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Generation of New Knowledge: Value and Valuation of the Local Conditions in Vietnam



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Source for Picture 1: <http://d.yimg.com/us.yimg.com/p/afp/20061123/capt.sge.oma61.231106090209.photo00.photo.default-448x512.jpg>, (18.11.2007), Picture 2: Roasa (2007: 64).

The pictures illustrate the exceptional combination of modern technology and traditional society ruled by a communist regime.

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Abbreviations and Acronyms

ICT	Information and Communication Technology
IIE	Institute of International Education
IT	Information Technology
MOST	Ministry of Science and Technology in Vietnam
R&D	Research and Development
S&T	Science and Technology
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization

1. Introduction – Knowledge for Development

Knowledge is seen “as the main driving force of innovation and development” (Evers and Gerke 2005: 5). According to the World Development Report 1998/99 knowledge makes the difference between countries that are stuck in poverty and industrialized nations that have accumulated wealth. Besides scientific knowledge also knowledge about health issues, financial investment or environmental matters can improve people’s lives dramatically (World Bank 1999: 2).

Because of the costly investments for knowledge production it is comprehensible that about 80% of knowledge comprising R&D institutions and their scientific publications is created in the more industrialized countries (World Bank 1999: 27). This unequal distribution of financial and personal resources for R&D can be observed across countries but also within a state¹ and leads to two types of problems: knowledge gaps and information problems (World Bank 1999: 1). The need for local research and new knowledge creation is obvious to ensure that developing countries can take advantage of the huge accumulation of global knowledge.² Therefore, local research is strongly required to be able to make technology adaptations to local conditions in developing countries (UN 1999: 36). Universities and research institutions are main sources for the generation of new knowledge and guarantee that already available knowledge will not get lost³ (Helmstädter 1999: 46). Besides the very important part of research the range of knowledge production comprises all activities⁴, interactions, individuals, groups and institutions that might contribute to the creation of new knowledge. To meet the claim of valuing the local conditions for gaining new knowledge it is indispensable to use an interdisciplinary approach which reveals obstacles from a social, economic, geographical and technical perspective and brings each discipline with its respective values into interrelation.⁵

This paper consists of four sections. Section one gives an introduction of the topic and states the objectives of this term paper. Section two conceptualizes the general process of

¹ The relevance of cluster building and knowledge hubs will be discussed in chapter 3.4.

² It should also be noted that “[t]he value of knowledge is determined by experts, mainly from the industrialized knowledge economies and by processes in powerful organizations like the big transnational corporations, government departments, UNESCO, the World Bank [...]. They determine what knowledge is essential and what is not” (Evers and Gerke 2005: 10).

³ Evers and Gerke warn that “[r]esearch does not only produce new knowledge but also destroys old knowledge. In this sense ignorance rather than knowledge is enhanced” (Evers and Gerke 2005: 8).

⁴ Activities which may determine the generation of knowledge can be the management of research institutions, the distribution of resources, communication channels, organization of the society or politics.

⁵ Disregarding one value means a serious impact in terms of reduction or loss of the other values.

knowledge generation. In section three the factors that affect the process of knowledge production in Vietnam are examined in practice considering the various values which play an important role in influencing the development of the country. The fourth and final section comments on the responsibility of the Vietnamese government in the process of generating new knowledge.

1.1. Aims and Objectives

This paper aims to identify different values concerning knowledge production in Vietnam to investigate by means of an interdisciplinary approach the local preconditions for the creation of new knowledge. Therefore, the objectives of this paper are:

1. to describe the general process of knowledge production to get an idea of different concepts being discussed among scientific publications,
2. to identify different factors affecting the generation of knowledge in Vietnam by examining optimal preconditions in general in comparison with the local situation in Vietnam,
3. to consider the different values of knowledge production and illustrate the interrelations of these different values,
4. and finally to analyse to what extent the local conditions in Vietnam will have impact on the generation of new knowledge.

The main emphasis of this paper lays on local conditions for the generation of new knowledge. The paper thus discusses not only conceptual theories but also embeds the problem of new knowledge production into the Vietnamese context.

1.2. Methodology

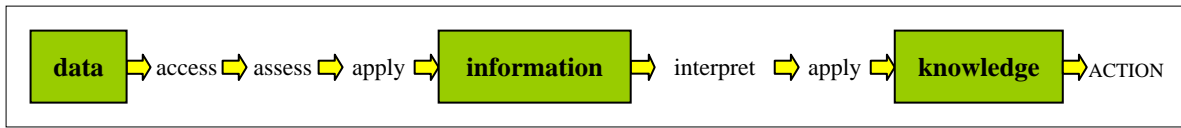
This document is based on the review of publications available in the libraries and online accessible databases with additional information inputs from interdisciplinary discussions with Vietnamese researchers. Interviewing experienced scientists with their disciplinary background gave a first idea about the ongoing process in terms of research and development activities in Vietnam.

2. Conceptualizing the General Process of Knowledge Production

What is Knowledge Production?

Knowledge production can be regarded as a social and political process which reflects the social-cultural, historical and institutional values of its producers. Thereby, research is the main source to generate new knowledge.

