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Influence of Neocolonial-theories, Global South Diplomacy and Pakistan's Engagement on Evolutionary International Law-making relating to Technology Transfer to Developing Countries

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Abstract

In the post-WW-II global economic order, soon after decolonization of the developing countries the leadership of global South realized that their political independence would remain farce without economic sovereignty and sound technological base necessary for achieving goals of industrialization and socio-economic development. The global South made a historic struggle through theoretical narrative-building and multilateral technology-diplomacy to influence the pattern of international economic relations in their advantage. The Seventy-Seven developing countries aligned in June 1964 to form the Group of 77 to promote their common cause including demand for technology transfer from the industrialized to the developing countries. Pakistan's engagement in developing nations' demand for technology transfer has been robust from the platform of G77, being one of its founding members and chairing the group for many times. The global South's endeavors profoundly impacted the evolutionary law-making journey from soft to hard international law in the area of technology transfer and subsequently the green diplomacy played a role in law-making on transfer of environmentally sound technology. The objectives of this intellectual inquiry is to examine the influence of South diplomatic efforts, theoretical perspectives, historical dynamics and their effect on evolving international law concerning transfer of technology. The investigation employs an interdisciplinary method blending together doctrinal legal research, distinct theoretical perspectives and historical tradition to analyze the narrative.

Keywords: Neo-colonization, developing countries, environmentally sound technologies, technology-diplomacy, green diplomacy, UNCTAD

I. Technology Transfer: North-South Perspectives

The decolonization process started in post-World War-II period, accelerated after the United Nations General Assembly adopted

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Declaration on the Granting of Independence to Colonial Countries and Peoples[1] and many attained independence from foreign colonial powers.[2] Soon after political independence, the newly independent nations began to realize that regardless of stated aspirations in the General Assembly's Declaration, in practice their political sovereignty without having economic sovereignty was farce as they were still reliant economically on their former colonial powers. Nothing had changed as former colonial masters were still plundering their raw resources while their technological, scientific and industrial infrastructure was too frail to exploit their own resources for economic development. In view of pressing forward the policy goal of transfer of technology from North to South to lay solid industrial base for economic development of newly independent countries, new philosophical, economic and political discourses and new narrative in foreign policy began to emerge. The foreign corporations holding patented technologies had always been disinclined to give access to their patented technology without commercial transactions or licensing. Governments of industrialized countries had always been tending to pursue pro-intellectual property rights policy in foreign economic relations in the interest of their national corporations. Conversely the newly independent States were least excited to enforce international patent laws contained in the Paris Convention (1883) for protection of industrial property including technology. The Convention was agreed[3] upon at the time when majority of the countries of the South were under foreign subjugation. The developed countries of the North were home to technology production whereas developing countries were only destinations for the sale of patented or finished goods manufactured in the North. The global South's diplomatic movement for technology transfer paved way for soft-international law in this emerging area of international economic law.

II. Post-WW-II Economic Order: One World, Two different Approaches

The changing dynamics were responsible for disenchantment of decolonized countries. Soon after their independence, they became members of the United Nations because of striking aspirations in UN

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1 Declaration on the Granting of Independence to Colonial Countries and Peoples. UN General Assembly Resolution A/RES/1514 (XV) of 14 Dec. 1960.

2 Preamble of the Declaration (1960). A/RES/1514 (XV) of 14 Dec. 1960.

3 Belgium, Brazil, France, Italy, the Netherlands, Portugal, Spain, Switzerland, Serbia, Guatemala, El Salvador were signatories to the Paris Convention.

Charter[4] related to economic and social development. The post-World War period presented two patterns of international relations in the bipolar world. The international economic architecture agreed upon at Bretton Woods Conference in July 1944 created the Bretton-wood institutions i.e. International Monetary Fund (IMF) and International Bank for Reconstruction and Development (IBRD) and International Trade Organisation (ITO)[5] in addition to the provisional arrangement for General Agreement on Tariffs and Trade (GATT).[6] The key concern of post war global economic architecture was the global monetary stability and reconstruction of war-ridden Western European countries. Additionally, Marshall Plan was given by the United States' President, Truman for the reconstruction of Europe. As a result, Western Europe and Japan following rehabilitation, became technological powers because of huge funding and transferred technology. The pattern of US foreign policy for the developing world was quite different. The economic assistance to development countries was part of the Truman doctrine or policy of containment with the intention of preventing Soviet expansion.

III. Influence of Neo-colonial and other Theoretical perspectives and diplomatic discourse on Evolution of Pro-Technology-transfer' narrative

The neo-colonialist and western scholarship put forward explanations for socio-economic impoverishment in newly independent states. The renowned anti-colonial writers Frantz Fanon,[7] Jean Paul Sartre[8] and Dr. Nkrumah starkly criticized the continued exploitation of economic resources of newly liberated countries perpetrated by the ex-colonizers

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4 See Art. 55-56 of the UN Charter '…the United Nations shall promote: higher standards of living, full employment, and conditions of economic and social progress and development; solutions of international economic, social, health, and related problems; and international cultural and educational cooperation….'

