

Bhungroo by The Sustainable Green Initiative Forum

***"If you want to teach people a new way of thinking, don't bother trying to teach them. Instead, give them a tool, the use of which will lead to new ways of thinking."* –R. Buckminster Fuller**

STATEMENT FROM THE FULLER CHALLENGE REVIEW COMMITTEE:

The Bhungroo project of the Sustainable Green Initiative Forum (SGIF) combines a deceptively simple “low tech” water storage and retrieval method with a powerful, woman-led, grassroots social organizing effort among some of the poorest, most disenfranchised people on the planet. Bhungroo radically boosts food yields and the incomes of poor farmers while empowering rural women, who are often at the bottom of the social pyramid. By involving them in decision-making throughout the process and training them as technical experts who can own, run, and operate Bhungroo irrigation systems, SGIF helps the women educate their neighbors and propagate the technique in their communities, regions, and beyond.

The affordable, open-source Bhungroo irrigation system works in harmony with local, indigenous farming techniques. Its very small land footprint, using only 1 square meter of surface area, encourages community building by entrusting the system's management and water distribution to small co-ops comprising five-seven women each. It's had a very successful track record in India, with approximately 3,000 units currently serving some 15,000 female farmers, mostly in Gujarat but also spreading to other regions. In addition, SGIF leaders are also advising groups in Bangladesh, Ghana, Madagascar, Togo, and Zimbabwe seeking to implement the technique in their countries. SGIF is disseminating the Bhungroo model through open-source manuals, including innovative pictorially-based apps for illiterate farmers, peer-to-peer training programs, and collaborations with local community organizations to create networks of self-reliant farming communities.

SGIF empowers rural women with other programs beyond Bhungroo, including its Women Climate Leaders program that trains women to become advisors to their peers on seed selection and conservation, water and fertilizer use, and planting, among other skills, further boosting the income, self-sufficiency, and social standing of women in their historically patriarchal communities. While entrepreneurial in its design, SGIF's approach emphasizes community solidarity through the sharing of resources and labor within a cooperative framework.

Overall, Bhungroo seems to have found the right dynamic and flexible balance between local independence and support from the central organization. It's a powerful multi-faceted approach to ecological, economic and social

improvement. It helps rebuild water tables and farmland fertility; raises crop yields; reverses desertification and soil salinity; combats climate change, poverty and malnutrition; enhances biodiversity, health and well-being; and significantly improves the status of women.

CRITERIA-BASED EVALUATION:

VISIONARY: Bhungroo captures the spirit of the Fuller Challenge through deployment of its elegantly simple technology. Its approach has the potential to help millions of poor, smallholder farmers, who feed 80% of the world's population, become far more resilient in the face of erratic weather and climate change, while restoring degraded landscapes and shifting outmoded gender paradigms. Bhungroo's approach is a potent "trimtab," to use Fuller's concept, that offers one template of a preferred state for agriculture, ecology, and rural life in some of the world's poorest and most climatically challenged regions.

COMPREHENSIVE: As we mention above, Bhungroo's strategy is multi-dimensional: It combines innovative, robust, sustainable, easy-to-use but game-changing technology; poverty alleviation; ecological resilience and restoration; cooperation and community solidarity; and it emphasizes social justice and gender equity. It is designed to use water to generate cascades of positive transformation through communities and whole regions on both the material and social levels.

ANTICIPATORY: By storing excess water during the monsoon season and making water available during dry periods and droughts, Bhungroo provides farmers with food security, particularly critical as weather patterns become less predictable. In addition, Bhungroo's leaders have anticipated the needs of the variety of poor farming communities they aim to reach. They are developing a training program that will be made available to illiterate farmers through an app using a pictorial format. Through strong measures to ensure self-reliance in the communities in which Bhungroo is deployed, SGIF's social enterprise model has taken into account how a simple tool can take the path of least resistance to become viral in agrarian communities—not only in Gujarat but worldwide.

ECOLOGICALLY RESPONSIBLE: Bhungroo mimics the natural process in which permeable surfaces allow water to trickle down to be stored in the aquifer, and amplifies this progression through the use of a straw-like mechanism. It both directly addresses instability in precipitation patterns exacerbated by climate change and has the potential to rebuild water tables, reverse desertification, improve soil quality. It also has an overall regenerative effect on local ecologies and human communities. Bhungroo's approach works adaptively and responsively to existing geology and weather patterns, rather than imposing

poorly conceived, clumsy, linear, rigid human artifacts, such as dams or ground wells, on naturally fluid patterns.

FEASIBLE: Using simple infrastructure, one Bhungroo unit installed in an area of five acres of land has the capacity to irrigate more than four times that much land—twenty-two acres. The water storage method is simple to implement and operate yet is actually highly sophisticated, based on a deep understanding of climatic, hydrological, and geological factors. It uses seventeen technical designs that weigh twenty-seven variables to find the ideal locations and depths at which to store water. The model's low entry barrier requires a group of five to seven farmers, each of whom may hold less than an acre of land. With very low start-up costs, Bhungroo provides immediate benefits by doubling or tripling income for farming families. The social enterprise structure is also self-sustaining. The Women Climate Leaders (WCL) program trains farmers to undertake simple feasibility studies and to identify local women's self-help groups and communities interested in Bhungroo in order to spur dissemination of the irrigation system.

VERIFIABLE: Bhungroo has been tested, verified, and adapted over a seven-year period. SGIF has already generated impressive results: they have deployed roughly 3000 units among some 15,000 women smallholder farmers, thus affecting 100,000 family members in Gujarat. In addition, they have managed to provide consulting services to fifteen demonstration projects in other countries. These impacts have been achieved with a very small organizational budget—less than \$40,000 annually—suggesting a remarkable capacity to “do more with less”.

REPLICABLE: The flexibility and open-source nature of Bhungroo's seventeen technical designs has allowed for the expansion of the technology to other countries and cultures. As described above, it has had a very successful track record in Gujarat and is spreading to other regions of India. The project's leadership team is also now advising an expanding number of groups in Africa and other Asian countries eager to implement and propagate the technique. It strikes us as a model with the potential to replicate virally around the world's tropical and equatorial regions.