

Annual Report

2022-23



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Content

Sl.	Chapter	Pg. no.
1.	Introduction	2
2.	Statutory compliance and governance	2
3.	Financial management	2
4.	Activities done during the year 2022-23	3
4.1.	Water conservation interventions	3
	<i>4.1.1. Promotion of pipe irrigation for efficient use of irrigation water</i>	3
	<i>4.1.2. Technical support in rainwater harvesting and groundwater recharge at CVR Engg. College, Ibrahimpatnam, Telangana</i>	4
4.2.	Sustainable agriculture and environmental protection	5
	<i>4.2.1. Study on status and prospects of promoting Chloroxylon Swietenia (Billudi) under agro-forestry in Nagarkurnool dt., Telangana</i>	5
	<i>4.2.2. Study on traditional irrigation from wetland eco-system (Beela-Batti) in Srikakulam dt., Andhra Pradesh</i>	6
4.3.	Urban flood mitigation and groundwater recharge in Trichy city, Tamil Nadu	7
4.4.	Field study on electricity metering pilot project in Srikakulam dt., AP	7
4.5.	Training and capacity building initiatives	8
	<i>4.5.1. Training on Volumetric Water Benefit Accounting (VWBA)</i>	8
	<i>4.5.2. Training inputs on impact assessment of water projects for NAF, Chennai</i>	8
	<i>4.5.3. Training inputs to Directors and CEOs of FPOs for DHAN Foundation</i>	8
	<i>4.5.4. Training on EPANET applications to design of Irrigation systems in Bhutan</i>	9
4.6.	Publications, Workshops and dissemination	10
5.	Future plans	11

1. Introduction

Water and Livelihoods Foundation (WLF) is a non-profit public Trust established in 2016, in the context of growing water scarcity, inequality and climate-induced droughts and floods in India in recent years. WLF has the over-all vision of a 'water-secured society' and strives to achieve this through (i) grass-roots actions, (ii) innovative technology development and deployment, (iii) knowledge dissemination and (iii) capacity building of development actors.

While working on themes of water conservation, groundwater augmentation, efficient use of water, water supply and sanitation promotion and input-cost reduction through ecological agriculture, WLF has also its foot-prints in the urban water management issues, such as, groundwater depletion, reuse of treated water and hydrological aspects of flood management. Efficient use of water and water auditing in the context of industrial use of water is an emerging area of work. Innovativeness; cooperative and inclusive participation; knowledge sharing; long-term sustainability, gender equality and ecological concerns are the cross-cutting concerns to all the work done by WLF.

This report narrates, in brief, various institutional, governance and program actions carried out by WLF during the year 2022-23.

2. Statutory compliance and governance

WLF has appointed Sampath and Ramesh Auditors as the statutory audit firm for the year 2021-22 and the audit reports were presented and approved by the Board of Trustees (BoT) in the BoT meeting organized on 29 May 2022 in online mode. All the three Trustees, Executive Director and staff participated in this meeting. Apart from this, the BoT discussed and made decisions about the following key points:

- Approval of financial statements for 2021-22 and plans for 2022-23
- Appointment of Sampath and Ramesh as audit firm for 2022-23
- Review of staff performance reports (as per the policy approved in 2020)
- Filing of fresh application for FCRA registration

3. Financial management

WLF follows a cash-based accounting and computerized all its financial operations in Tally. Complying with the recent change in the provisions of FCRA, WLF opened the FCRA designed primary bank account in SBI, Main Branch, New Delhi. As per the decision taken in its BoT meeting in Aug 2021, WLF has also applied and got the registration under Sections 12AA and 80G of IT Act from the Income Tax Department. Earlier WLF got the DARPAN registration number from Niti Ayog, Gol. During current year, WLF has also registered as an implementing agency of CSR activities with the Dept. of Company Affairs.

