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Technology Facilitation Mechanism (TFM): A Review of the Current Proposals and Way Forward

Introduction

Transfer of technology, especially that of environmentally sustainable technologies (ESTs), has been discussed by Commission on Sustainable Development (CSD) and as a follow up of Agenda 21 in Rio+20 processes. However, there was no significant outcome as North-South divide on many issues, particularly intellectual property rights stalled further progress. The proposal to establish a mechanism to bridge the technology gap was resisted and there was no agreement to establish one in the June 2012 conference but the outcome document called for a mechanism to facilitate technology transfer and requested the UN Secretary General to make recommendation regarding the facilitation mechanism. The UN Secretary General's report 'Options for a facilitation mechanism that promotes the development, transfer and dissemination of clean and environmentally sound technologies (A/67/348)' acknowledged the need for a global TFM under the auspices of UN and made recommendations regarding TFM and for constitution of intergovernmental preparatory working group for establishing TFM. This was followed by workshops in 2013 and the second report from UN Secretary General released in August 2013 acknowledged the demand for global TFM and this could involve scaling up the initiatives in place and/or creating new initiatives, including a technology development and transfer fund. As a follow up four structured dialogues were held in 2014. An UN Inter-Agency working group was formed to take up establishing TFM and later this was converted into Inter-Agency Task Force on Science, Technology and Innovation for SDGs as part of the

proposed TFM. In 2015, the discussions over TFM were followed up in the financing for development talks and the post-2015 intergovernmental negotiations. Despite efforts of developing countries, developed countries continued to resist the proposal for TFM arguing there was no consensus on establishing TFM. However, eventually in June 2015 the Financing for Development talks concluded with Addis Ababa Action Agenda (AAAA) agreed upon and in the paragraph 123 it was stated that member states decided to establish TFM to be launched in the UN Summit for Post-2015 Development Agenda in September 2015. Thus TFM was officially launched in that Summit.

Technically, TFM is an initiative of the UN and it has raised lots of hopes and expectations, but unless TFM becomes a fully functional institution with clear cut objectives supplemented by institutional mechanisms backed with resources it may end up as another initiative that has not taken off. The stakes for the South in TFM are high and but for the persistence and efforts of the South it would not have been created. TFM in that sense is much more than a technology transfer initiative. It reflects the aspirations of the South and invokes the quest to use S&T to achieve the SDGs.¹ In the context of SDGs there has been much discussion on how S&T can contribute to SDGs and what measures are needed to harness the potential of S&T, particularly in facilitating technology transfer and use.²

This paper reviews the current proposals for TFM and examine whether they would fulfill the original mandate for TFM and suggestions are made as to what should be done to make TFM an effective mechanism.

It is pointed out that TFM should not end up as a forum or as a mere data bank and information clearing house and instead should become an institution that addresses the multiple challenges in technology transfer and utilisation across sectors and technology with focus on issues in capacity building, handling IP rights and licensing and promoting absorption of technology. The current initiatives regarding TFM are necessary but not sufficient to make this a dynamic mechanism and G77 and China should take the lead in moving TFM forward.

The Addis Agenda in paragraphs 119-123 commits to strengthen coherence and synergies among science and technology initiatives within the UN system, proposes a technology facilitation mechanism to support SDGs and commits to operationalise the Technology Bank for LDCs by 2017. TFM was formally inaugurated in Addis last year and later a 10 member Advisory Panel was nominated by UN Secretary General. According to UNDESA TFM consists of three elements:

1) *a United Nations inter-agency task team on science, technology and innovation for the sustainable development goals;*

2) *an annual multi-stakeholder forum on STI for SDGs; and*

3) *An online platform as a gateway for information on existing STI initiatives, mechanisms and programmes.*³

UN Inter-Agency Task Team and Online Platform

The inter-agency task team has been established and the proposal for an online platform has been put forth while the multi-stakeholder forum will be held as planned. In addition to these the first meeting of the 10 member group has been held in March and an online discussion on ST&I and SDGs has been organised by DESA in April-May 2016. These indicate that TFM is still in the agenda and new steps are being taken. But the question is are they sufficient and whether all the discussion and debates in fora would lead to some where or will they end up as talking shops.

