Mapping UNSW Impact

Global Development

Primary SDG	**11: SUSTAINABLE CITIES AND COMMUNITIES**
Broad theme	Safer cities, better urban houses
Research	Using big data to make Indian cities safer, and taking digital machines to South East Asia to improve urban housing quality
Impact region	Bangladesh, India, Indonesia, Kenya, Philippines, Cambodia
Faculty	Built Environment
School/Institute	Smart Cities Research Cluster
Academic	Dr Scott Hawken
Project partners	Safetipin
Related SDGs	5: Gender Equality
	10: Reduced Inequalities

Elevator pitch

Scott is researching how big data can be used to push for urban design changes in Indian cities to make them safer for women. He is also looking to introduce digital fabrication machines to poor villages in South East Asia to improve housing quality and provide locals with a sustainable livelihood.

The Challenge: Areas of cities around the world are not safe for women

Safety is a fundamental requirement for cities to become sustainable and inclusive. Yet in India and developing countries around the world, there are places within cities that are not safe for women and children. In street surveys conducted by NGOs in several cities (Delhi, Mumbai, Bangalore, Kerala, Guwahati), more than 80% women said they had been sexually harassed in public spaces in the past year.

To help, an Indian tech startup has created the Safetipin app that tracks users and provides safety scores for different areas of a city. These scores are made up from data on street lighting, visibility, people density, walkways, transportation and gender diversity. Data is collected from people, businesses, and Uber in 30 cities around the world so that vulnerable urban citizens can use the information to navigate cities safely.

UNSW's solution: Use data design technology to push for urban transformation

Scott is researching how to use Safetipin's data in smarter ways to push for the transformation of unsafe spaces. Processing big data requires new methods. Scott is using machine learning and data augmented design technology (DAD) to interpret data and provide evidence for urban design transformations that will improve the safety of dangerous areas. Improvements could come in the form of better lighting, more green areas and changes in public transport.

In other research, Scott is investigating the introduction of digital fabrication machines in urban villages in Cambodia and South East Asia. Current village housing stock is typically basic or mass produced. Machines

such as a portable laser cutters and CNC routers can create intricate components that are both functional and decorative. Scott and his colleagues from Kyushu University (Japan) are currently seeking seed funding for this project.

Previously, Scott investigated the history of the ancient city of Angkor using remote sensing technology. His research examined the role rice fields played in managing and shaping the enormous city over time.

The Impact: Making cities safer for women

Using innovate big data interpretation methods, Scott's research will propose ideas about how dangerous areas in cities can become safer, in particular, for women. Incorporating local government policy, his designs will provide solutions for how councils and governments can improve streetscapes and make them more equitable and inclusive.

Scott's proposal to take digital fabrication machines to poor villages in South East Asia will improve housing quality and the standard of living in those villages. Locals will be trained to operate the machines themselves, providing them with a new livelihood that is sustainable.

Researcher

Scott Hawken is Lecturer and Convenor the Smart Cities Research Cluster. He is an Urban Designer, Landscape Architect and Landscape Archaeologist with local and international experience in professional and academic settings. In Cambodia he worked on the Greater Angkor Project that sought to better understand urban development using archaeology. He has researched the rapidly developing cities of South East Asia, and has run workshops there, in South Africa and in India. Scott is passionate about making urban environments more liveable and enjoyable for residents.

Ben Falkenmire 07.03.18