During the year, the FCRA bank account opened in the SBI Main Branch, New Delhi was activated by the Bank on submission of approval letter (FC6) from the MoHA against the prior-permission granted by the MoHA. Further, WLF filed a fresh application for FCRA registration

on 16 Sep 2022. During the year, WLF received donations from individuals and contributions from CBOs, apart from small fee for providing technical services.

4. Activities done during the year 2022-23

4.1. Water conservation interventions

4.1.1. Promotion of pipe irrigation for efficient use of irrigation water

The practice of open channel or flood irrigation results in over-use and wastage of groundwater due to increased seepage and evaporation losses. Also, it results in uneven distribution of water across the farmland, both excessive and deficit application of irrigation water having detrimental effects on crop growth and yields.

In order to counter this problem and to promote efficient use of water in irrigation of crops, WLF has been promoting water-efficient sprinkler, drip and pipe irrigation practices for several years. Though sprinkler and drip are more efficient in water-saving, they are also more expensive. The subsidy scheme by State Governments is not effective in meeting the demand for them from farmers. In the light of this, pipe irrigation is more affordable to farmers and easily scalable. Therefore, during the year 2022-23, WLF encouraged FPOs to provide PVC pipes to their member farmers. Also, farmers groups in Nagarkurnool districts were also encouraged to come together and shift to pipe irrigation.

WLF collaborated with one FPO (Nelathalli Farmers Producer Cooperative) in Yadadri Bhongir dt., Telangana) and motivated farmers to come forward and install pipe networks in their farm lands. WLF mobilized quality pipe manufacturing companies (Jain and Nandi pipes) to offer the pipes to farmers belonging to these collaborating FPOs on a special discounted price.

Through this arrangement, during 2022-23, 72 farmers were provided with 1560 PVC pipes (of different dia., viz., 63 mm, 75 mm and 90 mm). Due to the price fluctuations in the market, the contributions of farmers were pooled and WLF made its own contribution (about 10-15% of the cost).



4.1.2. Technical Support in rainwater harvesting and groundwater recharge at CVR Enqq. College, Telangana

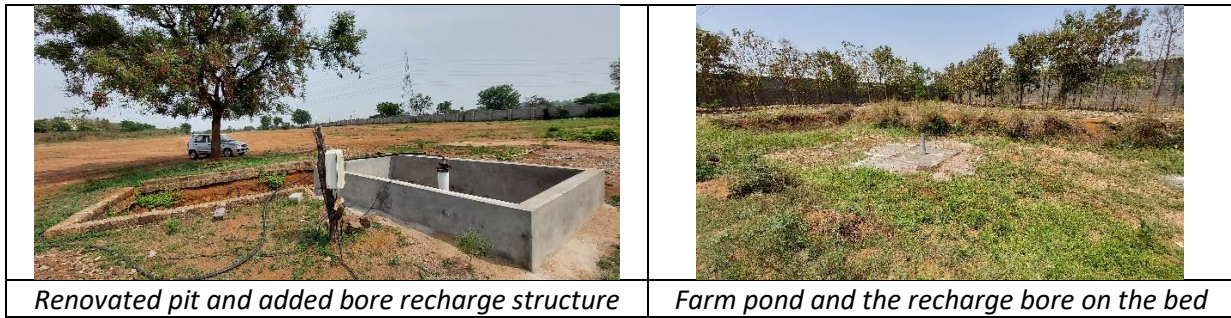
The CVR College of Engineering is located at Mangalpalli village, Ibrahimpatnam mandal, Ranga Reddy district, Telangana. The campus is spread over approximately 50 acres of land. In order to enhance the groundwater recharge and yield in the existing bore wells, the college asked WLF to provide technical guidance in building rainwater harvesting structures.

A detailed study of the campus was done and the following measures were identified for implementation:

- i. Renovation of existing water recharge pit at the cricket ground and building a bore well recharge structure to the existing bore well
- ii. Converting the existing bore well at the boys' hostel as aquifer recharge structure utilizing the roof water from the hostel building
- iii. Desilting and renovation of existing farm pond on north-west of the campus and drilling two recharge borewells on its bed
- iv. Drilling of a new bore well next to the cricket ground for addressing seepage / groundwater capillary rise problem and for increased availability of water in the campus



WLF also provided technical guidance during the implementation of these suggested measures. WLF facilitated geophysical investigations for identification of bore well site (point iv above). Drilling of a bore well at the identified point was successful and gave good yield. The results and benefits of the groundwater recharge measures will be experienced during the monsoon season starting from June 2023.



