

**Data democracy for developing countries:** Ensuring meaningful participation in earth observation investment

CSIR Satellite  
Applications Centre  
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**The Committee on Earth Observation Satellites (CEOS) is a global umbrella body for civilian space agencies (both from the developed and developing countries) with a specific emphasis on remote sensing. The CSIR has been an associate member of CEOS since 1998 and it is just one of three organisations on the African continent participating in CEOS activities.**

In November 2007, the CSIR became CEOS chair and in line with the process of CEOS troika, will hand over the CEOS chair to the Geo-Informatics and Space Technology Development Agency (GISTDA) of Thailand in November 2008 at the 22<sup>nd</sup> CEOS plenary in George, South Africa.

As is the custom within CEOS, the CSIR has adopted a theme of 'Data democracy for developing countries' as its special project during its one-year tenure as CEOS chair.

by the end users. By broadening data access and capacity to these end users, CEOS will successfully advance the potential of earth observation in the relevant domains of societal benefit areas, as put forward by the Group on Earth Observations (GEO).

The data democracy theme relies on focused efforts along several fronts, with each front representing a pillar that constitutes the theme as presented below in figure 1. These pillars include unhindered access to EO information; open source software and open systems, such as freely available image-processing software tools and image-processing systems; adequate dissemination models that reflect the realities of bandwidth in developing countries; and locally-initiated cross-border collaborative projects and intensive capacity building and training programmes.



### **Achieving social benefits through earth observation**

The CSIR holds the view that the sustainability of earth observation (EO) efforts will be determined

