STEPS centre

About the paper

This paper revisits a series of key moments in the last 50 years of UN debates on science and technology for sustainable development. It reflects on the genealogy of tropes of development and the ways in which these have been equated with science, technology, and innovation. The paper unravels some of the fundamental philosophical assumptions on science and technology for development and reviews the direction in which these assumptions and corresponding practices in the UN have changed over the course of half a century. These changes do not simply denote chronological eras but represent the shifts in political positions on the struggle between north and south, and rich and poor on the question of distribution and justice. This paper therefore is not a study of the UN impact on development. It is an attempt to engage with the ways in which 'thinking' of one of the important global institutions has influenced the current ideas, practices, and imaginations on science, technology, and innovation for sustainable development.

About the author

Esha Shah is an environmental engineer turned social scientist whose work involves anthropology and history of science and technology with special reference to agrarian development in India and risk and vulnerability of emerging, new technologies in developing societies.

About the Manifesto project

In 1970 a radical document called The Sussex Manifesto helped shape modern thinking on science and technology for development. Forty years on, we live in a highly globalised, interconnected and yet privatised world. We have witnessed unprecedented advances in science and technology, the rise of Asia and ever-shifting patterns of inequality. What kind of science and technology for development Manifesto is needed for today's world? The STEPS Centre is creating a new manifesto with one of the authors of the original, Professor Geoff Oldham. Seeking to bring cutting-edge ideas and some Southern perspectives to current policy, the New Manifesto will recommend new ways of linking science and innovation to development for a more sustainable, equitable and resilient future.

For the all the papers in this series see:
www.anewmanifesto.org

About the STEPS Centre

The STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) is an interdisciplinary global research and policy engagement hub that unites development studies with science and technology studies. Based at the Institute of Development Studies and SPRU Science and Technology Policy Research at the University of Sussex, with partners in Africa, Asia and Latin America, we are funded by the Economic and Social Research Council.

Find out more at **www.steps-centre.org**

This is one of a series of Working Papers from the STEPS Centre
www.steps-centre.org

ISBN: 978 1 85864 782 7

IDS Institute of Development Studies
US University of Sussex
SPRU – Science & Technology Policy Research
E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

Manifesting Utopia:
History and Philosophy of UN Debates on Science and Technology for Sustainable Development

Esha Shah

Correct citation: Shah, E. (2009) *Manifesting Utopia: History and Philosophy of UN Debates on Science and Technology for Sustainable Development*, STEPS Working Paper 25, Brighton: STEPS Centre

First published in 2009

ISBN 978 1 85864 782 7

Thanks to Elisa Arond and Harriet Le Bris for help with copy-editing.

Cover design by Barney Haward.

For further information please contact: STEPS Centre, University of Sussex, Brighton BN1 9RE
Tel: +44 (0) 1273606261
Email: steps-centre@ids.ac.uk
Web: www.steps-centre.org

CONTENTS

INTRODUCTION

While addressing the UN general assembly in 1961, the President of the United States proposed to designate the decade of the 1960s as a UN 'decade of development' by saying, 'If the United States could commit itself to put a man on the moon before the end of the decade, it would certainly support the idea of improving the living standards of people in the poorest countries over the same period.' (as quoted in Jolly et al 2004). Kennedy's statement has several conjectures alluding to the core of the UN debates on science and technology for development over almost half a century. Not only that the president compared putting a man on the moon – hyped at that time as a giant technological achievement for mankind – with addressing poverty, unemployment and diseases in the developing countries, but that his statement could be interpreted to denote the order in which the industrialised nations like the United States prioritised their international aid obligations. More importantly, Kennedy's comparison was based on the assumption that addressing development issues could be as *easy* as putting a man on the moon, because both affairs demanded nothing more than applying science and technology to the task at hand. This application had another caveat, as the original Sussex Manifesto pointed out 40 years ago, i.e., President Kennedy proposed to apply science and technology developed primarily for the industrialised countries to the problems of the developing countries (Singer et al 1970).

As we all know, a man did land on the moon by the turn of the 1960s, but development apparently needed yet another decade to be accomplished – the UN declared the 1970s as a second development decade. Forty years after a man landed on the moon, countries like India, which was considered among the poorest countries in the President Kennedy's statement in 1961, and which as part of the G-77 demanded greater assistance from the industrialised countries during the second development decade, has recently landed a man on the moon. In so doing, India declared itself to be joining the league of space-faring nations including the US, Russia and Japan, while 40 per cent of India's population is believed to be living below poverty line.

This paper revisits a series of key moments during 50 years of UN debates and reflects on the genealogy of tropes of development and the ways in which these have been equated with science and technology. The paper unravels some of the fundamental philosophical assumptions on science and technology for development and reviews the direction in which these assumptions and corresponding practices in the UN have changed over the course of half a century. These changes do not simply denote chronological eras but represent political positions on the struggle in the international arena between north and south, rich and poor, and on the question of distribution and justice. This paper is therefore not an impact study of UN practices on development. Rather, it is an attempt to engage with the thinking of one of the most influential global institutions as a repertoire of ideas and practices on science and technology for development.

BIRTH OF 'DEVELOPMENT': 1870 TO 1940

The beginning of the concept and practice of development is often traced to the late colonial period between 1870 and 1940 when the colonial powers put the dominant ideas of the time

into practice and in this sense opened the way to what eventually came to be known as 'development'. It was a transitional period, one in which brutal power relations existed alongside paternalistic feelings of responsibility towards natives, who were supposed to be made 'civilised' (Watts 1995). The colonial powers threw up an array of arguments to justify interventions outside of Europe. The League of Nations, the first such international organisation established in 1919, which in many ways anticipated the UN, legitimised such interventions in the name of 'civilisation'. Articles 22 and 23 of the Convent of the League of Nations established the mandate system, according to which administrative responsibility for territorial possession was conferred upon certain League members, allowing intervention during time of war and otherwise. According to the mandate, the colonial powers had to account to the League for their administrative practices – the character of the mandate differing according to the *stages of development*, geographical situation, and economic conditions of the territory under possession (Rist 2002). This text of the League of Nations introduced the concept of 'stages of development' much before the influential notion of evolutionary development came alive on the international stage.

The League of Nations inaugurated yet another concept, the subsequent versions of which created substantial tension in later UN practices. The League of Nations accepted a doctrine called the dual mandate. This stated that the colonial or administrative powers had dual responsibility towards protecting interests of both the natives and mankind as a whole for the benefit of world development (Rist 2002). This dual mandate was accepted in the League without slightest reference to the scenario in which the interests of natives could possibly conflict with humankind as a whole and vice versa. A great deal of UN debates on development in the 1960s and 1970s could be read as manifestation of the conflict between such dual mandates. The South asserted through the proposal of a New Economic International Order (NIEO) demanding a greater access to science and technology as an essential component for southern development, while the North insisted on investing in science and technology for the global benefit. This difference in the emphasis created intense conflict between the North and South, re-enacting the inherent tension in the dual mandate.