4.2. Sustainable Agriculture and Environmental Protection

4.2.1. Study on Chloroxylon Swietenia (Billudi) tree species in Naqarkurnool dt., Telangana

Chloroxylon Swietenia, locally known as *Billudi*, is a widely found forest tree species in Nagarkurnool district, especially in the forest fringes of the villages. Farmers have been using the wood and timber from this tree for making agricultural implements, such as, ploughs, *gorru* and *guntaka*. Also, village people widely use the wooden poles for making the roofs of their houses and cattle sheds. Given the importance of this tree species in the rural economic of this area, a brief study was done on various societal, pharmacological and other applications of the products from *Billudi* tree.

Vast number of published papers and reports were collected for this purpose. Visits were made to the revenue forest areas close to Achampet area and discussions were held with farmers, forest department staff, Gram Panchayat elected representatives, mandal parishad development officers and villagers.



This brief field study gave the following major insights:

- The tree species is widely used in house roofs, parts of bullock carts, making agricultural implements as well as poles for making traditional trellis structures in agriculture, as it has unmatched strength and durability. The leaves are also useful as fodder to small ruminants.

- The population of the tree species is dwindling in the neighbouring revenue and reserve forest areas. Forest department restricts its cutting from the reserve forest areas.
- Farmers cut the matured trees from the nearby revenue forest areas and government waste lands to use the *Billudi* wood for their agricultural implements and housing needs. However, there is no commercial cutting and selling in outside markets by local people.
- The multiplication of the species is mostly by natural means, such as, from the droppings of seed from the trees. The species is not currently part of the *Haritha Haram* (tree plantation) program of the Govt. of Telangana due to unavailability of seed or seedlings.
- The bark and leaves of *Billudi* were reported to have medicinal value and are effective as mosquito repellents, in curing cuts and skin injuries. The leaf extract is reported to be useful against headaches and the bark is useful in treatment of diabetes mellitus. There are also medicinal applications of the bark and leaf extracts in treating animal skin infestations, wounds and intestinal infections.

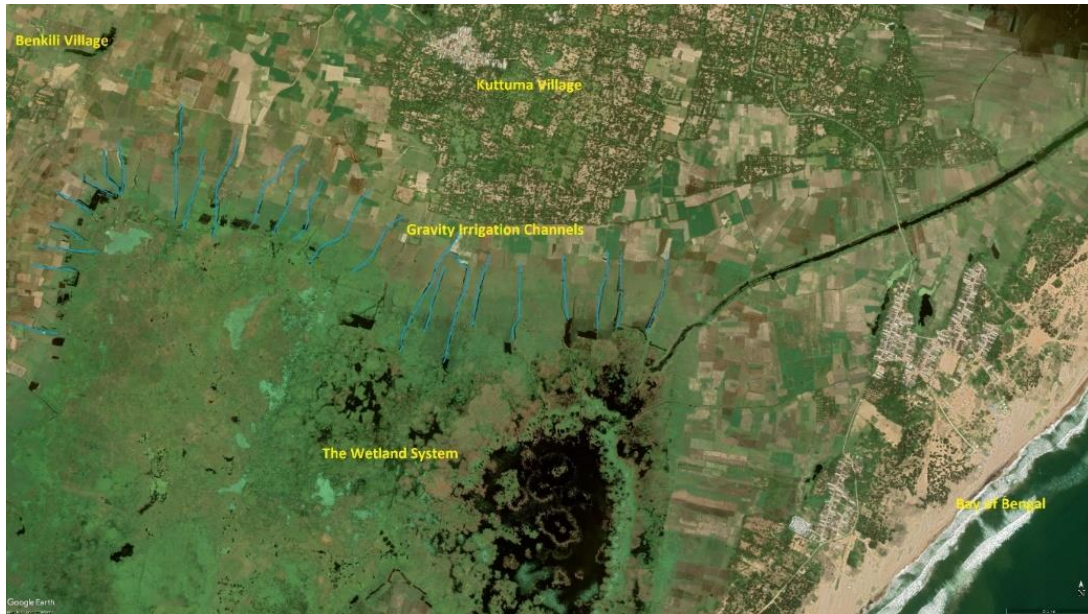
Based on these findings, it is planned that more detailed study of its use in traditional herbal medicine practices among local tribes maybe taken up in future. Also, possibility of promoting this species for bund plantation by farmers may be explored.

