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1. GENERAL KNOWLEDGE ECONOMY

Building Knowledge Economies: Advanced Strategies for Development
2007, World Bank
http://go.worldbank.org/HRSYB9QYT0

Knowledge has always been an essential force in economic development. In the first three chapters we respond to three basic questions of interest to policy makers in developing countries. Chapter 1 (the why chapter), describes the knowledge revolution, which is leading us into a postindustrial age in which brains, not brawn, are the best means of coping with intensified competition and new challenges, including those related to human development and the global environment. In explaining the foundations and the model of knowledge economies, chapter 2 outlines the four KE pillars, provides elements of our benchmarking methodology, and relates KE achievements to recorded growth and competitiveness. To understand the KE process, chapter 3 (the how chapter) starts with the examples of three KE champions, Finland, Ireland, and the Republic of Korea. The ensuing chapters examine and document in detail the four KE policy pillars. Chapter 4 on the economic and institutional regime discusses governance, regulation, finance, and trade as they bear on the KE development process. Chapter 5 on innovation addresses the question of support for innovators, the strengthening of research and technology infrastructure, the diffusion of basic technologies, and the promotion of specific industries. Chapter 6 deals with the national ICT infrastructure, addressing related applications, institutions, and regulations, as well as access to that infrastructure and the development of the skills needed to build, maintain, and use it. Chapter 7 looks at primary and secondary education, higher education, and lifelong learning from a KE perspective, providing insights on the mobility of human resources and the role of diasporas. Chapter 8 discusses policy agendas for selected sets of countries.

Strategic approaches to Science and Technology
2003, World Bank

This paper examines the ways in which science and technology (S&T) support poverty alleviation and economic development and how these themes have been given emphasis or short shrift in various areas of the World Bank’s work. Central to the paper’s thesis is the now well-established argument that development will increasingly depend
on a country’s ability to understand, interpret, select, adapt, use, transmit, diffuse, produce and commercialize scientific and technological knowledge in ways appropriate to its culture, aspirations and level of development. The paper goes beyond this tenet, analyzing the importance of S&T for development within specific sectors. It presents policy options for enhancing the effectiveness of S&T systems in developing countries, reviews the previous experience of the World Bank and other donors in supporting S&T, and suggests changes that the World Bank and its partners can adopt to increase the impact of the work currently undertaken in S&T. Its main messages are that: (1) S&T has always been important for development, but the unprecedented pace of advancement of scientific knowledge is rapidly creating new opportunities for and threats to development; (2) most developing countries are largely unprepared to deal with the changes that S&T advancement will bring; (3) the World Bank’s numerous actions in various domains of S&T could be more effective in producing the needed capacity improvements in client countries; and (4) the World Bank could have a greater impact if it paid increased attention to S&T in education, health, rural development, private sector development, and the environment. The strategy emphasizes four S&T policy areas: education and human resources development, the private sector, the public sector and information communications technologies.

2. GENERAL: TERTIARY EDUCATION

The Challenge of Establishing World Class Universities
2009, World Bank
Governments are becoming increasingly aware of the important contribution that high performance, world-class universities make to global competitiveness and economic growth. There is growing recognition, in both industrial and developing countries, of the need to establish one or more world-class universities that can compete effectively with the best of the best around the world. Contextualizing the drive for world-class higher education institutions and the power of international and domestic university rankings, this book outlines possible strategies and pathways for establishing globally competitive universities and explores the challenges, costs, and risks involved. Its findings will be of particular interest to policy makers, university leaders, researchers, and development practitioners.

The evolving regulatory framework of private education in emerging economies
2008, HDNED Working paper series 14
This publication has drawn upon international examples of regulatory policies for private providers and has set out a series of "propositions for good practice" for national policy makers to consider as they address the evolving regulatory context.

Global Trends in university governance
2008, HDNED Working paper series 9
The paper seeks to provide evidence of the global trends in the ways that such systems and institutions are planned, governed, and monitored. The scope is limited to issues of strategy, funding, and governance, although some reference is made to assessing quality and institutional management.
Cross border tertiary education
2007, World Bank/OECD
The purpose of this book is to cast light on these opportunities and challenges, especially for developing countries willing to leverage cross-border higher education as a tool for development. This book discusses the concept of capacity-building through cross-border education, emphasizing the critical role of quality assurance and trade negotiations. This volume should be of particular interest to both education policy makers and the myriad stakeholders in higher education from developing countries. The book is also available for purchase online at OECD Online Bookshop.