Figure 1: Chain of Knowledge Production: From Raw Data to Scientific Theory to Action



Source: Adaptation of the 'Four As' model of the information chain (Wilson and Heeks 2000: 415)

Figure 1 illustrates the chain of knowledge production. In the beginning there is raw data which has to be collected. Organizing this data into meaningful patterns turns it into usable information. Finally this information is transformed into knowledge when it is interpreted and applied to a specific situation (Lee and Yang 2000: 783). By means of the obtained knowledge it is possible to make decisions in complex and uncertain environments. Numerous environmental elements affect the function warranty of this “knowledge chain”: financial issues, human capacity, technical infrastructure and social resources such as trust, motivation, attitudes or power (Wilson and Heeks 2000: 415).

Development of Concepts About Knowledge Production

Exploring processes of knowledge production has been a central research topic. Gibbons et al. (1994) introduced the concept of a new transdisciplinary mode of knowledge production while replacing the traditional disciplinary mode.⁶ The validity of the neo-classical assumptions of knowledge production has been questionable. Originally just a small part of knowledge was produced for profit and sold to consumers in the free market. Consequently, more than 20 years ago the production of knowledge was free of charge and not guided or constrained by market mechanisms or specific contexts of application.⁷ A wide range of knowledge management literature still only considers knowledge as such (e.g. Nonaka and Takeuchi 1995)⁸ and fails in focusing on social activities which surround the process of knowledge generation. To them knowledge is a commodity consisting of context-free pieces of information that can be captured, stored and transferred universally. But this concept is obsolete taking into consideration the fact that knowledge is often not

⁶ While the traditional mode generated knowledge within a disciplinary context, the new mode creates knowledge “[...] in broader, transdisciplinary social and economic contexts” (Gibbons et al. 1994: 1) in which gained knowledge is characterized by a use or action since its inception.

⁷ Still mainly the government has to pay the expenditure for schools, colleges and universities as well as the cost of research and development (Machlup 1980: 156).

⁸ Nonaka and Takeuchi’s concept is a classical reference in the literature. Their theoretical perspective is based on the tacit and explicit knowledge distinction originally built on Polanyi’s work (1966). “Tacit knowledge is subjective [...] and hard to formalise. Belief, perspective, mental models, ideas and ideals are examples [...]. Explicit knowledge is objective, rational knowledge and can be expressed in forms such as data, scientific formulas, specific actions and manuals” (Kale and Little 2005: 88).

available in a codified form but rather linked to people and social interactions (Nordhause-Janz and Widmaier 1999: 91f) and is thus context-dependent. The emergence of the transdisciplinary mode of knowledge production has several reasons: the ‘massification of education and research’ which leads to a broader availability to access higher education, the spread of specialists into government laboratories, industries, think-tanks and consultancies and the rapid development of information and communication technologies (Gibbons et al. 1994: 10).

New research findings confirm the altering environment of knowledge creation and point out a change in contemporary society towards a knowledge society. Karin Knorr-Cetina uses her theory of ‘epistemic cultures’⁹ to accentuate the need not for the generation of new knowledge but for “the construction of machineries of knowledge production” (Knorr-Cetina 1999: 3). Nowadays “[t]he production of knowledge takes place in a framework of markets and power structures [...]” (Evers and Gerke 2005: 8). If universities want to continue playing the key role in generating knowledge they will have to change their modes of research and produce a kind of information that will create wealth through their application by business partners in the rising global knowledge economy¹⁰ (Turnbull 1999: 69). Evers (2000) questions the role of science as the premier institution for knowledge production. He observes an increasing blurring of boundaries between knowledge and society and is convinced of a growing determination in science by organizations that lead the knowledge-based world market (Evers 2000: 11ff).

The necessity of interdisciplinary and even transdisciplinary approaches has been acknowledged. Institutional and cultural factors are as important as economic factors (Nordhause-Janz and Widmaier 1999: 84) and ‘contexts of application’ which involve stakeholder opinions for the ability of knowledge creation (Gibbons et al. 1994: 10).

3. Factors Affecting the Generation of Knowledge in Vietnam

“The ways people get information, and the incentives they have to gather and provide it, are affected by the way society is organized: legal rules and social conventions, institutions and governments, all determine how much information people have and the quality [...] of that information” (World Bank 1999: 72).

