



# **Knowledge & IT for Development The GSSD Case**

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## **Harnessing and Distributing e-Knowledge for Supporting Sustainability**

### **Outline**

- I. Challenges of Sustainable Development –**
- II. The IT Connection – Why e-IT?**
- III. Identifying Problems & Creating Solutions –  
GSSD Strategy**
- IV. What does GSSD “Do”?**

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## **I. Challenges of Sustainable Development**

How 'normal' human activities create significant social & environmental problems.

How such problems call for 'solutions' of various kinds – ranging from technological & scientific 'solutions' to political, strategic, & regulatory

How 'solutions' can create new problems

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## **Knowledge for Sustainability**

Sustainability is global challenge of major cross-disciplinary proportions

A serious problems facing decision-makers, scholars, & analysts is inability to access to the body of relevant and contextually rich knowledge.

Simply locating knowledge of relevance often among to a serious problem

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## Knowledge for Transitions to Sustainability

- From 'supply chain' to 'knowledge chain'
- From material production to meeting social needs
- From isolated understanding to increased value due to knowledge deployment
- From knowledge creation to knowledge diffusion through networking practices

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## II. The IT Connection – Why e-Tools?

### Supporting Sustainability

- de-materialization;
- de-spacialization;
- de-centralization &
- de-massification

### Reducing Disconnects

- Information & Use
- Stakeholders & Government
- Planning Agencies & Activities
- Policies & Feedback

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## Connectivity Clusters : mid-1997

Image removed due to copyright restrictions.

“Connectivity clusters: mid 1997.” MIDS. <http://www.mids.org>



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## The World Today

**350 million people speak English  
as their native language**

**5.7 Billion Speak Something Else**

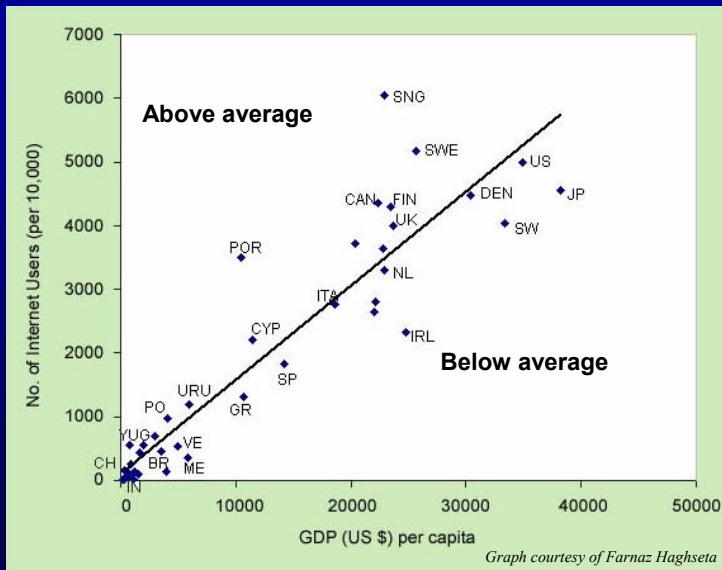


Source: The World Bank

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## Internet Users & GDP/Per Capita



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Sources: World Bank (2000) and International Telecommunications Union (2001) Nazli Choucri



## Six C's of Knowledge and IT for Sustainability

**Content**  
**Context**  
**Capability**  
**Constituencies**  
**Customization**  
**Connectivity**

**Data & knowledge**  
**Interpretation**  
**Use & utility**  
**Stakeholders**  
**Selectivity**  
**Communication**

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### III. Identifying Problems & Creating Solutions – Select Issues

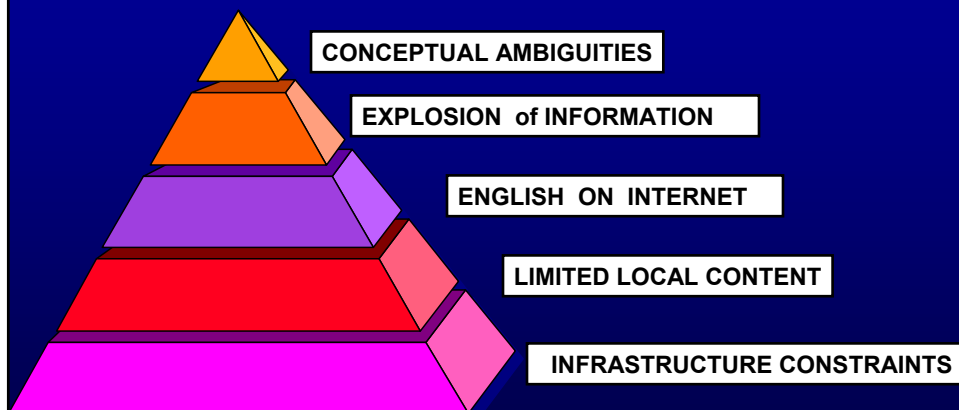
- What 'problems'?
- What 'solution' strategies?
- Ontology Matters – Knowledge & its Organization
- Knowledge Provision, Sharing, Management and Distribution