Trend in International Trade in Higher Education: Implications and Options for Developing Countries
2007, World Bank Working paper series 6
The objectives of this paper are to provide policy makers in developing countries, Bank staff and others associated with higher education policy development with information on and analyses of the recent trends in international trade in higher education and to present the policy issues and options that arise from it.

3. KNOWLEDGE ECONOMY AND KOREA

Korea and the Knowledge Economy (K4D)
Korea has recently established itself as an emerging Knowledge Economy powerhouse and showed strong interest in sharing its experience. In alliance with the Ministry of Planning and Budget, Korea Development Institute signed a comprehensive Memorandum of Understanding with the Bank for collaborative research and joint dissemination projects geared for the Least Developed Countries.

Korea as a knowledge economy: evolutionary process and lessons learned
2007, World Bank WBI
http://go.worldbank.org/4A3FD3RI40
This report on Korea is geared towards policy makers from developing countries that are in the midst of, or are intending to, embark on the transition towards the knowledge economy. It provides pragmatic policy lessons drawn from Korea’s forty-five years of knowledge-based growth. This report not only looks at the current policies and challenges of today’s high income Korea, but also reviews its historical economic development since the 1960s when Korea was still a low income country. It follows Korea through the decades as it undertook an array of knowledge strategies that propelled it through the various income levels. This report therefore provides compelling policy lessons that are relevant for developing countries at different stages of economic development.

Korea as a knowledge economy
2006, World Bank
The Republic of Korea has experienced rapid and sustained economic growth over the past four decades. Although Korea has made these advances, it needs to continue to increase efforts to reform its higher education and innovation systems. These pillars have not sufficiently evolved in recent years to meet the demands of the current global economy. In addition, a more proactive policy response is required to achieve more balanced economic development across the different sectors and niches of the economy. Concrete steps to resolve these issues will eventually become critical to Korea's continued transition to the knowledge economy and to sustained economic growth. An economy becomes a knowledge economy when the sustained use and creation of knowledge are at the center of its economic development process.

Korea Technology, Skills and Internet Services in Korea: Moving Towards a Knowledge-based Economy
2003, World Bank
http://go.worldbank.org/CJHFOPIQ90
This report presents the main findings of three major studies carried out as part of Korea and the Bank's Knowledge Partnership. It is divided into three main sections: (a) a Strategic Review which integrates, and summarizes the most important findings, and policy recommendations for Government to consider; (b) the three in depth studies regarding Korea's transition towards a knowledge-based economy, and, (c) detailed annexes. Korea faces complex challenges in moving toward a knowledge-based economy, which will require inspired corporate strategies, and government policies. The three studies represent an important 'triad' of issues that constitute a core part of the foundation of Korea's knowledge economy: the deepening of technological knowledge at the firm-level; the intensification of the use of internet enabled services by firms; and, the educational implications for upgrading of the workforce. For each of these three themes (firm-level innovation, Internet enabled services, and educational reform), new empirical data are presented for understanding, and promoting knowledge-intensive economic progress. The Strategic Review summarizes several difficulties confronting government policy makers in the aim to promote advances towards knowledge intensive activities. These include the need to ensure: (a) that any new policies are consistent with existing policies designed to ensure good corporate governance, competition, and transparency; (b) that private sector, market-based mechanisms play their proper part in any upgrading efforts (i.e. training and consultancy providers); and, (c) that further evaluation of the scope, and effectiveness of existing policies in the three areas is carried out.