4.2.2. Study on traditional irrigation system from a wetland (Beela-Batti) in Srikakulam dt., AP

The wetland ecosystems are characteristic of coastal areas. While some wetland systems are freshwater systems for most part of the year, while other are saline/brakish due to the geographical and topographical settings. The wetland system in Kanchili and Sompeta mandals, Srikakulam district is spread over a large area of more than 1000 acres close to the Bay of Bengal. The fresh water run-off from the main land flows towards the Bay of Bengal through this wetland.

Over a period of time, the wetland accumulated vast amount of fertile silt carried by the flowing water from the main land. Also, there exists a traditional irrigation practice in the area – gravity and lift irrigation channels (locally called *Beela-Batti*) from the wetland. There are number of such irrigation channels made by farmers as a traditional practice. These channels are owned and maintained by groups of farmers and there is no government intervention in these systems. Paddy and vegetables are cultivated in the agriculture lands using this channel water for one or two seasons depending on the water availability.

This wetland is a gold-mine of crop nutrients. Desilting, transportation and application of silt from this wetland during the summer months (Mar-June) is a traditional activity for the farmers in this area. The fertile silt from this system is a natural source of nutrients to the crops that increases the productivity of their crops and the coconut trees. Of late, the traditional irrigation channels from this wetland got silted up, despite the periodic efforts by farmers cooperatives in their upkeep. More detailed interactions with the farmers in the area are planned during coming months.



The Wetland Ecosystem and the Irrigation Channel (from Google Earth Pro imagery)

<p>Silt removal from the wetland</p>	<p>Silt carried for application in agricultural lands</p>	<p>The gravity channel (<i>batti</i>) requiring maintenance</p>

4.3. Urban flood mitigation and groundwater recharge in Trichy, Tamil Nadu

ICLEI, New Delhi, in association with the Trichy Municipal Corporation (TMC), has planned a hydrological study for flood mitigation and groundwater recharge in Trichy municipal corporation area, which includes both Trichy and Srirangam towns. Enviraj Consulting, a technical consultancy company, was engaged by ICLEI for this purpose. The project was started in Dec 2022 and is expected to continue till the end of 2023. Mr. Ramamohan from WLF has been providing technical support to this hydrological study and contributed in design of few pilot projects in Trichy town.

4.4. Field study on electricity metering pilot project in Srikakulam dt., AP

Prayas Energy Group (PEG), Pune carried out a field study on the pilot metering of agricultural pump-sets in Srikakulam district, implemented by the Eastern Power Distribution Company of Andhra Pradesh (APEPDCL) during July-Nov 2022. Based on PEG's request, WLF interacted with around 15 farmers who got the electricity meters installed to their pump-sets in Sompeta and Kanchili mandals and provided the insights to PEG. Compiling their field observations at few sites, inputs from WLF and interactions with officials at different levels, PEG gave their feedback report to GoAP. The feedback from this study is expected to help the GoAP to draw lessons from the pilot project in Srikakulam dt. and to develop strategies for scaling it up across the State.