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### The Problems: Barriers to e-Knowledge for Sustainability



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## GSSD - Strategies to Reduce e-Barriers

- Coherent Conceptual Framework
  - Multidisciplinary views
  - diverse aspects of 'sustainability'
- Explosion of Information
  - Knowledge screening for quality
  - Cross indexing of content
- Multi-lingual Systems and Local Content
  - Mirror sites
  - Partnerships & in-kind contributions

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## What is GSSD?

- **G**lobal meta-knowledge networking process
- **S**tructured knowledge on sustainability
- **S**ystem for using "state-of-the-art" knowledge management
- **D**ecision, teaching, & research supports

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## What does this mean?

- A. Knowledge Network and Networking
- B. Ontology of Sustainability – Structuring and Framing
- C. Evolving Knowledge Base

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## A. Knowledge Network

- Organized systems of discrete actors with knowledge producing capacity
- Combined through common organizing principles
- Whereby actors retain their individual autonomy
- Networks enhance value of knowledge to actors & motivate further knowledge expansion

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## B. Ontology of Sustainability

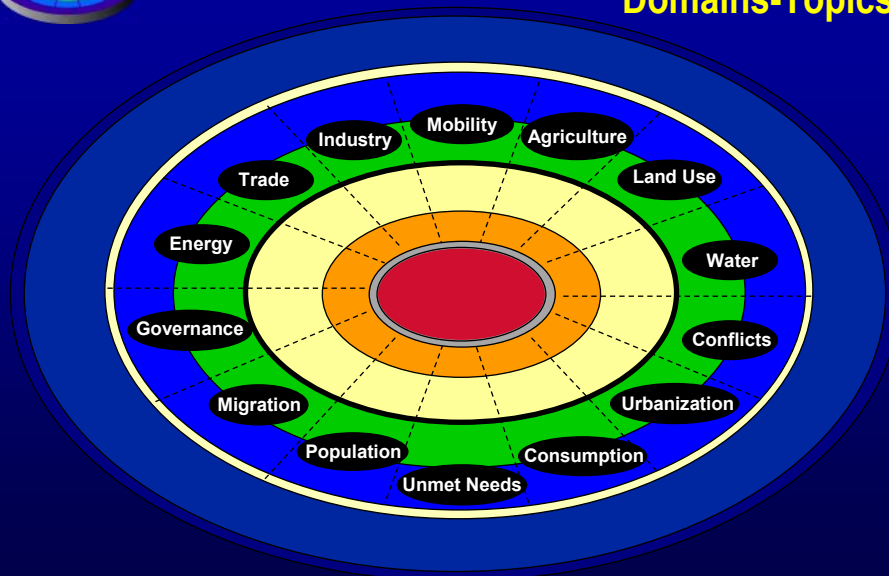
- Domains – topics
- Dimensions – issues
- Connectivity – linkages
- Frames – skeletons & slots to fill out
- Knowledge base – e-library'

