

Development

July 2017

Monthly Development update from DHAN Collective

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NABARD honours DHAN Foundation



Human civilization flourished in river basins due to availability of fertile lands for farming. Urbanization and industrialisation have alienated people from the rivers, which resulted in mismanagement of river-ecosystem. In many countries, smaller or bigger, the rivers are in precarious state due to pollution, encroachment, indiscriminate exploitation of sand, displacement of aquatic animals and plants. Reconnecting the human beings with the river-ecosystem is the need of the hour to protect further deterioration.

Tamil Nadu River Week organised by DHAN Foundation at Madurai was one such initiative aimed at bringing all the stakeholders together to dialogue on the current status, challenges and opportunities for restoring river eco-systems in Tamil Nadu. Experts, technocrats, agriculturists, and student communities actively participated in this two-day event. The outcome was promising and sown seeds of hope to rejuvenate the river ecosystem.



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From the Editors' Desk

Dear Readers,

Greetings from DHAN Foundation.

Cover article in this issue highlights the honour bestowed on DHAN Foundation as recognition for its contributions in 25 years of SHG-Bank Linkage Movement spearheaded by NABARD in India. It was organised as part of 36th Foundation Day of the Bank in New Delhi. The article on urban water bodies narrates how the water bodies get ignored and the impact of such neglects on human living. Mallapur development experience shows how sustained development intervention could transform a village in multiple spheres. The article on nutritional security through kitchen garden shares the Chilume Mahila Kalanjiam's success story, which is worth emulating. There are articles showcasing stories from the field, such as communities-led Swachh Bharath, a development worker's field notes, a study on addressing the gaps in disaster management.

The readers are welcome to give their suggestions and feedbacks on the articles featured in the development matters. They can send their mails to dhancdc@dhan.org

Happy reading!

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From Wrong Turn to U-Turn

Elamuhil S*

“Evolution of knowledge is towards simplicity not complexity” – L. Ron Hubbard.

Gigantic temples and numerous water harvesting structures spread all over Tamil Nadu stand testimony to the immense scientific wisdom of our forefathers. They are the surviving marvels and time tested monuments of our land. After all, technology is meant for bettering our lives.

Madurai, popularly known as the city of temples is rich in spiritual and historical heritage. It is the third largest city in Tamil Nadu and one of the living heritages of India. The agrarian civilisation was established on the banks of river Vaigai, which was a non-perennial river even in the age of ‘Sangam’. The agrarian community for its sustained survival; based on its observation and wisdom, developed a technology to conserve water during monsoon showers. It is called as **‘the tank technology’**. Madurai City holds about 96 irrigation tanks. The tanks were well-connected as cascades and fed by 13 major channels. Some of the tanks are few hundred years old and most of the tanks have crossed half a millennium of their existence.

Madurai is an administrative and agricultural centre having a large floating population. Its high market base catalysed its urbanisation through its services. Urbanisation attracted rural communities with a wide scope for employment. Better employment elevated the standard of living which further attracted the rural communities towards Madurai. Madurai City was also known as **‘Kadambavanam’** (Forest with Kadambam Trees), and called with pride as **‘Thoonga Nagaram’** (City that never sleeps).

Immigrants landed at Madurai responding to both push and pull factors. Slums on the banks of rivers Vaigai and Gridhumal and irrigation channels were mostly

populated with the ‘rural push’ inhabitants. In the process of centralisation, the administrative system, settlements along with other public and private services were established. Lands that were once cultivated transformed into concrete masses.

“Anna! Where is Anupanadi Chinna Kanmai (small tank)?”

With a smile he replies “Thambi! We both are standing on the tank and talking about the Kanmai”.

‘Annupanadi Small Tank’ is one of the 15 irrigation tanks that is completely encroached by the rapidly growing urban system. The Tamil Nadu Housing Board has encroached both **‘Annupanadi Big Tank’** and **‘Avaniyapuram Tank’** to the maximum extent.

