The Latest Trend in International Development: Innovation and the Case of the World Bank

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Abstract
International development had once been all about modernisation, industrialisation, and economic development. Economic growth of a nation still remains to be the main objective of development, but the paradigm is being challenged. Multilateral organisations dedicated to international development are quick to catch up with even slight tremors in academic discourse. This paper argues that development ideologies that were dominant during the post-WWII era are being challenged by themes such as science and technology, knowledge and innovation, and that this tremor is subsequently reflected in the organisational structure and operational patterns of such international organisations. By providing an in-depth historical narrative of the fate of the Knowledge for Development (K4D) Program at the World Bank, this paper will illustrate how discourse in academia, when coupled with the tendencies of the upper management to such discourse, may have an effect on the organisational structure - in specific, the creation and demise of a unit. In addition, this paper will demonstrate how discourse can affect operational patterns of the World Bank by providing some quantitative evidence.

Keywords: innovation, science and technology, international development, World Bank.

1. Introduction

The golden days of international development, also known as the 'development era'[1)], was during the mid-twentieth century as World War II came to an end, when the need to recuperate war stricken Europe and the Cold War tensions were imminent. Three major development organisations that remain as the largest agencies spearheading the frontiers of international development until today - the International Bank of Reconstruction and Development (IBRD), International Monetary Fund (IMF), and the Economic Cooperation Administration (ECA, now USAID) of the US government - were founded during this era to respond to the financial and infrastructural needs of Europe, and to guide developing nations through economic growth through capitalism.

The international politico-economic context during this era meant that aid efforts to promote economic growth were laden with political agenda, making the two inseparable from each other. Development aid meant the promotion of economic growth just as well as it meant the promotion of capitalism and modernisation. For example, the fight against communism drove the United States and its supporters to be in the vanguard of restoring the economies of post-war Europe, and later South Korea. Liberalised 'pre-modern' colonies in Africa and Asia hoped to

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1) Tim Allen and Alan Thomas eds., *Poverty and Development into the 21st Century*, (Oxford University Press, 2000).

follow in the footsteps that the 'modern' western countries had once made, seeking for better lifestyles through industrialisation. This modernisation theory was rather popular until it became apparent that poverty was still prevalent in many parts of the world, and other schools of thought that criticised modernisation, such as the dependency theory[2] in the 1970s and post-development theory[3] in the 1990s, gained popularity[4].

International development now encompasses a myriad of themes and issues concerned with the welfare of humanity - from provision of edible water in remote rural areas, to trade policies and public policy advice in conflict-prone fragile states. Modernisation was once the most dominant theory, but there has been an increase in interest and awareness of the role of science and technology (S&T) in economic growth. Today, not only is S&T expected to fight problems such as famine and climate change through frontier research in areas such as biotechnology and alternative fuels, but putting to use scientific and technological knowledge in the developing world are expected to foster growth as well.

Just as the Cold War tensions had greatly influenced the political and economic activities in 1944 and several decades onwards, many variables that are prevalent and unique to the current society must play into the trajectory of today's schools of thought and practices of international development. However, the aims and objectives of international development are no longer as simple as they had been in the post-WWII context, hence making it difficult to pinpoint the most influential variable. Then how did S&T fit into the picture, in both academia and in practice? Has its position been secured within the arena? Then how have international organisations responded to this shift in thought?

Joseph E. Stliglitz, the former Chief Economist at the World Bank during the Asian financial crisis in the late 1990s, contends in a recent article that the latest global financial crisis has "dramatically revealed flaws in the reigning paradigm". He goes on to assert that fortunately, there is a plethora of alternative frameworks already available, from which we could mould new policy frameworks in order to welcome in a "new era of growth"[5]. Although not downright admitting to a paradigm shift, Stiglitz suggests that a tremor in the paradigm is calling for a transformation. This paper shows how knowledge creation and innovation policy have attracted the attention of opinion leaders, gaining more currency in development studies. This paper argues that the rise of knowledge and innovation has not only had an effect on the operational trajectory of the World Bank, but that it has also influenced the organisational structure when coupled with the subsequent proactive reactions and actions of senior management.

The first part of the paper will review the trend of discourse in international development studies and publications by international development organisations in order to assess how the terms 'innovation' and 'science and technology' gained momentum, both academically and in practice. This will allow us to observe the context in which theories based on modernisation and neoliberalism have declined, and how S&T gained more currency. The second part will take a more applied approach in order to demonstrate how the observations of the first part are in accordance with the actual practices at the World Bank. Firstly, by providing an in-depth historical narrative of the creation, function and demise of a small unit within the World Bank called the Knowledge for Development Program, this paper will show how a small unit is able to reflect the shifts in the larger discourse. It will focus on the main actors behind the Program in an attempt to observe the contribution they made to its fate. Secondly, two quantitative surveys on World Bank projects from the 1980s to recent years are presented. The results of the two

2) Dependency theory argues that the efforts of the rich nations to develop poor nations is not for the sake of the latter, but for their exploitation and for the enrichment of the former.
3) Post-development theory argues that the concept of development is an ethnocentric model in tandem with political ideologies of the western societies.
4) John Rapley, *Understanding Development: Theory and practice in the third world*, 3rd ed. (Lynne Rienner Publishers, 2007).
5) Joseph E. Stiglitz, "Rethinking development economics", *World Bank Research Observer,* 23 (2011): 230-236.

surveys, one carried out by the Human Development Network of the World Bank and the other by the author, will provide a numeric perspective on whether the shift of popular discourse from modernisation and industrialisation to knowledge and innovation have had an effect on S&T-related projects at the World Bank.

The world is not stagnant, and academia is constantly in productive debate, providing a framework for practitioners to work on. How the framework translates into the actual practices of aid-giving would be the next step for this debate; this paper does not aim to critically assess the outcomes and effectiveness of the organisation's policies and their impact on the welfare and economies of recipient nations. But taking a step back, this paper will shed new light on how discourses influence changes within the organisation, and how the organisation accommodates such shifts in discourse.

