

1. Executive Summary

Title: Himalayan GEOSS

Existing category: Community Activity

Overview

Himalayan GEOSS community activity focuses on the Hindu Kush Himalaya (HKH) mountain region with a geographic scope in the HKH countries which include Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. The Himalayan GEOSS addresses the gaps in EO applications in the thematic areas of agriculture and food security, water resources, snow and glacier, disaster risk reduction, land use, land cover change and ecosystem services. Further, it promotes access to and sharing of data, standards and methodologies, fosters regional cooperation to build complementary efforts to address common issues and works towards building capacities of individuals and institutions addressing the needs in the region.

Planned activities

Himalayan GEOSS will develop a community portal to provide one stop access to data and information systems in the HKH region. The portal will be connected to data providers from the region. The capacity building will be another key activity of the Himalayan GEOSS. With the support from AOGEOSS, it will work on establishing a regional training center and conduct trainings on key mountain issues and emerging technologies. It will initiate linkages with the Himalayan University Consortium, a network of universities, for collaboration with the academia. Further, it will collaborate with relevant agencies in the region to out-scale and upscale relevant services developed by SERVIR-HKH initiative at ICIMOD. SERVIR-HKH is a regional hub of SERVIR – a partnership of NASA, USAID, and leading technical organizations for developing innovative solutions using EO and geospatial technologies to improve livelihoods and foster self-reliance in Asia, Africa, and the Americas.

The Himalayan GEOSS will organize regional workshops and participate in global forums on EO and geospatial applications and innovative solutions. It will develop project proposals that are of regional nature and will aim to secure potential resources for their implementation

Financial and in kind resources will be leveraged through on-going initiatives like SERVIR and other regional and country programs. Capacity building and fostering regional cooperation are other strategic focus areas of the Task.

Partnerships with the space agencies in the regional countries will help in building synergies and building capacities across the region. In the past, initiatives such as GFOI and GEOGLOWS have leveraged experiences and resources from SERVIR-HKH.

Points of Contact

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2. Purpose

The Hindu Kush Himalaya (HKH) region is experiencing rapid social and environmental changes. Achieving sustainable development goals involves dealing with complex issues such as climate change, natural disasters, sustaining ecosystem services and improving resilience of mountain communities. Data and information are key fundamentals to address these issues to support informed decision-making and enable actions on the ground. Mountain areas with often difficult terrain and high degree of inaccessibility present a formidable challenge to collect and manage data and information. Earth observation (EO) in combination with the emerging Geo-information and communications technologies, and new innovations provide viable solutions to bridge the important data and knowledge gaps in the region as aspired by the GEO's vision. The Himalayan GEOSS has been initiated by the International Centre for Integrated Mountain Development (ICIMOD) as a sub-regional GEOSS for promoting innovative EO solutions to mountain specific challenges. It focuses on the geographical scope of the countries in the HKH region which include - Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan.

The major objectives of Himalayan GEOSS are to:

- a. Develop the capacities of the HKH countries on the applications of EO and geospatial information for mountain specific issues;
- b. Aligning with the national needs and priorities, develop and implement innovative EO and geospatial solutions and services that are of regional significance;
- c. Provide a regional platform for sharing EO and geospatial information to promote research and development in the region; and
- d. Foster regional cooperation among the HKH countries and contribute to global knowledge on the mountain systems through established networks of institutions in the region and strategic alliances and partnerships with international agencies/initiatives.

The outputs of Himalayan GEOSS include an implementation framework to ensure participation from the member organizations and line agencies in the region. It will promote access to and sharing of data, standards and methodologies on applications to different thematic areas, and regional cooperation to build complementary efforts to address common issues. Capacity building of individuals and institutions addressing the needs in the region will be a major output.

The Himalayan GEOSS is built upon the existing network of stakeholders and end users of ICIMOD's different regional programs and activities such as SERVIR-HKH, mountain livelihoods, river basins, transboundary landscapes, cryosphere and atmosphere, and climate services. SERVIR-HKH is a regional hub of SERVIR – a partnership of NASA, USAID, and leading technical organizations for developing innovative solutions using EO and geospatial technologies to improve livelihoods and foster self-reliance in Asia, Africa, and the Americas.

The immediate partners of the initiative are identified as the GEO member organizations from the HKH region. Ministries and Departments of agriculture, forests, hydro-met agencies, and disaster management are the direct users who will benefit from the

information and applications for their planning and management. Universities and academia will benefit from capacity building and data sharing efforts which will promote research activities in the region.

3. Background and Previous Achievements

A regional workshop was organized on 10 – 11 August 2017 at ICIMOD, Kathmandu, Nepal. The workshop included participants from seven regional countries, global SERVIR network, GEO Secretariat Director including the representatives of private sector. A draft implementation framework was developed based on the deliberations at the workshop. Himalayan GEOSS is drawing inputs mainly from the initiative like SERVIR-HKH which has been working on promoting Earth observation applications and capacity building in the region. Many of its activities are contributing to GEOSS objectives. Some of the key interventions of SERIVR-HKH such as drought monitoring and early warning system, stream flow prediction system, and regional land cover monitoring system are directly contributing to the societal benefit areas of food security and sustainable agriculture, disaster resilience, and biodiversity and ecosystem sustainability.