The League of Nations opened up a political and symbolic space for international interaction – albeit with the absence of the United States and without explicit reference to the notion of development (not yet formed), but including global cooperation in science and technology. Following the creation of the League of Nations in 1919, the League of Nations Committee on Intellectual Cooperation was formed in 1922, which is considered as the predecessor of UNESCO (Standke 2006). In 1931, the scientific community created the International Council of Scientific Unions[1] (ICSU) to promote international exchange in science (UNCTAD 1997). In fact the terms science and technology were not explicitly used in the Charter of the United Nations. Only the listing of the related fields in article 57 mentions science and technology (Standke 2006). However, the importance of international cooperation in science and technology to promote economic development was emphasised as early as 1949 by the United Nation's scientific Conference on the Conservation and Utilisation of Resources held in New York. In the 1950s, the UN also addressed the peaceful use of atomic energy (UNCTAD 1997). However, the focus on 'science and technology for development', which had a crucial impact on other UN debates, began with the birth of the concept of 'underdevelopment' on 20 January, 1949.

[1] In 1998, ICSU changed its name to the International Council of Science, while retaining the same acronym.

EVOLUTION OF 'DEVELOPMENT': POST-WWII

'Underdevelopment began, then, on January 20, 1949. On that day two billion people became underdeveloped', declares Gustavo Esteva (1992: 7). Kennedy's predecessor, US President Truman, first used the word 'underdevelopment' in his inaugural address in 1949. In the same speech he first declared his unfaltering support to the United Nations and then divided the world in developed and underdeveloped nations before declaring the fourth point in his famous speech, 'We must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas' (Esteva 1992: 7). As Esteva reflects, '...from that time [20 January 1949] on they [2 billion people] ceased being what they were, in all their diversity, and were transmogrified into an inverted mirror of others reality: a mirror that belittles them and sends them off to the end of the queue' (Esteva 1992: 7). Those who were declared underdeveloped were made to stand in the queue to access science and technology. The inaugural notion of underdevelopment was imagined at that time as an equation of the status of access to science and technology in a particular time and space.

Apparently, the point about underdevelopment was not destined to be included in the President's speech in the first place (Rist 2002). The speech writers first came up with three clear points for the inaugural speech – continuous support to the UN organisation, continuation of the European reconstruction through the Marshall Plan, and creation of a joint defense organisation to counter the Soviet threat. These were considered politically hot topics and were agreed upon in the first meeting. A civil servant later suggested that the technical assistance already granted to Latin America be extended to other poor countries in the world. The idea was taken on board as a public relations gimmick. The main headlines next day, however, were all about 'Point Four' (Rist 2002). Whether or not it was triggered by a sheer historical accident, the terminological innovation of 'underdevelopment' inaugurated a whole new way of conceiving international relations.

The concern of underdevelopment, more positively described later as 'economic development', steadily grew in the postwar period, but more intensely in the 1950s when a number of countries were decolonised in Latin America and South and Southeast Asia. The global engagement with economic development then peaked in the 1960s when much of Africa was also decolonised. Richard Jolly et al modestly describe the core of development thinking during this period as 'Eurocentric' (Jolly et al 2004: 49). Discussing UN contributions to development thinking and practice, Jolly et al further trace some fundamental assumptions in development thinking in the early post-war decades. First of all, economic development was not considered spontaneous as in the classical capitalist pattern; rather it was supposed to be consciously achieved through planning and interventionist strategies.

Gilbert Rist makes a similar argument (Rist 2002). Rist suggests that with President Truman's speech the phenomenon of development changed from being intransitive – something that simply happened as in Article 22 of the Convent of the League of Nations or in Marx and Lenin's work on development of capitalism. When described as 'underdevelopment', development took on a transitive meaning – the course of events could possibly be changed by intervention, by actions performed by one set of agents on the other (Rist 2002). Jolly et al further elaborates the means by which such intervention was envisaged in the UN. The sub-commission on the economic development created in 1946 within the Economic and Social Council (ECOSOC) in the UN largely conceived economic development as induced industrialisation (Jolly et al 2004).

In the wake of the new meaning of underdevelopment, and the topography of power relations between North and South becoming vertical, economic development of the less developed countries was modeled as *catching up* by following the experiences of the industrialised nations.

INTERVENTION CATCH-PHRASES: FORMATIVE IMAGINARIES OF DEVELOPMENT THINKING

Towards achieving economic development, some of the pioneering development economists of the early UN decades put considerable emphasis on initial interventions. 'Igniting' economic development was represented in a series of catchphrases and metaphors such as 'take-off', 'snowballing', and 'big-push', which aptly captured the interventionist and evolutionary core of development thinking in this era. For instance, the snowball metaphor described how the process had to begin by rolling the snowball up the mountain, but once it got there, the rest was easy. 'Once the snowball moves to roll downwards, it will move of its own momentum, and will get bigger and bigger as it goes along' (Lewis, cited in Jolly et al 2004: 54). This was not yet an era of 'trickle down', it was in fact the time when the whole nation was being launched into the path of self-sustaining growth, a 'little like getting an airplane off the ground', as the famous economist Walt Rostow declared in yet another manifesto. Rostow's *The Stages of Economic Growth: A Non-Communist Manifesto* later became a cult classic. For Rostow, development was akin to the 'taking off' of an aeronautical artefact. A 'big push' was needed to generate critical ground speed before the craft (a whole nation) could become airborne (as discussed in Jolly et al 2004; Rist 2002).

These formative imaginaries of development thinking were heavily influenced by the evolutionary thinking of Darwin. Rostow on his own admission described his work as essentially a 'biological field of economic growth' (Rostow 1960:36) – but it would have lacked a real sparkle without Newton's contribution on hydraulic physics. How best to deliver the 'Big Push' – with science and technology forming the essential engine of this push – was the crux of the UN debates in the decades of 1960s and 1970s. This was followed by the missing decade of the 1980s when, failing to respond to 'big push' strategies, development was finally declared dead – and something new was born: environment. But before moving from the artefactual to the natural, a brief survey of the debates and politics around big-push is pertinent.

DEVELOPMENT BY TECHNOLOGICAL ASSISTANCE: THE FIRST DEVELOPMENT DECADE 1960S

The big push comprised two crucial elements: financial capital, and scientific and technological assistance. The UN debates in the first development decade were influenced by a great deal of uncritical optimism that the induction of science and technology would solve all social ills emanating from underdevelopment. In the early UN days, development of human resources and skills were considerably emphasised. Based on the UN resolution in 1948 and through the activities of the International Labour Organisation (ILO) and UNESCO, diverse teams of international experts were organised for technical assistance to developing countries. EPTA – the Expanded Programme of Technical Assistance for economic development was established under ECOSOC in 1949, which after 15 years became UNDP (United Nations Development Programme) in 1965. At the time of the first UN Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas in Geneva in 1963, the technical

assistance approach to development had come under heavy criticism. Inadequate diagnosis of the technical assistance needs; cost-effectiveness of sending costly expatriate technicians, teachers and other experts to developing countries; and recognition of the need to build in-country institutional capacity on science and technology raised serious doubts about the success of technology-assisted development (UNCTAD 1997, Standke 2006).