2. Knowledge and Innovation - Fashionable Keywords

2.1 Trend Setters - Academia

As mentioned above, the international political context during the first years of the 'development era' were such that the mainstream development theories had strong ties to industrialisation. Sometimes, the two words, industrialisation and development, were used interchangeably. Modernisation led the discourse, and basically meant following a path that had been constructed by Western economists to achieve industrialisation and an economy of high consumption. It was a rather ethnocentric and strongly political theory, based solely on experiences of the West, and it greatly influenced ideologies of the Cold War era. The Marshall Plan is one of the most representative development projects of the development era, and was aimed at restoring post-WWII European nations, countries that despite not having been at the same level of economic development, but nonetheless active and industrialised ones. The Heckscher-Ohlin theory, published in 1933, emphasised that trade in goods was a substitute for movement in factors. In other words, the theory observed that economies will on one hand export what is in abundance, and import what is scarce and costly for them to manufacture on the other. This kind of theory readily applied to economies in countries that had then been commonly known as the 'Third World'[6], for Third World countries, lacking in abilities and infrastructure - the 'soft' and 'hard' - for manufacture of goods, but rich in natural resources. This is evocative of colonial trade patterns in which the colony would trade primary goods to the colonist, and in turn purchasing secondary and tertiary goods, which tend to be less resource-dependent and costly. On a similar note, the Rostovian take-off model seems to encourage just that. According to Walt Rostow, high-profile economist and advisor to two US Presidents, the linear transition of a traditional society into an economically modern society was when it achieved high consumption[7]. Such economic models rooted in modernisation and neoliberalism seemed to work, and they were praised. The dominant paradigm in development economics was focused on how to successfully transition developing countries into "American style capitalism" through market-oriented policy frameworks[8].

However, with globalisation and rapid advancement of S&T, the landscape of economies changed, and the finish line was no longer an industrial economy, and it was not long until ideas about a knowledge economy emerged as the prominent topic in development dialogues[9]. The Washington Consensus of 1989 had

6) The term 'Third World' is also a product of the Cold War era: the First World referring nations that were allies of the United States that supported capitalism; the Second World referring to the Soviet Union and it allies; the Third World referring to neutral and non-aligned countries. The Third World mainly constituted of Latin America, Africa, South and South East Asia. The term Third World, although still in use, is considered no longer timely, and the most part of the Third World countries are what we refer to today as the developing countries.

7) In the Rostovian take-off model, traditional economies develop into modern economies by following a linear path of five stages: traditional society, preconditions for take-off, take-off, drive to maturity, high-consumption.

8) Joseph E. Stiglitz, "Rethinking development economics", *World Bank Research Observer*, 23 (2011): 230-236.

9) Joanna Chataway and David Wield, "Industrialisation, innovation and development: What does knowledge management change?", *Journal of International Development*, 12 (2000): 803-824.

prescribed ten economic policy guidelines for reforming developing countries, but nations adhering to the suggested policies experienced unprecedented growth, whereas the poster child of the Washington Consensus, Argentina, faced a major economic crisis during the late-2000s global recession. "One paradigm, that of modernisation and its contemporary reincarnation as neoliberalism has enjoyed long-standing dominance"[10], but with the shock of the global recession, doubts on the existing paradigm of development economics were being reinforced[11].

The once 'modern' economy was slowly and ironically being referred to as the 'old' mode of economy - one based on large-scale manufacturing industries that rely on labour and natural resources - and a 'new' economy, with knowledge at the forefront as the main ingredient for economic growth, took its place[12]. Literature on this paradigm shift date back to the late 1980s, attributing it as a result of the convergence of 'two long-run broad trends - globalisation and the advancement of information and communication technology (ICT)'[13]. At first, it was thought that the material-based industrial economy gradually shifted into a knowledge-based service economy as it matured. However, prominent discussions in the later half of the 1990s began to argue that it was 'not so much the shift from manufacturing to service, but underlying shifts in the technological base'[14] of industries which was 'new'. The paradigm shift may be only underway now, but awareness of the contribution of technological advance to economic development had existed since the 1950s, the peak of modernisation and neoliberalism. Robert Solow's work in 1957 on the exogenous growth model highlighted that new capital, produced based on new knowledge and technology, was more productive and valuable than vintage capital, and given that technology advanced with time, technology-based capital will eventually lead to greater economic development. Even earlier than that, Schumpeter had pointed out that the strength of an economy depended on its market's ability to accommodate and promote innovations and inventions[15]. Knowledge had become the greatest economic resource. It was defining economic activity, and this notion was shared by academicians and practitioners alike, as had been the main conclusions of the First International Conference on Technology Policy and Innovation[16], held in 1997. It was becoming a widespread opinion that knowledge would become the greatest engine of growth, if and when put to good use. Hence by the late 1990s and early 2000s, knowledge had secured itself a safe spot on the 'it' list, and innovation, the noble, creative and useful utilisation of knowledge produced, was right behind it. Science and technology, and the useful application of such knowledge, was, and is, in fashion.

2.2 Trends in practice - International Organisations

One simple yet rather accurate way to tell if knowledge and innovation had indeed become a trend on the runway is by going window shopping, and see if the 'shops' have displayed the latest trends on their windows: With its member states being the greatest spenders on R&D, it was only natural for OECD to pay interest in issues related to knowledge and innovation. In 2000, the European Union announced and put into effect the Lisbon Strategy, which placed great emphasis on innovation as the motor for economic and social sustainability, based on theories of Joseph Schumpeter. Most of the Millennium Development Goals (MDGs) have strong

10) David Simon, "Development reconsidered: New directions in development thinking", *Development Thinking*, 79 (1997): 183-201.
11) Joseph E. Stiglitz, "Rethinking development economics", *World Bank Research Observer*, 23 (2011): 230-236.
12) Peter F. Drucker, *Post-Capitalist Society*, (New York: Harper Collins Publishers, 1993).
13) Matthew Clarke, "Are the Development Policy Implications of the New Economy, New? All that is Old is New Again", *Journal of International Development*, 18 (2006): 639-648.
14) Joanna Chataway and David Wield, "Industrialization, Innovation and Development: What does knowledge management change?", *Journal of International Development*, 12 (2000): 803-824.
15) Joseph E. Stiglitz, "Rethinking development economics", *World Bank Research Observer,* 23 (2011): 230-236.
16) Pedro Conceicao et al., "The Emerging Importance of Knowledge for Development: Implications for technology policy and innovation", *Technological Forecasting and Social Change*, 58 (1998): 181-202.

