DBAR — Int’l HeritageWorking Group

Conservation and Sustainable Development of World Heritage

Co-chairs:  Dr. Xinyuan Wang
            Dr. Shahina Tariq
            Dr. Rosa Lasaponara
            Dr. Houcine Khatteli

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Outline

- Background and Bases
- Motivation and Objectives
- Contents and Outputs
- Participants and Annual Events
- Cooperative Vision
13 March, 2017

DBAR — Int’l Heritage Working Group
Background and Bases

**Background:** World Heritages

There are 92+ countries with thousands of cultural and natural heritages, including more than 700 world heritage properties, distributed along the BAR.

Most of the properties lack effective protections with the backward technologies, due to the imbalanced development along the BAR.
**Background and Bases**

**Background:** Contributions of World Heritages to BAR

1. are essential to the **spiritual wellbeing** of people for its powerful **symbolic and aesthetic dimensions of the Silk Road**.

2. could provide **basic goods and services**, such as **security and health**, access to clean air, water, food and other key resources.

3. are obviously fundamental contributions to **environmental sustainability**, including outstanding sites containing some of the richest combinations of **terrestrial and marine biodiversity**

4. are important assets for **economic development** along the BAR, by attracting **investments** and ensuring green, locally-based, stable and decent jobs, only some of which may be related to **tourism**.

5. are also very important in **addressing risks** related to natural and human-made disasters.
Background: Situations of World Cultural Heritage
Background: Situations of World Natural Heritages

- Habitats
- Natural Heritages
- Species
- Landscapes
- Ecosystems
- Diversity Risk
- Habitats Shrunk
- Glacier Retreat
- Species Endanger

Human Induced vs. Natural Influences
Background: Situations of World Heritages

Challenges
environmental degradation, destruction caused by the wars and terrorism, illegal excavation, over-tourism, and rapid urbanization, …

Demands
urgent assignment for the observation and cognition of world heritages to enhance coping capacity cooperatively

Calls
calls for multilateral and international cooperation platform
calls for new technologies to support the sustainable development

DBAR Programm is a well-timed platform to say that Heritage Working Group is really providing a good chance to support the conservation and sustainable development of the world heritages.
Bases: HIST

HIST, a Category II center under the auspices of UNESCO, is hosted by the Institute of Remote Sensing and Digital Earth of the Chinese Academy of Sciences. It’s aimed to provide technical services to UNESCO and its member states on using space technologies for UNESCO designated areas, namely world heritage sites, world biosphere reserves and global geoparks.
Background and Bases

HIST Organization

[Diagram showing the structure of HIST Organization, including Governing Board, Secretariat, Scientific Committee, Research Center, and Technology Center.]
Contributions of HIST to DBAR-Heritage

International Cooperation Projects

HIST has accumulated valuable experiences during its first 6 years of operations through EOST transfer and application projects in important countries, e.g. Cambodia and Sri Lanka along the Belt and Road.
HIST has a mandate to support Nation States to build institutional as well as personnel capacity in Earth Observation Sciences and Technologies (EOST) and demonstrate EOST applications for the conservation, management, monitoring and sustainable development of the world heritages.
Spatial Database

Data Collection and Processing

Airborne, satellite, ground LiDAR data, photos, video, etc

Paper, Isolated

Digital, Systematic

Multi-spatial data integration and management

Spatial Data & Database Architecture: Raster data, Vector Data, Document

Environment Dynamic Monitoring, Management and Protection

Contributions of HIST to DBAR-Heritage
Contributions of HIST to DBAR-Heritage

Capacity Building Experiences

Academic Conferences  \Training Workshops\ Dialogues
Furthermore, HIST’s relationships with other UNESCO Science Centres in many countries in Africa, Arab States and Asia could significantly facilitate DBAR efforts to launch projects and activities under the theme: conservation and sustainable development of natural and cultural heritage.
Contributions of HIST to DBAR-Heritage

Huangshan Dialogue on UNESCO Sites and Sustainable Development, focusing on application of space technologies for world heritage sites, world biosphere reserves and global geoparks.
All above experiences and efforts have provided HIST access to networks at international, national and local levels who can serve as important catalysts to launch heritage focused initiatives under the DBAR Program.
Outline

Background and Bases

Motivation and Objectives

Contents and Outputs

Participants and Annual Events

Cooperative Vision
Motivation

*World Heritages* are the core carriers of the *cultural diversity* and *biodiversity* along the BAR regions. In the construction and post-construction phases of the BAR Initiative, in particular, the *acknowledgment* and *conservation* of world heritages, based on shared values and interests of the heritage, could foster *mutual recognition, inclusiveness, cooperation* and *respect* among different communities and countries, which is the *original motivation* for carrying out the Heritage Working Group under the DBAR Initiative.
Motivation and Objectives

Objectives

1. Develop **public data-sharing system** for world heritages, and build an international scientific and technological cooperation platform for attracting and cultivating international, influential, innovative **talents** in science and technology.
Motivation and Objectives

Objectives

2. Facilitate dialogue among stakeholders in world heritages and archaeological sites, the communities of Earth observation and the policy-makers along the Belt and Road, including compiling and exchanging lessons learned regarding the use of such sciences and technologies.
Objectives

3. Undertake international innovative, implementation oriented research projects in the field of **Space Archaeology** and **Digital Heritage** under the DBAR Initiative.
Motivation and Objectives

Objectives

4. Serve as a collective source and repository of information on efforts carried out along the Belt and Road, including guidelines and products to improve the applications of existing and emerging technology to promote the conservation of world heritage.
Motivation and Objectives