4.5. Training and capacity building initiatives

Offering capacity building inputs to professionals, researchers and NGO staff is one of the major objectives of WLF. Every year, WLF designs and offers few such inputs by taking the sectoral needs and requirements into consideration. It designs training events choosing innovative and latest topics. Also, WLF staff provided inputs to the participants, when other organizations invited them as expert resource persons in their training events. Following is a list of all the capacity building engagements by WLF staff during 2022-23:

Sl.	Topic	Duration	Mode & Venue	No. of participants
1.	Training on Volumetric Water Benefit Accounting (VWBA) in CSR projects	24-26 Aug 2022	Online	17
2.	Training inputs on impact measurement of water management projects for National Agro Foundation (NAF), Chennai	19 Oct 2022	Online (Participants met in physical mode at Mysore, Karnataka)	45
3.	Training inputs to Directors and CEOs of FPOs	17 Oct 2022	Physical	98
4.	Training on EPANET and design of gravity pipe irrigation systems for Engineers	6-15 Mar 2023	On-site, Thimphu (Bhutan)	31

4.5.1. Training on VWBA

Volumetric Water Benefit Accounting (VWBA) is a framework for measuring the results (outputs, outcomes and impacts) of water conservation and management interventions, which was developed by World Resources Institute, Washington DC, USA. Recently, many corporates have been insisting on measuring the 'water benefits' of their CSR projects given to NGOs in India. In this context, WLF organized a training program for the benefit of NGOs implementing such CSR projects on VWBA. Apart from NGO staff, few research scholars, engineers as well as Corporate Staff participated in this event.

4.5.2. Training Inputs on Impact Assessment of Water Projects for NAF, Chennai

National Agro Foundation (NAF) is a reputed NGO based in Chennai, founded by Dr. C. Subramaniam. NAF organized a training event for their staff, who are working at different project sites in Tamil Nadu, Andhra Pradesh and Karnataka, at Mysuru during Oct 2022.

NAF invited Mr. Ramamohan to provide inputs on the impact monitoring in water conservation projects implemented with support from various CSR funding agencies. Mr. Ramamohan joined the participant group in on-line mode on 16 Oct 2022 and discussed about various quantitative and qualitative methods of monitoring and recording the results from water conservation projects.

4.5.3. Training inputs to Directors and CEOs of FPOs on Financial Management

Mr. Shankaraiah attended a training organized by DHAN Foundation as resource person on 17 Oct 2022 at St. Anns Generalate, Tarnaka, Hyderabad. The training was on the topic 'Legal

compliances and Roles and responsibilities of Directors and CEOs of FPOs'. 98 participants attended the training from 36 Farmers producers' companies. The participants include NGO staff, FPO CEOs, FPO Directors and members from both Telangana and Andhra Pradesh States.

The training mainly focused on the following aspects:

- Financial management and importance of audit for FPOs
- Role of Directors and CEOs in financial management
- Dos & Don'ts in the Companies Act for the FPO Directors



4.5.4. Training on EPANET Applications in Design of Irrigation systems in Bhutan

Athang Training Academy based in Thimphu, Bhutan is an agency that conducts various skill trainings for youth in Bhutan. Athang organized a training course on use of EPANET for design of gravity pipe irrigation systems for the Agriculture and Irrigation Department of Bhutan during 6-15 Mar 2023.

Graduate and Post-graduate water resources engineers from the Agriculture and Irrigation Department are the participants for this training course. Mr. Ramamohan from WLF was invited to be the resource person for this 10-day long training course organized on-site at Thimphu, Bhutan. Apart from classroom lessons, hands-on practice sessions as well as field visits were organized during the course of training.

Earlier, the designs for irrigation schemes were done in Ms-Excel based worksheets by the participants. By the end of this training, the participants became not only familiar with different features of EPANET but also could analyze and design simpler irrigation networks.



Classroom training in progress



Certificate Presentation to participants



Field visit to a solar pumping scheme

4.6. Publications, Workshops and Dissemination

The study and publication done on ‘Vegetable Cultivation on Trellis Structures: Diverse Traditional Practices in India’ during 2021 was widely disseminated among various NGOs, development workers as well as donor organizations.