S&T components to them, and half of the MDG indicators directly require improved S&T capacity for the attainment, sustainability and monitoring of these goals[17]. Subsequently in 2002, Kofi Annan, Secretary General of the United Nations (UN), commissioned the Millennium Project, composed to 10 Task Forces, so that better strategies could be formed for more effective attainment of the MDGs. In 2005, Task Force 10, dedicated to science technology and innovation[18], published a report under the title "Innovation: Applying knowledge in development". A bit of a late bloomer, but the UK Collaborative on Development Sciences (UKCDS), a collaboration of 13 UK funders and stakeholders[19] from various sectors - public, financial, and non-profit - was established in 2006 with 5 main themes[20], one of which is, you've guessed it - science innovation and engineering.

3. Bridging Theory and Practice

3.1 The Making of a Knowledge Bank

Knowledge-related work at the World Bank began with the publication of the 1998/99 World Development Report (WDR), titled Knowledge for Development[21]. WDR is the Bank's major annual analytical publication, each volume focusing on a particular aspect of development that is deemed suitable by the President of the Bank. Each year, an expert team is created for the report, led by a senior Bank member, supported by a team of staff consultants, under the guidance of the Chief Economist[22]. The Staff Director of the 1998/99 WDR was an economist named Carl Dahlman, an economist from Yale who had spent decades at the Bank. In addition, the Chief Economist at the time was Joseph Stiglitz, and the President was James Wolfensohn.

Wolfensohn had been a banker in both private and public sectors until he was nominated for President of the World Bank Group in 1995. During the 1996 Annual Meetings Address to the Board of Governors of WBG and IMF, Wolfensohn announced his revolutionary strategic agenda of transforming the World Bank from what it had traditionally been - a financial bank that supported development projects - into a "Knowledge Bank". Wolfensohn stated that knowledge for development was a "global commons"[23] that must be shared for the benefit of all, and pointed out how knowledge the Bank had amassed through projects over the years was expert knowledge[24] that could be far more valuable than its financial resources. He also stated that the Bank was uniquely positioned to effectively disseminate this knowledge through the world thanks to its close relationship with governments and institutions. Soon after the Annual Meeting, the Board of Governors approved the Strategic Compact[25], which proposed a 30-month long reform and renewal of the Bank's internal knowledge management system. Around 500 million US dollars were spent during the three years of the Compact, consulting knowledge management experts from private sector on how to manage the vast sea of information produced internally[26]. As a result, a new classification system categorised Bank operations in a matrix of regional, thematic and network groups, a global communication system was installed on all Bank PCs, linking all staff

17) Robert Watson et al., *Strategic Approaches to Science and Technology in Development*, Policy Research Working Paper No. 3026 (World Bank, 2003).
18) 10 Task Forces of the Millennium Project - "Task Forces", Millennium Project, http://www.unmillenniumproject.org/who/who04.htm (accessed 29th June, 2011)
19) 13 funders and stakeholders of UKCDS - "UKCDS Members", UKCDS, http://www.ukcds.org.uk/members.php (accessed 29th June, 2011)
20) 5 main themes of UKCDS - "Home", UKCDS, http://www.ukcds.org.uk/index.php (accessed 29th June,
21) World Bank, *Building Knowledge Economies: Advanced strategies for development*, WBI Development Studies (World Bank, 2007).
22) "About WDRs", World Bank, http://go.worldbank.org/MPUHAJOPF0 (accessed June 26th 2011).
23) James Wolfensohn, World Bank-IMF Annual Meetings Address Speech, 1st October, 1996.
24) It is told that Wolfensohn had been growing wary of the fact that staff would take with them boxes of reports and data then they retired, but soon realising the inefficient internal knowledge management system that existed within the Bank, applauded these tacit practices by referring to them as 'conservation' of information that would have just been archived away - or might as well been shredded.
25) World Bank, *Assessment of the Strategic Compact* (World Bank, 2001).
26) Larry Prusak, *Action review of knowledge management - Report and recommendations* (IBM, 1999).

members together. Soon, not only the exchange, but the dissemination of internally produced knowledge was taking place.

3.2 Fate of the Knowledge for Development Program[27)]

The advent of Wolfensohn's mission coincided with the dawn of the new discourse. Economists began talking about a new economy in which 'knowledge capital' was more valuable than material capital. The 1998/99 WDR emphasised that the separation between developed and developing countries was not just a gap in resources, but a disparity in knowledge, and the idea was attracting a significant amount of attention. Emphasis on knowledge was increasing within the Bank, and more recipient governments began to express their willingness in transforming their countries into economies of knowledge. Following global and international meetings with policymakers of developing nations, Carl Dahlman felt that there was a need for a frontline organisational body within the Bank that could apply the concept of knowledge to the specific needs of client countries. In 1999, Dahlman created a small unit called the Knowledge for Development (K4D) Program within the World Bank Institute (WBI), the capacity development branch of the World Bank Group whose main audiences are policy makers. Evaluated by peer Bank staff as a representative of the future cross-cutting work of the Bank[28)], the main objective of the K4D was to provide, literally, knowledge for development.

