

Chapter 8

GSSD-CHINA

Collaboration in Knowledge e-Networking

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Introduction

Sustainable development is one of the most important issues to the progression of human beings in the 21st century. Since the last century, human beings have created huge physical fortunes and pushed civilization greatly forward. Meanwhile, many regional and global problems have emerged, such as the rapid increasing population, excessive consumption of natural resources, environmental pollution, and ecological destruction. These problems negatively influence economic development and people's living standards, further endangering the existence and development of human beings, impacting on the continuation of human civilization and the future of the earth.

GSSD in China is located in the Administrative Center for China's Agenda 21 (ACCA21), in the Government of China, Ministry of Science and Technology (MOST). ACCA21 was one of the first international collaborators in the development of GSSD, joining very early.¹ Indeed, establishing working e-relationships was an innovative strategy both for China-ACCA21 and for GSSD at MIT. This is a relationship of initial and strategic significance, and promoted the distribution of sustainable development information in China.

The purpose of this chapter is to highlight the features of GSSD-China, to review the evolution of the collaboration, and to summarize some developments to date on the domains of knowledge provision and knowledge sharing. Additionally, this is a review of experiences in facilitating global access to e-resources of ACCA21 (through English-based access of Chinese language websites) on one hand, and facilitating Chinese access to English language materials whose abstracts are rendered in English, on the other hand. For introduction purposes, Figure 8.1 shows the Chinese language,

¹ Other current members of the China team include Jia Li, Wang Lanying, Li Mei, Pei Zhiyong, and Lin Xin, all of ACCA21.

GSSD-China, in the China location. While this chapter focuses on GSSD-China, it is important to keep in mind that all GSSD sites in all locations are, at any point in time, intended to be exact mirrors or replicas of each other.



Figure 8.1 GSSD-China homepage.

8.1 ACCA21-China

The impetus for exploring collaborative activities took place under Dr. Huang Jing from ACCA21, while studying at the Department of Urban Studies and Planning as a visiting scholar (SPURS Program Fellow) at MIT in 1997. Several meetings with the Nazli Choucri, Director of GSSD at MIT led to a crystallization of common goals that jointly support the evolution of knowledge for policy in the transitions toward sustainable development. At that time, Agenda 21 had recently been formulated by the international community as a general set of directives for managing this transition to sustainable development, and each country was responsible for formulating and implementing its own strategies in the context of overall national goals.

With this shared understanding of the advantages of collaboration, a common work plan was developed and put in place. We will return to this point later on. First, however, we would like to introduce the nature of

ACCA21 and its distinctive features and responsibilities in the context of GSSD-China.

8.1.1 Overview

Established in 1994, ACCA21's mission is to promote the implementation of China's Agenda 21 program, and to encourage sustainable development in China. Formally ACCA21 is organized in several units, each with distinctive responsibilities internally as well as in relation to the overall objectives pertaining to sustainability. Aside from the administrative unit which governs ACCA21's activities, the other units include Policy and Strategy Research, Society and Regional Development, Information, Resources and Environment, Marine Planning, Global Environment, and Clean Technology Development.

Among the objectives of ACCA21, several specific items are of special relevance to GSSD in China. These pertain to the conduct of policy and strategy research in the area of sustainability development and providing policy support to government decision making, building a national information sharing network on sustainable development promoting information exchange and sharing, and enhancing public awareness of sustainable development through education and training programs. Also relevant are the ACCA21 objectives of coordinating and implementing research projects and pilot commercialization of research findings for key national research programs focusing on natural resources and the environment.

8.1.2 China Sustainable Development Information Network (SDNP)

An important e-resource and institutional capacity within ACCA21 is the China SDNP, developed in 1997, with inputs from the United Nations Development Program (UNDP). As a vast internal e-network, priorities related to the pursuit and promotion of sustainable development within China, SDNP now has counterparts in most of the countries of the world.

SDNP integrates data relevant to sustainable development. These data mainly consist of information about natural resources, ecology, and environmental disaster areas. SDNP is acknowledged and admired by various circles of Chinese society and possesses great authority and influence. Its users consist of scientific research institutions, universities, and the general public. As an important part of GSSD, GSSD-China has also become an important element of SDNP, and an important window for China to obtain worldwide knowledge and information of sustainable development. In this way, GSSD-China and SDNP bring out the best in each other, and put a huge impulse to the information sharing of sustainable development in China.

Organizationally, SDNP is centrally managed through one general network center, which is then connected with 17 distributed sub-centers via the Internet. With its establishment and functioning, the internal e-networks within China were effectively linked and their capabilities are mutually reinforced. This was, at the time, the first such large scale e-networking initiative ever established throughout China.

The General-Center for SDNP in China is located in ACCA21. Its holdings consist of 119 databases – accessible to the individual networks at no-cost – pertaining to population, resources, environment, social economy and natural disasters. Currently, the size of the general-center's holding amount to 20 GB. It also conducts information retrieval services and provides responses to data requests, search and retrieval, and other information-related queries – including downloading services as needed. Extending e-reach throughout in support of transitions toward sustainability, are 17 SDNP sub-centers. These sub-centers are shown in Figure 8.2 to illustrate the reach of China's SDNP and range of the information systems under its overall frame. Through these sub-centers, SDNP has engaged in a diverse set of projects.



