

Summary Report of the 1st International Symposium on Geospatial Health held in Lijiang, China, September 8-9, 2007

The 1st International Symposium on Geospatial Health, an initiative by the Global Network for Geospatial Health (www.GnosisGIS.org) to encourage local and international scientists to share data and geospatial health application methods in compatible format in the region, was held under the theme of “Towards a Regional Information System for Control of Parasitic Diseases”. The symposium took place in conjunction with the 4th annual meeting of the Global Network for Geospatial Health and the 7th meeting of the Regional Network on Asian Schistosomiasis and Other Helminth Zoonoses (www.RNAS.org.cn) and was held in Lijiang, China, from 8-9 September, 2007.

The conference was supported in part by the Ministry of Health of the People’s Republic of China, the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), the DBL-Institute for Health Research and Development, and the Global Network for Geospatial Health. A total of 90 participants from 17 countries and 2 international organizations attended the symposium (Figure 1). Owing to the venue, the largest contingent of attendees (51%) was from the People’s Republic of China.

There were 71 abstracts and full articles submitted to the symposium. Of these, 10 were contributions to plenary sessions. Three plenary papers addressed current research on opisthorchiasis, clonorchiasis and other fish-borne zoonotic trematodes in the Mekong sub-region, presented by Anders Dalsgaard (Denmark), Banchoh Sripa (Thailand) and Smarn Tesana (Thailand). Other plenary talks reviewed geospatial health and the epidemiology of Asian schistosomiasis (Xiaonong Zhou, China), leishmaniasis in Italy (Michele Maroli, Italy), diversity in snail intermediate hosts of schistosomiasis in Africa (Thomas Kristensen, Denmark), and mapping of multiple-species parasitic infections (Jürg Utzinger, Switzerland). Three other plenary presentations dealt with a proposed parasite database management system (Sue Hughes, Canada), process-oriented modeling (Hu Haitang, China) and the history and aims of GnosisGIS (John Malone, USA).

Remaining papers were presented in concurrent working group sessions that can be classified into four groups:

- (i) cross-sectional surveys, where researchers developed risk analyses by geographical information systems (GIS) and remote sensing (RS) for mapping and prediction;
- (ii) biological investigations, where spatial variation, temporal change patterns and spatio-temporal diversity of biological vectors and pathogens were the objectives;
- (iii) assessment of intervention strategies that address transmission, environment and socio-economic factors in control of infectious diseases; and
- (iv) database management and information sharing.

The symposium focused on current applications of geospatial techniques to zoonotic diseases and tropical diseases that are closely linked to the environment, ecology and climate, which in turn are anchored to the geographic space. Therefore the distribution of these diseases can reveal important information on transmission and the relative need for control. In a strategic departure from past GnosisGIS meetings, where the emphasis was on geospatial tools for schistosomiasis control, the 2007 symposium expanded in scope to include six working groups that met in concurrent sessions to address a broad range of “neglected tropical diseases”, including schistosomiasis, cysticercosis/echinococcosis/taeniasis, soil-borne diseases (e.g. ascariasis,

hookworm disease and strongyloidiasis), food-borne trematode diseases (fascioliasis, clonorchiasis, opisthorchiasis, paragonimiasis, and infections with *Haplorchis* spp., *Metorchis* spp. and *Angiostrongylus* spp.), arthropod-borne diseases (leishmaniasis, malaria, lymphatic filariasis), and papers that addressed the role of vectors and intermediate hosts (snails, mosquitoes, sand flies).

Application of spatial techniques and spatial analysis methods was emphasized. GIS, RS and global positioning systems (GPS) were a common thread in studies presented. Important presentations included geostatistics and spatial statistics (spatial point pattern analysis and clustering analysis) used for schistosomiasis and leishmaniasis investigations. In addition, the combination of spatial analysis and temporal series analysis had been successfully tried in schistosomiasis control in China. Some researchers described advanced modeling, such as that related to random-effects, and to spatio-temporal Bayesian statistical approaches and transmission dynamics modeling in their reports.

The symposium was an open forum where geospatial information on diseases in different regions was exchanged. As a continuing outcome of the working group session on fish-borne zoonoses, an agreement was made to further collaborate on GIS data sharing, training programmes and application for new funding, with the objective of developing a comprehensive risk model for fish-borne parasites in the Greater Mekong sub-region over the next five years. The results are planned to be shared with Ministries of Health in the region to enable more effective treatment and control programmes. Expansion of the concept of geospatial networks to improve disease control in other regions and continents is expected to continue. For example, a recently established Regional Network on Schistosomiasis in Africa (RNSA), would enable the sharing of databases on schistosomiasis and other neglected tropical diseases.

The spatial distribution, abundance and ecology of parasites in Asia are inadequately understood outside the region and generally under-addressed in the scientific literature. The proceedings and abstracts of the 1st International Symposium on Geospatial Health provide a unique record and an excellent source of current information of the discipline in English which can be accessed in electronic form at www.GnosisGIS.org. Health workers and researchers interested in health applications of the geospatial sciences are encouraged to apply for membership (www.GnosisGIS.org).

The social programme was unique. The venue was in the historic 'Old City' of Lijiang of Yunnan province, one of the most beautiful old cities of China, located in the hills and mountain ranges just under the eastern slopes of the Himalayas. Lijiang dates back at least a millennium, at the crossroads of the historic Silk Road and the ancient Puer Tea Trail. The area is also home of the Naxi culture and other minority groups of south-western China. The expansive scenery, historical heritage, unique food and restaurants and group programmes and tours provided many memorable experiences in off-hours for all attendees and guests, courtesy of our Chinese hosts.

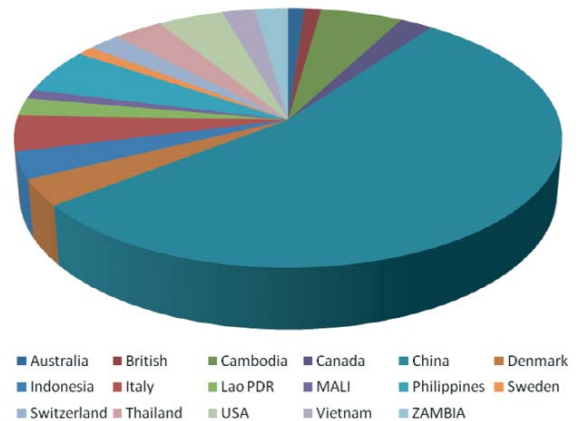


Fig. 1. The distribution of participants by country (90 participants from 17 countries).