UN CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT: GENEVA (1963) TO VIENNA (1979)

The character of the discussion on the economic gap and how should it be bridged radically changed between two landmark UN conferences on science, technology and development – the first one organised in Geneva in 1963 and the second in Vienna in 1979. In the early years of the first development decade, the 'snowballing', 'big push' or 'igniting' of development approach was further intensified through the refined focus on planning for economic development. A great deal of emphasis was laid on national planning, especially among the newly decolonised countries in Asia and Latin America. Among the six major tasks identified by the report *The United Nations Development Decade: Proposal for Action* prepared in 1962, surveys of physical and human resources, and formulation of development plans in underdeveloped countries were emphasised. For many newly decolonised countries, like India, the development plan was the means by which the nation was being imagined and constructed. During this phase of developmental nationalism, most of the UN agencies were also involved with collecting, evaluating and analysing data for development and projecting this data into models of development (Jolly et al 2004).

During the phase of planned development leading up to the 1963 Geneva conference, science was the point of focus. By the time of the UN Conference on Science, Technology and Development (UNCSTD) in Vienna in 1979, science was gradually replaced by technology as a key political factor in North-South relations. At the beginning of the first development decade, science was regarded as a global good. Geneva was accordingly mainly a technical conference which some critics called a 'science fair' (Standke 2006). The Geneva conference largely reflected the un-diminishing techno-optimism of its time. The underlying mood in Geneva was that scientific and technological advancement equaled development. Scientists and experts dominated the Geneva conference and subsequent UN activities (UNCTAD 1997, Standke 2006). After the 1963 Geneva conference ECOSOC established an Advisory Committee on the Application of Science and Technology for Development (ACAST), which largely consisted of individual experts from academies of sciences and national research councils, selected in their personal capacity.

In the similar vein, a group of scholars from the Institute of Development Studies and Science Policy Research Unit located at the University of Sussex were invited by ACAST to submit a report which was originally intended to serve as the introductory chapter for *The World Plan of Action for the Application of Science and Technology to Development, Proposals for the 2nd Development Decade.* The recommendations of the Sussex group were considered radical, earning the document the title of 'Sussex Manifesto'. However, the ACAST rejected the report for inclusion as the opening chapter of the *World Plan*. The Sussex Manifesto will be discussed further in the next section.

In 1971 ACAST submitted *The World Plan for Action for the Application of Science and Technology for Development* to the General Assembly highlighting challenges such as the gap between scientific and technological potential and its actual use, access to technology, indigenous scientific capacity in developing countries, and brain drain. Some of these issues later became major points of conflict between North and South in the Second Development Decade, especially within UNCTAD. However, some critics believe that because ACAST largely consisted of experts and scientists, it had limited access to the political decision-making processes and therefore it failed to produce any politically significant results in general (Rittberger 1982).

By the time the *World Plan* was submitted in 1971, the political climate had fundamentally changed, with increasing bargaining power of the group of 77, which was constituted during the first session of UNCTAD (United Nations Conference on Trade and Development) in 1964. Also, new political lines of explanation of underdevelopment emerged with the rise of the 'dependency theory' critique in the late 1960s and early 1970s. Despite a diversity of ideological positions, dependency scholars uniformly rejected the evolutionist explanation of the successive stages of development explained by modernisation theory, for example as represented by Rostow (Rostow 1960). In his famous work, *Sociology of Development and Underdevelopment of Sociology,* Andre Gunder Frank pointed out that for Rostow there was no stage prior to underdevelopment (Frank 1966). Frank demonstrated that not all contemporary 'developed' societies were 'underdeveloped' at some previous moment in history; hence stages of development in modernisation theory cannot be accepted as universally true for all societies. The dependency school radically shifted the politics of development from developing the underdeveloped to, in its most radical version, explaining the development of underdevelopment. Dependency theorists showed that the less developed countries were mal-integrated because of their dependence on exchange relationships which operated to the benefit of the developed countries. A number of dependency scholars also discussed how western science and technology had an opposite impact on economic development in the less developed countries compared to the effect in the industrialised countries (Esteva 1992).

The challenge to modernisation theory did not only come from the dependency school in this period. Others also argued that perhaps it was not only important to find out how the 'aircraft' of development could take off but also to know where it was headed. Rostow's stages of development included a movement from tradition to modernity (Rist 2002). For Rostow, traditional society was degree zero of history, and corresponded to the natural state of underdevelopment. Compared with industrial society, traditional society's basic feature was a low level of productivity due to lack of modern technology to exploit nature. At the heart of modernisation theory – the linchpin of UN thinking and practices in development for almost two decades – was to impart/transfer modern technology to enable traditional and underdeveloped societies to make them arrive at the 'modern destination' of more production and mass consumption. The final stage in Rostow's evolutionist economics was a society of mass production and consumption, in the style of American Fordism (Rist 2002). Anthropologists like Marshall Sahlins in his *Stone-Age Economics* showed that it was not low productivity and lack of modern technology but rather the rejection of the idea of accumulation that led some traditional societies to reject technology and limit production (Sahlin 1972). During this time, a number of studies also pointed out some ill effects of technology transfer leading to the movement of appropriate and intermediate technology in the 1970s.

The Sussex Manifesto at the beginning of the second development decade contributed to conceiving development in a manner different from the dominant economic theories of the

time. The group's radical contribution lay in going beyond the gap filling and big-push frameworks so fashionable at that time, and, also not stopping at pointing out troubles with technology transfer. According to the Sussex group, the real problem was not about increasing production – as much of the economic theory at that time projected – but to improve the capacity to produce. By investing this 'capacity inherently in people' of which training and tools were just one part, the Sussex group highlighted the importance of how people, knowledge and environment interact to produce a particular state of development. 'It depends on people with outlook, knowledge, training and equipment to solve the problems posed by their own environment, and thus control their environment rather than be controlled by it' (Singer et al 1970). Highlighting the people to which the question of science and technology must be related, the Sussex group attributed the causes of underdevelopment not to the lack of science and technology, but to the deeper structural and organisational characteristics of the developing countries.

By going beyond a critique of technology transfer, the Sussex group pointed out the problematic direction in which the world stock of scientific knowledge was being developed at that time. The failure of technology transfer to solve local problems was not the only trouble faced by developing countries, but also the fact that 'the overall composition of the stock of scientific and technological knowledge was becoming notoriously less and less suitable for direct use in developing countries' (Singer et al 1970). It was not only that science and technology predominantly addressed the needs of the richer countries, but such concentration also resulted in harmful 'backwash' effects on the economies of the developing countries. The Sussex Manifesto pointed out a case of the manner in which the development of synthetic material in the industrialised countries replaced the manufacturing from natural raw material in the developing countries and the ways in which this harmfully affected their economies. This was later taken up in a big way by the developing countries in the proposal of the New International Economic Order (NIEO). By pointing out how science and technology at that time were aimed to fulfill the needs of the richer countries, the Sussex group showed concern about the direction of progress of the overall stock of human knowledge. The group therefore proposed to increase indigenous science and technology capabilities in developing countries and suggested various financial and institutional means by which this could be achieved (Singer et al 1970).