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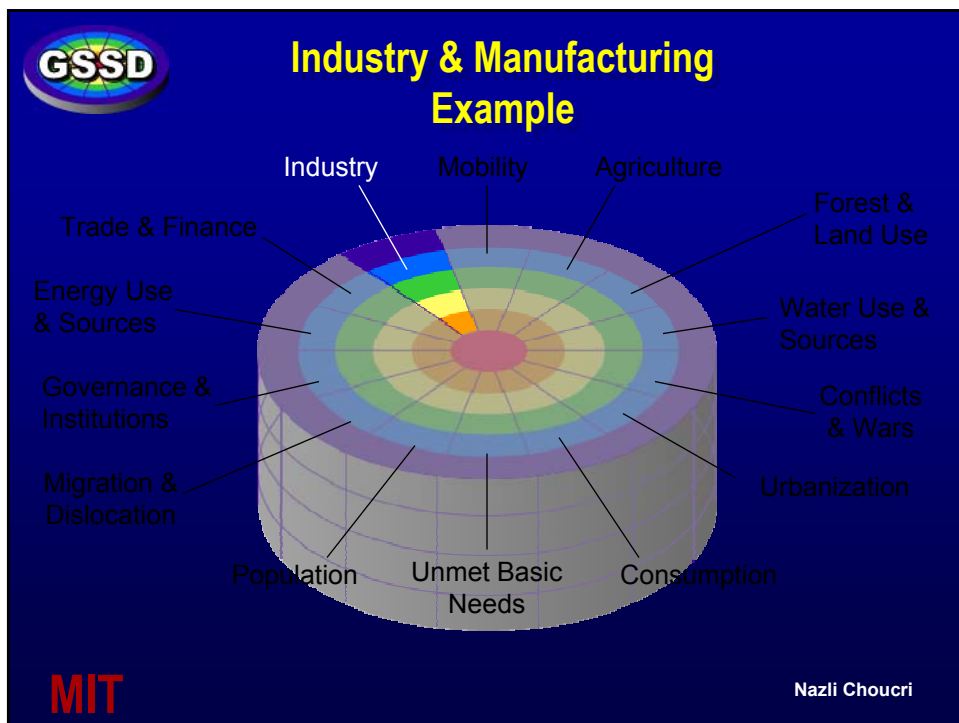
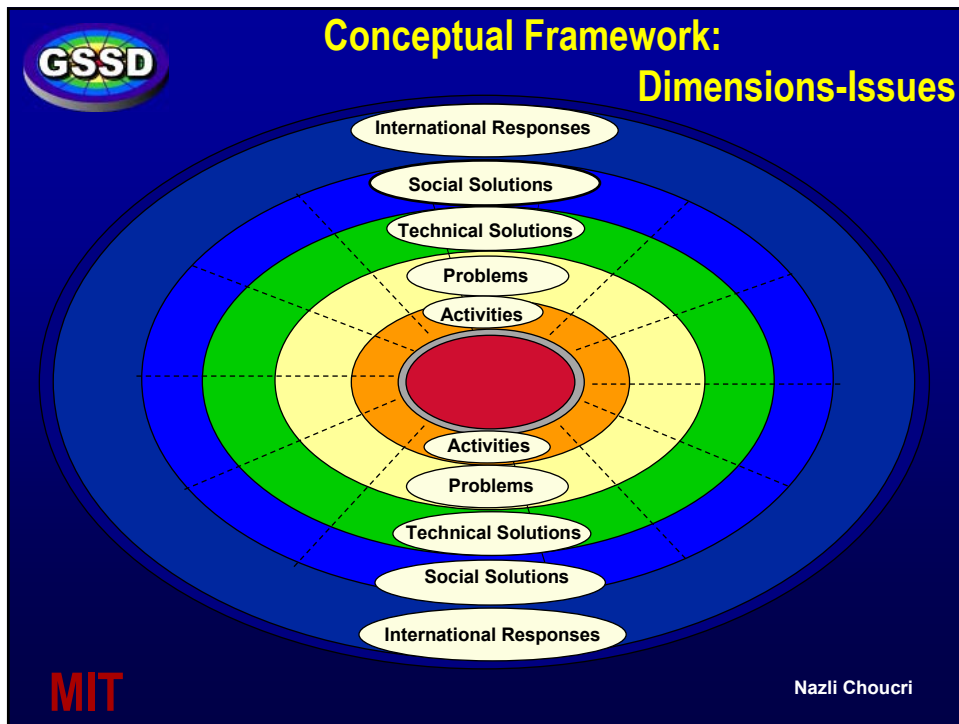