5 International Monetary Fund (IMF) and IBRD (International Bank for Reconstruction and Development) came into force but the International Trade Organization (ITO) created by the UN Havana Conference on Trade and Employment (Nov.1947 till March 1948) but failed to materilised.

6 The Final Act of the General Agreement on Tariffs and Trade signed on 30 Oct. 1947.

7 Frantz Fanon was a French Afro-Caribbean ant-colonial thinker. His literary work appeared in *The Wretched of the Earth* by Constance Farrington. Presence Africaine: Grove Press, New York (1963).

8 Jean Paul Sartre, was a French thinker got fame for work, *Colonialism and Neocolonialism* (1964).

and labelled it as '*neo-colonialism'.* JP Sartre called it 'a deliberate and systematic form of exploitation.[9] Frantz Fanon argues that in the course of emancipation, the colonialist bourgeoisie longing excitedly for teaming up and dialogue with the elite. The colonialist bourgeoisie, finding no possibility to maintain its control over the colonial nations, elected to carry out a rearguard action regarding, values, culture and practices etc.[10]

The post-war '*theory of realism*' advocated that given the anarchic nature of global relations, balance of power and principle of national interests should be pursued to maintain stable peace relying on tools including alliance policy.[11] With this approach, the United States and Soviet Union were competing each other to bring the newly liberated countries under their ambits of influence. This theory was coupled with the *modernization theories* which served as the dominant discourse during post war politics (1950-1970). A prominent advocate of modernization theory was Walt Rostow in his book, *The Stages of Economic Growth* (1960), endeavored to persuade underdeveloped nations that the underlying cause behind their technological and economical backwardness was their refusal to dissociate from their primitive cultures. He suggested them the path of modernization in order to achieve the same level of economic growth as acquired by technologically advanced nations.[12] Against the stance of developing countries on technology transfer, he convinced the US Administration to use the cover of financial investment to exert political influence. Being the advisor to President Johnson and John F. Kennedy, his 'Rostow doctrine' reflected in the foreign policy development-assistance of the United States and in the UN Decade of Development.[13]

The western narrative reflected in the theoretical perspectives was rebutted by the pro-South theorists. The tool of development assistance was strongly rebuffed by Dr. Kwame Nkrumah who saw it under the guise of freedom. He saw it a ploy to achieve the goals previously attained through 'naked colonialism' in order to prolong colonialism. The foreign

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9 Jean Paul Sartre, 'Colonialism is a System', *Interventions* 3:1 (2001), 127-140.

10 Frantz Fanon, 'The Wretched of the', *Earth* (New York: Grover, 2004), 62 (1963).

11 Ayman Gad Elashkar, 'Realism between Theory and Reality in International Relations', *Acta Universitatis Danubius*, *Relationes Internationales*, 13:1 (2020), 78-90.

12 The Stages of Economic Growth: A non-Communist Manifesto, (1962).

13 Simon Reid-Henry, *The Guardian*, 8 Oct 2012 https://www.theguardian.com/global-development/2012/oct/08/us-economist-walt-rostow-development

development assistance, he saw as a tool to press them to succumb to their sovereignty. He criticized the term 'decolonization' coined by imperialist narrators to label the phenomenon of transfer of political power to local Africans. But in reality, this was a new façade of colonization and he labelled it '*neo-colonialism*', the latest phase of imperialism or monopoly-capitalism. Finding loss of their political grip over subjugated States, they intended to protract authority, thereby retaining economic control through devious 'neo-colonialist insinuation'. This, he argued was the policy of former colonizers to make their countries a destination for export of large scale industrial finished goods to earn high profits from technologically-famished new nations.[14]

Z.A. Bhutto, Former Prime Minister of Pakistan, in his treatise '*The Myth of Independence'* argued that in post-imperialism, Global Powers, yearning for neo-colonial hegemony, changed the pattern of their control, from physical annexation of territories to an indirect exploitation of people of underdeveloped countries by securing allegiance of their rules and by multitude of invisible tools of systematic economic exploitation. In the process of transition from colonialism to neo-colonialism, the Great Powers induced their former colonies to pool together their resources and stimulate bigger consumption of goods to make market settings more advantageous for exploitation. The whole gambit of exploitation was the real reason behind why the independence of underdeveloped nations remained a myth.[15] The newly independent nations demanded reparation from colonial powers to recompense the loss occasioned to them due to reckless colonial exploitation of resources. The interests of colonial enterprises, pointed out by Dr. Nkrumah, were not confined to the mining companies of Central and South Africa but extended over the vast swath of African continent, North America, the Caribbean, South America, Asia, New Zealand and Australia.[16] In order to attain 'final stage of decolonization' and redress colonial legacies of offences, the scholarship on neo-colonialism proposed reparative justice strategies.[17] The voices to pay reparation for colonial injustices echoed during the UN World Conference against Racism, Racial Discrimination, Xenophobia and

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14 Kwame Nkrumah, *Neo-Colonialism: The Last Stage of Imperialism* (London: Thomas Nelson & Sons, 1965), 33.