NEW INTERNATIONAL ECONOMIC ORDER: ASSERTION BY THE SOUTH

However, the most forceful challenge to the UN style evolutionist economics finally came neither from dependency theorists nor from the anthropologists and critics of technology transfer. The charged proposal for the New International Economic Order came from the leaders of the G-77. Despite the radical intervention of dependency theorists in questioning modernisation theories of economic development, the analytical world was still occupied by the category of nation-state, whatever position it occupied – whether developed or underdeveloped, centre or periphery, North or South. The NIEO was in many ways an extension of the developmental nationalism of the leaders of the South and was aimed at transforming the old order of First World dominance and to achieve equity between rich and poor countries by radically restructuring the international economic, financial and political relations.

The historical importance of the proposal to create the NIEO is considered an 'authentic' Third World initiative (Jolly et al 2004) for which leadership was provided by the richer of the developing countries – the oil producing countries of Algeria, Jamaica, Mexico, and Venezuela

(Rist 2002). Although the NIEO was the first time when the South collectively and forcefully asserted its demands in an international arena, the organised expression of the demands of the South goes a long way. Gilbert Rist reminds us that in the pre-UN times, Lenin conveyed the Congress of the People of the East in 1920, the Congress for the Advancement of the Oppressed People was held in Paris in 1920 and another in London in 1923, the first Congress of the Oppressed People was organised by the League Against Imperialism in Moscow in 1924, a second was held in Brussels in 1927. Closer to the birth of the United Nations, Jawaharlal Nehru organised the Asian Relations Conference in New Delhi, barely a few months before India's independence in 1947.

Arguably, the most important of these conferences was organised in Bandung in Indonesia. It inaugurated the organised and non-aligned demands of the Third World in international politics. This conference was organised by Ceylon, Pakistan, India, Burma and Indonesia. Although it had thin participation from both Africa and Latin America, its demands manifested strongly in the UN resolutions, with most resolute expression in the debate on the NIEO. At the Bandung conference, development in the form of South-South cooperation was seen as a rejection of the economic imperialism of foreign aid. This was a precursor to what the NIEO would later sanctify as 'collective self-reliance'. Some critics even characterised the debates at the Bandung conference as inverted racism (Rist 2002). The Bandung conference was followed by the Belgrade conference in 1961 where the term 'non-alignment' was defined as the absence of political alliance with or against any major power blocks in the cold war. A year later this culminated in the formation of the Group of 77 at the occasion of the Economic Conference of the Developing Countries at Cairo in 1962. Hence, the proposal of NIEO in the 1970s was but one culmination point in a long history of collective assertions by the third world. The 1970s was an exciting time for the politics advantage 'Third Worldism' (Rist 2002).

The 1970s had a series of political debates -- from the events of May 1968 that rejected Rostow's final stage of development: consumer society and engrained social hierarchies, to the Vietnam War, which symbolised a struggle against imperialism -- that were significant for the politics of Third Worldism. Challenges to Rostow's evolutionary view of society came from other directions too. The 1970s was also marked by other firsts, including the 1972 UN Conference on the Human Environment in Stockholm. This conference was a landmark conference that for the first time in human history drew attention to the downsides of technological development. This was accompanied by publication of the highly influential *The Limits to Growth: Report of the Club of Rome* (Meadows et al 1971) The range of radical events in the industrialised countries, the Stockholm conference and the *Report of the Club of Rome* symbolically sent Rostow's already airborne aircraft back to degree zero.

So what exactly was the core philosophy of the NIEO? An examination of sectoral reform in the international maritime order offers an interesting example of what was different between the old and the new order. The old order of maritime affairs was based on the liberal principle of 'freedom of the high seas', which favoured those who had the capacity to effectively exercise this freedom, including the technological means to do so. In contrast, the new order asserted national sovereignty over coastal and adjacent waters and proposed political and administrative measures for collective regulation, which considerably undermined the old order principle of 'freedom of the high sea'. The new order was based on careful negotiation between principles of national sovereignty over sea waters and also considered the sea as a common heritage of humanity (Rittberger 1982).

Similarly, the key demands of the G-77 towards establishing the NIEO included: increasing national sovereignty over economies and natural resources, increasing the economic viability of manufacturing from raw material as opposed to synthetic material, increasing access to the markets of developed countries, reducing the cost of technology transfer, increasing the flow of development assistance, and increasing the decision-making power of developing countries in the UN and Bretton Woods institutions (Jolly et al 2004).

CRITIQUES OF THE NIEO

The NIEO is described as an ambitious attempt to restructure international power relations between the industrial and developing countries (Jolly et al 2004). However, by proposing to eliminate the widening gap between North and South, the NIEO also alluded to an evolutionary view of history. At the heart of the NIEO was in fact yet another version of 'catching up'. Simply put, the NIEO asserted national sovereignty and a share in international resources and trade. It neither directly challenged the idea of development envisaged in mainstream economics nor discussed the internal state of social and economic inequalities in the developing countries. Despite the rhetorical list of demands, the NEIO actually proposed nothing new to improve living conditions of the people of the South. In fact, people were significantly absent in the NIEO. While existing inequalities between nations were identified as a root cause for underdevelopment, the inequalities within the southern systems were not acknowledged.

Some critics suggest that any discussion of inequalities within the South was in fact actively prevented (Rist 2002). In the name of the sovereign interest of States it was decided from the outset not to discuss the economic and social system of the countries involved in proposing the NIEO. In fact, the most organised of the Third World assertions was not significantly coloured by any of the political events of the 1970s, including the Stockholm Conference on Human Environment in 1972. The only reference to natural resources in the NIEO was to control them better, to exploit them better, and to demand a greater subsidies on products made from natural raw materials as opposed to synthetic materials. All in all, some people argue that the NIEO actually reinforced the existing order, and the proposal of the NIEO was merely a critique by the elites of the South of the international order because it did not allow them to become rich as quickly as they would have liked (Rist 2002).

As expected, the proposal of the NIEO was strongly opposed by the elites of the developed countries in the UN General Assembly in 1974. The Netherlands, Sweden and Norway showed some flexibility but the hard-liner opposition was led by West Germany, and included the USA, the UK, Austria, Belgium, Italy and Japan. Despite the protracted battle by the developing countries, nothing much was done on the NIEO proposals made by the developing countries, in fact the opposite actually happened in international economic development in the subsequent decades. Contrary to the proposals of the NIEO, the greatest surrender of national policies to international order happened in the 1980s. In the 1980s, developing countries no longer asserted sovereignty over national resources and demanded nationalisation of foreign enterprises, but on the contrary, they bent over backward to invite foreign capital and competed with one another to offer incentives to use national resources (Jolly et al 2004).

THE SECOND CONFERENCE ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT: VIENNA 1979

The Vienna Conference on Science and Technology for Development was organised in response to the increasing tension between North and South in the context of the proposal of the NIEO. Unlike the Geneva conference, the focus in Vienna was political rather than technical. The techno-optimism with respect to technology transfer of the 1950s and 1960s could no longer be sustained. Vienna was a conference not about transferring technology but asserting equitable access to world's technology.

