Concept Note

Green River

DHAN Foundation
Madurai
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Content

1 Introduction to Green River Concept

Green River is a community-led project focusing on restoring ecosystems, micro-climates and its water cycles, and creating healthy livelihoods in the Western Ghat Mountains, Gundar Basin region, Tamil Nadu, India. This project has the potential to improve the social and economic realities of people in this region whose livelihood depends upon monsoon rains.

1.1 Prologue

All over the planet, people are confronted with extremely degraded land, not caused by natural events, but rather by their own actions. The resulting climate change and shifting weather patterns only intensify this crisis. Tamil Nadu, South India, one of the drought stricken regions on the planet. Therefore, the first Green River project is focused on this region. Ultimately, the vision is to promote and work on regenerating green rivers and landscapes around the world, because the good news is that we humans, on the flipside, can do that too!

Green River is an evolutionary process and unique in that it identifies the whole watershed as the optimal landscape for bio-regional regeneration. The holistic, village-global approach gives it realistic opportunities for success.

Green River is well connected to both local and global communities and organizations of regenerative knowledge and practices. These communities share knowledge, experience and resources, provide practical support upon request, and come together in this initiative.

1.2 Why

Communities in the Gundar Basin region are facing degraded landscapes causing severe droughts, resulting in water scarcity and further depletion of the environment. Current livelihood strategies and ways to acquire water are causing even more destruction to the already degraded land. It's a Catch-22! A different approach is needed.

1.3 What

With a new approach based on restoring the ancient water harvesting cascade systems in the landscape, and through applying ancestral knowledge, new technologies and best practices of regeneration, communities bring back the natural flow in the whole watershed. This provides a structure for ecosystem regeneration: the emergence of a 'Green River'! In a 5 - 10 years timeframe, we will see vital and resilient communities in bio-diverse, well-functioning eco-systems providing healthy livelihoods for all living beings.

1.4 Who

Around 21850 families (one Sub-basin) and their communities will be in the lead, assisted by DHAN Foundation who is building with Green River on their long-standing community enabling programs. The Embassy of the Earth is a co-creating partner bringing its long-term experience in building resilient communities to resolve complex issues. Other partners bring specific expertise on ecosystem and agricultural regeneration.

1.5 How

The project foresees ecosystem regeneration by reintroducing and restoring the traditional water management system. This is an 'ecological infrastructure' to channel monsoon rainfall down the slope of their watershed. Earthen water catchment basins store rainwater, distribute it through smaller ponds and wells to irrigate vegetation and crops, creating a 'green river'. Additional gullies and 'cuts' are made to trace the water back to the aquifers and wells around the villages for home-use, long after the monsoon rains have ended.

> ***"[…] rivers depend on forests. And the forests need their plants. Without plants – trees clothed in epiphytes and grasslands at high elevations – monsoon clouds will not release their moisture. Without plants, water will not sink into the land to feed the rivers, sources and aquifers,nor will the local thundershowers form."***
>
> **– Suprabha Seshan, Gurukula Botanical Sanctuary.**

Besides harvesting rainwater runoff, reforestation activities will play an important role in the restoration of climatic conditions conducive for stimulating rainfall and to achieve a full water cycle. Experts on ecosystem regeneration and regenerative agriculture will share their knowledge and experiences with the communities. Ecological agricultural regeneration creates landscapes with healthy soils providing good livelihoods for all living beings, and thus contributes to the biodiversity.

Healthy soils and bio-diverse landscapes are also important carbon sinks and substantially contribute to both climate change mitigation and adaptation.

The project will assist in establishing local ownership and management of the tanks, ponds and canals, in the absence of government financing and management, through the participation in co-financing of each community of approximately 10% of the costs.

1.6 Stakeholders Involved

Community will be prime stakeholder engaged under this project. Other stakeholders, including governmental, educational and other relevant institutions will be closely involved to create a

supportive enabling environment, identifying necessary regulations and policies that will benefit the directly involved communities and the wider eco-system.

Teaching, innovation, knowledge, experience and skills will be introduced by faculty and students of the Tata DHAN Academy and others with the idea to develop a vocational certification program around regenerative practices, allowing young people and others to enroll into a new profession of land healers.