Few proposals have been put forth by the UN inter agency group and UNIDO such as Technology Bank and IP bank for LDCs. The inter-agency

group produced a report that examined the current programmes and initiatives involving UN agencies, identified the issues and challenges in technology transfer and made the following suggestions :

- Improving coverage and data quality, building on the structured information on technology related initiatives within UN system;
- Identify relevant initiatives that did not originate from UN system but involving others for collection of comparable information;
- Better understand STI needs through taking stock of available information at country, regional or country groups level; and
- Undertake systematic reviews on selected themes for further deliberation on UN system's initiatives and outcomes and responsiveness to needs.⁴

The report is an excellent document that scopes, analyses and illustrates the issues with initiatives in UN system, the shortcomings in the current efforts and the inter-sectoral linkages in the initiatives and SDGs. But it does not put forth suggestions that would strengthen the TFM. As a result all the good analysis is not followed with tangible proposals that would go a long way in making TFM more relevant and functional. The report reiterates the proposals in the Addis agenda. In addition it has proposed the following.

The idea of an online platform and the three models suggested as above are good examples for what could be done through online platforms. But the issue is whether online platforms are really suitable for the envisaged tasks of the TFM. Technology facilitation is more than information sharing or pooling of information resources and exchanging knowledge and experience. In fact as a paper from UNESCAP states:

*“Technology transfer is a broad and complex process which represents more than just the moving of equipment and other so-called “hard” technologies, but also includes knowhow, goods and services, and institutional procedures. Data on the movement of “hard” technologies is patchy whilst measurement of “absorptive capacity” or “know-how” is incredibly difficult to measure. Academic studies to date have reached neither consensus on the best mechanism for technology transfer nor what the critical level of absorptive capacity is.”*⁵ (p5).

Unfortunately this reality is not taken into account in the above proposals or in the discussions on using online platforms and information sharing as part of TFM. Further the real problem is that capacity building is a complex activity that is often a long time process to be done in the real world and online delivery cannot play an important role in it.

The idea of ‘Fully Integrated Platform’ cannot function as a coordinated STI capacity building programme because capacity building in STI has to be preceded by an in depth analysis of National Innovation System (NIS) and its components to diagnose the weaknesses and to identify what sectors would need capacity building on a priority basis. It is an irony that UN agencies like APCTT have done studies on NIS in countries in Nepal and have come out with policy prescriptions for strengthening NIS but a document from the interagency group presumes that integrated platforms would be sufficient for capacity building in STI.

One is not denying the need for such integrated platforms but the question is how adequate they will be given the enormous challenges in capacity building in STI. Such platforms can supplement capacity building programmes that involve working with components of NIS for capacity building but cannot be the primary vehicles for capacity building in STI.

Multi-stakeholder STI Forum

The inter-agency report correctly identifies the problems and issues with the UN system that need to be addressed and the analysis in that can logically lead to suggesting tangible outcomes that would enable UN agencies to contribute better to TFM. Still it does not go beyond the idea of integrated platforms and online solutions, echoing the points made in Addis agenda. The Addis agenda should be considered more as a starting point than as the final outcome for implementing TFM. The proposal for the online platform has to be developed further. As of now there is not much clarity on the platform and how it would be institutionalised and who would contribute the financial and other resources. The proposal indicates that stakeholders outside UN system can participate and contribute to them. This needs to be welcomed. But unless there is an in built mechanism to vet/ screen contributions from outsiders and integrate them suitably, the platform could be used by many solely for commercial purposes in the guise of capacity building, sharing knowledge and experience. The envisaged platform includes offline content delivery but what exactly would be delivered on line and what would be delivered off line is not clear.

