

Proposed UNESCO Land Subsidence International Initiative (LaSII): A Request for Support of the U.S. National Committee of UNESCO IHP

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Committee of UNESCO
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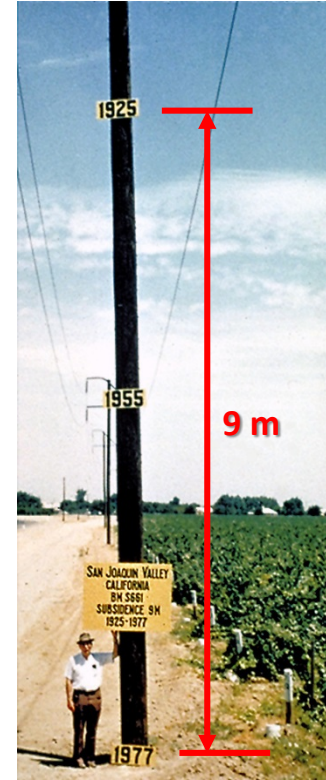


The UNESCO Working Group on Land Subsidence (WGLS)

- One of the oldest working groups within the International Hydrological Programme (IHP); activities initiated during the 1965–74 International Hydrological Decade (IHD)

The WGLS Mission

- Enhance scientific/technical knowledge needed to identify and characterize hazards related to natural and anthropogenic subsidence
- Promote/Facilitate international exchange of information to support sustainable water-resources development in areas vulnerable to subsidence



The Original WGLS



Meeting of the original UNESCO WGLS in Mexico City in 1978. Standing (L–R): G. F. Vega (Mexico), S. Yamamoto (Japan) and J. F. Poland (USA, Chairman); sitting (L–R): A. I. Johnson (USA), L. Carbognin (Italy) and J. da Costa (Secretary, UNESCO)



Current WGSL



Meeting of the UNESCO WGLS in Nagoya, Japan, 2015. Attending (L–R): P. Fokker (The Netherlands), K. Daito (Japan), T. Burbey (USA), S. Ye (China), G. de Lange (The Netherlands), D. Carreon-Freyre (Mexico, chairman), J. Lambert (The Netherlands), M. Sneed (USA), E. Cabral-Cano (Mexico), D. Galloway (USA), W. Hung (Taiwan), R. Tomas (Spain), and P. Teatini (Italy)



WGLS Activities

- Organized 9 International Symposia on Land Subsidence
 1. Tokyo (1969)
 2. Anaheim (1977)
 3. Venice (1986)
 4. Houston (1991)
 5. The Hague (1995)
 6. Ravenna (2000)
 7. Shanghai (2005)
 8. Querétaro (2010)
 9. Nagoya (2015)
 - 10. The Netherlands (2020)**
- Established a WGLS website with relevant information including World Map of subsidence occurrences
- Held annual WG meetings (since 2010), and sponsored special sessions at AGU, EGU, GSA meetings
- Established of a growing number of collaborations with local, state and national subsidence-interest groups, and several collaborative projects

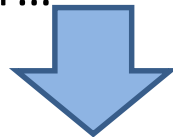


Land Subsidence (LS) is a Critical, Growing Societal Issue

Acknowledged in the IHP-VIII Phase Strategic Plan, which addresses Water Security, LS is considered a major threat (Focal Areas 1.1, 1.2 and 1.3 of Theme 1; Focal Areas 2.1, 2.2 and 2.3 of Theme 2; various Focal Areas of Themes 4 and 5)

Society is facing a large number of challenges related to the sustainable use of land and water resources that will increase in the next decades owing to:

- sea-level rise
- variation in the distribution and timing of precipitation
- variation in water runoff and aquifer recharge
- increasing concentration of population in (mega-) cities
- increasing demands for water...



leading to the expanding need of freshwater resources in even more concentrated, at-risk zones of the world, inevitably affecting a growing number of people.