## Conceptual Framework: Domains-Topics



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## Connectivity

## Domain - Industry

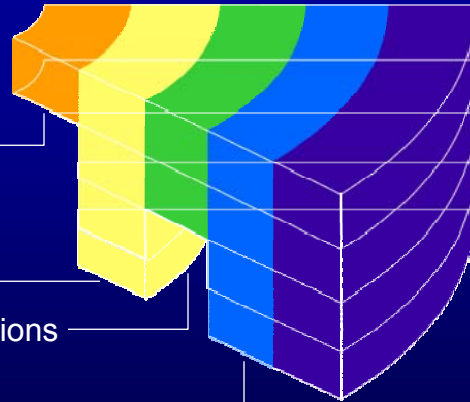
### Issues

Activities & Conditions

Sustainability Problems

Scientific & Technical Solutions

Social, Economic, Political, & Regulatory Solutions

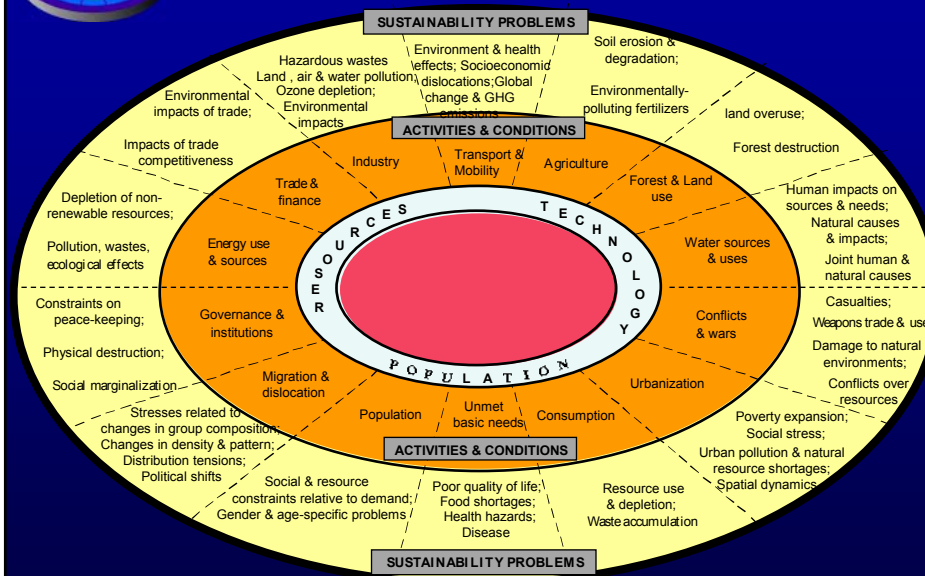


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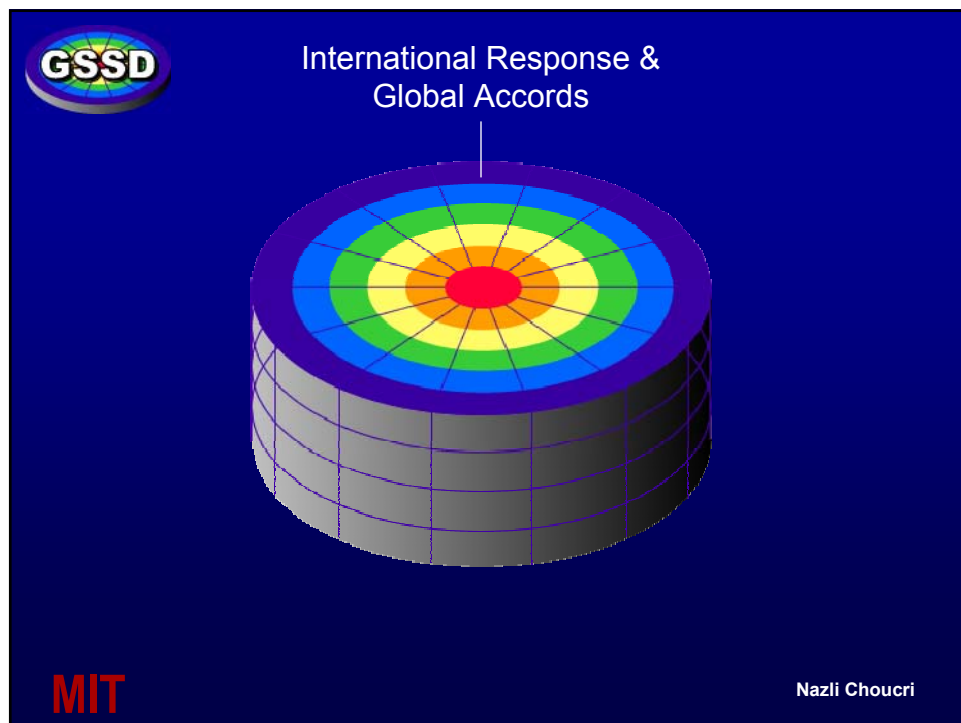
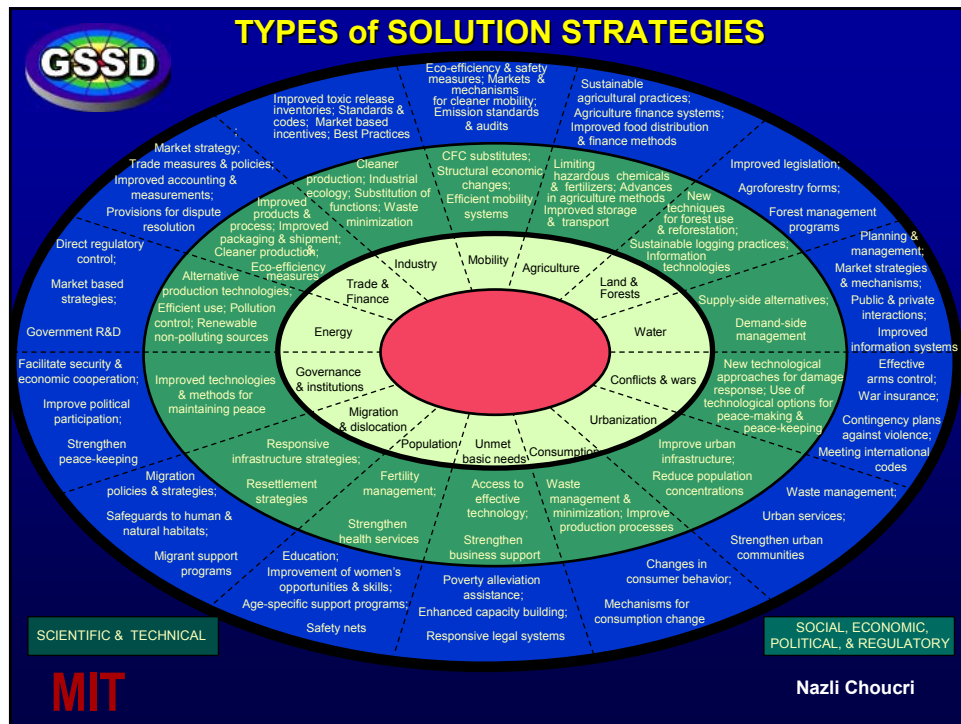


## FRAMES – ‘FILLING the SLOTS’ From Activities & Conditions to Sustainability Problems



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**GSSD**

## C. Knowledge Base

- Selected from evolving Internet Materials of roughly 250 Institutional Holdings
- Over 3000 Indexed Content, with Multi-disciplinary & Diverse Views
- Include concepts & theories, indicators & measures, models & cases, agreements & organizations, policy, strategy & decision

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## What does GSSD 'Do'?

1. ☐ Web-based system of hierarchical, nested, domain representation for complex systems
2. Selective portable knowledge base, multi-disciplinary perspectives, updated as needed
3. Diverse Navigation & Search Options
4. Customized workflow for multilingual knowledge networking and management

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## Why Strategic Partnering, Multi-lingual & Mirror-Sites?

World population is non-English speaking

Market potentials driven by demography

Global firms operate in multi-cultural contexts

Strategic partnering & support facilitates provision, & influence in global policy forums

Examples include China, Sony-Europe, Lotus-IBM, MISTRA, AT&T, AGS-MIT etc.

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## Current Strategic Partnerships



[www.theodora.com/maps](http://www.theodora.com/maps)