Fundamentally a robust platform can perform many functions but before building such platforms

Online Platform Options

(1) Online library	<ul style="list-style-type: none"> • Repository and mapping of STI-related UN resources, platforms and activities, and directory of partnerships. • Periodic updates and news. • Limited inter-operability with UN platforms.
(2) Dynamic Exchange of Knowledge and Experiences	<p>All of the above plus:</p> <ul style="list-style-type: none"> • Content exchange with public and private users, including through forums and partnerships. • Community-of-practice, user-generated content, tools for knowledge capture. • Quality assurance, common taxonomies, user ID and access control, and wiki-type metadata architecture.
(3) Fully Integrated Platform for Operational Delivery	<p>All of the above plus:</p> <p>Functions related to a coordinated STI capacity building programme, with online and offline delivery, content coordination and integration, supported by communities of practice and various partnerships, going beyond the UN system.</p>

experiences in using online platforms and similar mechanisms for purposes such as development and distribution of content, and, in capacity building in STI should be taken into account. There is a danger of platform becoming too complex to navigate and use with information overload deterring users who seek relevant information that can be applied by this. In fact it would be ideal that instead of an integrated platform, various mechanisms such as information and data sharing, clearing house for sharing innovations and their transfer and capacity building activities are made available as separate platforms with facility to link them and navigate from one to another. This will also help in creating sub-platforms for each major activity in each region or in different sectors. In my view it would be desirable that this is built up as working modules than conceptualised as a mega-platform to begin with. Establishing working modules and modifying them based on users needs and experiences should be done first and then integration can be undertaken.

Having pointed out this, one would urge the UN agencies to establish within their portals a module or a mini-platform for all TFM related activities and programmes, so that both users and stakeholders will be able to identify what each UN agency can provide them and how they can benefit from their initiatives. The fully integrated platform should not end up as a top-driven, UN system oriented one and should have scope for user inputs and suggestions right from the initial stages.

Technology Bank

The proposed Technology Bank has two components: (1) Science, Technology and Innovation Supporting Mechanism (STIM), and (2) Intellectual Property Bank (IP Bank).⁶ The STIM is expected to build upon existing initiatives and enable development of NIS in LDCs. The proposal builds upon existing STI initiatives for LDCs such as UN Research4Life, National Education and Research Networks (NERNs) and Digital Access for Research Transfer and Transformation (DART) is proposed. The STI initiatives referred to cater mostly to the needs of researchers and scientists and DART will also facilitate access to research data and publications. The report points out that these can play an important

role in meeting the knowledge needs of researchers in LDCs. They will also provide better connectivity to researchers and institutions. This proposal certainly deserves to be implemented. But in my view this will not enable much transfer in technology, nor greatly enhance the capacity in NIS because it addresses only one dimension, i.e. access to knowledge resources and networking with connectivity.

But the hard questions are not addressed in this proposal although the report mentions the state of ST&I in LDCs and identifies the issues with NIS and rightly points out what is lacking in LDCs in harnessing ST&I for development. Having done an excellent analysis of the problem, the Group should have come out with an ambitious proposal that would go beyond the Technology Bank.

STI Policy and Capacity Building (SPCB) as suggested in the report aims at building collaboration and networking and intends to capitalise on current programmes and initiatives in education, research and training in S&T such as fellowships, research grants, etc. The success of this would depend largely on external sources of funding and support. STIM thus fails to address or consider the structural issues in NIS in LDCs, particularly the lack of funding for education and R&D. STIM ideally speaking should be a programme that addresses the structural constraints, issues in networking and collaboration and should enable capacity building with a long term perspective. Reliance on external programmes and funding agencies alone without initiatives in building endogenous capacity is not the right approach.