The institutional arrangements of the Vienna conference reflected these political differences. It was described as an 'ascending process' (Rittberger 1982) – a sort of worldwide referendum in which each member state defined its own science, technology and development priorities (Standke 2006). In response to the demand of increasing national sovereignty by the South, the conference Secretary-General declared that governments alone should thus influence the conference preparations (Standke 2006). The prolonged preparatory period included the participation of governmental and intergovernmental organisations, and their negotiations were considered an integral component of the conference. The preparations of the conference 'ascended' by negotiating the NIEO in the midst of allegations by the South that the North was depoliticising the final conference. Non-governmental organisations (NGOs) and the scientific community were kept out of these negotiations, allegations and counter-allegations. Keeping NGOs, scientists and experts out was a deliberate attempt to respond to the Southern assertion of national sovereignty, to make sure that no transnational consensus among scientists, intellectuals or NGOs could be reached across North and South (Rittberger 1982). In the wake of later UN conferences greatly influenced by transnational alliances between issue-based political groups, the height of tension between North and South leading to the Vienna conference can be interpreted as mere assertions by nationalist elite leaders of the developing countries which failed to achieve any worthwhile political goal.

Still, underlying the apparent radicalism of the South leading up to the Vienna conference was a continuation of the fundamental UN philosophy that the application of science and technology can lead to development. The idea of 'technology transfer' was replaced by 'equitable access', yet the era of techno-optimism was not over. Some scholars describe this as isomorphism – the underlying philosophy that promoted the adoption of structurally similar forms of science and technology throughout the world, the philosophy that presumed universality of science and technology for development.

Any approach that questioned this fundamental assumption was kept out of the UN debates or given marginal space at best. Two such approaches – the global problems approach and social control approach – were greatly marginalised during the Vienna processes. Both these approaches lacked strong support from both North and South. The global problem approach proposed setting of standards and goals for development, and mobilising social efforts and material resources at both national and international levels to achieve these goals and standards. Science and technology were considered distribution-indifferent instruments. This approach proposed international cooperation for problem solving, however, the South still viewed this approach as biased towards the technologically advanced partners (Rittberger 1982).

The social control approach would not have been included in the Vienna conference document without the support provided by the Nordic countries. This approach recommended setting

standards and addressing the patterns of mal-distribution in a way that implied a strong criticism of existing social and political practices in all countries in both South and North. This approach was particularly opposed by developing countries because it highlighted the disparities in the use of and access to science and technology within nations. Furthermore, collective international action would have meant a far-reaching encroachment on national sovereignty across North and South (Rittberger 1982). The period from Geneva to Vienna was the first time when abuse, mal-distribution and injurious social consequences of science and technology were highlighted in UN processes, which was not appreciated by either the developing or industrialised countries (Rittberger 1982).

Finally, the failure of the Vienna Programme of Action – that proposed strengthening science and technology capacities of developing countries, restructuring existing international relations in the transfer of technology, and promoting new ways of technology cooperation between North and South – is attributed to the lack of financial commitments. Following the Vienna conference, an Intergovernmental Committee was created in the UN General Assembly but its actions were financed only through voluntary contributions from the industrialised countries (UNCTAD 1997, Standke 2006).

Despite its failure to achieve anything significant for the North-South relationship on science, technology and development, there were two substantive outcomes of the Vienna conference. The notion of technology transfer for development took backstage in favour of building endogenous capacities within developing countries (UNCTAD 1997), as also proposed by the Sussex Manifesto almost a decade prior (Singer et al 1970). In the 1980s countries like India, hitherto so dependent upon technology transfer from international institutions - for instance, for its Green revolution programme -- started to build elaborate in-country institutions.

The second outcome heralded a whole new era in UN practices on science and technology for development based on evaluation studies conducted by Stanley Foundation and other agencies. The evaluation study conducted by the Stanley Foundation questioned the state-led approach of the Vienna conference and proposed the involvement of real actors, including scientists, experts, private enterprises and even multinational corporations (UNCTAD 1997). These actors, including the transnational non-governmental organisations, have since played a key role not only in UN processes but in other international negotiations on science and technology for development. The scientific community (as per the Geneva approach) and governments (as in Vienna) were no longer seen as the primary actors. Instead, a complex scenario emerged involving a multitude of stakeholders. Despite these departures, both Geneva and Vienna are remembered as failures of both technology-fix and policy-fix approaches to science and technology-led development (Standke 2006).

DEATH OF DEVELOPMENT: 1980S

Development was widely (metaphorically) considered 'dead' in the 1980s. And, it is well-known now, this period was also marked by 'the end of history' at the end of Cold War soon after the fall of the Berlin Wall. In the next couple of decades, development was reincarnated through an attempted marriage with sustainability, while the world became increasingly interconnected and globalised, North to South. The UN soon left the confining span of development decades and expanded its goals to the era of Millennia.

The 1980s are often declared as a lost decade on multiple counts. The whole decade shrunk while making a transition from the post-World War II era of the state-led developmentalism to the neo-liberal counterrevolution in the context of the debt crisis. In debates on development, it is common to jump from the heyday of state-led neo-Keynesian interventionism of the 1970s straight to the end of the Cold War in the early 1990s accompanied by liberalisation and globalisation (gratis Washington Consensus).

Referring to this transition (and the missing decade), Gill Hart makes a dialectically interconnected distinction between 'Big D' development and 'little d' development (Hart 2002). Big D refers to the post-World War II interventions in the Third World that emerged in the context of the Cold War and decolonisation. 'Little d' refers to the development of 'capitalism as geographically uneven, profoundly contradictory historical processes' (Hart 2001:650). Hart's D/d distinction alludes to Karl Polanyi's contributions on capitalism's 'double movement'. In his book *The Great Transformation: The Political and Economic Origins of Our Time* (1944), Polanyi looked at the history of the self-regulating market, supposedly a utopian or ideal form of capitalism, in nineteenth and early twentieth century Britain.

The self-regulating market was a society-wide market system in which all inputs and outputs to the production process were subjected to exchange and sales. Distributive justice, kindness or compassion had no place or value in the self-regulating market. The Great Transformation shows how the self-regulating market did not survive. The utopian nature of the self-regulating market gave rise to a counter-movement, which in turn led to administrative efforts and legislative reforms intended to control the negative effects of self-regulation. The self-regulating market collapsed during the first half of the nineteenth century – not as a result of the rise of the working class in the Marxian way – but because of the bankers, merchants and land owners whose interests were threatened by fluctuations in trade, and who joined workers in demanding regulatory protection. Polanyi maintained that these opposing tendencies of self-regulation and demand for protection are inherent within capitalism.

Following Polanyian perspectives, the neo-liberal Washington consensus, post-development critiques, post-Washington consensus (development with a human face), and the environmental critique of development are all expressions of opposing forces contained within capitalism. The decades of the 1990s and 2000s are marked by a 'playing out' of these opposing tendencies of capitalism in international arenas, including the UN. On one side, these decades witnessed structural adjustment, liberalisation and globalisation in an unprecedented manner, on the other, emerged environmentalism and 'development with human face'. In which direction have these opposing tendencies elicited change? The key UN events and historical moments on environmentalism and its impact on the notion of development are briefly reviewed below and then related to Polanyi's 'double movement' in the conclusion.