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## 全球可持续发展系统

新消息

搜索 GSSD

使用 GSSD

GSSD 报告

与 GSSD 联系

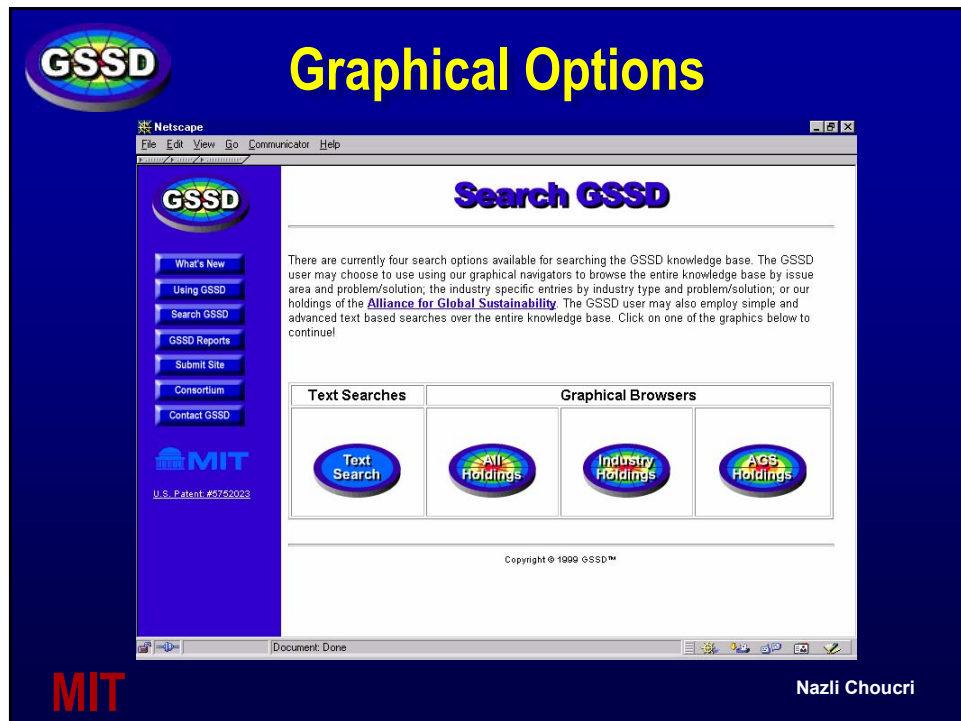
向站点提交

咨询机构

## 决策知识网络

<http://www.un.org/Depts/los/gssd/gssd.html>









# GSSD in China

URL://gssdchina.acca21.edu.cn/gssd/gssdzh.nsf

The screenshot shows the GSSD China website. The sidebar on the left contains navigation links: "动态" (Dynamic), "简介" (Introduction), "新闻" (News), and "出版" (Publication). The main content area is titled "中国 可持续发展 CHINA'S AGENDA 21" and lists various links and text, including "文件下载" (File Download), "FTP", "Other", "数据库" (Database), "战略研究" (Strategy Research), "地方 21 世纪议程" (Local Agenda 21), "环境无害化技术" (Environmentally Sound Technology), "全球可持续发展系统" (Global Systems for Sustainable Development (GSSD)), "可持续发展信息网" (Sustainable Development Information Network), "可持续发展实验区" (Sustainable Communities), "中国可持续发展委员会" (The Chinese Society for Sustainable Development), "国家创新药物研究" (National New Drug Discovery Project), and "中药现代化" (Modernization of Chinese Materia Medica).

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## What have we done?

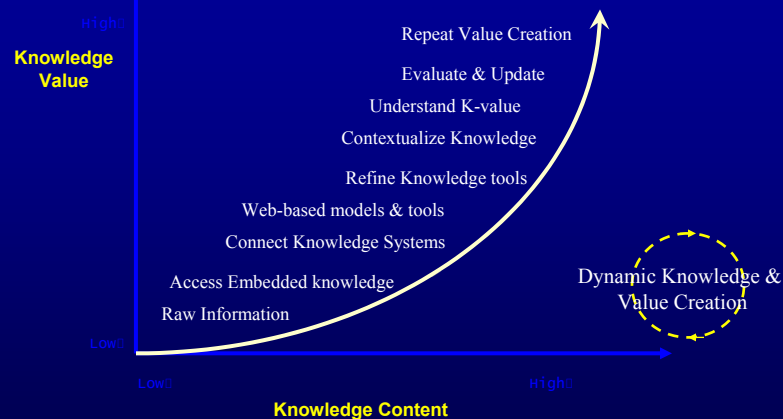
- Glossary translation (2500 items)
- Mirror site building
- Abstract translation
- Report translation
- Web page translation
- GSSD searching functions
- Publish to Web
- Collection of Chinese web site information

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## Knowledge Value-Chain



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## Next Steps- Toward Improved .....

- Transitions to Endogenous Ontology Change
- Extending Mirror-Site Locations
- Improving Collaborative Knowledge Management
- Exploring uses for Education
- Strengthening Multiple Language Provision & Search Capability

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