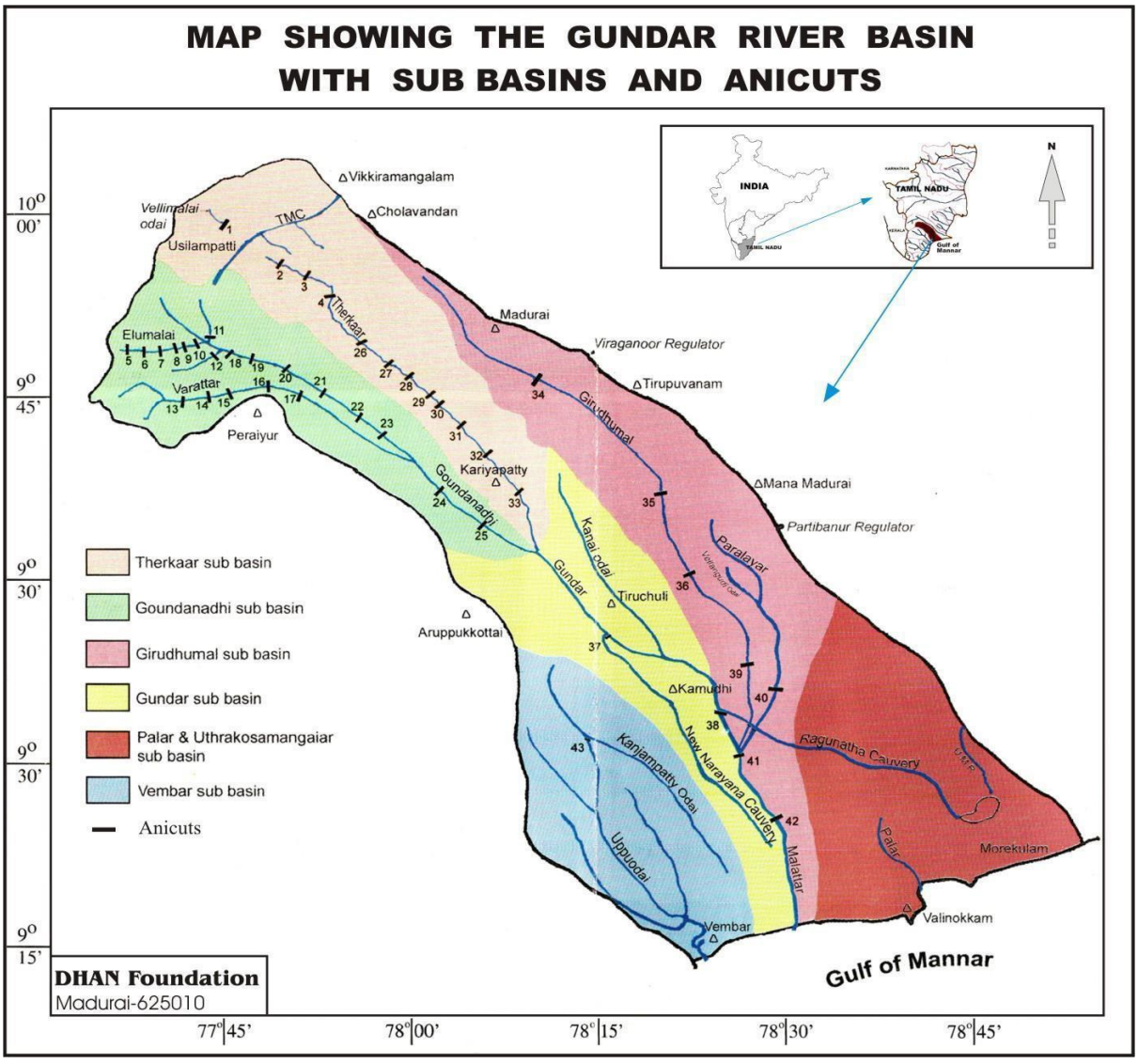
A group of young tribal men from the Americas, called the Hopi Rain Catchers, trained and accommodated by the Land Healer Foundation, will conduct training camps for their peers (and others) in India on traditional water infiltration techniques and how to retrace and revive the water springs.

