative of Academic Networks (GIAN). Under the GIAN programme, the Government is inviting distinguished academicians, experts from premier institutions across the world to teach in the higher educational institutions in India. It is hoped that more and more NRIs, PIOs and OCIs use this opportunity for helping the educational institutions in India to achieve the global standards of education. As part of the Global Initiative of Academic Networks (GIAN), faculty from 38 countries are scheduled to deliver courses. It aimed at tapping the talent pool of scientists and entrepreneurs, internationally to encourage their engagement with the institutes of Higher Education in India so as to augment the country's existing academic resources, accelerate the pace of quality reform, and elevate India's scientific and technological capacity to global excellence.

India needs to actively court two important, but largely untapped, segments of the existing diaspora: the young, second generation of overseas Indians; and those approaching retirement. One way to engage youth Diaspora can be tapped through programmes to spend a semester (or academic year) in India in their high school or college years and working with NGOs in social sectors. Unfortunately, the deep malaise in India's higher education - its poor quality and lack of flexibility - is a critical bottleneck in making this happen. Educational services, particularly higher education, need some liberalisation and decentralisation. India needs to set an equivalent of the Foreign Investment Promotion Board (FIPB) for educational services to attract high quality investments in existing public and new private universities. This will not only help in raising India's human capital but will also facilitate the movement of younger Diaspora members to India. At the other end of the age spectrum, India can tap the expertise of a growing number of retirees who have specialised skills that they can offer even if only on a part-time basis. This is particularly the case of retired doctors, engineers, scientists and professors who may well like to visit India especially in winter. However, if India is to become a major exporter of skilled manpower it must liberalise its policies for skilled professionals (especially those of Indian origin) with foreign degrees (at least from recognised institutions). The country cannot simultaneously exult in the success of its diaspora while shutting the door to skilled professionals from abroad (Kapur, 2003). Indeed, in two particular areas - R and D and education - the dearth of talent in public sector institutions makes it particularly important to open it up to any PIOs. On this issue, the GOI

can draw some lessons from the US where sectors such as defence research and even military service are open to non-citizens. The issue of knowledge and technology transfer have been a great interest area for academics, policy maker, and industries in both developed and developing countries of the world. To reduce poverty and increase the economic strength, knowledge and technology transfer to India should be focused upon. Indian government should encourage knowledge and technology transfer as well as local R&D. The transfer of knowledge is not the only economical solution to developing countries but transfer of R&D. This will empower the local R&D for more innovation.

Although infrastructure and policy has been a barrier for knowledge and technology transfer in India, but one of the main barriers is the IPR which has hindered the diffusion of technology in the country. But, it is noteworthy to mention that, the recent government is taking all the progressive steps for engaging the Diasporas for the development of nation. The recent example of this can be related to the amendments in the IPR policy of India. The policy is entirely compliant with the WTO's agreement on TRIPS. It also aims to sustain entrepreneurship and boost Prime Minister Narendra Modi's pet scheme 'Make in India.' The Prime Minister on 14th Pravasi Bhartiya Divas exhorted the diaspora to participate in flagship government programmes such as Digital India, Make In India, Start-up India, Swachh Bharat (Clean India) and Namami Gange (Clean Ganga) for the country's all-round development. The Prime Minister of India also launched a scheme called VAJRA (Visiting Advanced Joint Research) Faculty scheme by the Department of Science and Technology which enables NRIs and overseas scientific community to participate and contribute to research and development in India.

For effective and systematic cooperation with diaspora some strategies need to be worked upon, such as mapping the diaspora and preparing "diaspora profiles", formulating diaspora friendly policies, establishing institutional mechanisms for coordinating the work of different departments within embassies to increase efficiency in building constructive relationships with diasporas and their networks and engaging with multiple stakeholders namely chambers of commerce, investments promotion agencies, trade associations, universities, banks.

Thus, for the overall national development, it is important for the country like India to tap the capacities of the overseas nationals for the development of their motherland as well as countries where they are settled in and it can be done by liberalized the norms for non-resident Indians and persons of Indian origin.

On a global level, we need to explore the catalytic role of diaspora in reaching the Sustainable Development Goals (SDGs) and the 2030 Agenda for Sustainable Development. Diaspora expertise and contributions must be better leveraged to deliver on the 2030 Agenda particularly for SDGs that aim to end hunger, poverty , ensuring healthy lives and lifelong learning that are at one end of the spectrum to the larger development goals of sustainable energy, housing, industrialization, conserving marine resources and eco0 systems, combating climate change, promoting peaceful and inclusive societies. Goal 17 which reads ‘ *Strengthen the means of implementation and revitalize the global partnership for sustainable development*’, in particular opens several windows, such as technology, trade , finance and capacity building for diaspora contribution.

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