Despite never having been trained in S&T related studies, and spending a good deal of his professional career in the economics and fiance sector, Carl Dahlman appears to have been very much interested in S&T in development. He also was well heed of the future role that the World Bank had to play when S&T were advancing at an unmatched rapid rate. He even published an internal working paper in 1995 under the title "Technology, development and the role of the World Bank", in which he elaborated the the threats and opportunities that rapidly developing technologies present to developing countries, and the whats and hows of the next steps the Bank should take in order to accommodate the new paradigm. This paper illustrates Dahlman's conviction of the central role of S&T in transforming the landscape of development. He mentioned that the World Bank, "as one of the main technological institutions catering to the needs of the developing world", had the responsibility to ensure that technologies are fitting to and sustainable in the local environment. He also maintained the need for the Bank to be more cross-sectorial in its work by "[keeping] abreast of the main technological, marketing, and investment trends … in today's dynamic world'[30)]. This paper is a witness of Dahlman's great supporter of science, technology and knowledge for the good of development. The story behind how and why Dahlman had been nominated to head the 1998/99 World Development Report is unsure, but it seems that Wolfensohn and Dahlman

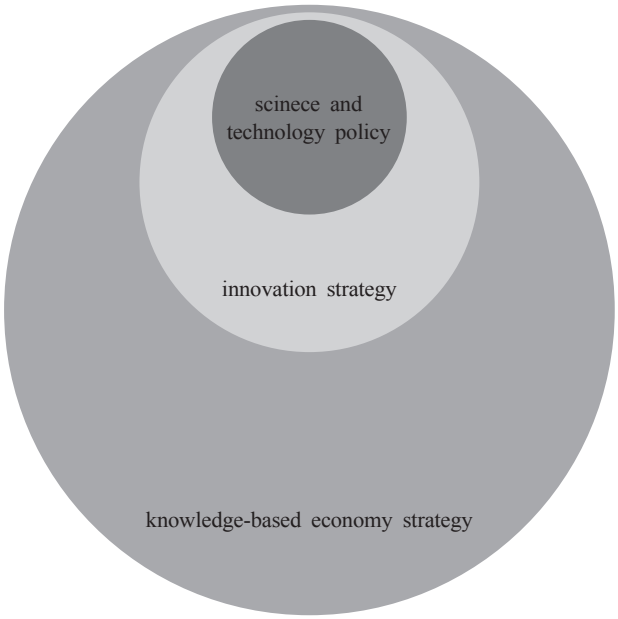

Figure 1 Innovation policy in a broad perspective[29)]

27) Based on information gathered through interviews with Jean-Eric Aubert and Derek Chen of K4D, unless otherwise specified.
28) Christina M. Ming and Dawm Roberts, *Formative Assessment of the Knowledge for Development Program*, WBI Evaluation Studies (World Bank, 2007).
29) World Bank, *Innovation Policy: A guide for developing countries*, World Bank (2010), page 10.
30) Carl Dahlman, *Technology, Development, and the Role of the World Bank*, Human Resources Development and Operations Policy (World Bank, 1995).

were more or less on the same page when it came to the need for a shift in the role of the World Bank.

The K4D Program started off modestly, with Dahlman as Program Manager, Senior Knowledge Management officer Anuja Utz, and Resarch Analyst Doug Zheng. Dahlman also contacted Jean-Eric Aubert, an expert in science and technology policy at the OECD. The program started off with two one week seminars, one each in Finland and Singapore, in which policy makers from three developing countries of the neighbouring region were invited. Being a program within WBI meant that K4D would host many more of such seminars and conferences, where exchange of knowledge, and not implementation of operational projects, was the goal. The main objectives of these seminars was to first introduce the policy makers to the framework of a knowledge economy that K4D had developed, and secondly to share with them the rich experiences of countries that have emerged as successful knowledge economies, such as Finland and South Korea.

The main tenets of the K4D Program were that "countries at all levels of development should consider embarking on a knowledge- and innovation-based development process"[31], and it promoted this motto through providing policy advice in the four pillars that they identified as the supporting mechanisms to a knowledge economy[32], one of which is an effective national innovation system (NIS). The K4D Program understood 'innovation policy' as creating an environment that promotes the diffusion of technologies and practices that are new to a given society, and advised that public "support should be technical, financial and regulatory"[33]. K4D also gathered anecdotal evidence to illustrate the impact of knowledge on economy, such as the difference in the amount and quality of development between Ghana and South Korea since the 1950s. Such in-depth comparative case studies enabled K4D to better illustrate their objectives and philosophy.

One of the greatest achievements of K4D is an Internet-based benchmarking tool based on the knowledge economy framework that uses a cross-sectoral approach to provide a basic assessment of the country's readiness to become a knowledge economy. The Knowledge Assessment Methodology[34] is a ranking system that now provides data for 146 countries based on 109 structural and qualitative variables. KAM data of a country is also represented using a spidergram, which makes it more readily comprehensible to the clients. Therefore, in addition to the policy framework for a knowledge economy, in-depth inter-country comparative analysis using the KAM added value to the Program's policy advice activities. KAM was by far the most visible accomplishments of the K4D, to the point that the K4D Program and KAM were synonymous for some Bank staff[35].

The K4D did rather well for itself, maybe even "surprisingly well"[36]. The team expanded both in number and in scope, awareness of the activities of K4D was beginning to rise within the Bank, and the KAM had spread out to prove itself useful to policy makers in client countries without any flamboyant launching or promotion event. K4D, however, did not last very long.

Retrospectively, it may be that plans for K4D had already been conceived when Dahlman embarked on directing WDR 98/99, although only one name out of the dozens of people involved in WDR eventually became part of the K4D. Nevertheless, the high resonance of the name of the program with the strategy of the President seems to have played into the establishment of the small unit. And given that the

31) World Bank, *Building Knowledge Economies: Advanced strategies for development*, WBI Development Studies (World Bank, 2007).
32) The four pillars that support a knowledge economy, as identified by the K4D Program are: 1) a solid education base, 2) a dynamic information (ICT) infrastructure, 3) an effective national innovation system (NIS), and 4) a solid economic and institutional regime (governance).
33) World Bank, *Building Knowledge Economies: Advanced strategies for development*, WBI Development Studies (World Bank, 2007).
34) "Knoweldge Assessment Methodology", World Bank, www.worldbank.org/wbi/kam (accessed 29th June, 2011)
35) Christina M. Ming and Dawn Roberts, *Formative Assessment of the Knowledge for Development Program*, WBI Evaluation Studies (World Bank, 2007).
36) Jean-Eric Aubert, interview by author, Skype, 19th June, 2011.

topic of WDR is picked by the President each year, it might also be that Wolfensohn himself handpicked Dahlman, a man who closely shared his ideas about the importance of knowledge.