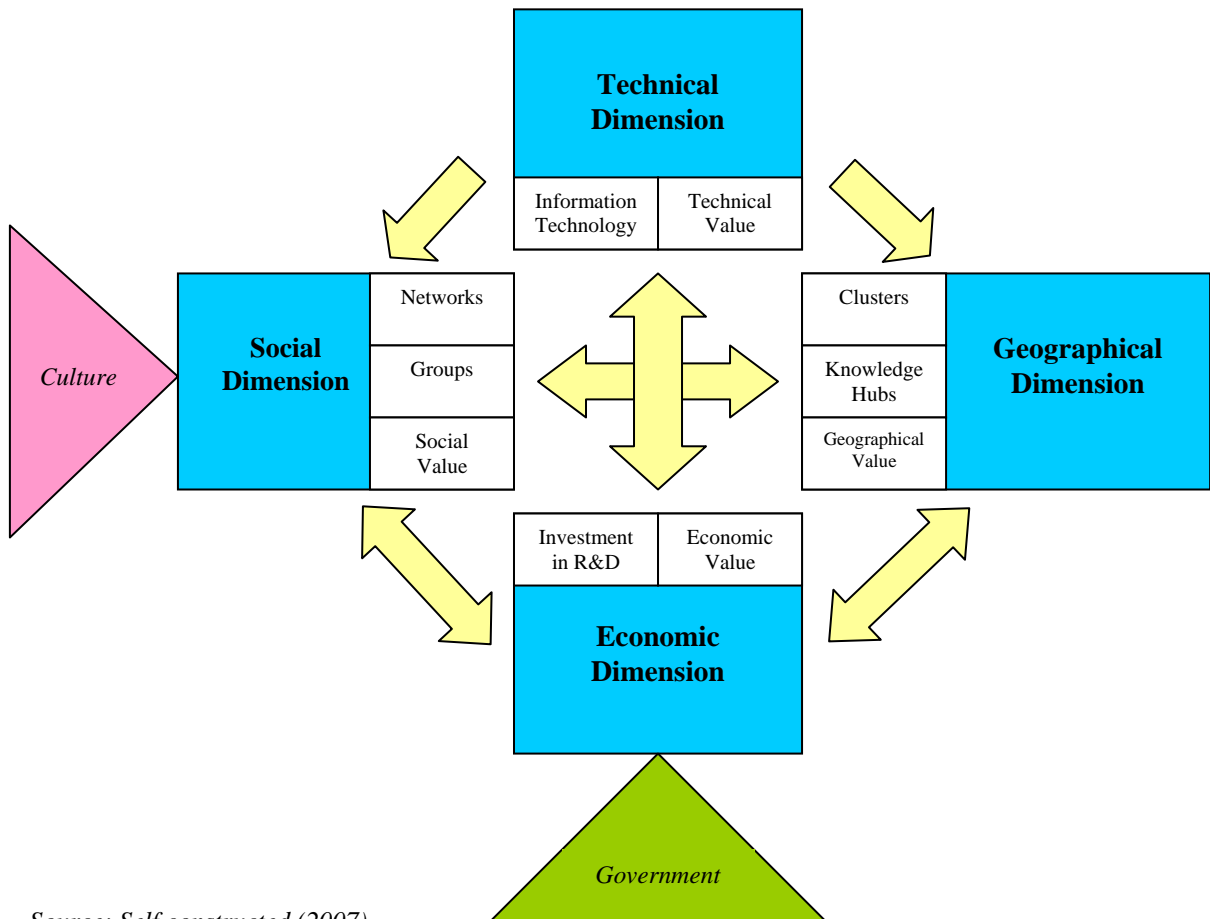
In this chapter it is discussed to what extent the tight control of the Vietnamese government of social and economic development strategies can be prejudicial to the

⁹ An ‘epistemic culture’ is a culture of knowledge creation and utilisation in terms of knowledge-in-action as it is practiced in a setting.

¹⁰ Research universities are no longer seen as a monopoly supplier of knowledge production. They thus need to find strategies to become niche players in national and international contexts (Gibbons et al. 1994: 156f).

generation of new knowledge. The generation of knowledge in Vietnam is embedded in an exceptional context. The fact that all research institutes are attached to government ministries may not only offer chances but also hold obstacles in the field of gaining new knowledge. Figure 2 gives an idea about the different disciplines and effects that determine the local conditions of knowledge production in Vietnam.

Figure 2: Interrelations of the Factors Affecting the Generation of New Knowledge



Source: Self constructed (2007)

3.1. Research Policy and the Role of the Government in Vietnam

In general, it is the duty of the government to invest in research and innovation. Besides this financial dimension there are

“other priority tasks for governments, such as providing information to businesses, scientists and civil society, and establishing legal environments and monitoring procedures. Governments also participate in creating and running interface networks ensuring linkages between the key players in research and innovation systems” (UNESCO 2005: 103).

The Vietnamese Government

The current situation of the Vietnamese government can be illustrated by two metaphors: Firstly, the Vietnamese government appears to be in the middle of the river when there is

no going back but still the Party is reluctant moving forward with further reforms. Secondly, the Vietnamese government seems to be in the driver's seat pressing simultaneously on the accelerator concerning the implementation of market-reform policies and on the brakes in terms of their insistence on central-planning habits and institutions (Bezanson et al. 1999: 36).

The mainly top-down interaction between the state and the people may limit the creation of new knowledge. The Vietnamese government uses the formal communication apparatus to disseminate information and promoting their ideological policy.¹¹ This one-directional structure tells the Vietnamese people “what to think rather than what to think about” (Laverarck and Dao 2003: 364).

Higher Education in Vietnam

Analysing the governance of the higher education in Vietnam discloses a strongly centralized system wherein the Vietnamese government possess all authority, including the private sector of higher education which enrolls about 15 % of all students (Hayden and Lam 2007: 75). It can be observed that “[...] there is a natural reluctance on the part of legislators to give up direct bureaucratic control of a sector that is of significant national economic importance as a source of new knowledge and of labour market expertise, and which is also an important generator of new ideas” (Hayden and Lam 2007: 83).