15 Zulfikar Ali Bhutto, *The Myth of Independence* (London: Oxford University press, 1969). Reproduced in by Sani Panhwar in 2013. www.bhutto.org. See Page 13-15.

16 Kwame Nkrumah, *op.cit.*, 5 and 34.

17 Biko Agozino, 'Reparative Justice: The Final Stage of Decolonization', *Sage Journal*, 23:5 (2021). https://journals.sagepub.com/doi/abs/10.1177/14624745211024342

Related Intolerance, held in Durbin (August-Sept. 2001).[18] The World Conference recognized colonialism as a major cause of racism, racial discrimination, and associated intolerance which inflicted enormous miseries to the millions of persons in the form of slave trade, apartheid and genocide. The initiation by some States to pay reparation associated with apology to colonized people was appreciated and States were urged to pay adequate reparation to victims of racial discrimination.[19] The reparation in the context of Technology Transfer was best represented in the 10-Points-Reparation Plan presented by the 'CARICOM Reparations Commission' of Caribbean Summit (2013). The past European colonial powers, who ruled the Caribbean region for 400 years, were demanded to transfer technology and share science as part of reparation for their deliberate policies of holding back access to technology necessary for the region's development and production and keeping Caribbean people technologically ill-equipped.[20]

Watchful of the looming danger of neo-colonialism and having been marginalized in international economic architecture, two significant alliance emerged: firstly, creation of NAM (Non-aligned movement) in Bandung, Indonesia in 1955 and secondly, the Seventy-Seven developing countries' Group of 77 (G77) created in June 1964 at the first meeting of United Nations Conference on Trade and Development (UNCTAD)[21] in order to speak with one voice at the and UN fora for promoting their common cause including their demand for technology transfer from the industrialized to the developing countries.

IV. Technology Transfer and Evolution of Soft-International Law

From the platform of G-77, the developing countries including Pakistan succeeded in convincing the special session of the General Assembly convened in May 1974 to adopt Declaration on the Establishment of a New

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18 United Nations, *Report of the World Conference against Racism, Racial Discrimination, Xenophobia and Related Intolerance*, United Nations Department of Public Information, New York, 2002. https://www.un.org/en/conferences/racism/durban2001

19 Report of the World Conference against Racism, Racial Discrimination, Xenophobia and Related Intolerance. United Nations Department of Public Information, New York, 2002. General issues No: 14, 99, 100 and 165.

20 Caricom Reparations Commission (CRC), '10-Point Reparation Plan', CARICOM, https://caricomreparations.org/caricom/caricoms-10-point-reparation-plan/

21 *Pakistan was founding member*/signatoris of the G77 which was created on 15 June 1964 after the Joint Declaration of Seventy-Seven Countries and held chairmanship of G77 in 1976–77, 1997, 2007 and 2022.

International Economic Order (NIEO)[22] and Program of Action.[23] The NIEO, as soft international law, proposed plan to recognize the right of developing countries to have advancements in science and technology and its transfer for their indigenous technological development.[24] The NIEO stressed international cooperation for assisting developing nations in technology transfer and to fund their industrial projects and capacities,[25] especially taking into account the differential needs and development stages of LDC, land-locked and developing countries. The NIEO set the agenda to frame a transfer of technology-related global code of conduct.[26] In order to carry out the NIEO's plan of action, the role of United Nations Conference on Trade and Development (UNCTAD) its subsidiary bodies such as Trade and Development Board,[27] and Intergovernmental Group on Transfer of Technology was central as they worked hard (1974-1978) to prepare the text of the Code. The combative diplomacy of G-77 played a vital role in making the negotiations a 'prominent episode' for technology transfer to developing countries.[28] In 1978, the composite negotiating text brought out by the Secretariat of United Nations Conference on Trade and Development (UNCTAD) which organized North-South diplomatic negotiation between G77 and Group-B comprising developed countries. The Group-B severely questioned the mandate of the proposed mechanism, but G-77 did not accede to it.[29] The negotiating position of Group B faced the 'obstinacy' from G-77.[30] After ten years of diplomatic negotiations, the final draft was adopted in 1985 of 'The Draft

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22 UN General Assembly Resolution on Declaration on the Establishment of a New International Economic Order. A//RES/S-VI//3201 of 1 May 1974, http://www.un-documents.net/s6r3201.htm

23 *Ibid*.

24 Declaration (p) of NIEO

25 The NIEO. III. Idustrialisation

26 NIEO. IV. Transfer of Technology

27 https://cdn.un.org/unyearbook/yun/chapter_pdf/1975YUN/1975_P1_SEC2_CH10.pdf

28 Hoekman, Bernard M., Keith E. Maskus, and Kamal Saggi, 'Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options', *World development*, 33:10 (2005), 1587-1602.

29 Seymour J. Rubin, 'International Code of Conduct on the Transfer of Technology', *American Journal of International Law*, 73:3 (1979), 519-20.