2 Annexures

2.1 About the Basin and Tank Ecosystem

2.1.1 Gundar River Basin, Tamil Nadu, India:

The "Gundar River Basin" extending over an area of 5660 sq.km lying in between 90 05″ N - 100 03 " N latitude and 77035″ E - 78055″ E longitude is selected in South India, as this basin accommodates about 2,276 tanks and thousands of village ponds, spread over around 3,000 habitations. Gundar Basin is having a total population of 2,289,876 of which 1,149,875 is male population and 1,140,001 is female population. Within the basin, Madurai South Taluk area is having highest population 944,663 of which male 478,419 and female 466,244. This river basin contains six sub basins, five major tributaries and several small streams originating from the Western Ghats and draining into the Bay of Bengal after traversing a distance of about 155km. This basin has all the typical features similar to those of a semi-arid river basin in South Asia relying on monsoon rains.



2.1.2 Tank cascade as the ecosystem infrastructure, supporting the community - a conceptual understanding:

Small, medium and big tanks (earthen bunded storage reservoirs formed in the natural depressions of the land) exist for many centuries, most of them in the semi arid regions of South East Asia, because of the rolling topography and distinctive climate – intense monsoons followed by protracted droughts. In India alone, there are about 270,000 such tanks. These tanks are water-harvesting structures, ingeniously designed by ancient native rulers and chieftains to meet the water needs of people and their cattle throughout the year, by capturing the intermittent heavy spells of monsoon rains received only for about 45 days per year. Many of these tanks are linked as chains in cascades so that the surplus of the upper tank flows down to the lower one, adding synergy to the process of water harvesting and use. Quite a few tanks get supplemental supply of water from a reservoir or a river through diversion ofchannels, in addition to the rainwater received from their own catchment areas.Theseare system tanks and they store water for a larger period than rainfall tanks. In addition to the tanks, there are thousands of domestic ponds formed by village communities as well as some individuals. Tanks and ponds play a crucial role for the rural masses as they promote their health, livelihood and economic prospects.

In accordance with the proceedings of the Ramsar Convention, such tanks and ponds can be categorized as "man-made inland -wetland ecosystems" based on their origin, vegetation, nutrient status and thermal characteristics. Although these water harvesting systems provide multiple services, they are valued mainly for their agricultural, domestic and livestock uses. The various services rendered by the tank eco system are:

i. Provisioning services such as freshwater, food fiber, fuel and medicinal plants.

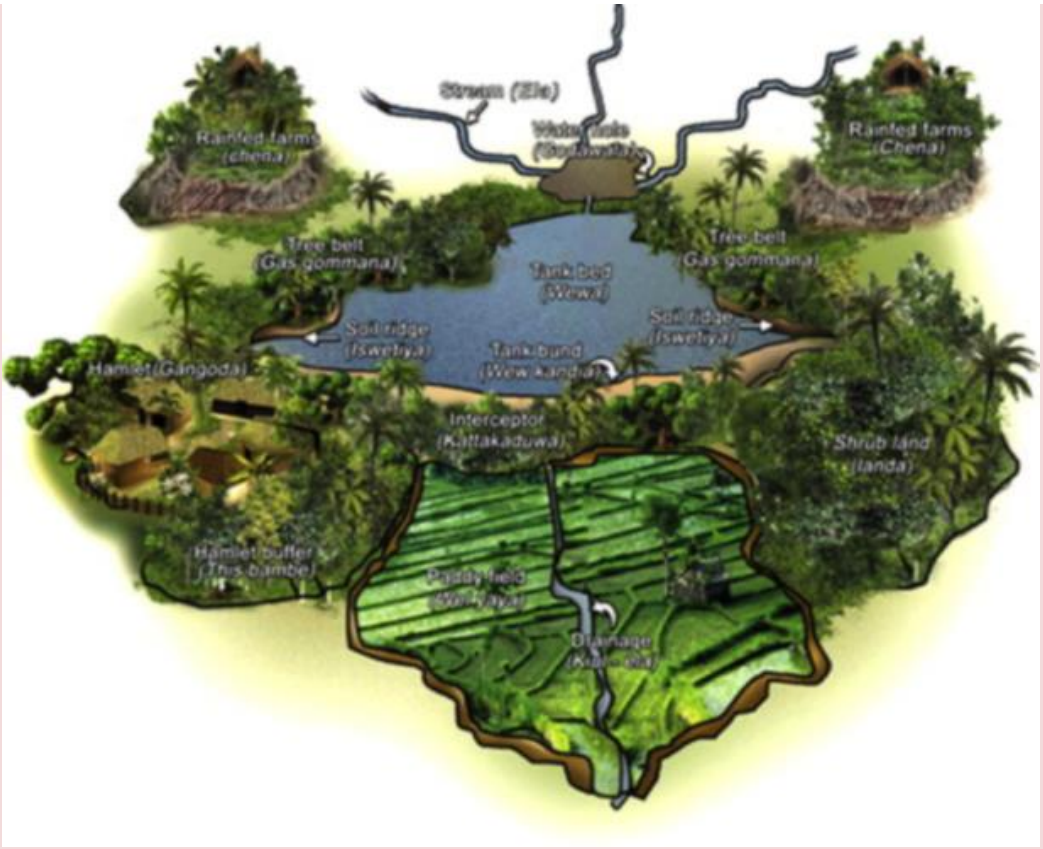
ii. Regulating services such as climate regulation, water regulation (ground water recharge/discharge), water purification(retention and removal of excess pollutants, diluting the toxicants), erosion regulation, natural hazard regulation(flood control, drought mitigation) and pollination (habitat for pollinators),