BIRTH OF ENVIRONMENT

One of the most important expressions of Polanyi's 'opposing tendencies' was the rise (and fall) of environment in the development debates of the 1980s and 1990s. In the 1970s and 1980s there were several attempts to force a marriage between environment and development. In the years following the Stockholm Conference (1972) terms like 'environment and development' emerged; 'development without destruction', 'environmentally sound development', and 'eco-development', which appeared in the UN Environment Programme Review in 1978. The most

ingenuous of all these terminological innovations has been the contribution of the Brundtland Commission – 'sustainable development'.

In 1983 the General Assembly of the UN asked the Secretary-General to appoint a World Commission on Environment and Development (WCED). The commission under the chairwomanship of Mrs. Gro Harlem Brundtland submitted its famous report *Our Common Future* in 1986. Although environment was not entirely a new subject for the UN, having organised a World Conference on the Human Environment in 1972 in Stockholm, the task in front of the Brundtland Commission was difficult, fraught with reconciling two forces seen as mostly opposing – environmental protection and development. Dealing with environment, the report gives an almost exhaustive list of threats to the planet's ecological equilibrium, but it falls flat in assessing the sources and causes of these threats. The main contradiction of the Brundtland Commission report is the failure to historically associate the existing economic growth policies and the increasing gulf between rich and poor with the environmental degradation.

The Commission's most interesting terminological innovation 'sustainable development' is often criticised as dangerously vague, elusive, an oxymoron or a cliché (Rist 2002). The initial vagueness soon became a breeding ground for disagreements from being a basis for consensus. Despite the fact that the Brundtland Commission failed to generate any worthwhile critique of development from the perspective of environmental sustainability, it had two unintended consequences. The notion of equity, which was previously a point of contention between North and South, and considered contingent upon limited access to technology, was now transported to the arena of future. The key statement of *Our Common Future (1986)*, 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' not only made development contingent upon the limits of nature but stretched the temporality of development to the future. The fact that both North and South share a common future and nature shifted the focus of UN debates significantly from the nation-states to a wider range of socio-cultural communities, both in North and South, and examined the way these communities engaged with the environment. It can be argued that the Brundtland Commission opened up an opportunity to shift the focus of inquiry from understanding how the misfortunes of the South were produced by the greed of the North to understanding the environmental impact of the lifestyle of rich in both South and North.

The report of the Brundtland Commission ended with a suggestion that the UN organised an international conference on environment and development. More than one hundred heads of state and representatives of a thousand NGOs assembled in Rio de Janeiro between 3 and 14 June 1992 to take part in the Earth Summit – the UN Conference on Environment and Development. With eight thousand journalists, altogether thirty thousand people attended the conference. Alongside the official event at Rio, an unofficial UNCED event called the Global Forum brought together nearly twenty thousand additional people from NGOs. The Earth Summit's mandate was to reconcile environment with development.

The Rio Declaration, called the Earth Charter proclaimed twenty-seven principles including the right of every country to control its own resources and the right to development. The Charter included the commitment to reduce consumption patterns conflicting with sustainable development, following the principle of 'polluter pays' and the precautionary principle. At Rio, text that had drafted by the Intergovernmental Panel on Climate Change in 1988 was also accepted, despite the USA walking out in rejection of the clause that the carbon dioxide

emissions be reduced to 1990 levels by 2000. The Rio Conference also adopted a convention on biodiversity, a declaration on forests, and a convention on desertification. Rio is viewed as the high point in the last thirty years of environmental diplomacy (Rist 2002).

RIO PLUS EIGHTEEN: GLOBAL ENVIRONMENTAL POLITICS IN MALAISE?

Where do we stand after Rio plus eighteen years of globalisation? Some critics describe global environmental politics today as in the state of malaise (Najam 2002). For countries from the South, a key manifestation of the outputs of the Rio Conference was the so-called 'Rio bargain'. The developing countries came to Rio rather reluctantly, fearing that the environment would be used as a reason to stall development in their countries. The concept of sustainable development and a set of principles on global environmental agreements adopted at Rio provided an opportunity for a grand North-South bargain, the conflict between these political blocks languishing since the NIEO debate in the 1970s.

The Rio bargain laid out three interrelated principles – 'additionality', 'common but differentiated responsibility', and the 'polluter pays' principle. The additionality principle was adopted to respond to the Southern fear that environmental issues would attract international aid away from traditional development issues. First it was promised that new funds will be made available to tackle environmental issues. Accordingly, the Global Environmental Facility was established on the insistence of the African countries. However, during the negotiations on the desertification convention, it became clear that no additional fund would actually be made available. Later, a global mechanism was established to better manage existing resources and the rest was more or less left to market forces.

The second such principle – 'common but differentiated responsibility' – was adopted to resolve the long standing argument between South and North that the principal responsibility on environmental actions should be differentiated in proportion to the responsibility of those who created the problem. The South argued for a notion of greater Northern responsibility since before the Stockholm Conference of 1972. A major assault on this principle occurred when the US refused to accept mandatory targets for carbon reduction unless similar restrictions were placed on major developing countries such as India and China.

The third – 'polluter pays' principle did not emerge from the South, rather it has deep roots in domestic environmental policy in the North, including in the United States. However, this principle has taken a twisted turn since Rio. In fact, highly controversial alternatives have come out in the name of this principle. The Clean Development Mechanism (CDM) that came out of the Kyoto agreement allows industrialised countries to compensate their greenhouse emissions by investing in emission reduction projects in the South, which are likely to be cheaper. In the name of efficiency and convenience to the polluter, the CDM transfers the moral responsibility of reducing emissions to those who already have low emissions. The polluter pays principle is grossly violated in CDM because CDM provides convenience to the polluter instead of changing the polluting behaviour. Such measures are visible in the adaptation regimes emerging from the climate change, desertification and biodiversity debates. A significant number of these programmes promote behaviour change in the South while preserving the damaging and polluting behaviour patterns in the North (Najam 2002). The increasing emphasis on behaviour

change in the South couched as a mechanism for poverty reduction also borders dangerously on entailing newer forms of cultural and economic imperialism.

The erosion of the conceptual building blocks of the Rio bargain is not the only contributor to the growing sense of malaise about global environmental policy. Most of the environmental policies agreed at Rio have led nowhere. The NGOs surrounding the Rio process have become large and instrumentalised by TNCs or have remained small and struggling. TNCs themselves had a boom in the 1990s due to the neo-liberal counterrevolution and globalisation. Environmentally destructive industrial development based on fossil fuels has in fact expanded due to free trade and economic liberalisation. Nation-states from the South have been subjected to intense pressure from economic globalisation and associated processes of structural adjustment. The international institutional system, including the UN, has undergone substantial transformation since Rio (Finger 2002).