Research policy

There are two kinds of research projects: firstly, basic research projects from which the development of methods and research findings are expected take mainly place in Vietnamese universities. These projects get just a small part of the governmental expenditure for R&D. Secondly, there are the more acknowledged applied research projects initiated to solve current occurring disasters and problems by applying new technology to the Vietnamese context. Applied research projects are primarily run by the respective governmental research institutions and claim most of the state budget for R&D. According to the opinion of a Vietnamese researcher it thus is more attractive to participate in applied research projects because of the financial incentives. In general, research policy analysts distinguish between explicit policies directed to R&D instruments

¹¹ In general, incentives for the Vietnamese government to transfer meaningful control downwards are low or even absent – a fact that centralizes political power and accentuates the traditional hierarchical control over decision-making and resources in Vietnam (see also chapter 3.2.3).

(e.g. patents, intellectual property rights)¹² and implicit instruments that are not particular directed to the generating of new knowledge but significant for its performance, success and failure (e.g. economic and financial policies, labour laws, environmental issues)¹³. There are already many explicit policies in Vietnam. The tendency is to create even more what consequently leads to a

“bureaucratic nightmare of inconsistent signals from the government and conflicting decisions from different ministries, such as Ministry of Planning and Investment, Ministry of Industry, and Ministry of Science, Technology and Environment” (Bezanson et al. 1999: 38).

In Vietnamese context it can be observed that a lot of implicit policies conflict directly and gravely with explicit R&D policies.¹⁴ Moreover several influencing political issues affect the research environment dramatically: In an interview a Vietnamese researcher express the strong pressure of the government which intends to manifest its policy through research findings in order to show that their policy works.¹⁵

3.2. Social Dimension

From a sociological point of view knowledge is always produced in a socio-political context and culturally-determined. A collaborative and stable social environment is crucial for the generation of new knowledge because people’s knowledge depends on the behaviour of others (Bertrand et al. 2000: 1022). Examining Vietnamese networks, group interactions and the socio-cultural background shows how individual behaviour is in the Vietnamese society affected by cultural norms and values.

3.2.1. Networks

“The term ‘network’ [...] means a form of linkage which is somewhat less structured and quite possibly less permanent than an ‘organisation’” (Powell 2003: 160). Exchanging information and communicating with each other provides the opportunity to have access to

¹² Policies that are viewed as explicitly supportive for R&D in Vietnam: in 1987 the government removed the state monopoly on R&D; in 1988 decree on foreign-technology transfer; in 1992 decree on organizational and individual rights to enter into contracts or to cooperate in R&D activities; in 1994 decree on external grants in support of R&D; in 1995 Civil Law included protection of copyright, industrial property rights and a legal framework governing technology transfer; a foreign-investment law governing R&D activities in economic projects (Bezanson et al. 1999: 39f).

¹³ Regulations that are implicitly supportive for R&D in Vietnam relate to the contracting and procurement of technologies; to property; to domestic and non-domestic financial needs (Bezanson et al. 1999: 40).

¹⁴ The research-policy relationship can be seen from three perspectives: the supply side, the demand side and socio-cultural factors (see Appendix 1).

¹⁵ Vietnamese researchers are also worried about their role in naming people when trying to find out what works. Skimming over Vietnamese research reports showed that researchers openly name problems and grievances of the country whereas reasons for these issues are omitted. Speaking their minds of possible reasons even naming and shaming of people would possibly offend against the government policy and in consequence they would lose their research position.

more resources. Members of these voluntary associations anticipate advantages by being part of a network in terms of their working environment, lobbying activities or social situation. Sharing knowledge and experiences can also be a source of new knowledge production. Given the lack of official formality of the interaction in an organization allows members of the network to act more risky and exchange ideas with people they do not necessarily agree with. “Such networks [...] can be very productive in generating new ideas or insights” (Powell 2003: 161). Especially in terms of the generation of knowledge, networks among researchers are seen as the ‘critical driver’ for knowledge sharing as well as for the development of creativity and discovery (Howard 2005: 31).

Vietnamese networks are used to promote careers of their members to protect themselves or their families and attain more information to foster their positions in their professional life or in the society. There are three main possible stages where networks may occur emerging from a close or even closed circle: people from their home villages, colleagues from university or at work. The traditional Vietnamese way of being linked to other members of the society is the maintenance of inside and outside networks of an organization. Networking inside relates to the direct working environment with superiors, subordinates or even party representatives (Napier 2005: 623). Outside networks refer to a more political level. Being closely linked with local party bosses, regional authorities and ministries is essential to achieve economic and political interests.¹⁶ Hence, even though being critical about the Party’s work these social relations help not only to run business but also to do research in Vietnam (Heberer 1999: 5).

A system of closed networks makes it difficult for not-members to get access to the network and gaining member’s trust. Even though closed networks allow fast knowledge exchange (Glisby and Holden 2003: 29f) they may also restrict it. Thus, it is important that Vietnamese are aware of the advantages of broadening their networks to gain knowledge of people from different societies and organizations (Napier 2005: 630).

3.2.2. *Groups and Stakeholders in Vietnam*

‘Knowledge’ is identified as a strategic resource that leads to the formation of new strategic groups¹⁷ such as the staff of multinationals or experts (Evers 1999: 8). The

¹⁶ It has to be considered that corruption is still a wide-spread phenomenon in Vietnam which has to be included in the calculation to run network relationships.