iii. Cultural services such as spiritual & inspirational, recreational, aesthetic & educational, and

iv. Supporting services such as soil formation (sediment retention and accumulation of organic matter) and nutrient cycling.

Even while demands for tank ecosystem services are growing, human actions are at the same time diminishing the capability of the tank ecosystem. One of the reasons for this could be that people are unaware of important ecological services other than the overt economical services provided by the tank ecosystems. This may probably be due to the absence of relevant research to bring out the values of ecosystem services holistically. It will be pertinent here to focus on the following quote:

> *"Because National Accounts are based on financial transactions, they account nothing for Nature, to which we don't owe anything in terms of payments but to which we owe everything in terms of livelihood."--Bertrand de Jouvenel, 1968*



2.1.3 DHAN's Approach towards Facilitating Ecosystem Restoration

The approach towards conservation and development has been evolved over a period of time through field experience and professional assessment. The institution follows basin and sub-basin approach in facilitating the regeneration. The operations of the institution are spread in more than 17 river basins in India. DHAN believes in enabling and institution building approach that lays emphasis on community-led conservation development. More than four lakhs farming households were organised into 6000 associations. In Gundar Basin, DHAN has facilitated the promotion 750 associations and these associations have renovated more than 500 water bodies (Irrigation Tanks and ponds). Besides water demand management activities were implemented in the command areas of 250 water bodies. All these interventions have resulted in saving more than 20 billion liters of water in the basin. Besides DHAN Foundation has facilitated promotion of 10 block level farmer's federation, sub-basin and basin level committees to work for the ecosystem regeneration and development.

2.2 Search Conference: Changes in the Basin - Views of the Community

2.2.1 The Search Conference and Its Outcome

The Search Conference is a practical way to build communities of people who step up to the challenges of our turbulent times and take responsibility for making change happen in a

purposeful way. As the world becomes more and more turbulent, the need is great for people to form communities to search for their desirable futures together. The Search Conference puts people in the driver's seat of change, so they can steer together toward the future they want for their system, making adjustments as they go forward.

DHAN Foundation organized a search conference with the participation of representatives from six sub basins. The conference provided opportunities to know past, present and aspirations of community in achieving desired future in drought prone areas. Around 300 people from different basins participated in this event representing around 20000 households in the basin. Through these events and series of consultation with the communities DHAN Foundation was able to map out the Changes and development desired by the community.

2.2.2 Search Conference –Gundar in Early Days

- Received monsoon rainfall as per the natural cycle. The monsoon season was predictable
- The river and its stream networks were wide enough to carry the water to its destination
- People come across flood situation for at least 10 days in a year.
- Water flows through the streams for at least six months.
- Bridges were not established to cross the river and people struggled to cross the river.
- All the wells had shallow depth and the bottom of the well was visible. People used to swim in their wells. There was no need for digging deep.
- No risk of crop failure or shortage of water for drinking and domestic needs
- Presence of tree covers on the both sides of the river bank with Neem, Illuppai and mango trees
- Irrigation tanks were getting filled every year
- Fishing in tank and stream networks were prevalent
- Farmers were cultivating small millets like Kambu, Sorghum, Codo millet, barnyard and finger millets, which are less water intensive crops.

2.2.3 Gundar of Today

- Water flows only for about 10 days in a year and the remaining days it remains dry.
- High variations in rainfall and seasonal shifts due to the ill effects of climate change
- Deep wells and bore wells instead of shallow wells. Even the deep bore and open well does not have sufficient water to irrigate the farmer's field.