30 Martin Feinrider, 'UNCTAD Transfer of Technology Code Negotiations: West and East against the Third World', *Buffalo Law Review*, Vol. 30, 753. (1981). Available at: https://digitalcommons.law.buffalo.edu/buffalolawreview/vol30/iss4/4

International Code of Conduct on the Transfer of Technology.[31] All the relevant reports[32] were referred to and discussed in the UN General Assembly.[33] The code was necessary to provide functioning framework for its implementation. The Draft Code defines Transfer of technology as:

> The transfer of systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service and does not extend to the transactions involving the mere sale or mere lease of goods.[34]

Although the technical and diplomatic deliberations on the technology transfer-related global code of conduct could not succeed tangibly especially amid strong rejection from the United States, the creation of a new economic order within the framework of three special sessions of the UNGA: the 6th in 1974, 7th in 1975; and the 11th in 1980,[35] still it has worth in formation of customary rules of international law manifested in subsequent international treaties and reflected in subsequent UNGA debates until present. For example in twenty-first dated 10 November 2022, Pakistan's representative on behalf of the UN Members States and G77 and China, introduced a draft resolution entitled 'Towards a New International Economic Order' (A/C.2/77/L.2).[36] The draft repeats the importance to address the constraints on technology transfer to developing countries. Pakistan on various occasions raised the issue of technology transfer to developing countries: on an occasion stressed for technology transfer in fields of health, agriculture, water management,

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31 UNCTAD (UN doc.TD/CODE TOT/47) (6th session on 5 June 1985). 'Draft International Code of Conduct on the Transfer of Technology, Geneva, United Nations), 1985.

32 See UN. Secretary-General and UNCTAD. Secretary-General (A/48/533) (1st November 1993). International Code of Conduct on the Transfer of Technology: note / by the Secretary-General.; 1993. Also see International code of conduct on the transfer of technology, G.A. res. 47/182, 47 GAOR Supp. (No. 49) at 132, U.N. Doc. A/47/49 (1992).

33 General Assembly, Official Records: Thirtieth Session, Supplement No. 15 (A/10015/Rev: 1), United Nations, New York, 1976.

34 UNCTAD (UN doc.TD/CODE TOT/47) (6th session on 5 June 1985). 'Draft International Code of Conduct on the Transfer of Technology, Geneva, United Nations), 1985.

35 The United States' Economic Hegemony - A study of how the attempt to establish a New International Economic Order was repudiated by the US within the framework of the United Nations General Assembly, 1974-1980 Nymoen, Marius Roska https://ntnuopen.ntnu.no/ntnuxmlui/handle/11250/2455306

36 UN GA, Seventy-seventh session Second Committee Agenda item 20. Pakistan's Draft resolution https://docs.un.org/en/A/C.2/77/L.2

climate change mitigation, disaster management, satellite navigation and communication etc.[37]

The adoption of the Charter of Economic Rights and Duties of States (CERDS)[38] by the General Assembly was another milestone of progress, which provided the basic principles of international economic relations.[39] The Charter of Economic Rights and Duties of States (CERDS) provided that every State right to take advantage from the advances in science and technology to accelerate its socio-economic development (Art.13.1) and called for cooperation regarding technology transfer and to establish technological infrastructures in developing countries (Article-13). In addition to these development, a plethora of technical work and diplomatic negotiations were responsible to shape to evolve soft law-relating international transfer of technology including: UNGA-A/RES/2658 (XXV) of 1970,[40] UNGA-A/RES/1713 (XVI of 1961),[41] UNGA-A/RES/1935 (XVIII), 1963,[42] the report in 1964 of United Nations Conference on Trade and Development (on simplifying technology-transfer related licenses),[43] UNGA Res. 2088(XX) of 1963,[44] UNGA Res.

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37 Statement by the Delegation of Pakistan on Agenda Item 51: International Cooperation in the Peaceful Uses of Outer Space (Fourth Committee) https://www.un.org/en/ga/fourth/pdf/PakistanEN_item_51.pdf

38 GA Res. 3281(XXIX), UN GAOR, 29th Sess., Supp. No. 31 (1974) 50.

39 Charter of Economic Rights and Duties of States, GA Res. 3281(XXIX), UN GAOR, 29th Sess., Supp. No. 31 (1974)50.

40 See UNGA (UNGA 41; A/RES/2658 (XXV) of 7 December 1970: 'The Role of Modern Science and Technology in the Development of Nations and the Need to Strengthen Economic and Technico-Scientific Cooperation Among States [1970].

41 UNGA A/RES/1713 (XVI) (19 December 1961), *The Role of Patents in the Transfer of Technology to Under-Developed Countries*. http://www.worldlii.org/int/other/UNGA/1961/120.pdf

42 UNGA (A/RES/1935 (XVIII) (11 December 1963), *The Role of Patents in the Transfer of Technology to Developing Countries*, 1963.

43 UNCTAD (Annex A.IV.26). Improvement of the Invisible Trade of Developing Countries Financing for an Expansion of International Trade, 1964: (New York: UNCTAD, 23 March-16 June 1964), Vol.I. Final Act and Report. https://unctad.org/system/files/official-document/econf46d141vol1_en.pdf

44 UNGA Res. 2088(XX) International Cooperation in the Application of Science and Technology to Economic and Social Development [1963].