¹⁷ The theory of strategic groups assumes that group members have a common long term strategy of acquiring resources including tangible as well as intangible goods such as power, social and religious prestige or knowledge (Evers and Schiel 1988: 10ff).

production of new knowledge via research and development is used as a strategic resource to gain market share and maximize profit in the course of globalisation (Evers 1999: 1). Available knowledge resources and the capability to utilize new knowledge among group members may affect the group performance.¹⁸

In Vietnam there are numerous groups such as entrepreneurs, cadres, employees, students, scientists, farmers etc. They differ from each other in terms of social, economic and political prestige in the Vietnamese society. These groups are heterogeneous and form so-called 'strategic groups' that exercise important functions for the development of the country. Even though Vietnam is centrally controlled by the political party it can be acknowledged that strategic groups (in particular the group of entrepreneurs) will increasingly impose pressure by political negotiating power upon the Vietnamese government (Heberer 2000).

Social behaviour determines the potential of knowledge production and is crucial for decision-making among groups. There is a discrepancy between the hierarchy system and the egalitarian philosophy in Vietnam as the society structure tends to be vertically collectivistic.¹⁹ "Vietnamese can accept seniority as a reason for promotion or a peer, but communism's egalitarian philosophy made it difficult for same age and status colleagues to become managers of their peers" (Napier 2005: 625).

3.2.3. *Social-Cultural Value*

"...[T]he manufacture of knowledge cannot be explained and stimulated as a rational process alone as it rests as much on social interaction, life-world experience and culture (Evers 2000: 10)."

People value knowledge on ethical and discretionary responsibility to the community as well as on cultural, philosophical and religious conceptions of society. These personal social-cultural values are generally accepted in a community and become apparent through social rules and cultural norms in respect of networks, groups and interactions in a respective society.

Value of Education in Vietnam

One prospect in Vietnam is the esteemed position of education in the Vietnamese society given that education provides the basis for research activities. The government highly

¹⁸ "All knowing is coordinated action by the knower and therefore depends on the 'structure' of the knower" (Zeleny 2005: 39).

¹⁹ The hierarchical system can be supportive in terms of promoting new sources of knowledge. Vietnamese had the image of foreigners as 'suspicious' and were not willing to learn from them. Thus, the ministry's encouragement was decisive for recipients to accept knowledge from 'outside' (Napier 2005: 630).

values the educational system as a key sector for the future development of the country and intends to increase its expenditures in the following years²⁰ (IIE 2004: 3).

Cultural Factors

As already discussed before the Vietnamese society is hierarchical organized based on the traditionally Confucian philosophy which is inherited in the Vietnamese culture²¹ and exerts influence on knowledge production processes (see also chapter 3.2.2).

The questioning of *individual performance* can be seen as an obstacle for knowledge production and transfer. Vietnamese faculty members retain in their 'learned helplessness attitudes' and let foreign professors assume control instead of taking initiative. This behaviour of 'holding back' constraints knowledge exchange and the emergence of new knowledge (Napier 2005: 623).

One of the most important social values is creating and maintaining group harmony. Vietnamese have a profound aversion in making mistakes in the presence of outsiders. The concept of '*losing face*' is inherited in Vietnamese society what makes it more difficult to discuss openly arising conflict situations. Hiding disagreements lead to limited knowledge production and transfer (Napier 2005: 633). Vietnamese people also still prefer face-to-face interactions²² although university and business people nowadays have opened their networks in that way accepting e-mails²³ from invisible people (Napier 2005: 623).

3.3. Economic Dimension

“Political investment is the cornerstone of any scientific development strategy and the foundation of any knowledge society, which cannot subsist without a political architecture” (UNESCO 2005: 103).

3.3.1. Investment in R&D

Investments in research and development are costly and benefits occur just in the medium to long term. The expenditures for R&D, the number of knowledge workers including

²⁰ Currently education occupies approximately 17.1% of all state budget expenditures (around US\$1.6 billion) and is expected to increase to 18% by 2005 and 20% by 2010.

²¹ The strong existing value system has been influenced by Confucianism, Western colonization and communism and still determines the mindset of Vietnamese people in all kind of fields (Zhu 2003: 260f).

²² Face-to-face or interpersonal communication means the direct contact person-to-person or one person to a group of people for instance in a meeting. In Vietnam government employees are the most commonly used people for face-to-face communication. Besides, village volunteers, village leaders, religious leaders and teachers play also an important part within the face-to-face communication related to policy issues (Laverack and Dao 2003: 365). Interacting directly with the community assures the top-down communication structure of the government.

²³ Not until the end of the 1990s Vietnamese have accepted the use of e-mail communication as an inevitable demand due to the increasing contact with international colleagues.

researchers, scientists, engineers and output products such as scientific publication, journal articles, papers, books on particular subjects or granted patents are important indicators to measure knowledge production in a country (Menkhoff et al. 2005: 173).

The first R&D institutes in Vietnam have been established in 1945. Since 1975 the Vietnamese government has recognized the importance of R&D for the socio-economic development of the country. Until now there are more than 1.100 R&D institutions including about 660 ministries and government research institutes in 5 disciplines including natural, technical, agricultural, medical pharmacy, social sciences and humanities and about 500 non-governmental institutions (see Appendix 2).²⁴ Besides, there are 197 universities and colleges involved in research activities²⁵ (Nguyen and Pham 2005: 112).