Cluster approach for promoting innovation: Comparison of Finland and Korea
2003, Hndong Global University, Prof. Eul Yong Park, World Bank

Korea - Transition to a knowledge-based economy
2000, World Bank
http://go.worldbank.org/P4SEJ78QH0
The report reviews the economic transition in Korea, summarizing the challenge of the knowledge revolution, to the country's development strategy, and the analytical, and policy framework for a knowledge-based economy. It explores the needs to increase overall productivity, and areas of relative inefficiency, namely, inadequate conditions
for generation of knowledge, and information; insufficient competition, and misallocation of investments. Furthermore, the increasingly global, and interdependent world, requires that Korea become inter-nationalized, and this involves: active participation, and leadership in international forums, particularly those setting rules for the new economy; developing alliances with world-class universities; and, active participation in global knowledge systems, and international telecommunications. Thus, the role of the Korean government will need to be redefined, unleashing the creative power of markets, providing legal and regulatory framework for more competitive markets, and fostering policies conducive to enterprise development, while addressing also, the risks of the "digital divide". The report identifies key areas for the government to move towards a comprehensive approach, where reforms are needed to prod: economic incentive, and institutional regime; education, training, and human resource management; information infrastructure; and, innovation systems.

4. KNOWLEDGE ECONOMY AND MALAYSIA

Can Malaysia escape the middle-income Trap? A strategy for Penang
http://go.worldbank.org/HYBSOJ04A0
How can Penang upgrade and diversify its economy? This paper addresses this question using a number of methodologies that have been developed for assessing competitiveness and identifying the direction of future industrial evolution. The results show that although Penang was successful in attracting foreign direct investment to the electronics industry, this has not translated into a deepening of industrial capabilities or the nurturing of innovation capacity in Penang. No large Malaysian firms in Penang have taken the lead in innovation and there is little new entry by local firms, despite incentives provided by local and national governments are generous. Universiti Sains Malaysia, the principal university in Penang, is contributing through provision of skills, and it is beginning to multiply university industry linkages. However, the university’s research activities are too limited and too diffuse to significantly initiate innovation by local industry. Under the current circumstances, and given its relatively small size, Penang will have to try much harder to strengthen its competitive advantage in its most important industry -electronics- through actions that build research capital. It will also have to increase its efforts to develop the potential of other value-adding activities, such as medical services and tourism. A strategy focused on localization economies is likely to be the most feasible option.

Malaysia and the knowledge Economy: Building a World -Class Higher Education system
2007, HD Sector reports, East Asia and the Pacific Region, World Bank
http://go.worldbank.org/POS2X1KH80
This report assesses and analyzes the current state of the Malaysian university system and makes recommendations on ways to further strengthen existing higher education institutions. It looks in particular at the policy framework needed to support the growth and development of the higher education system which include the legal framework, quality assurance systems, incentives for investment, R&D policies, financing mechanisms that help low income students access education, and public financing programs that direct subsidies to strategically important institutions or fields of study. This report aims to identify key challenges and appropriate solutions which could constitute relevant policy advice for the Government of Malaysia. It concentrates on the higher education sector, including both public and private universities. Notwithstanding the overall focus on the university sector, the study makes occasional reference to the wider concept of tertiary education system as needed. It also makes reference to the broader concept of a national innovation system (NIS), and devotes considerable attention to a number of critical
issues related specifically to the way that improvements in the performance of higher education institutions can lead to an overall better performance of the NIS. The report is organized into two main parts. It starts with a diagnosis of the present situation, relying on a range of key indicators to benchmark Malaysia's national innovation and higher education systems against select OECD and East Asian countries and on an in-depth analysis of the universities' main strengths and areas of weaknesses. The second part provides policy recommendations and detailed action plans to improve the Malaysian higher education system, with special attention paid to the research and innovation nexus, graduate employment, quality assurance systems, financing mechanisms, and the governance and management framework.

**State of Penang, Malaysia**

2011 OECD (Higher Education in Regional City Development series)

This publication reviews higher education and economic development in the State of Penang, Malaysia. It finds that Penang is one of Malaysia’s most industrial states. Its long-term economic growth has been based on manufacturing and foreign direct investments. Strong dependence on multinational corporations has brought growth and development but also an underdeveloped local industry, limited indigenous innovation and a lack of dynamic new entrepreneurship. It examines how Penang could move up in the value chain, away from manufacturing to knowledge-driven economy and how it could capitalize on its diverse population, the co-existence of three cultures and the UNESCO cultural heritage site. It shows how Penang’s diverse tertiary education sector could be mobilized for regional and local development.