1944 (XVIII of 1963,[45] UNGA (A/RES/2091 (XX) of 1965),[46] UNGA (A/RES/3168 (XXVIII of 1973.[47] The Economic and Social Council (ECOSOC) created UN Advisory Committee on the Application of Science and Technology for Development,[48] and UNGA (A/RES/2726(XXV of 1970)[49] endorsing the creation of *Intergovernmental Group on Transfer of Technology* to identify hurdles in the way of transfer of operative technology.

V. Development of Soft-law for Greening the Technology Transfer

Since the beginning of 1980s, under influence of global environmental movement, a paradigm shift occurred, linking development with environment, towards transfer of environmental friendly technology:

The Stockholm Conference on the Human Environment (1972) which was held pursuant to General Assembly and resolutions of the Economic and Social Council (ECOSOC),[50] in which Pakistan's delegation led by Begum Nusrat Bhutto actively participated in the negotiations. The Conference started with realization that new technological order created grave imbalances.[51] The science and technology was identified as indispensable for peace and economic and

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45 UNGA 75; A/RES/1944 (XVIII) (11 December 1963): International Cooperation in the Application of Science and Technology to Economic and Social Development [1963].

46 UNGA 92; A/RES/2091 (XX) (20 December 1965). Transfer of Technology to Developing Countries [1965]. http://www.worldlii.org/int/other/UNGA/1965/92.pdf

47 See UNGA (A/RES/3168 (XXVIII, 17 December 1973): The Role of Modern Science and Technology in the Development of Nations and the Need to Strengten Economic, Technical and Scientific Cooperation Among States [1973].

48 ECOSOC Resolution-980 A (XXXVI) of August 1963. Advisory Committee on the Application of Science and Technology to Development, 1963. https://www.un.org/sites/un2.un.org/files/2020/06/e1966-41sess.pdf

49 UNGA (A/RES/2726(XXV) (15 December, 1970): Endorsing the Board of Technology & Development Res. (74 (X) of 18 Sept.1970) on Transfer of technology, including know-how and Patents.

50 UNGA (A.RES. 2398 (XXIII) (3 December 1968). Problems of the Human Environment). 1968; UNGA (RES. 2581 (XXIV), 15 Dec 1969). United Nations Conference on the Human Environment. 1969 and UNGA (A.RES. 2850 (XXVI) 20 December 1971) United Nations Conference on the Human Environment and ECOSOC resolution 1448 (XLVII) of 6 August of 1969.

51 Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, Stockholm, 5-16 June 1972 (A/CONF.48/Rev.1). Brief Summary of the General Debate, 1972.

social development (Principle 18) which should be hormonised with developmental priorities and environmental protection (Preamble). The UN General Assembly adopted the International Development Strategy[52] which included agenda to facilitate technology transfer at a considerable scale for achieving global economic development.[53] The World Conservation Strategy[54] coined the concept of *sustainable development*,[55] elaborated in Brundtland Commission Report (1987) as: '*Sustainable development* was development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. The term '*needs*' permits the essential needs of the poor to supersede all other considerations but limitations placed by technology hinder the *ability* of the environment to cater the needs of present and future.[56] The Report called for diffusion of new environment-friendly technologies for renewable energy systems to cater the need of developing countries to have access to environmentally sound technologies, including genetic technology, non-polluting technology for energy generation and to remove obstacles to innovative patented technology.

The Agenda-21(1992): was non-binding soft international law adopted by Rio de Janeiro UNCED[57] which was endorsed by UN General Assembly and Commission on Sustainable Development.[58] On behalf of the UN Members States and Group of 77, Pakistan and China presented the Principles on General Rights and Obligations.[59] The Agenda-21 underscores the transfer of environmentally sound technologies to developing countries. The industrialized countries were asked to share the burden of the planet's ecological system by financing and facilitating

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52 UNGA (A.Res.35/56 Thirty-fifth session 5 December 1980), New York, 1980.

53 General Assembly resolution 35/56 dated 5 December 1980 http://www.un-documents.net/a35r56.htm#3-A

54 World Conservation Strategy was outcome of joint efforts of IUCN, WWF, and UNEP.

55 Report of the World Commission on Environment and Development: Our Common Future https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

56 Our Common Future, Chapter 2: Towards Sustainable Development: Intro.

57 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, 3-14 June 1992.

58 United Nations Commission on Sustainable Development, 3rd Session New York, 11-28 April 1995.

59 Principles on general rights and obligations. UN. Preparatory Committee for the United Nations Conference on Environment and Development (3rd sess.: 1991: Geneva) 1991 https://digitallibrary.un.org/record/136196?ln=en

