Transformation and Resilience on Urban Coasts (TRUC)

Call: Coastal Vulnerability
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Amount: €1.126K
Time period: 33 months

Transformation opens new opportunities for living with risk where existing systems are generative of vulnerability and hazard or where preventing systems failure is impossible, it also recognises the cultural specificity of resilience and transformation where change or stability may benefit some actors more than others, now and in the future. The relationship between resilience and transformation is arguably most acute on highly urbanized coasts where interactions between concentrated human activity and environmental dynamics are at their most intensive and transformations can be observed. TRUC is focussed on this relationship in five coastal megacities: Kolkata, Lagos, London, New York and Tokyo (with Shanghai also being studied in a funded sister project).

TRUC will build an original integrated, participatory framework in collaboration with stakeholders to first characterise and then identify interactions between bio-physical, land-use and decision-making processes. The aim is to reveal the pathways and trade-offs through which systems interactions constrain or open opportunities for resilience or transformation how these outcomes themselves interact and influence sustainable development; offering scope for considerable theoretical, methodological and practical advancement.

TRUC combines models developed by consortium members: an integrated urban energy and waternbalance model (SUEWS), a global anthropogenic heat flux model (LUCY) and a scenario modelling methodology developed by UNU. Work will be at the city level and drill down to the city region/community level. Flexibility is built into the modelling and analysis process to accommodate divergent data and stakeholder availability. Local teams will head-up data acquisition and liaise with stakeholders to help frame local questions and ensure effective dissemination.

The consortium includes natural and social scientists and each partner will be involved in conceptual or methodological work as well as case study research. Research will feed into

international scientific discussion on socio-economic development pathways and scenarios within the IPCC, AR5 (three consortium members are authors in AR5). In addition the project will be a flagship research for the IGBP-IHDP project Land Ocean Interaction on the Coastal Zone with three scientific steering committee members included.