Objectives

5. Reveal the spatial-temporal pattern and evolution mechanism of the world heritage and environment along the Belt and Road, and explore the **sustainable development** of world heritages response to the **global changes** and human activities.
Contents and Outputs

Regions of Interest

North African Mediterranean area

NW China Central Asia, South Asia

SE China and Southeast Asia
Contents and Outputs

Key Research Contents

1. Carry out comparative studies of Space Archaeology in Arid Lands among China, Central Asia, South Asia and North Africa

2. Monitor and assessment the status of World Heritage along the BAR by using spatial technologies

3. Propose utilization and protection strategies of the World Heritage

4. Reveal the impacts and responses of world heritage to global changes and human activities, especially in the coastal zones
Contents and Outputs

Outsuts

- Heritage Data-sharing Sub-Platform

- Capacity Building to Participators: Training, Technology Transfer

- Methodology of Space Archaeology and Digital Heritage

- Remote Sensing Atlas of BAR World Heritage Sites

- Consultative Reports of conservation and sustainable development

- Int. Cooperative Networks: Joint Lab., Joint Project
Outline

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Heritage Working Group is co-chaired by Dr. Xinyuan Wang, Dr. Shahina Tariq and the following is registered-member list:

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>Shahina Tariq</td>
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<td>COMSATS Institute of Information Technology</td>
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<td>Dexian Feng</td>
<td>Institute of Geographical Sciences, Henan Academy of Sciences</td>
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Warmly welcome to join us!
Domestic cooperation:
– Our group have constructed an in-depth cooperation with domestic universities and scientific research institutions such as the Xinjiang Institute of Ecology and Geography of CAS, Shaanxi Provincial Institute of Archaeology, Northwest University, Xinjiang University, Lanzhou University.

Int’l cooperation:
– Our group have established a long-term cooperation with foreign teams such as Italy-CNR, Pakistan-CIIT, Tunisia-Institute of Arid Regions, USA-Alabama University and jointly developed a technologies for heritage risk monitoring.
## Committed resources

### Existing projects and resources list and budget(s)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Life-Cycle</th>
<th>Budgets</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Key Research and Development Program: Technology of ecological protection and management for natural heritage</td>
<td>2016-2020</td>
<td>¥ 2,400,000</td>
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<tr>
<td>National Natural Science Foundation: On Shift and Driving Mechanism of the Middle Segment of Southern Silk Road - A Case Study of Remote Sensing Archaeology from Qiemo to Khotan</td>
<td>2013-2016</td>
<td>¥ 750,000</td>
</tr>
<tr>
<td>Hundred Talents Program of Chinese Academy of Sciences: Methodology and Demonstration of the Radar Archaeology</td>
<td>2014-2017</td>
<td>¥ 2,000,000</td>
</tr>
<tr>
<td>International S&amp;T Cooperation Program of China: Remote Sensing for Environment of Site</td>
<td>2014-2016</td>
<td>¥ 1,000,000</td>
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Annual Events

Year 2017:

- Development of Regional Research Platform: Selected eminent professionals, practitioners and policy makers would be invited to join the DBAR-Heritage Regional Research Platform.

- Inception Consultative Workshop: DBAR-Heritage Regional Research Platform members would be invited to the consultative workshop to be in held in China.

- Regional Research Strategy Development: Through several country consultations, regional research strategy would be developed.

- Enhancing Capacities: Training programs of WH conservation and RS archaeology would be organized for young scientists and researchers.
Participants and Annual Events

Annual Events  Year 2018:

• National Research Strategy Development along the Belt and Road: In conjunction with the members of Heritage Working Group and trained young professionals and practitioners, national research strategy would be formed in selected countries.

• Second Consultative Workshop: Second consultative workshop of Regional Research Platform members would be organized.

• Enhancing Capacities of young researchers: Training programs would be organized for young scientists and researchers.

• Specific priority based research case: Selected priorities research case would be selected.

• Generating the remote sensing monitoring products of Heritages along the Belt and Road.
Participants and Annual Events

**Annual Events  Year 2019:**

• Third Consultative Workshop: Third consultative workshop of Regional Research Platform members would be organized.

• Training program would be organized for young scientists and researchers. Training programs would be developed to cover different priority areas identified by consultative workshop.

• Technical advisory support and capacity-building to support countries (where priorities research cases are conducted) on the use of big-data-based information for heritage protection and utilization, archaeological prospection, risk assessment and sustainable development;

• Consultative Reports: would be submitted to support the sustainable development of Heritage along the Belt and Road.
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DBAR-Heritage will help the weaken-ability end-users to establish the Heritage Monitoring Indictor System, develop Digital Conservation Tool for the techniques transferring, and afford the key consultative reports to the policy-makers and stakeholders.

As a way to achieve strategic long-term objective of sustainable development, we will work in close cooperation with relevant major stakeholders, including:

- UNESCO World Heritage Centre
- United Nations Institute for Training and Research (UNITAR)
- UNITAR’s Operational Satellite Applications Programme (UNOSAT)
- Group on Earth Observations (GEO)
- UNEP-International Ecosystem Management Partnership (IEMP)
- International Council on Monuments and Sites (ICOMOS)
- Ministry of Housing and Urban-Rural Development
- State Administration of Cultural Heritage
Cooperative Vision

1. Consultative Reports
2. Conservation Policies
4. Cooperative Network

End-users: stakeholders, policy-makers, regulators of world heritages along the Belt and Road

DBAR-Heritage
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Thanks!

Welcome to join Working Group