The other proposal IP bank is more comprehensive and goes beyond addressing IP issues. But the work plans envisaged in the initial years are very limited and these would need only consultants. The IP bank proposal could be expanded further and it should cover *inter alia*, training on using flexibilities in TRIPS, enabling access to technologies in public domain, and promotion of open source and open innovation. For example, it could help LDCs to get access to open source software and help them to promote open innovation. Under capacity building, co-operation with organisations like Public Interest Intellectual Property Advisors (PIIPA), South Center

and RIS will help LDCs to understand the implications of TRIPS and TRIPS Plus and examine the options available to them for strengthening public domain, open access and formulate IP policies that balance the need to promote innovation and enhancing access to knowledge and public goods. The objective of the capacity building initiatives in IP should not be just strengthening IP regimes or making LDCs emulate the IP policies of developed countries. Rather capacity building in IP should make them understand the costs and benefits of different types of IP regimes and decide accordingly.

The Technology Bank proposal could be restructured as a Bank with two initiatives, ST&I capacity building initiative and Technology Facilitation Initiative (TFI). The former should be a comprehensive initiative on capacity building in ST&I while the latter would be an initiative that goes beyond IP. The first initiative would cover assessing and strengthening NIS, developing S&T collaborations with other countries including South-South Co-operation, liaise with UN agencies, funding agencies and other institutions for mobilising resources in ST&I and planning for use of ST&I for SDGs. This will work closely with the government departments, striving to create a synergy among different programmes. It will also monitor the use of S&T in projects related to SDGs and measure the progress in S&T capacity building through indicators and goals.

TFI will cover technology acquisition, transfer of technology and absorption, capacity building in technology utilisation and adopting technologies, promoting reverse engineering, open source and open innovation, developing and executing a comprehensive IP policy and strategy. TFI will promote and manage clearing houses, patent pools and will interact with various Patent Sovereign Funds and similar organisations holding/acquiring patents for technology acquisition and sharing besides developing best practices and guidelines in IP creation and sharing.

These two initiatives are complementary and working together they can address many of the problems in ST&I capacity building and in technology acquisition, use and diffusion.

Technology Assessment

The fundamental problem with the proposals analysed above is that they do not meet the vision set for TFM by developing countries. This vision as expressed in different documents is broad and sees TFM as a real mechanism for technology transfer, capacity building in ST&I and in achieving SDGs. This would call for ambitious, long term initiatives that would build upon current programmes, build new institutional structures and develop various mechanisms under TFM to address specific issues.

For example, it would include conducting Technology Needs Assessment (TNA) for each country and identify the needs, the national level capacity and explore how the needs can be matched with available technologies and in turn how the relevant technologies can be accessed or acquired.⁷ TNA was introduced first in the context of UNFCCC and since then has been used in technology transfer mechanisms under UNFCCC.

Any discussion on TFM should take into account the global trends in ST&I and identify how emerging technologies can be used for achieving SDGs. While the UN system and others have produced documents on role of ST&I, and SDGs very little work has been done specifically on using emerging technologies in TFM or in identifying relevant applications in emerging technologies for meeting SDGs in health, water and food security. Given the wide variance in ST&I capacity across regions and countries, TFM should examine how the S&T capacity of different countries in a region can be harnessed for achieving SDGs in that region, particularly by LDCs. For example, in the context of Asia-Pacific region, some countries have emerged as leading innovators in new technologies and have ambitious programmes to enhance their respective national capacities in S&T but many countries in the region lag behind in ST&I capacity. Elaborating this point the report from ESCAP highlights how Korea, China and Japan are in the forefront of technologies like robotics and 3D printing and Korea's R&D expenditure which is 4.5 per cent of GDP enables it to become a leader in

frontier technologies. The report also states that as per the Global Innovation Index many countries in the region lag behind in innovation, as more than a quarter of the countries ranking in the bottom 10% are from this region. Regional collaboration can play an important role in bridging the gap and TFM can play an important role in this.

Conclusion

The proposals on TFM do not seem to give much importance to South-South Collaboration (SSC) in S&T capacity building or in achieving SDGs. The earlier paradigm of unidirectional technology transfer from North to South is no longer relevant now. Given the successful examples of SSC in different fields such as biotechnology, ICT for development and health, integrating SSC in TFM framework would facilitate more SSC and enhance the relevance and scope of TFM for South, particularly LDCs. Proposals on TFM should also explore how best they can work with joint ST&I programmes in IBSA and BRICS. This can result in bilateral/trilateral collaboration involving IBSA/BASIC.