In 2004 more than 38.000 Vietnamese people have been working in the field of R&D, including librarians, technicians and other supporting employees.²⁶ It can be assumed that only a small number of Vietnam's R&D scientists and engineers are employed in industrial business companies. Unfortunately, there are no statistics on R&D staff working in state-owned and private enterprises. Since 2001 Vietnam's R&D budget has increased from 1,4 % up to 2 % of total state budget expenditures (Le and Nguyen 2003: 1). But it is difficult to measure the real value of the total budget for R&D in terms of the low salary level for Vietnamese R&D scientists and engineers and the equipment that became as expensive in Vietnam as in the rest of the world (Bezanson et al. 1999: 46). Due to the lack of funding and relevant research equipment a new phenomenon has occurred: Vietnamese R&D institutions are forced to move into contract research and consultancy arrangements to supplement their income. That is why most scientists hold several jobs or positions simultaneously (Bezanson et al. 1999: 47). According to Hoang Van Phong, Minister of the Ministry of Science and Technology in Vietnam, most of R&D institutions in 2004 "[...] continue to be subsidized by the State and operate inefficiently".²⁷ Identifying the remaining inadequate interlinkage between the producers and the consumers of technology in Vietnam the ministry aims to increase the public investment in science and technology.

²⁴ R&D institutions in Vietnam are organized on five levels (see Appendix 3).

²⁵ According to the Ministry of Education and Training there are in total 111 universities and 119 colleges in Vietnam in 2003: <http://en.moet.gov.vn/?page=6.13&view=4404> (15.11.2007). Appendix 4 gives an overview of the major qualifications of lecturers involved in R&D activities at universities in Vietnam.

²⁶ Number taken from: vietnam.nsc.gov.tw/public/Attachment/63231815471.doc (15.11.2007).

²⁷ Vietnam News article: "To boost science and technology agencies to be run like business" <http://vietnamnews.vnnet.vn/2004-04/21/Stories/05.htm> (15.11.2007).

3.3.2. *Economic Value*

The economic value accrues from the utility which research findings of R&D institutions can provide to human being. Knowledge has the potential to be turned quickly into monetary value. “The conversion of knowledge to intellectual property is the process [...] to create assets that ultimately can be converted into economic value” (Duke 2004: 29). Patents, copyrights and licences all cost money to acquire. This created commercializing from research causes high incentives to invest more money in the field of R&D to have a beneficial impact on the development of the country.

The Vietnamese government has slightly increased the expenditure on R&D to enlarge the knowledge element in its economy in the hope of utilizing these investments to develop new applications which in the long term will lead to a sustainable economic growth. But Vietnamese researchers are still little aware of the need to apply their research to the needs of the productive sector:

“Research institutions in Viet Nam tend to follow their own logic, mostly inherited from a Soviet (mission-oriented) approach to conducting research, in which the end user (the scientific community, educational institutions, a public agency) does not operate in the market and is identified in advance” (Bezanson et al. 1999: 50).

Thus, relations between R&D research institutes and the productive sector are restricted and nearly non-existent in some branches.

3.4. Geographical Dimension

3.4.1. *Cluster Building*

It is essential to have network activities among think tanks including research institutes and training institutions. Forming clusters of related issues in certain regions enhances the opportunities of sharing information and technologies which avoids any duplication of research activities and encourages collaboration among think tanks. In addition, cooperation diminishes the constraints of the inadequate availability of trained research staff, provides better overall perspectives in terms of specific policy issues to disengage from limited ministerial interests and leads to a more effective coordination and support for research and training activities by international donors (Hashimoto et al. 2005: 32). The “spatial concentration” of research institutions and the possibility to build up networks are considered as essential preconditions for regions to establish creative clusters for the production of new knowledge and may also attract innovative multi-national companies (Nordhause-Janz and Widmaier 1999: 85).

Although Vietnam has a quite small research community there is a considerable lack of communication among scientists of various R&D departments under different ministries. This fact is even more surprising because of the obvious concentration of Vietnam's R&D institutions in Hanoi and Ho Chi Minh City.²⁸ This cluster building opportunity should be even more encouraged in the capital Hanoi where more than 75 of 233 government-funded R&D institutes are concentrated in one particular part of the city called Nghia Do-Cau Giay-Tu Liem area (Bezanson et al. 1999: 46).

3.4.2. *Knowledge Hubs*

“‘Hubs’ are geographical locations with a high density of interactions and of transfer of information and knowledge” (Evers and Hornidge 2007: 418). The establishment of centers with a high concentration of research institutions transforms the location into a place of new knowledge production. Selling knowledge based products and granted patents may increase the value of the region enormously. A good example for a global knowledge hub sets Singapore (Evers and Hornidge 2007: 432). It is important to publish research findings in a journal or book in order to make the new generated knowledge available to other academics in the world. Without publication research will remain an incomplete commodity (Braithwaite and Alade 2005: 9).

