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Urban-Nexus: Dependency of urban agglomeration, Hyderabad, India, on external water resources in developing economy.

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Self-sufficiency in water, food, and energy become major concerns of cities in the global urbanization era. To reach the self-sufficiency goals of cities, they depend more on external water resources, in the form of trade and imports to satisfy the water demands, which came into the focus with rapid urbanization. In this scenario, cities must measure their consumption, to know their dependence on external resources, and to draft their trade policies. But, it is tough to scale the dependency of cities on external resources at the city scale, in scarce of city-level trade data.

Here we are proposing a framework using the consumer-centric approach to scale dependency of an urban agglomeration, from consumption and production perspectives when there is no city-level trade data. In the consumption perspective, we used survey data provided by the National Sample Survey organization of India to assess the consumption footprints. In the production perspective, we used production statistics of the study area to assess the production footprints. The difference between the consumption and production WF will give the dependency of agglomeration on external resources. From the consumption perspective, the consumption WF of the study area is 1041 m³/cap/year.

This framework is flexible and can be switched between any two or more entities to know the dependency of cities on external resources for their resources. Moreover, this assessment plays a key role in trade policy decisions and also in scaling the consumption and dependency of cities to achieve self-sufficiency and sustainability goals of smart cities.