access to technologies (Principle7), capacity-building for development, adaptation, diffusion and innovative transfer of technologies and technical knowledge. (Chapters 2, Chapter 31 and 34). Further, Agenda-21 emphasized for solidification of capabilities and capacity-building of local staff and research support for adaption of technologies in accordance with indigenous culture and environmental needs;[60] for which global partnership between countries having genetic resources and those having relevant technology was stressed for sustainable use of genetic resources.[61] Along with provisions of Agenda-21, Johannesburg Plan of Implementation of the World Summit on Sustainable Development[62] emphasized the transfer of technologies with capacity-building. Further the role of the decisions of the Commission on Sustainable Development (CSD) have been crucial in elaborating the soft international law in the field of the technology transfer. The Commission on many occasions stressed to transfer technologies and environmentally sound related to health and pharmaceutical etc. to developing countries to accelerate their economic and industrial development.[63] The Pakistan's engagement seems vigorous in the meetings Commission on Sustainable Development,[64] and in other fora. For example when proposed to debate climate change issues in UN Security Council: Upon assuming Chairmanship of the Group of 77, Pakistan ambassador in the UN Security Council vehemently resisted UN Security Council role in debating climate change and reiterated that global North community to provide technology transfer with enhanced capacity building, predictable, and extra financial resources as envisaged in Agenda 21, Johannesburg Plan of Implementation and decisions of CSD.[65]

The 1983 FAO International Undertaking on Plant Genetic Resources (*IUPGR*): is a non-binding soft international law. The Article-6 of the Undertaking lays down provisions regarding the environmentally sound technologies. Subsequently the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRA), binding

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60 Agenda-21, Chapter 34.13

61 Agenda 21 – Chapter 16 Environmentally Sound Management Of Biotechnology

62 Plan of Implementation of the World Summit on Sustainable Development https://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf

63 Report of the Commission on Sustainable Development on its Second Session* (New York, 16-27 May 1994)E/1994/33 E/CN.17/1994/20 12 July 1994.

64 *Ibid.*

65 Journal of trhe Group of 77 https://www.g77.org/nc/journal/printjournal.php?id=0704

international instrument, adopted in November 3, 2001, the mandate of which for technology transfer, capacity building is derived from Article 13.2 and seeks international cooperation with developing countries for building their capabilities in plant breeding, seed multiplication etc.[66] Pakistan is signatory of both aforementioned binding and non-binding international law instruments.

VI. Development of Hard-International Law on Transfer of Technology

The 1982 Convention on the Law of the Sea (UNCLOS), which was ratified by Pakistan on 26 February 1997, contains a number of legal provisions regarding transfer of technology to the developing countries. The UNCLOS prohibits the coastal states to endanger them by overexploitation in EEZ.[67] The Authority under the Convention has the responsibility of taking measures to acquire transfer of technology related to its mandated activities to the developing countries.[68] The Authority have undertaken to cooperate for access to the pertinent technology and its transfer to the developing countries and enterprises with fair and reasonable terms.[69]

The 1985 Vienna Convention for Protection of the Ozone Layer which was Pakistan on December 18, 1992,[70] speaks of possibly detrimental effects of changes taking place in the ozone layer on human and ecological health. In this respect it places responsibility on States whose harmful activities have effects outside their boundaries. The Convention speaks of appropriate technologies capable of effectively reducing emissions of substances likely to damage the ozone layer would be needed[71] and requires State parties to transfer relevant alternative technologies to developing countries subject to intellectual proprietary rights.[72]

The 1987 Montreal Protocol: The Protocol which was ratified by Pakistan on 18 December 1992 was designed to protect the ozone layer of the Earth by phasing out the production and consumption of chlorofluorocarbons

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66 Article 6 (a)

67 Article 61 (2) of the UNCLOS on Conservation of the living resources.

68 The UNCLOS Article 144 on Transfer of Technology

69 The UNCLOS Article 144(1) &(2)

70 Vienna Convention for the Protection of the Ozone LayerSTATUS AS AT : 27-05-2025 09:16:16 EDT https://treaties.un.org/pages/viewdetails.aspx?src=treaty&mtdsg_no=xxvii-2&chapter=27&clang=_en

71 Article 1 of the Vienna Convention

72 Annex II: Information exchange of the of Vienna Convention (1985)

(CFCs) and ozone-depleting substances. The Protocol required to have access to transfer of technology (Article-5),[73] especially the expeditious transfer of the best-available environmentally safe technologies with favorable conditions.[74]

The United Nations Framework Convention on Climate Change (UNFCCC) adopted at the UN 'Earth Summit' held in Rio de Janeiro in 1992. The Convention which aims to stabilize the GHG levels in the atmosphere to avoid meddling in the climate system and ensure sustainability.[75] Pakistan's engagement was significant: Pakistan's Ambassador Jamsheed A. Marker, as a chairman of Group of 77 (G77) contributed a key role in shaping UNFCCC and is accredited for giving the word Framework in the Convention.[76] There are a number of provisions for technology transfer to developing countries considering the climatic vulnerability of islands, low-lying coastal areas, drought ridden countries having fragile ecosystems.[77] The UNFCCC ask for financial mechanism for technology transfer on concessionary terms.[78] Pakistan signed and ratified the UNFCCC on 13 June 1992 and 1 June 1994.[79]

The 1997 Kyoto Protocol to the UN FCCC: The Protocol which was ratified by Pakistan on 11 January 2005,[80] creates legally binding obligations for reducing greenhouse gases by 2008-2012. To mitigate adverse effects of climate change, the Protocol requires cooperation for the access, transfer and diffusion of environmentally sound technology related to climate change alleviation (article-10) and enjoins industrialized nations to cooperate with developing nations for active transfer of public domain's technologies and to create conditions conducive to having access to the proprietary environment-friendly technologies.[81]