To sum up, it is high time to rethink the proposed programmes of TFM and call for a more ambitious TFM. Although so far there have not been major critiques of TFM from South, the observations and cautions from India are worth paying attention to. Analysing the current scenario in TFM, Mr. Amit Narang, of the Indian Mission to the UN said: “The key however is that the TFM cannot be a passive platform for airing of oft heard positions. In other words, it cannot be a talk shop. It has to be an active space of action oriented collaboration.”⁸

He has also discussed what should TFM be doing and the shortcomings of some ideas on TFM. Echoing the views of the South he has rightly cautioned that TFM should move ahead with a broad agenda and work plan lest should it become yet another talking shop.

Given the high stakes for the South in TFM, G77 and South should critically examine the proposed plans for TFM, its current architecture and come up with alternative plans and proposals. At present the TFM seems to be UN centric and making it UN centric or

a programme under DESA may diminish its relevance and credibility with stakeholders. Instead TFM should be made an autonomous body that can be housed in a UN agency. It's structure should enable participation by different stakeholders with adequate representation from South in governing TFM.

At this stage finance and mobilisation of resources for TFM remain unclear. Given the proposed limited activities in the initial years under the proposals discussed in this paper not much would be required to set up and run online libraries and/or on-line platforms. But when TFM starts with very limited activities and without a well defined agenda for the initial years, it runs the risk of ending up more as a show case for certain objectives than as a robust mechanism to facilitate technology.

Instead it should have an ambitious plan but can start as a small initiative that can be scaled up over the years. It's structure should be modular and it can examine which model would suit it. The TEC under UNFCCC has a model that can be appropriate for some functions. TFM can have regional level programmes and initiatives and these can be attached to regional UN commissions such as ESCAP.

Finally the time has come to push forward the TFM agenda with well defined plans and a vision that would inspire confidence. In the absence of keen interest by the North, it would be difficult to take forward the agenda of TFM.

Endnotes

- ¹ Submission by Government of India on A Global Technology Facilitation Mechanism under the Auspices of the United Nations, July 2013 and Technology Facilitation Mechanism Input from United Nations Environment Programme (UNEP), 2012.
- ² See, for example, William Colglazier , “Sustainable Development Agenda: 2030”, *Science*, Vol. 349, Issue 6252, pp. 1048-1050
- ³ <https://sustainabledevelopment.un.org/TFM>
- ⁴ United Nations Inter-agency Working Group on a Technology Facilitation Mechanism Background Paper No. 2015/1, “An Overview of the UN Technology Initiatives,” by Wei Liu, Naoto Kanehira and Ludovico Alcorta.
- ⁵ “Science, Technology and Innovation AAAA commitments and implications for implementation and monitoring.” Trade, Investment and Innovation Division (TIID), Economic and

Social Commission for Asia and the Pacific. Draft discussion paper submitted to the First High-Level Followup Dialogue on Financing for Development in Asia and the Pacific meeting, Incheon, 30-31 March. Available at www.unescap.org/events/apffd-rok

⁶ *Feasibility Study for a United Nations Technology Bank for the Least Developed Countries*, United Nations Secretary-General's High-Level Panel on the Technology Bank for the Least Developed Countries. UN, New York.

⁷ See also Manuel F. Montes, "Five Points on the Addis Ababa Action Agenda." South Centre Policy Brief 24, March 2016, for a discussion on TFM, IP and SDGs.

⁸ Intervention by Mr. Amit Narang, Counsellor, Permanent Mission of India to the United Nations on 'Technology Facilitation Mechanism' during 'Time to deliver the 2030 Agenda: A Seminar on Galvanizing Global Action' Cohosted by the Permanent Missions of Brazil and Switzerland and NYU CIC on 29 February 2016 <https://www.pminewyork.org/pages.php?id=2387>