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”? 
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

Knowledge for Sustainability

Sustainability is a global challenge of major cross-disciplinary proportions

A serious problem 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
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

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
Connectivity Clusters: mid-1997

Image removed due to copyright restrictions.


The World Today

350 million people speak English as their native language

5.7 Billion Speak Something Else

Source: The World Bank

**Six C’s of Knowledge and IT for Sustainability**

- **Content**: Data & knowledge
- **Context**: Interpretation
- **Capability**: Use & utility
- **Constituencies**: Stakeholders
- **Customization**: Selectivity
- **Connectivity**: Communication

---

Nazli Choucri

N. Choucri
III. Identifying Problems & Creating Solutions – Select Issues

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

The Problems:
Barriers to e-Knowledge for Sustainability
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

What is GSSD?

- Global meta-knowledge networking process
- Structured knowledge on sustainability
- System for using “state-of-the-art” knowledge management
- Decision, teaching, & research supports
What does this mean?

A. Knowledge Network and Networking
- 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

B. Ontology of Sustainability – Structuring and Framing
C. Evolving Knowledge Base
B. Ontology of Sustainability

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

Conceptual Framework: Domains-Topics
Conceptual Framework: Dimensions-Issues

International Responses
Social Solutions
Technical Solutions
Problems
Activities

Technical Solutions
Social Solutions
International Responses

Agriculture
Forest & Land Use
Water Use & Sources
Conflicts & Wars
Urbanization

Industry
Mobility
Agriculture
Forest & Land Use
Water Use & Sources
Conflicts & Wars
Urbanization
FRAMES – ‘FILLING the SLOTS”
From Activities & Conditions to Sustainability Problems

Issues
Activities & Conditions
Sustainability Problems
Scientific & Technical Solutions
Social, Economic, Political, & Regulatory Solutions

MIT
Nazli Choucri
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
**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

**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.
النظام العالمي للتنمية المستدامة

MAHOO THE NEW

GSSD

استعمال ل

GSSD

أتصال بال

GSSD

Search GSSD

Graphical Options

There are currently four search options available for searching the GSSD knowledge base. The GSSD user may choose to use one of our graphical navigators to browse the entire knowledge base by issue area and problem/issue; the industry-specific searches for industry type and problem/issue, or our listings of the Influence for Climate Change. All of the searching options for GSSD user are also simple and advanced text-based searches over the entire knowledge base. Click on one of the graphics below to continue!
GSSD in China

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

Nazli Choucri
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

Knowledge Value-Chain

- Repeat Value Creation
- Evaluate & Update
- Understand K-value
- Contextualize Knowledge
- Refine Knowledge tools
- Web-based models & tools
- Connect Knowledge Systems
- Access Embedded knowledge
- Raw Information

Dynamic Knowledge & Value Creation
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