When K4D was established under WBI, the existing bureaucratic organisational structure had to be bent. Dahlman was a Senior Advisor at the Bank, but being an I level staff [37], he could not report to an H level manager. Hence a unique unit within WBI was created for K4D, putting Dahlman in charge, who reported to Daniel Kauffman, one of the directors in WBI at the time. Such cases of bending administrative structures to allow for more productive outputs may not be so rare. However, there had existed some voices sceptical to the prospect of a project such as K4D, let alone its positioning in WBI. Dahlman had been observed to have had a close professional relationship with both President Wolfensohn and Frannie Leautier, head of the WBI Vice Presidency[38], and whether these amicable relationships had enabled him to relatively smoothly establish his program is a question only Carl Dahlman could answer accurately.

Aside from the fact that it was promoting knowledge exchange between governments and the Bank, as well as between governments, the policy advice that K4D was providing was unique in the fact that the content encompassed a variety of sectors. Although Wolfensohn had reformed the internal knowledge management system to promote knowledge exchange within and between thematic groups, it was not easy in practice, and especially not in the latter. K4D, however, was preaching innovation policy to its clients, encouraging them to construct national innovation strategies that will promote coordination across various sectors, and was uniquely able to practice just that for two main reasons. First is the positioning of the program within WBI. Although the causality is one question that has been left unanswered, there seems to be a clear correlation in that being positioned within WBI meant that the program did not have any ties to a specific region, sector or thematic group, hence granting it the freedom to be transversal in the topics it dealt with, and in turn, dealing with innovation policy meant that the program had to be transversal in its expertise. Aside from the performing analytical works and coordinating knowledge exchange conferences, there was indeed an upside to being part of WBI rather than any other branch of the Bank. Secondly, the program was equipped with team members that had been well experienced in a wide variety of policy studies. This ability of K4D to assemble and distribute cross-sectoral knowledge to and between developing countries, and promote innovation might actually have been the embodiment of what Wolfensohn had envisioned the World Bank to be, making K4D the micro representation of the Knowledge Bank.

Carl Dahlman moved on in 2005 to pursue a professorship at Georgetown University after serving more than two decades at the World Bank, passing the reigns over to Jean-Eric Aubert, the secondee from OECD who had helped out K4D in its initial stages. Aubert came to the Bank as an H level Lead Specialist, which meant that the K4D Program did not have to bend the organisational structure of WBI anymore, and it was positioned under the Human Development (WBIHD) unit, with Aubert reporting to Bruno Laporte, the Manager of WBIHD. Aubert returned to France in 2006, promoting Anuja Utz to Lead Specialist, who had been part of the team from the very beginning as a Senior Officer.

With the Four Pillar framework strongly in place to assess and give advice on knowledge economies, and the KAM with high visibility and on high demand, K4D seemed to be doing quite well for itself, but the Program came to a halt. In October 2008[39], Sanjay Pradhan became Vice President of WBI, replacing Leautier, and Laporte was promoted to Director of WBI. With a new generation of its senior management, WBI underwent a organisational reform, which marked the end of the K4D Program. With its manager now in the Director's seat, WBIHD naturally dissolved, and

37) I level = director.

38) World Bank Group has 25 vice presidencies in total. As head of the vice presidency of WBI, Frannie Leautier was therefore more commonly known was the Vice President of WBI.

39) The President of the World Bank would have then also been succeeded by Paul Wolfowitz.

led to the creation of the Growth and Competitiveness Unit (WBIGC). A small team named the Skills and Innovation Policy Cluster was formed within WBIGC, and it, in essence, absorbed the responsibilities of K4D, or what was left of it - the innovation policy pillar. Kurt Larsen, who had been recruited by Aubert following the departure of Dahlman and had been part of K4D as Senior Officer, was put in charge of the Cluster. Henceforth, the magnitude of the term 'knowledge economy' slowly diminished within WBI.

Praised by peer Bank staff as having been an indeed innovative initiative with the potential to "pull Bank projects out of the 'silo mentality' and foster a cross-sectoral dialogue to address problems holistically"[40], K4D had seemed to have made a timely and much needed contribution.

"It was a revolutionary program in its methodology, very much unlike the ones that existed at the Bank: it organised policy seminars and conferences, provided policy advise, carried out NIS reviews, created multi-national databases and undertook comparative studies. The dimension of the policy studies, advice and the analytical framework were all an important component of K4D, and it was something completely new in WBI activity"[41].

Nevertheless, there may have been at least two reasons for its demise. Firstly, there may have been a fight over the turf, as deducible from an interview with Derek Chen, who worked with the K4D Program as an economist:

"Retrospectively speaking, K4D had no comparative advantage in the other three pillars. ICT was well advanced and underway at IFC[42]*, governance is very broad - the concept was still vaguely defined and is a very politically sensitive area, and hard to manoeuvre. Education, we had the experts in the team, but WBI wanted to shut down education programs for strategic purposes. Basically other parts of the Bank had created niches for these themes already. But innovation was something new, and we had the human resources. That was a niche we could work on. That's how we ended up focusing on just one pillar out of the four."*[43]

In addition, Pradhan did not seem to be a big fan of the term "knowledge economy", and was far from as enthusiastic as Leautier had been about the concept. And the cornerstone of the K4D, the KAM, was in danger of extinction, for not only did the new Vice President not appreciate the value of the KAM very much, he did not want WBI involved with any indicators for political reasons[44].

