GEO4SDGS: A CASE STUDY OF RIVER REJUVENATION BY THE ART OF LIVING

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Who we are...

The Art of Living is a non-profit, educational and humanitarian organization founded in 1981 by the world renowned humanitarian and spiritual teacher Gurudev Sri Sri Ravi Shankar.

Gurudev has inspired a wave of volunteerism and service, resulting in one of the largest volunteer-based organizations in the world, with more than 30,000 teachers and over one million volunteers engaged in service projects in 180 countries.

Our Inspiration
Gurudev Sri Sri Ravi Shankar

40 Years of Service 180 Countries where we make a difference 10,000+ Centers Worldwide with weekly follow-up sessions 500+ Million lives touched

- Service & Social Programs
- Leadership & Ethics
- Peace Initiatives
- Culture & Celebration
- Spirituality & Human Values
India's projected water stress, 2030

2030 Water Stress Forecast
- Low (<10%)
- Low-medium (10-20%)
- Medium-high (20-40%)
- High (40-80%)
- Extremely high (>80%)
- Arid and low water use
- No data
- State borders
- Subbasins

Note: Figure represents water stress forecast for year 2030 under the Business As Usual scenario.
Source: WRI Aqueduct Water Risk Atlas
Background

Many know about the hydrological cycle, but the relationship between ground water & surface water is often unnoticed.

The roots of the trees absorb the water molecules and recharge the underground water.

Natural hydrological cycle
Background (Contd...)
Our Approach

- Nature is a fantastic teacher.
- It gives you space to observe it and learn.
- So we decided to copy nature. And it worked.

Scientific methods
Geospatial technology and remote sensing

Inclusive approach
All stakeholders are taken onboard from farmers to scientists

Restoring ecosystem
We're trying to bring back the natural hydrological balance
Our Method

Planning Phase

- Satellite Image
- WRIS-WMS
- Bhuvan-WMS
- RDPR Gram Panchayat data
- DEM
- SOI Toposheets
- Field Data through Collector App
- Google Earth
- Meteorological Data

Ground Truth Verification

Thematic Layers like LULC, Hydrological Boundaries, Drainage Network, Soil texture, Slope, Infrastructure Network, Admin Boundaries, Contour Map

Thematic Experts

Integrated spatial analysis using GIS environment for Generating action plan

Rainfall data analysis

Implementation Phase

- Field Team
- Google My Maps & SOI Toposheets

Monitoring & Evaluation Phase

Collect App
Our footprints

Number of RIVERS being REVIVED: 70
Number of Structures constructed: 64K+
Increased WATER STORAGE: 25,00,02,372.136 litres
PEOPLE Benefitted: 34.5M billions
VILLAGES Benefitted: 19K+
WORK PROGRESS IN FIVE STATES
AREA Influenced: 59K SqKm
Consultations & Discussions with SEVEN more states
PLANS for setting up TEST BEDS in various geomorphological + agro-climatic zones
Interpreting our activities in SDG’s

• Out of 17 Goals, the Art of Living’s River Rejuvenation projects is impacting 9 goals.
3: Good Health & Well-being

- Belongingness, Ownership, Responsibility
- Action Oriented
- Self inspired and not externally motivated

112500 – Capacity building, training programs
Sudarshan Kriya Yoga – SKY Breathing technique…
Women started entrepreneurship for the rejuvenation of Naganadhi in Vellore district of Tamil Nadu.
6: Clean Water & Sanitation

- Boulder Check
- Recharge Well
- Recharge Borewell
- Water Pool

Quality Ensured by the technical team and the geologists.

Farming revived - now farmers take 3 crops a year, instead of 1.
Impact Assessment
(Kumudvathi Project)

1. As per studies in 2018, AUGMENTED RECHARGE OF 1.625%

2. In 2019-2020, average increase OF 2.4 METERS IN THE BORE WELLS

3. Between 2013 to 2020, improvement in NDVI, NDWI & NDMI.
8: Decent Work & Economic Growth

- We have worked with different stakeholders to create more than 22,000 employment opportunities.
- Farmer Income is more than doubled as reported in our impact assessment of water conservation prog (120% growth).
- Average increase in Work availability is 88% as reported in the same water impact report.
  - Water literacy in terms of overall better watershed management has been devised to help farmers to do so.
  - Communities have been also convinced to do away with Acacia and Eucalyptus plantations.
13: Climate Action