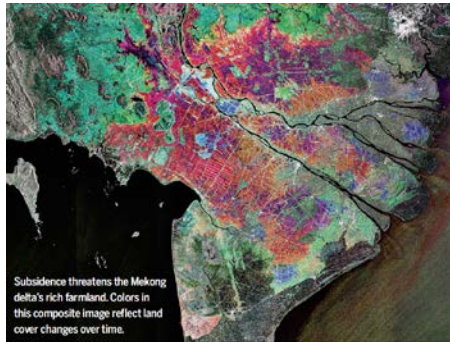
Present LS Hazards (Large socio-economic costs)

- Coastal mega-cities (e.g., Jakarta)



- Deltaic areas

coastal erosion, salinization



EARTH SCIENCE

Alarm over a sinking delta

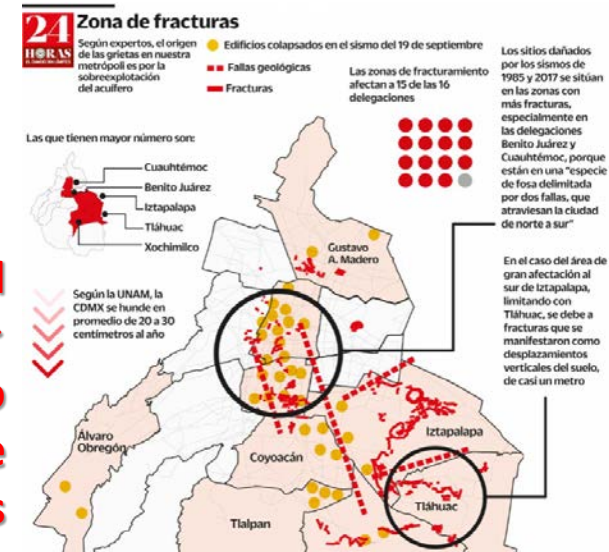
Rise and Fall project seeks ways to slow land subsidence in Vietnam's populous Mekong delta