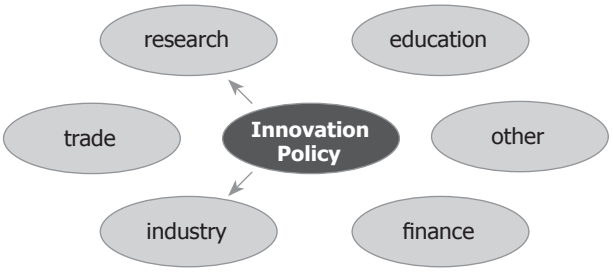

Figure 2 Traditional layout of innovation policy[45]

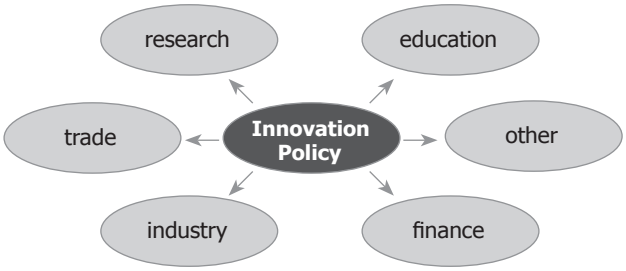

Figure 3 Comprehensive layout of innovation policy[46]

40) Christina M. Ming and Dawn Roberts, *Formative Assessment of the Knowledge for Development Program*, WBI Evaluation Studies (World Bank, 2007).
41) Jean-Eric Aubert, interview by author, Skype, 19th June, 2011.
42) The International Financial Corporation, part of the larger World Bank Group umbrella, finances and provides advice for private sector ventures and projects in developing countries.
43) Derek Chen, interview by author, Washington, DC, 22nd June, 2011.
44) Indicators serve their purpose by ranking nations based on its variables, but governments and delegates would sometimes disagree to the ranking positions of their nations, which could lead to politically sensitive situations (from interview with Derek Chen).
45) World Bank, *Innovation Policy: A guide for developing countries*, World Bank (2010), page 66.
46) World Bank, *Innovation Policy: A guide for developing countries*, World Bank (2010), page 66.

Besides that, it may have been a matter of rhetoric. For most economists (and the Bank is a haven of economists) the distinction between the terms 'knowledge' and 'innovation' is irrelevant, and most times used interchangeably[47]. By the time Pradhan had become the Vice President, the terms knowledge and knowledge economy were not as prevalent in discussions amongst Bank staff[48]. Furthermore, members of the Program attested that Pradhan displayed more enthusiasm for the 'word' innovation, finding it more attractive and seasonable. Pradhan does support the notion innovation, as evidenced from a recent opening speech[49] he gave to introduce an Innovation Policy Knowledge Platform proposal presented by WBIGC, during which he highlighted the need for innovation-encouraging policies and initiatives, and the paramount importance of a unit like WBIGC and its knowledge platform.

The case of the K4D Program clearly demonstrates a minor shift, or a 're-dressing' of the organisation in order to accommodate and reflect both ideas that are prevalent within the arena, as well as opinions and tendencies of senior management. The demise of K4D did not mean the end of innovation policy at WBI, for was not only was the innovation policy pillar expanded into the Skills and Innovation Policy Cluster, WBI now hosts an innovation team (WBIIN). The concept of 'knowledge for development' has thus brought organisational changes to WBI, eventually resulting in WBI focusing and expanding on promoting innovation policy.

3.3 Quantitative Survey of Operations Projects

The history of K4D may be able to provide insight on how larger discourse or inclinations and agenda of senior and upper management may have on the organisational structure. However, the World Bank is a vast organisation[50], with various functions[51], and more than an analysis of the history of the K4D Program is needed to capture the whole picture. Although being the supporter of the Knowledge Bank, Wolfensohn pointed out that "enthusiasm for building the Knowledge Bank does not mean devaluating the Lending Bank", for its power to accomplish its mission greatly depended its lending functions[52]. Hence, two quantitative surveys, albeit differing methodologies, are presented to provide, as mentioned above, an observation from a much larger vantage angle that will contribute to better understand if the shift in discourse had an effect on S&T-related projects at the World Bank.

In 2006, a World Bank report entitled "Review of World Bank Lending for Science and Technology, 1980-2004", led by Senior Education Specialist Michael Crawford, that measured the amount of World Bank lending to support S&T research and capacity building was published. It devised its own taxonomy to distinguish lending operations that directly supported S&T research or explicit attempts to build S&T capacity. The results of the survey are presented in Figure 4, the y-axis representing the net amount of funding allocated to the identified projects. The report concluded that:

"... the analysis of S&T projects over the last 25 years reveals no consistent approach or strategy on the part of the Bank toward developing S&T capacity in its client countries ... and the Bank's approach has been ad hoc, experimenting with different mechanisms for different circumstances as they occurred."[53]

47) Derek Chen, interview by author, Washington, DC, 22nd June, 2011.
48) Florian J. Theus, who worked as consultant to K4D, informal interview by author, Washington, DC, 28th June, 2011.
49) Introductory speech for the IPKP during the Knowledge Platform Competition Presentation at the World Bank, 22nd June, 2011.
50) The World Bank Group is formed up of 4 different bodies: the International Bank of Reconstruction and Development (IBRD); the International Development Agency (IDA); the International Finance Corporation (IFC); the Multinational Investment Guarantee Agency (MIGA).
51) Christopher Gilbert et al. (1999) have distinguished three types of 'behavioural activities' of the Bank: the Bank as a bank, a financial intermediary; the Bank as a development agency, providing assistance, conditioned loans and global public goods; the Bank as a development research institution, producing both research and economic analysis.
52) James Wolfensohn, Opening Address, Knowledge Forum 2003.
53) Michael Crawfordet al., *Review of World Bank Lending for Science and Technology, 1980-2004* (World Bank, 2006).