In Vietnam, main research activities take place in the northern part of the country (see Appendix 5). Given that Vietnamese ministries and governmental agencies are located in the capital Hanoi explains the phenomenon that most think tanks are clustered close to the executive body (Hashimoto et al. 2005: 24) even though there is little communication and coordination among them. Identifying ‘knowledge hubs’ in Vietnam is difficult as the outcome of publications and research findings is still scarcely to access for scholars from foreign countries.²⁹ Evers and Gerke (2005) show that the local contribution of Vietnamese scientists to global knowledge is still very low (Evers and Gerke 2005: 22).

3.4.3. *Geographical Value*

The geographical value of knowledge production arises from research results and outcome. Through utilization of specific locations in the country certain resources can be

²⁸ There are only two high-tech parks in Vietnam: Hoa Lac High-tech Park located in the north and the Saigon High-Tech Park (Tran 2006: 15, www.shtp.hochiminhcity.gov.vn).

²⁹ A big obstacle might be the language problem because most Vietnamese academic publications are written in the Vietnamese language. At most there is an English abstract giving just a small insight of Vietnamese research activities.

exploited affecting the significance of the regions. Geographical value thus causes not only technological development of the infrastructure but also movement of population working in these newly-created environments. In this progress economic and political power is decisive for the strategic planning of these growing agglomerates. Due to the changing use of the land, a growing urbanization, the need of an adequate supply for the population and the emergence of infrastructures have inevitable effects on the ecosystem.

3.5. Technical Dimension

According to Evers and Gerke (2005) there is an interrelation between the distribution of ICT and the generation of new knowledge. “An ICT infrastructure can only be developed if the necessary scientific knowledge and expertise is locally available. The production of new knowledge is [...] not primarily dependent on the availability of ICT [...] [but] reduces the chances for innovative knowledge production” (Evers and Gerke 2005: 7).

3.5.1. Information and Communication Technology

The use of ICT gives the opportunity to access easily the internet which provides data, information and electronically published reports. The quality of exchanged content is questionable but this permanent communication networks is essential for the world wide dissemination of new generated knowledge.

In Vietnam

“...[t]here are serious limitations in the national infrastructure with regard to basic requirements for automation in the areas of telecommunications capacity, availability of IT staff and skills and even power supplies (Denison and Robinson 2004: 12).”

The lack of skilled and experienced IT staff and the inadequate telecommunications in Vietnam are serious obstacles for the generation of new knowledge. Universities and research institutes are limited in the ability to access the variety of resources available via the internet and therefore lack in experiences of international research developments. Furthermore, the use of internet resources is controlled by the Vietnamese government. Blocking web sites leads to a serious lack of knowledge resources for Vietnamese scientists and to an incomplete perception of the reality. In conversations with Vietnamese researchers it seems that they are oblivious of the severe punishment by the Vietnamese government in case of being not aligned with the work of the Party. The control of the mass media by the government ensures the limited view of the Vietnamese people.

3.5.2. *Technical Value*

The technical infrastructure can be seen as a facilitator for establishing a knowledge production landscape (Spiegel and Harig 2002: 24). A fully functional ICT environment saves a lot of time in solving problems given that the complexity of society issues rises. The technical value involves the outcome of the service performance and thus is closely connected to the productive economic value.

4. Conclusion – Need for Calibration of Different Stakeholder Values

“Innovation, production and application of new knowledge and use and dissemination of information will be decisive for the success or failure in moving ahead in a globalised economy” (Evers 2000: 9).

The requirements for scientific research have become greater as policies and society issues are more complex due to the larger number of stakeholders and the increasing need for projections and competitiveness. Calibrating the system of values assists the process of decision-making for stakeholders such as the Vietnamese Communist party, entrepreneurs, scientists, employees, farmers, etc. and leads to a sustainable development of the country. It is of most importance to address social, economic and environmental dimensions of development in a balanced manner and to focus on a new national system of knowledge production where interaction between universities, research institutes, government agencies and business companies takes place. Only the generation of new knowledge within national borders can ensure a sustainable development (UN 1998: 3). While Vietnam has been more and more integrated into the global economy, policy decision-making needs to take into account the opinions from various stakeholders (Dang 2005: 320). By means of modern ICT new opportunities have emerged which foster a participatory approach involving all kinds of stakeholders in the society to meet the demand of a knowledge-based society and economy. Vietnam has to overcome a number of obstacles that may hinder the production of new knowledge.³⁰ But so far the socio-economic development of the country indicates a changing research environment in Vietnam which will enhance the local conditions for the generation of knowledge.

³⁰ Hoang Van Phong, Minister of Science and Technology, recently said that “Science and technology in Vietnam at the moment are not strong. The sector is unsynchronised in standards and unreasonable in structure. We don’t really have a favourable environment for creativity so the contribution of the sector to the economy is still not clear” (Vietnam Net article: “Nation lags in science and technology” <http://english.vietnamnet.vn/tech/2007/10/751058>).