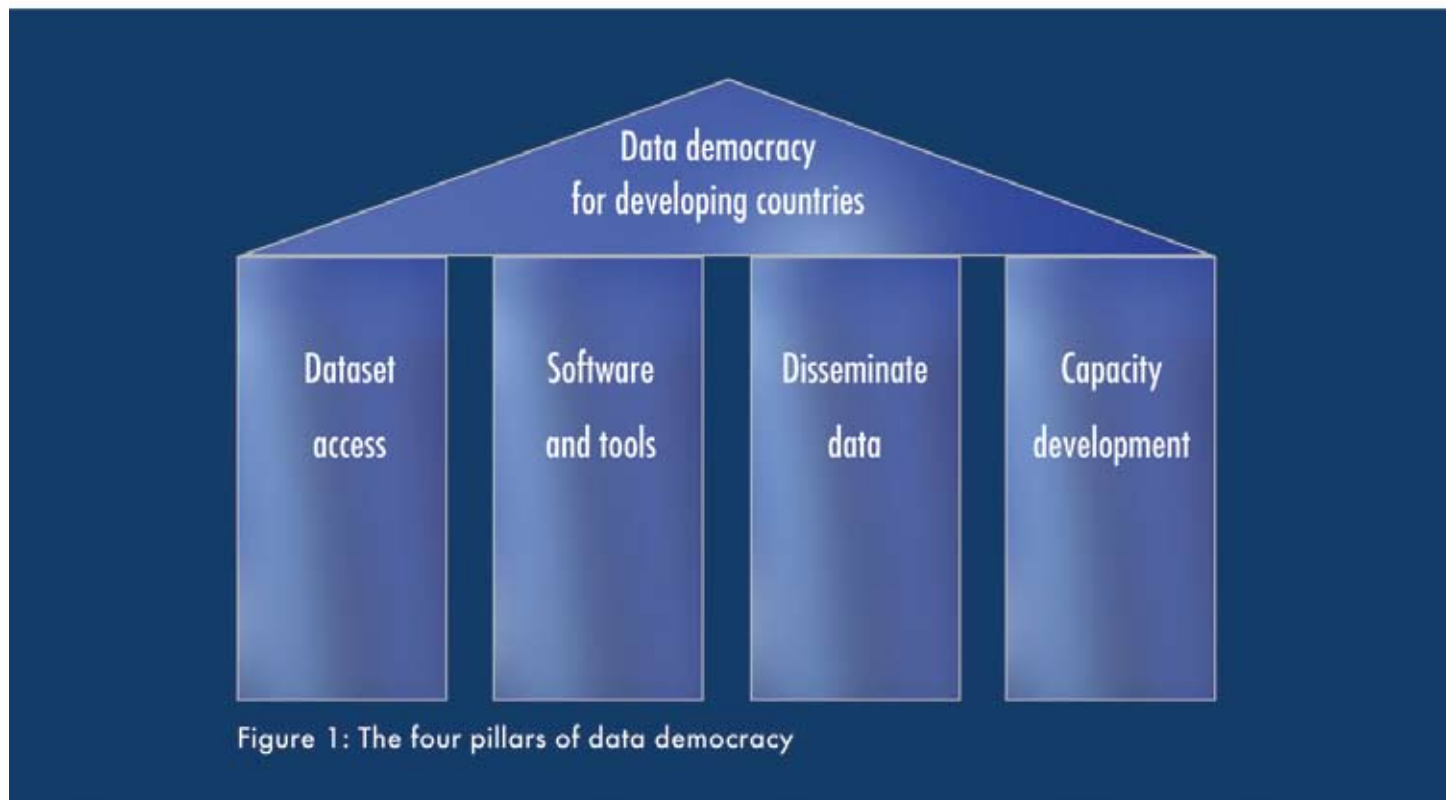


Figure 1: The four pillars of data democracy

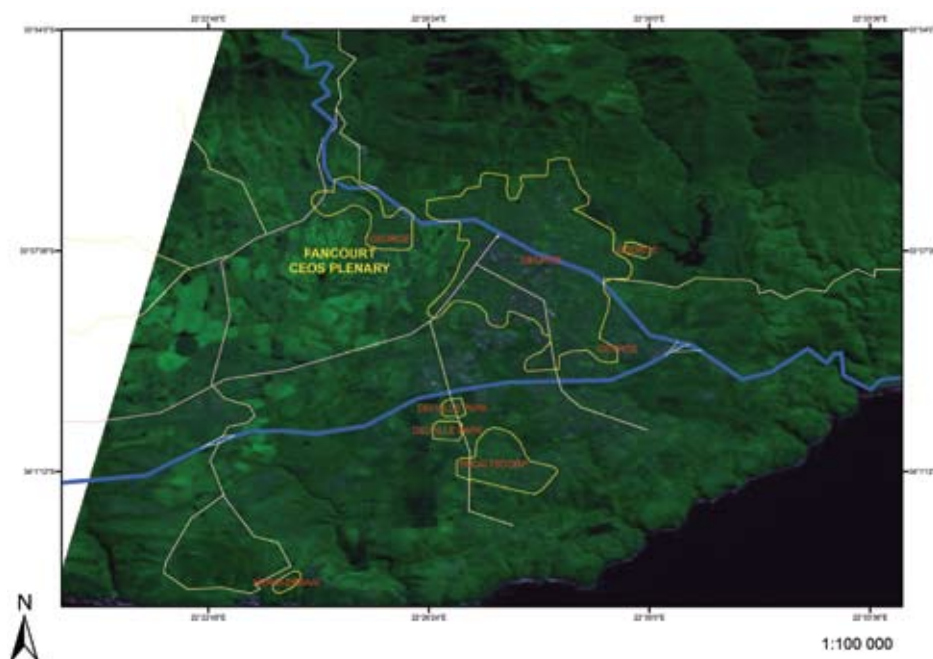
## Expanding existing models to promote data democracy

The CSIR recognises that specific models such as the one associated with CBERS-2B data, need to be expanded. The China-Brazil Earth Resources Satellite (CBERS) programme is a technological cooperation programme between Brazil and China, which develops and operates EO satellites. CBERS-2B is the second satellite launched by this programme in October 2003. Brazil through its National Institute for Space Research (INPE), and China through the Center for Resource Satellite Data and Applications (CRESDA), provide the necessary infrastructure for Africa-wide coverage. In this specific model, the local ground reception facilities commit in return to disseminate the data at no cost to countries within the region and beyond.

The data democracy theme is built on existing initiatives such as those of NASA and the National Imagery and Mapping Agency (NIMA). That initiative led to free and unlimited access to specific global ortho-rectified Landsat archive data, which since then, has had a massive impact in terms of broadening the user base of the EO data particularly in developing countries.

The recent announcement by the United States Geological Survey (USGS) that the entire Landsat archive will be freely available from February 2009 reflects another major contribution to a concept that essentially is synonymous, if not complementary to data democracy, as espoused by the CSIR.

CBERS image of George



The CSIR has taken a short, medium and long-term view in its objective to realise the data democracy theme. Short term relates to the fundamental datasets and tools that will allow quick gains in EO-related activities of developing countries. It will include a country data package to be delivered (generally on a courier basis) to regional country nodes. Connectivity still remains a constraint in many regional countries, and where available, is prohibitively expensive, even in South Africa. The data packages will include direct local access to:

- Africover (Food and Agriculture Organization of the United Nations (UN FAO) land cover)

and Globcover (European Space Agency (ESA)'s medium resolution imaging spectrometer (MERIS) 300m global land cover), to allow for monitoring of broad-scale land use change

- GeoCover (1980, 1990, 2000, 2006 Landsat Africa mosaics), for long-term multi-temporal change analysis
- Country coverage of vector infrastructure databases (digital atlas of the world)
- One regional workshop on the data democracy theme, as well as on the technical application of data democracy-related information.