Eco-Restoration Cell at Guttahalli, Karnataka
14: Life above water

- We have created micro water conservation structures called Water Pools, which not only helps in conserving water but also recharging it in the ground.
15: Life below water

- With the aim to provide safe environment for the life below water, we are treating many waterbodies. A few by removing silt and a few more by treating them for nature based solutions like green bridges for removal of hazardous, harmful pollutants.
17: Partnering for Goals

- River Rejuvenation Conference in Dec 2017 & National Symposium on Resilient Riverine Eco System 2023, at the Art of Living Bengaluru Ashram

- Govt. Agencies, Corporates, Self Help Groups, Academic Institutions, Other NGOs, Private Groups, Community Leaders, Farmers, Activists, Multi-disciplinary Experts, etc...
Kumudvathi river used to supply around 30% of water to Bangalore city and had dried up, now alive.
Happiness restored

“I was very tensed about education of my children and marriage of my daughter as there was no income from farming due to non-availability of water. Art of Living’s work has rekindled the hope. Now I don’t want to leave the village, I am very happy here.”

- Pandurang, Jalna, Maharashtra
Work at the Grass Root Level – Talking to Villagers & Gram level Developmental Officers, 2020 Interiors of Madurai
Geo4RRP...

Scientific Planning
- GIS - Integration of Various Thematic Areas namely (Lithology, geomorphology, lineaments, soil...)
- Aquifer Characteristics – Infiltration & Storativity – 2D/3D ERT, PUMPING TEST, ...
- AUTODESK – Civil Design for Recharge Structures

During Implementation
- Site Identification – My Maps
- Collect App – On ground data collection related Surveys on DEMAND SIDE
- IN HOUSE developed MOBILE APPs for M&E

Impact Study
- IOT based groundwater level probes
- Lysimeter – Soil Moisture Variations
- Evapotranspiration – Spatial Crop/ Plant Identification
Softwares that we use...
Use of GeoSpatial Technology

Action Plan Preparation
✓ Drainage Network
✓ Hydrological Boundary
✓ Geomorphology & Lithology
✓ Land Use Land Cover
✓ Soil texture, Soil Slope
✓ DEM, Elevation, Contour Maps
✓ Administrative Boundary
Thematic layers are stacked one over the other in ArcGIS for studying multiple themes together and arriving at the action plan.
**AoL Solution in Hard Rock Terrain**
through Managed Aquifer Recharge

We **emulate NATURE by recharging throughout ENTIRE RIVER BASIN**

1. **TREE PLANTATION**
   - reduces soil erosion and recharges ground water

2. **BOULDER CHECK DAM**
   - slows down speed of water, reduces soil erosion

3. **RECHARGE & INJECTION WELLS**
   - recharges groundwater (Shallow and Deep Aquifer)

4. **WATER POOLS**
   - revives lakes and larger water bodies

- Improving Groundwater table by Managed Aquifer Recharge across entire **RIVER BASIN**
- Slow down the run-off and Optimum recharge across river basin
Awards & Recognition

- **FEATURED IN THE 2019 EDITION OF LIMCA BOOK OF RECORDS AS “MOST EXTENSIVE RIVER REJUVENATION WORK BY AN NGO”**

- **AWARD BY ITV NETWORK FOR ART OF LIVING'S EXTENSIVE WORK IN REVIVING 42 RIVERS IN INDIA**

- **INDIA GEOSPATIAL APPLICATION EXCELLENCE AWARD IN 2019 FOR EXTENSIVELY USING REMOTE SENSING AND GIS TECHNIQUES FOR RIVER REJUVENATION ACTIVITY. GEOSPATIAL APPLICATION EXCELLENCE AWARD FOR USING GEOSPATIAL TECHNOLOGY IN RIVER REJUVENATION PROJECT.**

- **EXEMPLARS 2021-22 AWARD BY ROTARY CLUB OF BANGALORE FOR ENVIRONMENT CONSERVATION PROJECTS**
A strategic mission was initiated under ‘The Naganadi River Rejuvenation Project’ to revive River Naganadi which dried up due to over exploitation of groundwater. The project was funded by MGNREGA and technical support was provided by the Art of Living organization.

Led by @SriSri, the @ArtofLiving Foundation has, over the years, successfully rejuvenated 48 rivers flowing across 5 states, viz. Maharashtra, Karnataka, UP, AP & Tamil Nadu, benefitting 34.5 million people in 12,077+ villages.
Water is the basis of the life force...

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