Figure 8.2 Sub-centers of the SDNP, China.

8.2 GSSD-China

As indicated earlier, GSSD-China was one of the first global knowledge e-networking collaborators of MIT in the domain of sustainable development, and a founding member of the overall GSSD global network. A memorandum of understanding defined the responsibilities of the respective collaborators, and jointly we gradually developed an operational work plan and the mechanisms for establishing and maintaining replication and synchronization.

GSSD-China makes full use of the Lotus Domino software system, which supports double-byte simplified Chinese characters, in order to localize GSSD system functions, websites, and database resources into Chinese. Through the translation and Chinese localization of the GSSD-China knowledge database, homepage, and relevant websites, the English page layout and information on GSSD English website have been transformed into Chinese.

The compatible Chinese interface on GSSD-China can eliminate the language obstacle for Chinese consumers and enable them to browse and search information. Meanwhile, the functional units on mirror website have been localized in order to facilitate users to browse and search information about sustainability. In Figure 8.3, we show the GSSD-China version of the system overview image.



Figure 8.3 GSSD-China overview.

Parenthetically, we are pleased that the modality of display in Figure 8.3 was first introduced by the China-team and then adopted by other collaborators. In Part I, the GSSD home page is shown in that manner as a way of rapidly conveying some of the key functionalities of the system. This visualization was then also adopted as standard views in all mirror sites. Since the China team is responsible for expansion of the GSSD knowledge-base – as is every other collaborating member – the decisions that are made are reflected by necessity in the work plan of all other members whose knowledge materials are also subject to the routinized replication and synchronization.

For recognition purposes, Figure 8.4 shows several screenshots of the GSSD-China Search functions. Notice the similar structure to the main GSSD Search functions.



Figure 8.4 Search functions in Chinese.

Beyond sharing images, through the course of this collaboration to date, GSSD-China has completed a large scale Convergence and GSSD Glossary translation (2500+ items), as well as knowledge-content translations, including abstracts and Reports. In terms of content provision for the GSSD knowledge-base, over 6000 knowledge-content abstracts have been translated and rendered available for multilingual search and retrieval. These items (or documents) currently span nine of the fourteen domains of GSSD. This is an ongoing activity, since new materials are added and old ones become deleted.

The GSSD-China team has also published other key materials to the web, has continued to collect Chinese website materials for potential inclusion in the overall system, and has created the Chinese language website, including the various options for Search-GSSD. Constructing a Search-GSSD program in Chinese has been especially arduous as many sustainable development terms did not exist in Chinese before us. Fortunately, we have been able to create a Chinese searching tool for GSSD, keeping the structural integrity of GSSD intact.

8.3 Next Steps

The GSSD-China team has targeted several goals for improving the delivery of sustainable development.

First, while much work has been done on the knowledge-base in Chinese, there is still much more to do. Only nine of the fourteen slices of GSSD have had their abstracts translated to Chinese, leaving five more slices to translate.

Second, we need to provide Government of China ACCA21 materials connections to the GSSD-China site, via usage of the submit site functions.

Third, we need to review the current ACCA21 portfolio of activities and determine the priorities of relevant materials for inclusion into the GSSD-China knowledge-base.

Fourth, we need to control the dead-link ‘clean-up’ activities for the GSSD-China site, on the China side. Dead-links are links that are removed from their host sites. This can happen for a variety of reasons, and it is hard to determine when a link goes dead. As GSSD is essentially a library of links, such dead-links can be very detrimental. The collaborating partners of GSSD have been experimenting with different software to make sure that all links are active, and recently GSSD-MIT itself developed the software to reduce dead-links.

Fifth, currently we are in the process of framing the next phases of our collaboration on substantive concerns with GSSD-MIT.

To the extent possible, the system administrators of the mirror sites seek to render computational assurance as well as quality control and updating overall coverage. Currently, most of this is either automated or managed on a routinized basis.

8.4 Conclusion

An important feature of GSSD-China – and all of the other mirror sites in the system – is to ensure accurate content representation of key concepts, accurate translations of the static pages, and correct location of buttons signaling

functions. Earlier, during the initial stages of development when all of the GSSD Glossary and conceptual features of sustainable development as a knowledge domain were being developed in Chinese – in real time around the world – establishing and retaining this cross-language consistency and accuracy constituted a major challenge. At this point, the workflow process is regularized, thus facilitating the update as well as the expansion of the knowledge-base.

By the same token, the GSSD-China team is responsible for insuring that any translation of China-submit sites into other languages (such as Arabic, for example) is accurate and does not misrepresent either formal content or intuitive intent.

It is important to stress that many of these issues are not distinctive to GSSD-China or to the Chinese language. All of the system languages were exposed to conceptual and linguistic uncertainties when dealing with new words, new ideas, and new ways of representing knowledge – in a domain that itself is undergoing considerable development and change.

This particular feature of the GSSD initiative worldwide represents knowledge-development in its most formal meaning, in the sense that the challenge for all of the collaborators was to ensure the provision of new understandings as accurately as possible in an area where the concepts themselves were in the process of being formalized and where no ‘dictionary’ had yet been recognized across the world as representing the multilingual equivalence of key concepts, ideas, and words pertaining to sustainable development.