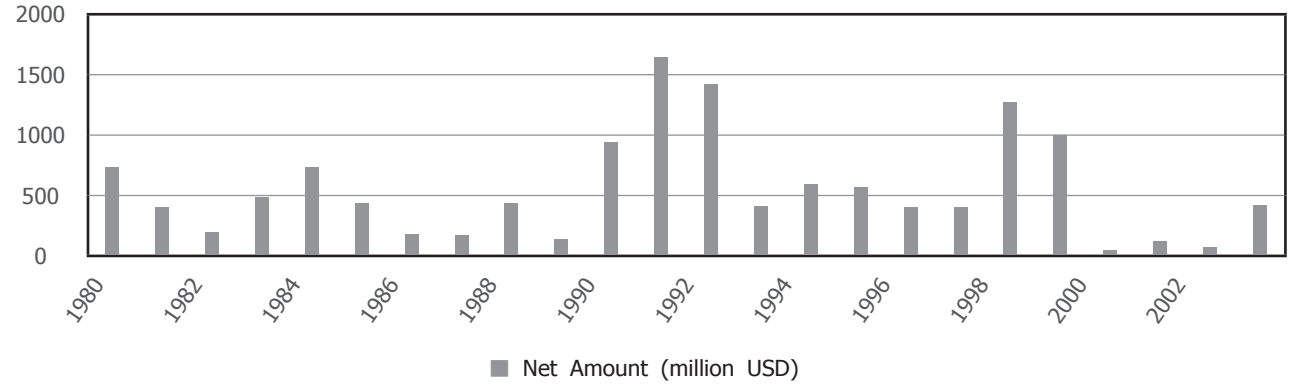

Figure 4 Amount of S&T related bank lending, 1980-2004

The results of the report are not doubtful, but do seem quite contradictory to what has been argued in this paper about how a popular theme in the larger discourse could have an effect on practices at international development organisations. Therefore, if the conclusions of this report were true, popular discourse would not have much, or even any effect on Bank activities and its lending projects, hence should show no trends whatsoever.

However, there are several peaks in the graph plotted by the team, some of which seem too drastic to be a result of mere ad hoc experimentation, especially in the early and late 1990s, where the annual lending reached up to three times the average of the time range[54]. One of the peaks occurs in 1998 and 1999, the period that 'knowledge' and 'knowledge economy' had been at the peak of their popularity, both in academia and international organisations, as has been reviewed above. On the other hand, the peak might as well also be analysed as being, yet again, a result a spontaneous increase in ad hoc experimentation of Bank units that wanted to put the concepts of knowledge and knowledge economy to a test, but this too, would also confirm the existence of an effect of popular discourse on Bank lending. On a slightly different note, Jean-Eric Aubert, former Lead Specialist of the K4D Program and long-time S&T Policy Specialist at the OECD, suggested times in which S&T and innovation would be hot topics in development: during and years immediately following times of crises. The peaks in Crawford's graph seems to reflect Aubert's theory rather well. Years where slight or drastic peaks are observed happen to be years in which the global economy had been put at risk: 1979/1980 oil crisis, breakdown of the Soviet Union in 1991, Asian financial crisis in 1997 and the global financial crisis of 2008. Aubert attributes this tendency to resort to S&T to the people's desire to "reform the systems that had failed us through innovative, scientific and technological solutions".

A survey on the operational projects of the World Bank, however, revealed a rather contrasting trend. Data on the number of and amount spent on S&T-related operations projects from 1985 to 2011 was obtained[55], and an interesting curve resulted when plotted on a graph Figure 5. A trend was visible wherein there was a steady increase in both the number of projects and amount spent from the mid-1980s, more or less plateaued around the second half of the 1990s, coming to a slight increase in the later 2000s. Lastly, the net amount seems to show slightly less incrementation than the number of projects.

The first reason why this graph is in such stark contrast to that of Crawford's may be in its original data pool and methodology. Whereas Crawford surveyed 'lending projects that provided major support for S&T', the second graph represents S&T-related operational projects under the themes 'human

54) Average of lending is estimated to be around 550 million USD.

55) Data was provided by the Business Data Warehouse (BW) of the World Bank. BW is part of the Information Solutions Group (ISG), the central information technology organisation of the Bank, and provides data on Bank projects upon request.

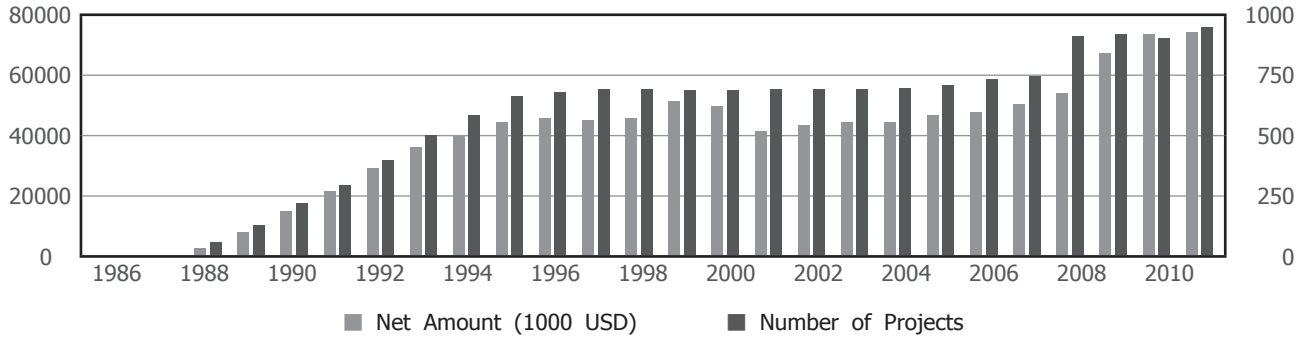

Figure 5 Net amount and number of S&T related projects

development' and 'public sector governance'[56]. Crawford's graph entails only the conditional multilateral lending activities that the Bank performs with client governments, whereas public sector governance and especially human development, may be exceptionally S&T-heavy themes.

It can be deduced from this graph that the role of S&T in operations under these two themes had gradually increased, in line with recognition of the importance of S&T in development within academic discourse. S&T-related operations projects had barely existed before the mid-1980s, and the increase into the late 1990s is not drastic, but is significant. The plateau from the late 1990s for the next decade could mean that the two themes, as of the late 1990s, had incorporate S&T to its fullest, and S&T had become well institutionalised into Bank operations. Drastic peaks that can be linked to specific events are not present in this graph, but it does prove that S&T had gained much currency from the mid to late 1980s, and at its peak in the late 1990s. This currency was sustained through the following decades, rejecting the possibility of ad hoc experiments, at least under these themes. The role of science and technology in Bank operations therefore increased in line with the increase of recognition of the importance of S&T in development discourse.