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73 The Montreal Protocol, Article 5.5

74 The Montreal Protocol, Article 10A(a)(b)

75 UNFCCC Article-2 on Objective

76 Pakistan: On the Front Line of Climate Change: Resource Journal for Journalists. https://www.giz.de/en/downloads_els/Pakistan_On%20the%20Frontline%20of%20Climate%20Change.pdf

77 UNFCCC Article -4. Commitments

78 UNFCCC Article -11.

79 The United Nations Treaty Collection. Status as at: 27-05-2025 https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=IND&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=_en

80 The United Nations Treaty Collection. Status as at: 27-05-2025 03:15:32 EDT https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&clang=_en

81 The Kyoto Protocol. Article 10.c.

The 2016 Paris Agreement or Paris Climate Accord which was signed and ratified by Pakistan on 22 April 2016 and ratified on 10 November 2016,[82] is globally binding regarding climate change, encompassing its mitigation, adaptation and finance. The Accord considers the specific needs and situation of LDCs pertaining to transfer of technology and financing (Preamble), and its Article 6, 10, 11 and Art. 13 call for technology-transfer to combat the menace of climate change.

The 1992 Convention on Biological Diversity (CBD) & Protocols: The CBD which was ratified by Pakistan on 26 July 1994, was adopted for the conservation of biological diversity, sustainability of genetic resources and benefit-sharing emanating from the use of genetic resources. The CBD asks for technology transfer to developing countries in return for their genetic resources' commercial exploitation,[83] and to facilitate access to relevant technologies[84] with most favorable and concessional terms,[85] although with adequate protection of patented rights.[86] The Cartagena Protocol to the CBD, related to the safety and biodiversity-risk of trans-boundary movement of living modified organisms,[87] stresses the access to technology transfer related to biosafety of LMOs.[88] The Nagoya Protocol to the CBD (2010)[89] also requires transfer of relevant technologies and calls for international collaboration to facilitate a sound and workable techno-scientific base for developing countries, LDCs, economies in transition and small islands.[90]

1994 UN Convention to Combat Desertification in Countries Experiencing Serious Drought: The Convention which ratified by Pakistan in February 1997, seeks global cooperation for technology transfer[91] and financing for transfer of environmentally sound, socially

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82 Status as at : 27-05-2025 https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en

83 UN CBD. Article-1

84 *Ibid*., Article 16.1

85 *Ibid*., Article 16.2.

86 *Ibid*., Article 16.3

87 Cartagen Protocol Article-1

88 Cartagen Protocol Article-22

89 This protocol was signed adopted by the COP of the CBD at Nagoya, Japan in year of 2010. Its full name is: *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the CBD*

90 Article-23 of the Nagoya Protocol to the CBD

91 1994 UN Convention, Article-12.

acceptable and financially viable technologies to combat drought and desertification.[92]

1992 Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal: The Convention, which was ratified by Pakistan on 26 July, 1994, obliges the parties to develop environmentally sound technologies with low waste, good housekeeping and recycling options so as to ensure generation of minimum levels of hazardous wastes.[93] The Convention binds the Parties to transfer the technologies to the developing countries which may ensure protecting environment from hazardous wastes.[94]

The 1992 WTO-GATS: the General Agreement on Trade in Services. The Agreement which was ratified by Pakistan on 1st January 1995, in view of effective participation of developing countries, especially LDCs, in the world trade system, efficiency, competitiveness and capacity is needed in service provision.[95] The GATS requires the developed countries to assist developing countries in the development of communication technology and to inspire telecommunication suppliers to transfer and expand technology for service trading.[96]

The International Treaty on Plant Genetic Resources for Food and Agriculture (2001) which was signed by Pakistan on 3 November 2001, in view of promising food security, sustainability and preservation of plants genetic resources related to agriculture and food, calls for equitable benefit-sharing in return for using such resources.[97] The treaty suggests multilateral system for upgrading gene varieties if exploited those resources commercially by way of technology transfer, information-sharing and capacity-building in LDCs, developing nations and excess to the protected technologies with utmost favorable and concessional terms.[98]

The 1994 WTO-TRIPS Agreement: It was ratified by Pakistan on 1st January of 1995. A number of references are found in TRIPS Agreement which recognize the public policy goals including technological

