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# Space technology, sustainable development and community applications: Internet as a facilitator

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## Abstract

Among other approaches, space technologies are currently being deployed for disaster management, environmental monitoring, urban planning, health applications, communications, etc. Although space-based applications have tremendous potential for socioeconomic development, they are primarily technology driven and the requirements from the end-users (i.e. the development community) are rarely taken into consideration during the initial development stages.

This communication gap between the “space” and “development” communities can be bridged with the help of the web-based knowledge sharing portal focused on space applications for development. This online community uses the development gateway foundation’s sophisticated content management system. It is modeled after the development gateway’s knowledge sharing portals (<http://topics.developmentgateway.org>) and draws from their expertise in knowledge management, partnership building and marketing. These types of portal are known to facilitate broad-based partnerships across sectors, regions and the various stakeholders but also to facilitate North–South and South–South cooperation.

This paper describes the initiative “Space for Development” (<http://topics.developmentgateway.org/space>) started in 2004 which aims to demonstrate how such a web-based portal can be structured to facilitate knowledge sharing in order to bridge the gap between the “space” and “development” communities in an innovative and global manner.

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## 1. Introduction

A foremost societal objective for the 21st century is to realize global, genuinely sustainable development. Science and technology are considered amongst the most effective means to enhance growth and socioeconomic development of a nation, and therefore space

technologies (for example, telecommunications, Earth observation, and space-based navigation) can bring real-added value in different areas, either alone or as a complement to terrestrial infrastructures. Enhanced access to information (in a very general sense) supports the implementation of a sustainable development<sup>1</sup> strategy. However, there is a lack of awareness about the potential of space technology applications by the development

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<sup>1</sup> Numerous definitions of sustainable development exist in the literature, but the most frequently quoted definition is from the “Brundtland Report” from 1987 which defines sustainable development as “development that meets the needs of the present without comprising the ability of future generations to meet their own needs”.

community, and an equivalent lack of awareness of this community's needs in the space sector. In order to bridge the gap and increase the awareness within and between the space and development communities an initiative was started in 2004 called "Space for Development" (<http://topics.developmentgateway.org/space>). This paper will describe the project and how enables knowledge sharing in order to bridge the communications gap in an innovative and global manner.

## 2. Environment protection and sustainable development

In the last 30 years several important milestones demonstrated the growing importance of environmental protection and sustainable development.

### 2.1. The early steps

In 1972, with the convening of the United Nations (UN) Conference on the Human Environment in Stockholm, the environment became an international issue. Twenty years later at the 1992 Earth Summit (also known as the UN Conference on Environment and Development), the following principles were adopted by the represented nations:

- The Agenda 21, which is a global action plan for the newly introduced concept of sustainable development.
- The Rio Declaration on Environment and Development, linking the protection of the environment to the need for sustainable development.

Agenda 21 broke new ground in integrating environmental, economic and social concerns into a single policy framework. Its goals include the promotion of sustainable and environmentally friendly growth, the elimination and prevention of pollution, and the protection and conservation of the Earth's natural resources. As another key outcome of the Earth Summit, several environmental issues including biodiversity, climate change and desertification were addressed. This resulted in the adoption of several international environmental agreements that defined specific government commitments to address these matters.

These agreements support specific aspects for the implementation of Agenda 21 and the Rio Principles. At the subsequent Earth Summit in 1997, governments agreed on a program of action for further implementation of Agenda 21.

## 3. Sustainable development in the 21st century

One of the most important recent steps is the 2000 United Nations Millennium Declaration, and the development goals it presents. The millennium development goals (MDG) is a framework of eight goals and 18 targets, with 48 indicators to measure World progress towards their implementation. The MDG, adopted at the UN Millennium Summit in 2000, are the World's targets for dramatically reducing extreme poverty in its many dimensions (income poverty, hunger, disease, exclusion, lack of infrastructure and shelter) while promoting gender equality, education, health and environmental sustainability. They offer a comprehensive and multidimensional development framework and set clear quantifiable targets to be achieved by 2015 especially for goal 7 (ensure environmental sustainability) and goal 8 (develop a global partnership for development). The eight goals are:

1. eradicate extreme poverty and hunger,
2. achieve universal primary education,
3. promote gender equality and empower women,
4. reduce child mortality,
5. improve maternal health,
6. combat HIV/AIDS, malaria and other diseases,
7. ensure environmental sustainability,
8. develop a global partnership for development.

Then, in December 2000 the United Nations General Assembly decided to hold a World Summit on Sustainable Development (WSSD) in 2002, to reinvigorate at the highest political levels the global commitment to sustainable development agreed upon 10 years earlier in Rio. The main objective of the 2002 World Summit, held in Johannesburg, was to adopt concrete measures and identify quantifiable targets for better implementation of Agenda 21. At the WSSD, more than one hundred Heads of States and Governments reaffirmed their strong commitment to the full implementation of Agenda 21. They also committed themselves to achieving the internationally agreed development goals, including those contained in the United Nations Millennium Declaration and in the outcomes of the major United Nations conferences since 1992.

The States participating at the WSSD adopted a Plan of Implementation and committed to undertake concrete actions and measures at all levels to promote the integration of the three components of sustainable development: economic development, social development and environmental protection as interdependent and mutually reinforcing pillars. Poverty eradication, changing

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