5. KNOWLEDGE ECONOMY AND THE MIDDLE EAST

**Knowledge Economies in the Middle East: Toward new development strategies**

2004, World Bank (WBI learning series)

http://go.worldbank.org/D1GUAG1S50

This book analyzes the development of knowledge-based economies in the Middle East and North Africa (MENA). Its principal messages are: Because of the so-called "knowledge revolution" resulting from the rapid growth in information and communication technologies (ICT), the acceleration of technical change and the intensification of globalization, a new form of economic development is taking shape worldwide. The knowledge revolution presents MENA countries with challenges and opportunities. They need to take advantage of this new source of growth and employment. To date, related investments in education, information infrastructure, research and development (R&D), and innovation have been insufficient or inappropriate in most MENA countries. Moreover, inadequate economic and institutional frameworks prevent these investments from yielding desired results. MENA countries risk falling further behind in the world economy. Urgent action is needed to advance structural reform and to intensify and adapt knowledge-related investments. These messages concur with those of two important recent reports on Arab economies by the United Nations Development Programme (UNDP, 2002) and the World Economic Forum (2003). While there seems to be agreement on what needs to be done in the region, the question of how to achieve the desired results is unfortunately often left unexplored. This is to be the focus of further World Bank conferences.

6. KNOWLEDGE ECONOMY AND TERTIARY EDUCATION

**How Universities promote economic growth**

2007, Shahid Yusuf, Kaoru Nabeshima, Directions in Development, World Bank
This study was initiated in 1999 with the objective of identifying the most promising path to development in light of emerging global and regional changes. The purpose of this volume is to examine the role of universities in enhancing technological capability in Asian as well as other industrial countries. This volume also discusses the University-Industry Links (UIL) policies of national governments, corporations and sub national governments. Case studies, policies, strategies and conclusions for Switzerland, United Kingdom, Netherlands, Japan, Thailand, United States, China, Singapore, and India are all individually examined. The volume also covers topics such as knowledge transmission, knowledge production, knowledge sharing, research and development, lessons learned, best practices and innovation initiatives and their roles for economic growth in relation to UIL.

**Constructing knowledge societies: new challenges for tertiary education**

2002, World Bank

http://go.worldbank.org/N2QADMBNI0

This report describes how tertiary education contributes to building up a country's capacity for participation in an increasingly knowledge-based world economy and investigates policy options for tertiary education that have the potential to enhance economic growth and reduce poverty. It examines the following questions: What is the importance of tertiary education for economic and social development? How should developing and transition countries position themselves to take full advantage of the potential contribution of tertiary education? How can the World Bank and other development agencies assist in this process? The report draws on ongoing Bank research and analysis on the dynamics of knowledge economies and on science and technology development. Using this background, it explores how countries can adapt and shape their tertiary education systems to confront successfully the combination of new and old challenges in the context of the rising significance for tertiary education of internal and international market forces. It examines the justification for continuing public support of tertiary education and on science and technology development. Using this background, it explores how countries can adapt and shape their tertiary education systems to confront successfully the combination of new and old challenges in the context of the rising significance for tertiary education of internal and international market forces. It examines the justification for continuing public support of tertiary education and the appropriate role of the state in support of knowledge-driven economic growth. Finally, it reviews the lessons from recent World Bank experience with support of tertiary education, including ways of minimizing the negative political impact of reforms, and makes recommendations for future Bank involvement.

7. SCIENCE AND TECHNOLOGY, INNOVATION AND CLUSTER APPROACHES

**Ideas and innovation in East Asia**

2007, World Bank (Policy Research working paper 4403)