- Agriculture is in declining trend and presence of fallow land is in increasing trend. Presence of weeds like Juliflora, water deficiency, low productivity and poor returns are the contributing factors for the increased quantity of fallow land.

- Encroachment in waterways, water spread area of the tanks and ooranieshave led to degradation. Because of the missing links between the tanks and other water resources water use efficiency is not ensured.

- In 2016 none of the tanks in the basin was filled with water. The occasion of people watching tank filled with water is widening.

- Deforestation due to increased human pressure. Animal grazing in forest area is one of the important issues affecting the forest cover.

- Due to poor reliability on farming and nature based livelihood, people have started to migrate from the village to nearby towns and districts for their survival.

- Vembar and Palar Sub basins have 18% of the total land area of the basin, without enough anicuts and water resources.

- Degenerating traditional water management practice: Water sharing conflicts between the tank cascades from anicuts are in increasing trend due to water shortages. The traditional irrigation management system by appointing a water manager has disappeared, which has impact on water sharing among farmers.

- These basins predominantly have the black cotton soil and alkali soil. So the ground water salinity exists in black cotton soil area. Hence, people are using Oorani water for drinking instead of ground water.

- Lack of self-management due to disappearance of traditional Kudimaramathu system.

2.3 The Vision for a Green River

DHAN Foundation and Embassy of the Earth organized feature search conferences with the participation of 300 people and stakeholders, which served as a platform to build vision and set milestone. Deeper and closer consultation with the community created a scope to evolve vision statement, a bright future desired by the community. The milestone and goals are set for 2022.

2.3.1 Vision statement of a Green Gundar River Basin:

Vision statement:

"A living Gundar River ecosystem builds on strong social capitaland is a pollution and encroachment free river brimming with biodiversity that ensures sustained and disaster resilient livelihoods for generations of Gundar basin."

2.3.2 Purpose statements for a Green Gundar River Basin

Purpose statements:

1. Social capital: good governance in Gundar Basin
2. Perennial Gundar River
3. Bio diversity rich Gundar Basin
4. Pollution free Gundar Basin
5. Encroachment[1] free Gundar Basin
6. Prosophis[2] free Gundar Basin
7. Sustainable livelihoods in Gundar Basin

The proposal focuses on Gundar basin for its ecosystem restoration and empowering the community-nested institutions for adopting the Green River concept as shared in the methodology of the Green River concept. DHAN Foundation has experience with and offers the following project components for integrating in the community-led Green River action plans during the next 3 years. Each community will decide on their own Green River action plans, but DHAN Foundation will inform them about the possible support they can offer the communities.

2.3.3 Goal Statements

1. By 2022, community governance on water bodies and resources exist at village, block, sub-basin and basin level in Gundar Basin.
2. By 2022, local ecosystem will have been restored through rejuvenation of water bodies, greening environment, promoting bio-diversity, preventing pollution & encroachment and sustainable farm practices.
3. Environmentally sustainable (including the climate factors) and economically viable livelihood practices in select villages of Gundar Basin.

2.3.4 Activities Proposed by the Community

In order to achieve the desired growth communities have proposed to

1. Organize and build strong community organizations from village to basin level
2. Promote community vigilance on water bodies
3. Build the capacity of farmers and provide education to promote community governance
4. Build shared understanding and mission in achieving green Gundar
5. Renovation of water bodies – Man made wetland ecosystem
6. Renovation of anicuts in the basin
7. Establishment of gullyplugs and gabion structures and other development activities in watersheds
8. Introduce water demand management practices to adapt to changing climate

[1]Many tanks and canals have been encroached for farming purposes, which makes their restoration more complicated.

[2]The *ProsopisJuliflora* is a shrub or small tree that is native to Mexico, South America and the Caribbean, but has become established as an invasive weed in India and elsewhere.

9. Crop diversification and climate adaptive practices
10. Plant tree (Common and individuals land) at mass scale
11. Introduce seed ball technique
12. Promote dry land horticulture to introduce tree crops
13. Shift from synthetic, inorganic agriculture to organic agriculture
14. Promote inland fish rearing in water bodies
15. Enhance farm production through apiculture
16. Remove prosophis on the agricultural lands
17. Strengthen farming through collective marketing
18. Promote Micro enterprise activities
19. Integrate financial inclusion
20. Organize necessary research for the benefit of poor households