Title: Overcoming the limitations of Seasonal Monsoons with Sea-Mountain-River water-cycle Model

Abstract:
Application of the sea, mountains, rivers, island model to have freshwater, bring down land temperatures and increase fertility of soil to reduce food shortages and enhance biodiversity of a biome. As availability of energy increases, the model could be scaled up to subcontinental levels to bring arability to the arid regions.

Author and Ideator: Rajib Kumar Bandopadhyay

Islands having sea around it, mountains and rivers form a complete biological ecosystem, having rains throughout the year, bringing down land temperatures and increasing fertility of soil.

Bharat is a huge landmass, a sub-continent. Hence, there are arid land-areas where temperatures rise and steadily remain very high during summers and cause water scarcity, and the resultant social
irritations and aggressions.

Water cycle diagrams could be considered:
(1)
https://commons.wikimedia.org/wiki/File:Water_cycle.svg
(2)
https://commons.wikimedia.org/wiki/File:Water_cycle_diagram-uk.svg

To have such stifling summers, and resulting natural life, better moderated, innovation is required: if the adjoining areas aren't contiguous to the seas, seas have to be brought in through plumbing pipes and pumps. Have inland, very shallow, seas of 1.5feet in depth, even on rooftops, but its waters isolated from the groundwater through plastic/ceramic containment barriers.

Winds flowing over these artificial seas would cause hot air to be laden with moisture. This moisture could be used for harvesting fresh water from moisture as follows.

The fresh water could be used for maintaining a denser canopy of trees all around human habitation. Moist air passing through wilting leaves precipitate excess moisture and cools down the ambient air. A positive feedback loop is thereby created.

Triangulation designs in engineering (https://technologystudent.com/struct1/triag1.htm) is used to create strong and stable structures. Such engineering innovations created the Iffel Tower a century back. Presently, Burj Khalifa is at 830 meters. A little more innovation in design (without the civil-architectural complexity of Burj Khalifa) could bring this height closer to 1500 meters and create artificial hill ranges, to be used as office, shopping and business spaces.

Light materials like Mylar sheets to form covering surfaces over each of these artificial hills, for clouds to condense into water droplets and come down as fresh water and stored in separate underground tanks using rainwater harvesting technology.

By the above set of innovations, in large sea-water bodies artificially created, of the cumulative size comparable to that of large lakes, lined with impermeable walls, having sea water brought in from the seas, evaporated using flowing airmass by natural temperature difference, form clouds and condense on tall artificial hills/mountains, channelled into fresh water reservoirs, the inclement summers of the Bharatiya landmass could be made lesser uncomfortable to live in, and with the fresh water harvested in excess of the requirement of the local population and industries, new areas of afforestation could be developed, that would improve the quality of the local biosphere, and collectively the local eco(bio)sphere, make it more environmentally sustainable for the humankind.

A second idea for innovation:
By the same kind of innovations, rainwater and river water could be managed from being unnecessarily wasted into the sea. No fresh water, loaded with minerals, should flow out into the seas, washing off and carrying out heavy amounts of bio-nutrients with them, especially

during monsoons. A long chain of near contiguous deep freshwater lakes and wells along rivers could be used to store monsoon water for use throughout the year.

There are technological limitations for interconnected rivers, all rivers originate and flow at different heights and reach sea-level at the end of their journey. So detailed satellite mapping and GPS is to be used first to have data points of Lat,Long,Altitude from Sea-level for every point of all rivers. Then a common height is to be fixed for two rivers at which point they are to be connected into one. Then two such connected to another, and so on.

A lot more technological tools, manpower, fuel and resources are required to achieve the goal of interconnected rivers.

In comparison, sea-lakes, hills and rain harvesting is a technology that could easily be scaled up depending on resources and materials at disposal.

Especially hot areas during summers and not very far off the seas could first be identified, such as Kalahandi, 168 kms approx., or inarable lands around Chhari Dhandh, Gujarat, 75-80 kms approx., from the sea coast, and then have the first pilot project run there to test the feasibility of the present innovation.

Over the next few decades, when solar powered Green Hydrogen technology and Thorium and Fusion reactors become ubiquitous, projects could be scaled up to address the droughts in African Sahara, Arabia, Central Asia, Western India, Australia and the North America by bringing in the sea to arid lands creating shallow but wide secure lakes pumped with sea water. Such waterfronts would also enhance tourism.

First sent to Neeti Aayog, India, on the Fri, 18 Jun 2021 23:10:16 +0530, with the subject line:
Two innovations to fight future water shortages during inclement summers at many places in Bharat, also bring down the surrounding ambient temperatures and help in afforestation
Several reminders later, not acknowledged.