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Study tackles public health in Bangladesh using GIS tools

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Geospatial information sciences (GIS) can help determine where diseases are spreading and where to target the resources needed to stop them, but spatial data isn't widely used for health decision-making in many developing countries.

That lack generated the idea for a recently published UT Dallas study to identify—and ultimately remove—barriers to using GIS technology to solve public health problems in Bangladesh.

"Geospatial information sciences are still pretty new to some politicians and policymakers," said Dr. Dohyeong Kim, associate professor of public policy and political economy and geospatial information sciences in the School of Economic, Political and Policy Sciences (EPPS). "They view it as something in academia. But GIS can be used as a tool to help inform decisions. We want to try to help them make more informed decisions."

The study, published in the Journal of Health, Population and Nutrition, identified several issues that keep Bangladesh from fully adopting the use of spatial tools. They include a lack of collaboration between institutions, lack of trained personnel and lack of awareness of the use of geographic information systems in decision-making.

Bangladesh's health system already collects the data necessary for GIS analysis, Kim said. The next step is to analyze and visualize the information to understand patterns and trends. Kim and co-author

Priyanka Vyas, a PhD student in public policy and political economy, collaborated on the study with Dr. Malabika Sarker, professor at the James P. Grant School of Public Health at BRAC University in Dhaka, Bangladesh. The EPPS Advisory Council supported the research with a $5,000 grant that allowed Vyas to travel to Bangladesh to conduct surveys.

During her trip, Vyas conducted in-depth interviews with experts at governmental organizations, universities and nonprofits. The experience sparked an interest in examining a range of public health issues in her dissertation and a desire to work again in Bangladesh.

"I fell in love with the country," Vyas said. "The people were so fascinating and they were so helpful. I can never forget their hospitality. That love is driving me to go there and work and commit myself to their problems."

Bangladesh faces a range of public health concerns, including one of the world's highest malnutrition rates. In addition, the densely populated country lies at a low elevation that leads to flooding and the spread of communicable diseases.

After Vyas' trip to Bangladesh, Kim and Dr. Yongwan Chun, associate professor of geospatial information sciences, were invited to teach a workshop on geospatial analysis for health care in Bangladesh. The 2014 course was an important step, said Zabir Hasan, the senior research associate at BRAC who helped organize and participated in the event.

"There is definitely a dearth of research capacity and policy advocacy to incorporate geospatial analysis in developing countries," Hasan said. "The geospatial analysis workshops acted as a catalyst to initiate the conversation and a process of collaboration to build geospatial research capacity in Bangladesh."