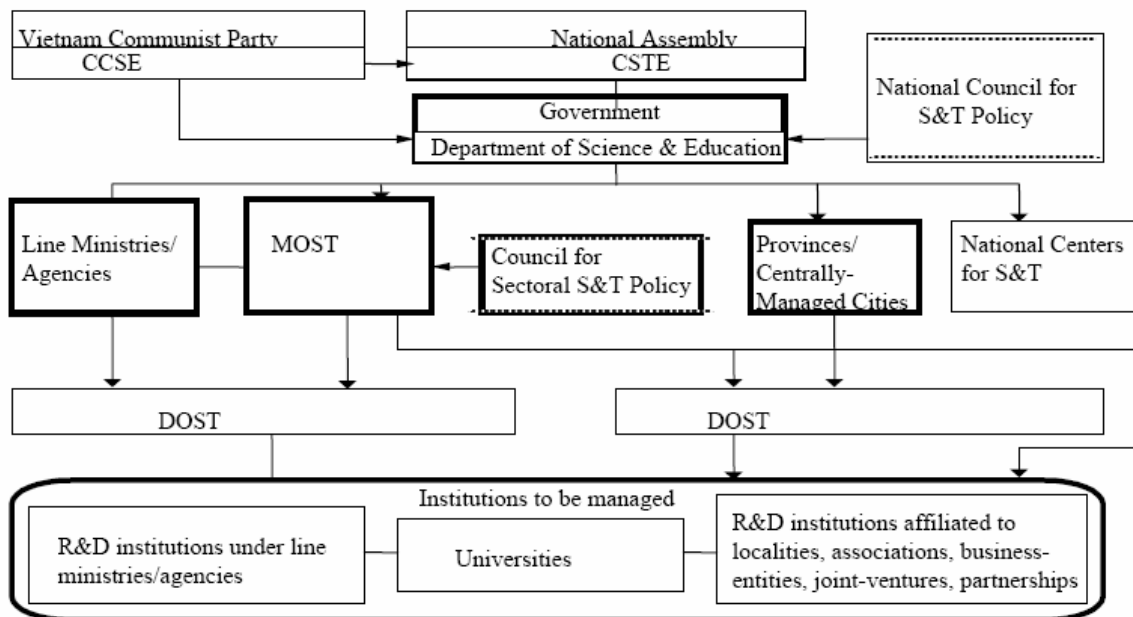
Appendix

Appendix 1: Research-Policy Relationship

Supply Side (Research)	Demand Side (Policy)	Socio-Cultural Factors
<u>Public goods problem</u> → lack of funding	<u>Awareness problem</u> → lack of awareness of policy-relevant research	<u>Societal disconnection</u> → from each other and from those whom the research is about
<u>Access problem</u> → lack of access to data and analysis	<u>Anti-intellectualism in government</u> → a fear of the critical power of ideas	<u>Domains of research relevance</u> → indirect impact of research on social, economic and cultural patterns
<u>Policy Comprehension problem</u> → lack of addressing current issues	<u>Government capacity</u> → dismissive, unresponsive, incapable in absorbing research	<u>Contested validity of knowledge</u> → problem of censorship, control, ideology
<u>Communication problem</u> → ineffective communication of researcher's work	<u>Politicisation of research</u> → lack of objectivity	<u>Validity of research</u> → different cultural interpretations of knowledge

Source: Illustrated according to Edwards (2005: 69).

Appendix 2: National System of S&T in Vietnam



Source: MOST, Department of Science and Technology (DOST)

Appendix 3: Organization of R&D Institutions in Vietnam

R&D institution	Established by	Task	Relevance
<i>National</i>	Prime Minister	Carry out S&T tasks assigned by the state	Scientific basis for determining nation-wide development goals, strategies, policies and laws
<i>Ministerial</i>	Prime Minister	Implement S&T tasks in specific areas	Ministry-level agencies
<i>Provincial</i>	Prime Minister	Implement S&T tasks for local socio-economic development	Attached to province or city authorities under direct management of the central government
<i>Other central</i>	Social and political organizations at the central level	Conduct research activities	According to the founding organization's objectives
<i>Grassroots</i>	Domestic and foreign organizations, individuals	Implement S&T activities	Determined by the founding organizations or individuals

Source: Illustrated according to Nguyen and Pham (2005: 110f).

Appendix 4: Qualifications of University Lecturers Involved in R&D Activities

Qualification	Number of University Lecturers	Number of Lecturers involved in R&D activities at the university
PhDs	5.476	3.188
Master degrees	9.543	5.115
Bachelor's degrees	17.186	11.758
Professors	324	not specified
Associate Professors	1.124	not specified
Total	32.205	20.061

Source: MOST 2003: <http://en.moet.gov.vn/?page=6.13&view=4404> (15.11.2007) and vietnam.nsc.gov.tw/public/Attachment/63231815471.doc (15.11.2007)

Appendix 5: R&D Institutes According to Functions and Geographic Locations

No	R&D Institutes	1990		1999	
		Number	%	Number	%
I	Total	264	100	610	100%
II	Grouped according to functions:				
1	Scientific research	239	90,53	594	97,54
2	Survey and design	19	7,19	11	1,8
3	Physical planning	6	2,2	5	0,82
III	Grouped according to scientific fields:				
1	Natural sciences	42	15,91	30	4,92
2	Technical sciences	85	32,20	625	53,28
3	Agricultural sciences	40	15,15	109	17,87
4	Medical and pharmacial sciences	27	10,23	32	5,24
5	Social sciences and humanities	70	26,51	114	18,69
IV	Grouped according to the geographic location:				
1	North	219	82,96	526	86,23
2	Centre	13	4,92	25	4,10
3	South	32	12,12	59	9,67

Source: vietnam.nsc.gov.tw/public/Attachment/63231815471.doc (15.11.2007)

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