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The medium term relates to harnessing the data democracy theme by including additional datasets such as:

- CBERS-2B and the SAC-C satellite of the Comisión Nacional de Actividades Espaciales (CONAE), for the development of broad-scale fundamental base data sets for monitoring (e.g. urban change maps and land cover maps)
- The shuttle radar topography mission (SRTM) GTOPO 30, for the processing of CBERS-2B and other broad-scale EO information into ready-to-use image tiles
- RadarSATAfrica mosaic to

complement broad-scale, optical EO data for monitoring, particularly in the equatorial regions where persistent cloud cover creates restrictions

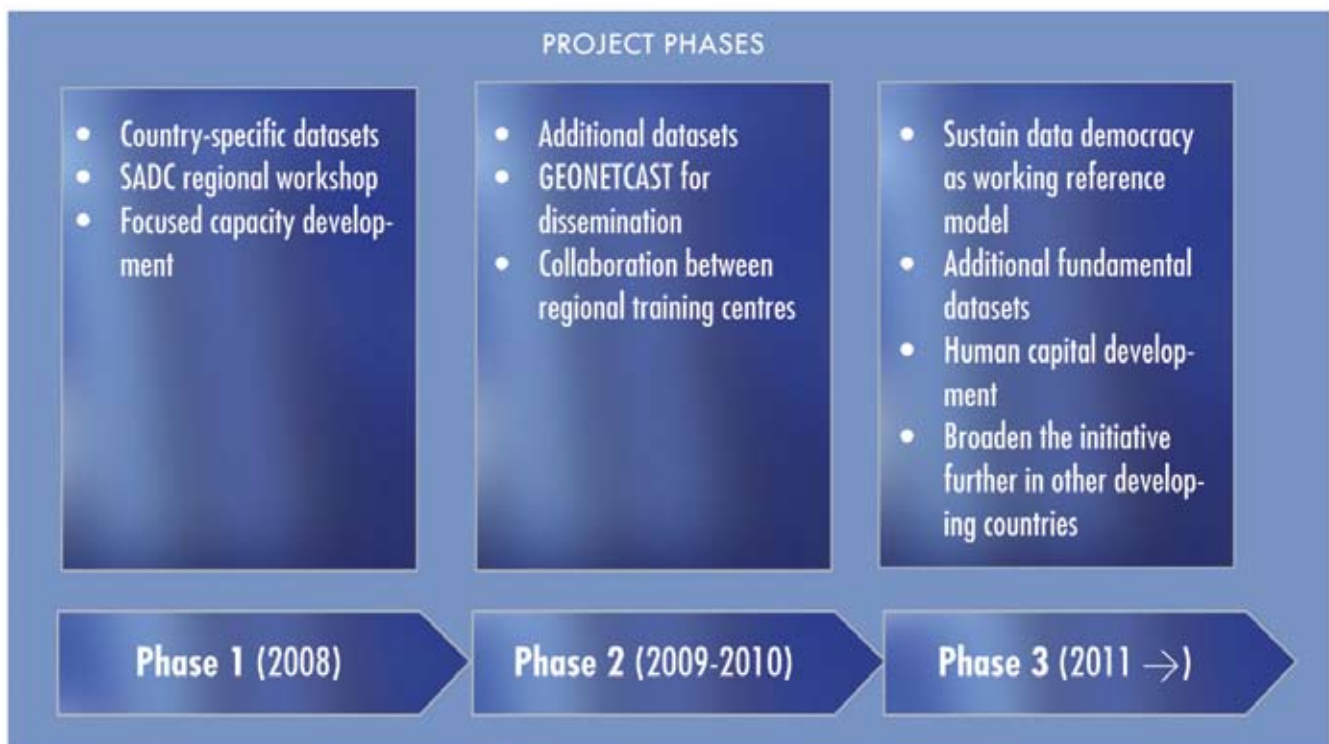
- GEONETCAST for data dissemination
- Effective collaboration between regional training centres.

Medium term also relates to access to tools such as LeoWorks, UN land cover classification software and other similar software tools.

In the long term, the CSIR's view relates to sustaining the data democracy theme as a working

and proven reference model in terms of enabling access to other fundamental EO data (e.g. Sentinel) and availing expertise and software such as accessing the Sentinel series. Human capital development will remain a strong feature of data democracy for many years to come.

Undoubtedly, data democracy as a CEOS Chair 2008 special project, is not only ambitious but also a very challenging initiative. The CSIR believes that in partnering with CEOS agency members, the ultimate objectives of CEOS and GEO can be realised to the benefit of both developing and developed countries.



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