- Inner (arid) areas

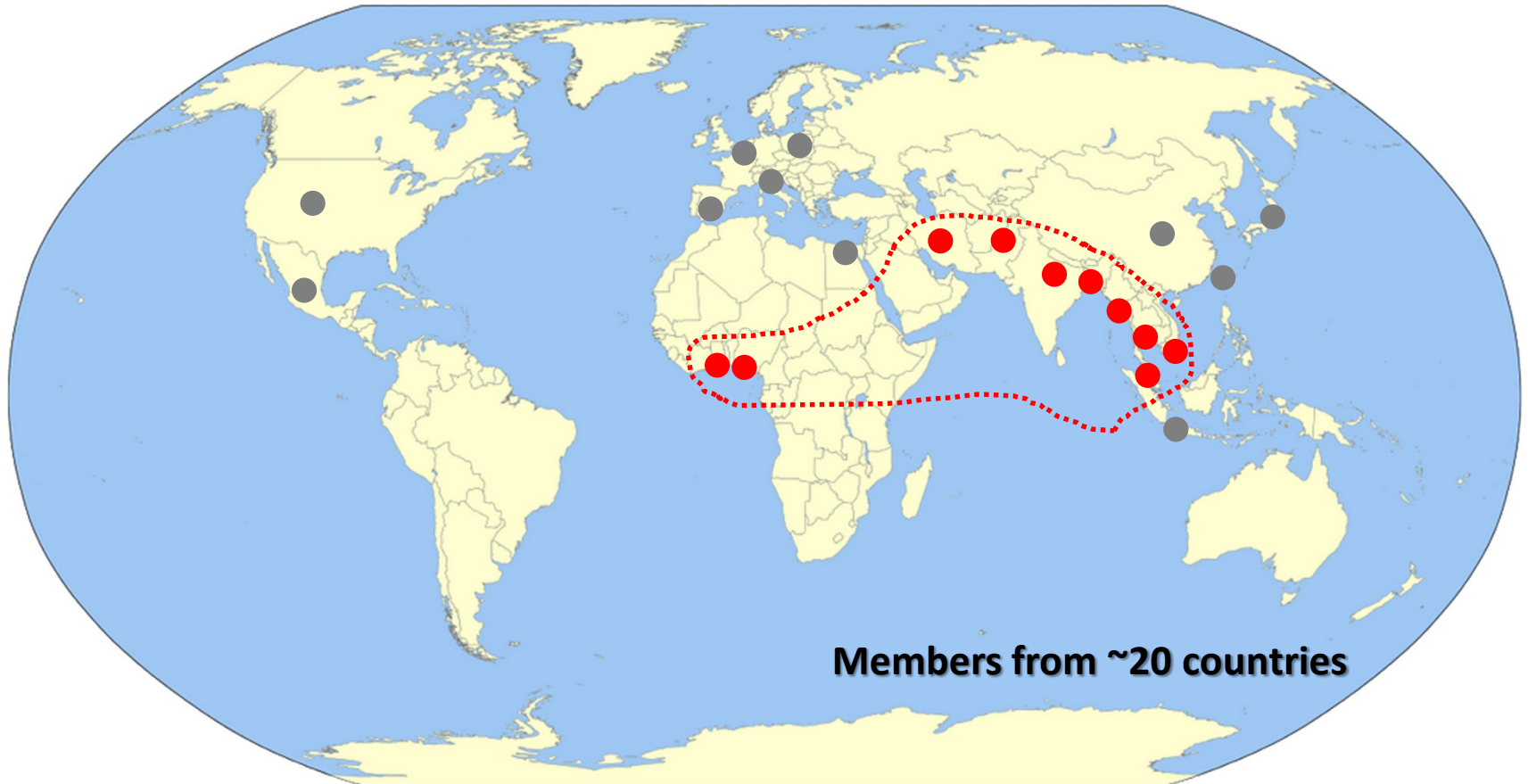
aquifer contamination



- Mexico City
- ground ruptures, ↑ susceptibility to earthquake damages**



Priority Focus of WGLS Recruitment



Developing countries increasingly impacted by subsidence processes: Bangladesh, Cambodia, India, Iran, Malaysia, Myanmar, Nigeria, Pakistan, Sierra Leone, Thailand, Vietnam



Objectives of Land Subsidence International Initiative (LaSII)

Focus on 4 principal Land Subsidence (LS) issues:

- LS caused by groundwater resources overexploitation
- LS contributing to relative sea-level rise in coastal areas
- LS causing earth fissures, ground fractures and fault reactivation
- LS related with water security and resource resilience in urban areas



Overarching Goals of LaSII

- Continue and enhance/leverage activities of the WGLS
- Improve access to information and guidance for scientists, engineers, planners from developing countries
- Enhance knowledge transfer and achieve a better planning for the sustainable use of the groundwater resources LS-affected regions in view of the expected climate changes
 - develop effective methodologies for identifying LS and LS-prone areas and establishing a dynamic inventory of subsiding areas in the world
 - publish guidelines for the identification, investigation, development and management of LS-related phenomena
- Support capacity-building and educational capabilities in developing member countries
- Enhance interaction with the UNESCO International Category 2 Center on Land Subsidence in Shanghai, China (already ongoing)
- Increase linkages with other IHP Programs/Centers (ICHARM, FRIEND, HELP, UWMP) and other UNESCO Programs (IGCP; currently leading IGCP-641)



Take Away Elements of Proposed LaSII

- No economic support from IHP is requested
- The chief practical reasons for establishing a LS initiative are:
 - Formally establishes LS as a critical, growing, global hydrologic and geo-environmental issue/hazard, and one that is recognized as such by the IHP
 - Enhances, leverages historical and ongoing work of the WGLS
 - Facilitates networking and the acquisition of external support, both financial (e.g., from World Bank, Regional Development Banks, etc.) and scientific/technical, to address these important issues especially in under-developed countries





Thank You

<http://landsubsidence-unesco.org/>

<http://www.igcp641.org/>

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