A limitation to quantifying science and technology-projects arises because science and technology have become rather prevalent in all sectors - an all-rounder. S&T has become very versatile, and projects that would once not be associated with S&T - finance, trade, security, etc - are increasingly incorporating some form of S&T to some extent. Therefore, unless hoping to quantify projects that are directly linked to S&T - such as national science and technology policy, higher education in science and engineering, technology transfer, etc - it can be tricky to isolate S&T-related projects from those that are not. Innovation makes this even more difficult. As Sanjay Pradhan, Vice President of WBI, had mentioned, "innovation is cross-cutting and has no home" - it is difficult to pinpoint the actors - or rather everyone is able to innovate. Taking knowledge produced in one area to another makes the distinction between what is S&T-related and what is not much more difficult to draw.

4. Conclusions

The case of the K4D Program provides insight on how the larger discourse may have on the the organisational structure of unit when coupled with the tendency of upper management to the discourse. The impact of the deliverables of the Program aside, The K4D did happen to kick off with its fancy name at a time when 'knowledge' had been recognised by economists as one of the greatest commodities for economic growth, praised both by academia and the President of the World Bank. In addition, although part of its work lives on, it was short-lived, dissolved at a time when 'innovation' was perceived to have taken over the throne, once again in both academia

56) World Bank operations are categorised under eleven themes that are not mutually exclusive.

and upper management.

The objective of this paper, however, is not to evaluate the effectiveness of the K4D Program, nor the rightfulness of the concept of the knowledge economy or innovation as an agenda that the Bank decides to embark on. Assessing the effectiveness of this framework would require close-range inspection of outcomes at the level of recipient countries. Nevertheless, this paper provides implications for the Korean official development assistance (ODA) policies in that given the current popular discourse and considering Korea's comparative advantage as an international donor, the rise of the concepts of knowledge economy and innovation policy could not have provided a better opportunity for Korea to contribute to international development. With limited budget allocations to ODA, there is only so much that Korea could offer to developing countries through projects. However, Korea has world-renown prowess in S&T and innovation policy experience. Despite the establishment and efforts of KOICA[57] to coordinate ODA initiatives that are haphazardly spread over different ministries, Korean ODA still seems to lack a founding philosophy and underlying strategy, with too much resources being funnelled into projects that require more and more monetary funding. The Korean model of ODA should take advantage of the wave of interest that knowledge and innovation have brought on, and channel more effort to sharing its first hand experiences. After all, they do call it the knowledge economy, so why not divert to a 'knowledge ODA'?

Channelling aid through a multilateral agency enables donors to be part of the global redistribution initiative, all the while not imposing direct bilateral political power relations with the recipient nations[58]. Intermediary financial agencies like the World Bank hence, in theory, enable apolitical development lendings and grants. Although it may be important for large international organisations to keep up with the times and not be outdated, an organisation with so much resources and influence must be prudent in the strategies it opts. At the end of the day, the relationship between academia and international organisations is not unidirectional, and the ability to stir up a paradigm shift in the landscape of international development is not exclusive to the international politico-economical variable.

References

Chataway Joanna and Wield David (2000), Industrialisation, innovation and development: What does knowledge management change?, Journal of International Development, 12: 803-824.

Clarke Matthew (2006), Are the Development Policy Implications of the New Economy, New? All that is Old is New Again, Journal of International Development, 18: 639-648.

Conceicao Pedro et al. (1998), The Emerging Importance of Knowledge for Development: Implications for technology policy and innovation, Technological Forecasting and Social Change, 58: 181-202.

Crawford Michael et al. 2006, Review of World Bank Lending for Science and Technology, 1980-2004, World Bank.

Dahlman Carl (1995), Technology, Development, and the Role of the World Bank, Human Resources Development and Operations Policy, World Bank.

Drucker Peter F. (1993), Post-Capitalist Society, New York: Harper Collins Publishers.

Easterly William (2008), Reinventing Foreign Aid, Massachusetts Institute of Technology Press.

Ellis Frank et al. (2001), Evolving Themes in Rural Development 1950s-2000s, Development Policy Review, 19: 437-448.

Gieryn Thomas F. (1983), Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests In Professional Ideologies of Science, American Sociological Review, 48: 781-795.

Gilbert Christopher et al. (1999), Positioning the World Bank, The Economic Journal, 109: 598-633.

Goel Vinod K. et al. (2004), Innovation Systems: World Bank support for S&T development, Working Paper No. 32, World Bank.

Larry Prusak (1999), Action review of knowledge management - Report and recommendations, IBM .

Leach Melissa et al. (2008), "Editorial - Discourses, Dynamics

57) Korea International Cooperation Agency - Korea's international development organisation, founded in 1991.
58) Christopher Gilbert et al., "Positioning the World Bank", *The Economic Journal*, 109 (1999): 598-633

and Disquiet: Multiple knowledges in science, society and development", Journal of International Development, 20: 727-738.

Ming Christina M. And Roberts, Dawn (2007), Formative Assessment of the Knowledge for Development Program, WBI Evaluation Studies, World Bank.

Rapley John (2007), Understanding Development: Theory and practice in the third world, 3rd ed, Lynne Rienner Publishers.

Romijn Henny A. et al. (2011), "Pathways of Technological Change in Developing Countries: Review and a new agenda", Development Policy Review, 29: 359-380.

Simon David (1997), "Development reconsidered: New directions in development thinking", Development Thinking, 79: 183-201.

Stiglitz Joseph E. (2011), "Rethinking development economics", World Bank Research Observer, 23: 230-236.

Tim Allen and Alan Thomas (2000), Poverty and Development into the 21st Century, Oxford University Press.

Watson Robert et al. (2003), Strategic Approaches to Science and Technology in Development, Policy Research Working Paper No. 3026, World Bank.

World Bank (2011), World Development Report: Knowledge for development, World Bank.

World Bank (2001), Assessment of the Strategic Compact, World Bank.

World Bank (2007), Building Knowledge Economies: Advanced strategies for development, WBI Development Studies, World Bank.

World Bank (2010), Innovation Policy: A guide for developing countries, World Bank.