A regional conference on ‘Climatizing sustainable development in South Asia’ was organized during 25-27 Sep 2022 by CCDB, Bangladesh in collaboration with BfdW, Germany. The conference was organized at the Climate Centre built by CCDB in Ghazipur, Bangladesh. The conference was participated by around 60 participants from Bangladesh and other Asian countries, including Government departments, NGOs and individual professionals. Discussions and exchange of ideas took place in this conference, mostly related to the national climate change policies of different Asian countries and sharing of grass-roots experiences of combating climate change impacts on the poor. Mr. Ramamohan participated in the conference and contributed to the deliberations. A poster was developed on the experiences of WLF, particularly on combating climate change, and shared with participants at CCDB workshop.

 <p>Water and Livelihoods Foundation (WLF) Vision: Water and Livelihoods Security for All</p> <ul style="list-style-type: none"> ◆ A Public Trust started in June 2016 ◆ Located in Hyderabad, India. Working in several States of India ◆ Started in response to the severe droughts and water crisis in the country during 2013-2015 <p>Focus Areas</p> <ul style="list-style-type: none"> ◆ Rural water, energy, agriculture and sustainable livelihoods ◆ Urban water management, flood mitigation and groundwater conservation <p>Strategic Areas</p> <ul style="list-style-type: none"> ◆ Grass-roots innovations ◆ Capacity building ◆ Research, documentation and dissemination <p>Combating Climate Change</p> <ul style="list-style-type: none"> ◆ Optimizing water and agricultural productivity ◆ Electricity safety and efficiency in agriculture ◆ Hydrological studies, flood mitigation and groundwater quality improvement ◆ Climate studies, human rights integration and policy advocacy <p>Innovations Patented :</p> <ul style="list-style-type: none"> ◆ Method of assessing recharge capacity of defunct bore wells (2021) ◆ A helical flow drip emitter against physical and chemical clogging (2022)    <p>Water and Livelihoods Foundation (WLF) 12-13-451, Street no.1, Tarnaka, Secunderabad 500017, Telangana, India Website: www.wlfoundation.in E-mail: wlfoundation@outlook.com, Ph: +91 40 27014467</p>	 
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Further, a field visit to the Sundarbans area in Bangladesh where CCDB has been implementing a climate action project was done during 28-30 Sep 2022.

The participation in this regional conference gave useful insights into the national climate action plans of different Asian countries, such as Bangladesh, Nepal, Indonesia, Sri Lanka, Vietnam and India, and grass-roots work done by different stakeholders. Also, exposure to the Sundarbans area in the extreme southern part of Bangladesh provided first-hand information about the rise of sea levels and consequent affects on the life of village communities in that area. Participation in this event also gave the opportunity to WLF to showcase its climate change mitigation and adaptation actions in its operational areas as well as relate with different organizations in Asia.

5. Future Plans

In an effort to collaborate with Government Departments and Organizations in magnifying the impacts of WLF work, a project proposal was submitted to the Science for Equity, Empowerment and Development (SEED) division, Department of Science and Technology, GoI. The proposal is under process and it is expected that this collaboration will materialize in the year 2023. The proposal involves implementation of groundwater recharge and efficient water use initiatives in Achampet mandal, Nagarkurnool district, Telangana.

With the inspiration and encouragement received from the training course organized for the Engineers of Bhutan Government, WLF will strive to organize more on-site tailor-made training courses in the coming years, apart from its regular on-line training events.

The field research studies on *Billudi* tree species and *Beela-Batti* wetland eco-system will be continued to gain deeper understanding of local ecological, social, economic and livelihoods implications of them. Brief articles and publications may also be developed on the findings from these studies. Further, few action initiatives, such as promotion of *Billudi* as an agro-forestry plantation on the bunds in farmlands in Nagarkurnool district, Telangana and revival of irrigation channels (*Battis*) of the wetland system in Srikakulam district in Andhra Pradesh may also be planned, translating the research into action.

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