http://go.worldbank.org/IW3X0GHV60

The generation, diffusion, absorption and application of new technology, knowledge or ideas are crucial drivers of development. This paper surveys the diverse approaches to innovation adopted by East Asian economies, the problems faced and outcomes achieved, as well as possible policy lessons. Knowledge flows from advanced countries remain the primary source of new ideas in developing economies. The authors evaluate the role of three main channels for knowledge flows to East Asia - international trade, acquisition of disembodied knowledge and foreign direct investment. The paper then looks at the exceptionally fast growth in domestic innovation efforts in Korea, Taiwan (China), Singapore and China, drawing on information about R&D as well as original analysis of patent and patent citation data. Citation analysis shows that while East Asian innovations continue to draw heavily on knowledge flows from the US and Japan, citations to the same or to other East Asian economies are quickly rising, indicating the emergence of national and regional knowledge stocks as a foundation for innovation. A last section pulls together findings about policies and institutions to foster innovation, under three heads: the overall business
environment for innovation (macroeconomic stability, financial development, openness, competition, intellectual property rights and the quality of communications infrastructure), human capital development, and government fiscal support for innovation.

**Innovation systems: World Bank support of science and technology development.**

2004, World Bank

[http://go.worldbank.org/WJ4YSDJFU0](http://go.worldbank.org/WJ4YSDJFU0)

Innovation systems and science and technology (S&T) projects supported by the World Bank have taken on many forms in the past several years. The Bank’s involvement in industrial technology projects started in the 1970s, with Israel and Spain numbering among the first countries to receive support in the form of industrial technology development.1 This paper reviews the lessons learned in S&T projects that have been supported by the Bank, with an emphasis on the examples of the past decade (1989-2003). Projects and their components were included in this review if their objectives included the use of scientific and technological knowledge to improve development. The review included 51 project, in an aggregate amount of over US$4.2 billion; this did not include agricultural research projects where the Bank supported a significant amount of projects world-wide. The amounts invested in individual projects ranged from US$3 million to US$300 million, with a mean project size of about US$58 million. This paper first discusses the concept of the knowledge-based economy (KE) and its relation with the S&T sector, and then identifies the main themes of KE projects, groups them by the four pillars of the knowledge economy, and summarizes the key lessons learned. Since the Bank experience is most substantial in the areas of innovation systems and related policy frameworks, this review focuses on industrial technology development and on building national innovation systems. It touches only briefly on the themes of education, and information and communications technology, with the aim only of providing the proper context for the main study. A List of Projects is included in Box 1, and brief descriptions of these projects in Annex B to this report.

### 8. CONFERENCES/COURSES

**Regional conference on Job creation and Skill Development**
*Cairo, Egypt: December 4-6, 2005*


**Building 21st Century Knowledge Economies for Job Growth and Competitiveness in the Middle East**
*Tunis, Dec 1-3, 2009*


**Developing Knowledge Economy Strategies to Improve Competitiveness**
*Alexandria, May 17-21, 2009*


**Developing Knowledge Economy Strategies to Improve Competitiveness**
*Seoul, July 15-18, 2008*
Global Innovation Policy Course: Introduction to Innovation Policy
Washington, DC 14-18 June, 2010

Mobilization of Diasporas for Knowledge Transfer
Project web site

Chapter 11 Leveraging Diasporas of Talent: Toward a new policy agenda

World Bank Institute: Key knowledge economy resources

Knowledge and Skills for the New Economy
2006, World Bank / DFID
http://go.worldbank.org/4LS93GU930
This three-year research, analysis and dissemination activity was intended to provide the tools and knowledge for policy makers in developing countries to make informed policy choices for reforming post basic education and training systems to meet the challenges of lifelong learning.

Improving competitiveness through a knowledge-based economy Knowledge Economy Forum
March 23-26 Budapest, 2004
http://go.worldbank.org/8ZPTUBNLP0
This paper summarizes a three-day forum, Improving Competitiveness Through a Knowledge--based Economy, held in Budapest, Hungary on March 23-26, 2004. The third Knowledge Economy Forum, Improving Competitiveness Through a Knowledge-based Economy, held in Budapest on March 23-26, 2004, is the third milestone in the World Bank's efforts to support its client countries in the transition to a knowledge economy. Initial efforts to engage client countries in a dialogue on the knowledge economy were made in 2002 at the Paris Forum and focused on establishing national strategies in the EU accession countries. These efforts were furthered at the 2003 Helsinki Forum that addressed the progress made in implementation of these national knowledge economy strategies in the EU accession and candidate countries.