Through ICIMOD's Regional Database System initiative, its metadata catalogue is brokered through GEOSS Common Infrastructure. As a result, users can now search and find datasets stored in our Regional Database System through the GEOSS GeoPortal.

A training titled "Asia-Oceania GEOSS Network for Capacity Building and Regional Sustainable Development: Agriculture and Disaster Monitoring in Hindu Kush Himalaya" was jointly organized with AOGEOSS in Kathmandu from 17-21 September 2018.

4. Key Activities

The key community activities envisaged for Himalayan GEOSS during the period of 2020-2022 are as follows:

- **Himalayan GEOSS Community Portal:** A GEO community portal will be developed to provide one stop access to data and information systems from the HKH region. The portal will be linked to ICIMOD's Regional Database System (RDS) for allowing access to data produced by ICIMOD and to its Mountain GeoPortal to allow access to data (published as WMS) and online web mapping applications developed on various thematic topics. Further, the community portal will be connected to data providers from HKH region (e.g. Bhuvan from India) and beyond.
- **Capacity Building:** The capacity building will be one of the major activities of the Himalayan GEOSS. The activity will aim to build or enhance institutional and individual capacity in the regional member countries in using EO and geospatial technologies on various thematic application areas. With the support from AOGEOSS, the Himalayan GEOSS will establish a regional training center and develop and organize trainings on key mountain issues and emerging technologies. Linkages with Himalayan University Consortium will be initiated for collaboration with the academia.

- **Out-scaling the ongoing services:** The SERVIR-HKH initiative at ICIMOD is currently building a number of application services focusing on various priority thematic areas (e.g. regional land cover monitoring, drought early warning, flood early warning, etc.). The Himalayan GEOSS will collaborate with relevant agencies in the region to out-scale and upscale relevant services.
- **Regional and international workshops:** The Himalayan GEOSS will organize regional workshops and participate in global forums on EO and geospatial applications and innovative solutions for sharing and dissemination of knowledge, and building networks.
- **Collaborative proposals:** The Himalayan GEOSS will develop project proposals that are of regional nature and will aim to secure potential resources for their implementation.

5. Relationship to GEO Engagement Priorities and to other Work Programme Activities

All the HKH regional countries are striving to achieve Sustainable Development Goals defined by the United Nations and Earth observation information is a key for informed decision-making and monitoring many SDGs indicators. The Himalayan GEOSS will align its efforts with the priorities of development partners to build synergies in SDG goals. The products and services in collaboration with SERVIR will be directly related to SDG Goal 2: Drought monitoring and early warning system; Goal 13: water and hydro-climatic disasters; Goal 15: Regional and national land cover monitoring system. The services and capacity building activities will also contribute to Goal 5: Achieve gender equality and empower all women and girls; and Goal 6: Ensure availability and sustainable management of water and sanitation for all.

The capacity development / technology transfer activities will contribute to Paris agreement by enabling the professionals in the regional countries to better understand the impacts of climate change and support decision making to take effective actions, mainly in dissemination and deployment of information and enhancing public awareness.

The activities on early warning systems for water and hydro-climatic disasters will support the targets of the Sendai Framework.

Himalayan GEOSS is also recognized as one of the tasks of AOGEOSS to work on mountain related issues. A number of GEO initiatives are already involved in the region and linkages with these global and regional initiatives such GEOGLOWS, GFOI, GEO-GLAM, GEOBON, GEO-GNOME, GEO-CRI will be established.

6. Governance

The inception workshop proposed a governing structure comprising of a Steering Committee and Technical Working Groups. ICIMOD serves as the secretariat of Himalayan GEOSS in close collaboration with its regional member countries and GEO. As a regional intergovernmental organization, it brings together regional member countries, facilitates regional collaboration and foster partnerships with relevant regional and international

agencies. The steering committee will be constituted as the guiding body - providing strategic direction and prioritizing Himalayan GEOSS thematic areas and program focus.

Special technical working groups will be formed in different thematic areas as prioritized by the steering committee to respond to the needs and priorities of the region. The members of technical committees will be drawn from the line agencies, academia and renowned experts in the priority thematic areas.

While the Steering Committee will provide overall guidance and strategy for fund raising and resources mobilization, complimentary contributions will be managed through ongoing initiatives within the regional member countries and ICIMOD such as SERVIR-HKH for co-hosting workshops/meetings and development of tools and services on specific thematic areas. Contributions will be explored from ongoing initiatives of GEO and Participating Organizations.

7. Data Policy

The Himalayan GEOSS will build on the ICIMOD data policy that follows principle of free and open access to data. The Himalayan GEOSS will work towards encouraging national agencies in the region to implement standard practices in data and metadata development and sharing. The RDS initiative assigns digital object identifier (DOI) for all of its data generating unique and permanent URL for the data. The Himalayan GEOSS through the help of the RDS initiative will extend this facility of generating DOI to data provided by the contributors to the Himalayan GEOSS Community Portal. ICIMOD has released its data through RDS Portal under a creative commons license. The Himalayan GEOSS will also urge data providers to the GEOSS Community Portal to make their data available for free download.