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92 *Ibid*., Article-18.
93 The 1992 Basel Convention. Preamble
94 *Ibid*., Article-10 read with Preamble
95 WTO-GATS Article 4
96 Annex to the GATS on Telecommunications
97 TRIPS Agreement: Article-1
98 *Ibid*., Article-13

objectives.[99] One objective underlines the intellectual property system ought to stimulate innovation and transfer of technology and being advantageous to economic and social well-being.[100] Regarding the transfer of technology, the TRIPS Agreement allows Members to take steps necessary to deter abusive practices in intellectual property which may prejudicially impact transfer of technology.[101] Given the special needs of LDC Members, flexibility in enforcement of regulations so as to facilitate viable and sound technological base,[102] and binds the Developed Countries to give incentive to their enterprises to encourage technology transfer to LDCs.[103] Although the developing countries are skeptic about the patent law as laid down in the TRIPS Agreement for smooth technology transfer. But still it is hard to give a sweeping statement that the existing global patent system is not beneficial for the developing nations. Beyond this broad generalization, there are specific provisions in the TRIPS Agreement which give certain leeway to the developing countries as well. For example, some licensing conditions and anti-competitive practices tend to inhibit international transfer of technology,[104] the Member countries are permitted to take measures apt to foil or control such practices through a number of legal tools[105]. However adoption of such 'appropriate measures' is not smooth sailing because of it restrictive language allows powerful patent-holder companies to contest such measures. The compulsory licensing is another useful legal mechanism can be used for transfer of patented technology without authorization of patent-holder where it's the access has been denied by its proprietor. The compulsory licensing is granted by the government in the specific situations of extreme urgency such as national emergency[106]. Again in practice to what extent the developing countries can take advantage of it, is debatable given the conditions imposed are considered unfairly hard and complex to apply it properly. The compulsory licensing can be availed only after satisfying an extensive list of legal requirements including such as to notify patent holder immediately, the payment of valuation of fees subject to appeal to a judicial or higher administrative forums, permission

99 Preamble of TRIPS Agreement
100 TRIPS Agreement: Article-7 (Objectives)
101 *Ibid*., Article-8
102 Preamble of TRIPS Agreement
103 TRIPS Agreement: Article 66.2. Least-Developed Country Members
104 *Ibid*., Article 40.1
105 *Ibid*., Article 40.2
106 *Ibid*., Article 31

for such use of technology to be non-exclusive.[107] Practically speaking, the application of compulsory licensing is two-edged sword: as it may be less beneficial for intended beneficiaries than the unintended consequences which may ensue such as costly litigation, stifling of foreign investment and trade sanctions by the investors' government.[108]

VII. Challenge of Indigenous Capabilities as Recipient of Technology Transfer

The success of technology transfer relies on a number of factors, such as the ability to absorb and adapt technology, indigenous capabilities, local research facilities, pool of human resources with technical and managerial skills and the desire for capacity building etc. This fact was beautifully highlighted by the Nobel laureate Norman Borlaug in his Nobel lecture in December 1970.[109] Norman Borlaug pioneered the 'Green Revolution (1960)' which transferred seed technology for high yielding wheat '*Mexi-Pak'* from United States to Pakistan to combat food insecurity.[110] The project was not possible without financial backing from USAID, Rockefeller and Ford Foundations.[111] The key role of Norman Borlaug in capacity building of local agro-scientists[112] helped effective dissemination of technology, freeing billions of the population from hunger.[113]

VIII. Conclusion

The study concludes that the technology transfer narrative was ingrained in the socio-economic conditions and historical experience of subjugated people in colonization era. In post-World War-II global economic and political order, the North's policy to seek control of the South was

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107 Aaron Cosbey, 'The Sustainable Development Effects of the WTO TRIPS Agreement: A Focus on Developing Countries' (1996), https://www.iatp.org/sites/default/files/Sustainable_Development_Effects_of_the_WTO_TRI.htm

108 Patel, Nishidh. 'Compulsory Licenses' A Two-Edged Sword'. *Available at SSRN 1922292* (2011).

109 Norman Borlaug, Nobel Lecture 11 December 1970. The Green Revolution, Peace, and Humanit https://www.nobelprize.org/prizes/peace/1970/borlaug/ lecture/

110 R. L. Phillips, 'Green Revolution: Past, Present, and Future', *Proceedings of the National Academy of Sciences*, 111:17 (2014), 529-38.

111 The Green Revolution as a Case Study in Transfer of Technology Carl E. PrayView all authors and affiliations, Volume 458, Issue 1. https://doi.org/10.1177/00027162814580010

112 https://www.nobelprize.org/prizes/peace/1970/borlaug/biographical/

113 Richard G Olson, The US and Pakistan: 50 years of partnership in agriculture, *The Express Tribune*, 3 May 2014. https://tribune.com.pk/story/703742/the-us-and-pakistan-50-years-of-partnership-in-agriculture

influenced by the philosophical doctrines which included balance of power and modernization theories. The western theories influenced the North's foreign policy-making on alliance-making and containment using tools of development assistance. However, western approaches proved inadequate in the post-colonial context to cater the harsh realities surrounding global South's socio-economic ills arising out of bitter colonial experiences. Therefore, the '*neo-colonialism*' intellectual and political narrative built by intelligentsias supporting global South, influenced to shape the multilateral foreign policy of developing countries. The developing countries pursued multilateral technology diplomacy at the fora of the United Nations through the collective voice of Group of 77 and contributed greatly to the development of technology transfer-related international law and economic relations. In this regard, Pakistan's engagement has been instrumental in building the historic international technology transfer discourse. Pakistan played a pioneering role in founding and steering G77 and used this forum to raise a forceful voice for the plight of international transfer of technology the developing countries and subsequently to demand for the transfer of environmentally sound technology.