Despite the dismal implementation of the Rio agreement, the most important legacy of the Rio conference lies in the very nature of the preparatory process, which involved a wide range of political actors and stakeholders (Mebratu 1998), and a great deal of deliberation and negotiation before, during and after the conference. These political processes around the Rio conference heralded a whole new era of public and policy imagination on environment and development. Yet, another source of malaise in global policy is emerging from the fact that the UN has not only abandoned such preparatory processes but also done away with involving political actors from both North and South towards preparing important policy documents. Today, international environmental policymaking has become the realm of experts only.

THE ERA OF EXPERT ASSESSMENTS

Thirty years after the World Plan of Action and the UN resolution on NIEO, twenty years after the Vienna Programme of Action, and thirteen years after the Rio conference – all of these achieved through elaborate and participatory political processes – a special task force appointed by the UN as a part of the Millennium Initiatives recently presented a report, *The Millennium Project: Task Force on Science, Technology and Innovation* in 2005 (Juma and Yee-Cheong 2005). The *Task Force* is an independent advisory body commissioned by the UN Secretary-General to propose ways and means to achieve the Millennium Development Goals (MDGs). At present the Millennium Development Goals constitute the main frame for UN activities – comparable to the initiative of development decades in the 1960s and 1970s. The *Millennium Report* on the MDGs was prepared by 250 leading world practitioners. The preparation of the report did not entail a close interaction between the UN, UN agencies, national governments, and representatives of non-governmental and intergovernmental organisations as it had in the past. Klaus-Heinrich Standke, who served as Director of Science and Technology at the UN's New York office complains that, '..... neither the need to safeguard through a core-group of high-level experts some sort of institutionalised memory nor the long-time cherished need for the geographical balance in the membership of groups providing expert advice seem to be any longer of particular importance [to the UN]' (Standke 2006).

The *Millennium Task Force on Science, Technology and Innovation* is meant to help achieve the Millennium Development Goals. The UN organised a Millennium Summit in 2000 where eight goals were agreed by 191 member countries, to be fulfilled by 2015. These goals although agreed by developing countries, were not initiated by the South, but were pushed by the US, Europe and Japan, co-sponsored by the World Bank, IMF and the Organisation of Economic

Cooperation and Development (OECD). The preparation of the MDGs document did not involve any political participation from the South, in fact Ted Gordon, the well-known consultant for the USA Central Intelligence Agency (CIA) drafted the goals (Amin 2006). However, the MDGs were adopted by consensus in the UN General Assembly. Such forms of achieving consensus is opposite to previous UN traditions in which such texts were discussed at length, and each word was contested before a carefully prepared draft was presented in the General Assembly. Samir Amin describes the UN as now 'fully domesticated' by the United States, Europe and Japan (Amin 2006).

Although all eight goals to be fulfilled by 2015 are based on measurable indicators, and all are certainly commendable, their definitions are often extremely vague. Most crucially, debates concerning the conditions for achieving these goals are missing. It is assumed that economic liberalism and a free market will take care of the *how* part of the MDGs. Extreme forms of privatisation, total respect for intellectual property rights of the TNCs and global cooperation between North and South to establish an open and multilateral commercial and financial system) are the mantras that have been repeated in *The Millennium Report* and in *The Report of the Millennium Task Force on Science, Technology and Innovation*. Amin accuses the MDGs and associated programmes as driven by priorities and interests of dominant globalised Capital, having nothing to do with poverty reduction. Other critics also severely criticise the manner in which the goals have been selected and how the ultimate goal of developing a 'global partnership between North and South for development' becomes an imperative for promoting technocratic prioritisation of economic means (Khoo 2005).

Evidence for similar critique is also visible in two crucial shifts surrounding science and technology for development. In stark contrast to the negotiations around the Geneva and Vienna Conferences, which revolved around the political question of how best to distribute the benefits of science and technology equitably among all nations, the *Millennium Task Force* makes development merely a problem of generating global innovation capacity in cooperation with the private sector. Development has thus become a matter of innovation of new technologies. The *Millennium Task Force* therefore focuses solely on new and emerging technologies such as ICTs, biotechnology, nanotechnology and new materials. A second important departure pertains to the distinction between developed and developing countries. The report proposes that the policy makers draw from the global pool of lessons and avoid artificial classification of countries and instead promote international partnership. The report thus obliterates the historical and political differences between the North and South.

The UN has now specialised in conducting expert assessments with stakeholder engagement. John Thompson describes these assessments, conducted by mobilising vast institutional, technical, and financial resources, as exercises in 'building consensus towards scientifically informed policy making', which although are presented as transparent and objective, they often overlook the politics of knowledge and debates on legitimacy and credibility of different points of views (Thompson 2008). Thompson briefly discusses three such assessments – the International Panel on Climate Change is a scientific body established in 1988 by the World Meteorological Organisation and the United Nations Environment Programme (UNEP) to evaluate the risk of climate change caused by human activity; the Millennium Ecosystem Assessment was launched in 2001, it involved 1360 experts and was aimed at assessing ecosystem changes and projecting these changes into the future; and the latest and most controversial of such assessments, the International Assessment of Agricultural Science and Technology (IAASTD) was initiated on the request of international biotechnology companies to assess the appropriateness of genetically modified crops for the developing countries.

Talking specifically about the latest and the most controversial of these assessments, the mandate of IAASTD eventually expanded to assessing the entire range of agricultural technologies and policies and their relevance for agricultural development in the 21st century. The IAASTD assessment was sponsored by a number of international agencies, including UNDP, UNEP and UNESCO, and was financially supported by the private sector and a range of Northern countries. The exercise involved 800 stakeholder organisations and the final report was drafted by 400 authors based on evidence provided by thousands of experts worldwide (Thompson 2008). The findings of IAASTD are controversial because the exercise was initiated with an aim to find scientifically informed and objective assessment of agricultural technologies and policies, however, the outcome of the exercise has been surprisingly political. The IAASTD report proposed a fundamental rethinking of current agricultural knowledge, science, and technology (AKST) and proposed a new, farmer-centred paradigm. It also questioned whether market forces alone can deliver food security, acknowledged that international trade rules unfairly favour rich countries, and proposed reform of multinational corporations. These findings, however, were not based on consensus among experts, contrary to what the exercise intended to achieve in the first place. Conflicts erupted during the review process when major biotech companies and GM advocates pulled out of the exercise (Thompson 2008).

Despite the surprising outcome of the IAASTD, it may be pertinent to recount three important differences between the current expert-driven international assessments and past UN practices. 1) Most importantly, these exercises are oriented towards assessing the risk of present and past activities on the future and nature. Risk here is assumed as a matter of scientific judgement, and hence science plays a pivotal role in shaping these assessments. Science is assumed as neutral and objective, which Thompson (2008) calls a 'smokescreen that obscures and excludes competing agendas and conflicting perspectives of different epistemic communities'. 2) Secondly, the assumed scientific objectivity behind these exercises creates another smokescreen – political neutrality. Not only that the diverse expert epistemic communities are denied comparable political positions, but these exercises do not guarantee political representation from the South. Although IAASTD was conducted by a range of international organisations, it was financially sponsored by the multinational corporations and Northern governments. In the absence of assured political representations of either Southern governments or political groups representing marginal interests, whether or not these exercises would eventually take positions in favour of marginal interests is purely a matter of chance. The *Millennium Report* and *Task Force,* other expert driven exercises had contradictory messages to the findings of the IAASTD. The outcome of these international assessments is thus contingent upon who heads such exercises, who are allowed to participate, and whose views are finally represented. 3) Thirdly, these assessments no longer centrally address the issues of equity and distribution as past UN deliberations attempted. As Amin (2006) says, the only social cause allowed in these massive exercises is poverty alleviation. Poverty however is viewed as if it is a natural state of affairs without any connection with the historical and social processes of unequal distribution of wealth.

Referring to the rejection of the North's propositions both in the streets and among heads of the states in Seattle in 1998, Amin hints that the epicentre of political resistance from the south has now shifted from the UN to negotiations in the World Trade Organisation.

CONCLUDING REMARKS

It can be argued that the UN remains largely ineffective in making international policy on science and technology for development that is just, equitable and sustainable. In reality, the Bretton Woods institutions had a lasting impact in driving the global economy in a neo-liberal direction, and influencing UN policies and practices. Such a conclusion however is unfairly pessimistic. Instead, the UN debates should be read as an expression of inherent tension between opposite forces that Karl Polanyi called 'double movement'. Polanyi posited that the dynamic of modern society was governed by a double movement where the continuous expansion of the market was met by a countermovement checking its expansion. For Polanyi this double movement was the result of interplay between two fundamental principles on which modern society is based – the principle of economic liberalism and the principle of self-protection. Polanyi proposed that the countermovement is more than the usual defensive behaviour of society; it is a reaction against dislocation; an intrinsic reaction of society to preserve both its social fabric and its productive organisation. Polanyi attributed the tendency to countermovement not only to marginal classes or the proletariat in the Marxist way, but also to the whole society. In fact, Polanyi argued that the self-regulating market in early twentieth century England collapsed as a result of merchants, bankers and traders joining the working class in demanding protection from the state.

The UN is an international arena where this inherent and paradoxical tension between currents and countercurrents played out. Whether or not these debates resulted in policy change, the expression of these movements and counter-movements have put indelible marks on public and policy imaginations of science, technology, environment and development in international arena. For instance, the geographical expansion of capitalism was countered by the protectionism of the Third World in the post-World War II era; the North's globalism was countered by the South's assertion of national sovereignty; techno-optimism of the early UN days was checked by critics highlighting the limits of technology; and finally, the model of unlimited growth propounded by modernisation theory was countered by a range of counter-political currents, including the debates on environmental sustainability. The importance of the UN in our times is in providing international space for the expression of alternative and often conflicting public and policy imagination.

The Sussex Manifesto was also one such counter-movement that contributed in shaping an alternative imagination. The sequel to the 1970 Sussex Manifesto would also hopefully add a few more colours to the rainbow of counter-imagination.

REFERENCES

Amin, S. (2006) 'The Millennium Development Goals: A Critique from the South', *Monthly Review,* March 2006, http://www.monthlyreview.org/0306amin.htm (10 September 2009)

Brundtland, G.H. (1987) *Our Common Future*, World Commission on Environment and Development, Oxford: Oxford University Press

UNCTAD (1997) 'Note by the UNCTAD Secretariat for Consideration of Ways and Means of Commemorating in 1999 of the Twentieth Anniversary of the Vienna Conference on Science and Technology for Development', Economic and Social Council, Commission on Science and Technology for Development, Third Session, Geneva, 12 May, E/CN.16/1997/7, http://www.unctad.org/en/docs/ecn16_97d7.en.pdf (9 September 2009)

Esteva, G. (1992) 'Development', in W. Sachs (ed) *The Development Dictionary: A Guide to Knowledge as Power*, London: Zed Books

Finger, M. (2002) 'Rio Plus Ten Years of Globalisation', *Politics and the Life Sciences* 21: 51-52

Frank, A. (1966) 'The Development of Underdevelopment', *Monthly Review* 18: 23-28.

Hart, G. (2001) 'Development Critiques in the 1990s: Cul De Sac and Promising Paths', *Progress in Human Geography* 25: 649-658

Hart, G. (2002) 'Development/S Beyond Neoliberalism? Power, Culture, Political Economy', *Progress in Human Geography* 26: 812-822

Jolly, R., Emmerij, L., Ghai, D., and Layeyre, F. (2004) *UN Contribution to Development Thinking and Practice*, Indianapolis: Indiana University Press

Juma, C., and Yee-Cheong, L. (2005) *Innovation: Applying Knowledge in Development: Achieving the Millennium Development Goals,* UN Millennium Project: Task Force on Science, Technology and Innovations, London: Earthscan

Khoo, S. (2005) 'The Millennium Development Goals: A Critical Discussion', *Trocaire Development Review*, 43-56

Meadows, D., Meadows, D. L., Randers, J., & Behrens, W. 1971. *The Limits to Growth*, New York: Universe Books

Mebratu, D. (1998) 'Sustainibility and Sustainable Development: Historical and Conceptual Review', *Environmental Impact Assessment Review* 18: 493-520

Najam, A. (2002) 'Unraveling of the Rio Bargain', *Politics and the Life Sciences* 21: 46-49

Polanyi, K. (1944) *The Great Transformation: The Political and Economic Origins of Our Time*, Boston: Beacon Press

Rist, G. (2002) *History of Development: From Western Origins to Global Faith*, London: Zed Books

Rittberger, V. (1982) *Science and Technology in a Changing International Order: The United Nations Conference on Science and Technology for Development*, Boulder: United Nations Institute for Training and Research

Rostow, W.W. (1960) *The Stages of Economic Growth: A Non-Communist Manifesto,* Third Edition (1990) Cambridge: Cambridge University Press

Sahlin, M. (1972) *Stone Age Economics*, Chicago: Gruyter

Singer, H., Cooper, C., Desai, R. C., Freeman, C., Gish, O., Hill, S. and Oldham, G. (1970) 'Draft Introductory Statement for the World Plan of Action for the Application of Science and Technology to Development', prepared by the 'Sussex Group', Annex II in *Science and Technology for Development: Proposals for the Second Development Decade*, United Nations, Dept of Economic and Social Affairs, New York, Document ST/ECA/133, reprinted as *The Sussex Manifesto: Science and Technology to Developing Countries during the Second Development Decade*, IDS Reprints 101

Standke, K. (2006), 'Sixty Years of UN and Unesco: Science and Technology in Global Cooperation, the Case of the United Nations and Unesco', *Science and Public Policy* 33: 627-646

Thompson, J. (2008) 'IAASTD: Conflicting Visions for a Hungry Planet', *The Crossing,* STEPS Centre blog, http://stepscentre-thecrossing.blogspot.com/2008/04/conflicting-visions-for-hungry-planet.html (10 September 2009)

Watts, M. (1995), 'A New Deal in Emotions: Theory and Practice and the Crisis of Development', in J. Crush (ed) *Power of Development*, London: Routledge Publications