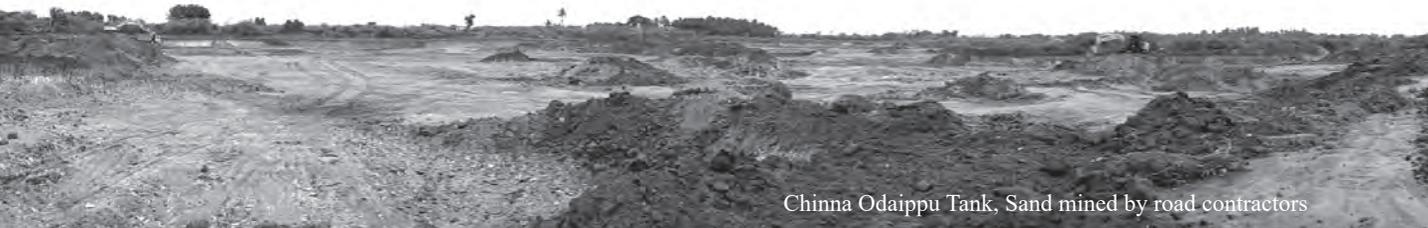
A sign board in ‘Avaniyapuram Tank’ says: “This is a property of The Tamil Nadu Housing Board. Encroachers will be penalised.” It shows how the tank once a common property had become part of the public system. Similarly, 34 irrigation tanks have been partially encroached by different urban systems, both public and private.

“ This article describes the apathy of urban communities towards upkeep of water resources. It also echoes the global scenario. It lays emphasis on the understanding of ‘indigenous technology’ to derive its relevance to the present and future.”



Sewage flowing to irrigation tank

* Mr. Elamuhil S, Project Executive in charge of Centre for Urban Water Resources (CURE)



Chinna Odaippu Tank, Sand mined by road contractors

Encroachments along the river banks have reduced the width of the rivers and channels. This aggravated the risk of the banks becoming a flood-prone zone both in terms of spatial extent and intensity of disaster. In 2010, to prevent encroachment of channels and to avoid flood risks, irrigation channels were RCC (reinforced cement concrete) lined under JnNURM project.

Centralised urban system demands a centralised water supply and sanitation system. The Vaigai reservoir and integrated drinking water project play a vital role in the corporation's water supply for Madurai city. Water from the Vaigai reservoir and river bed is pumped to ensure the corporation's water supply. Zero flow in the river due to dam construction and higher demand for sand led to heavy, unregulated and illegal 'sand mining'. The river Vaigai in its corporation limits has lost its sand bed and reeds completely.

Feeder channels having off-take points in river Vaigai were supplying river water for the chain of irrigation tanks (cascade). South flowing channels such as Nilayur, Avaniyapuram and Sottathatti channels are a few channels that feed tanks in the Kondagai and the Usilangulam cascades. Heavy sand mining in the river bed has reduced the bed level of the river, thereby reducing the river water supply to irrigation tanks. This adversely affected tank-fed agriculture in both the cascades.

Small and marginal farmers either sold their land or left it fallow while large farmers dug wells and bore wells.



Prosopis Juliflora invasion in Vannan Kulam Tank

Due to reduced dependency on ancient irrigation system, the farmers started ignoring the feeder channels and irrigation tanks. Feeder channels and irrigation tanks were heavily silted, misshapen and invaded by *Prosopis juliflora* and other weeds. '**Vannankulam**' tank is one such irrigation tanks completely invaded by *Prosopis*.

In urban fabrics, though daily per capita demand was 135 litres of water, as per Indian standards; in summer, Madurai City Corporation was able to supply only 60-70% of the demand. The rest of the demand was fulfilled by ground water alone. Since ground water pumping is not regulated, the abstraction (extraction of ground water) depends on the life style of the individual family.

The scenario in peri-urban area is also similar. Increase in bore wells and invasive spread of *Prosopis* has aggravated the fall of ground water level. It is not only an issue of quantity but also an issue that affects quality. The fall of water table might increase mineral concentration based on the geological condition, resulting in serious health issues among the consuming community. It is a concern that there is no perfect and economical filter available in the market for removing hazardous metals in the ground water and disposal of filter residue.

The dry irrigation tanks have become sand mining quarries for road contractors. Road contractors have received permission from the City Corporation to desilt specific tanks within the city limits. However, greedy contractors have excessively mined the irrigation tanks. '**Chinna Odaippu Tank**' is one of the five tanks that were excessively mined more than 2 metres below the silt level of the sluice in the name of 'desiltation'. Major portion of the runoff water will be stored in its dead storage while the live storage of the tank will be minimal or nil. The tank is no longer fit for irrigation.

The irony is that this has happened with the approval of the local community. "Since the tank was not fed with river water by the channel, our agriculture land has been left fallow for the past five years. We found sand mining



Kuthiraikuthi Tank filled with water even in this drought year

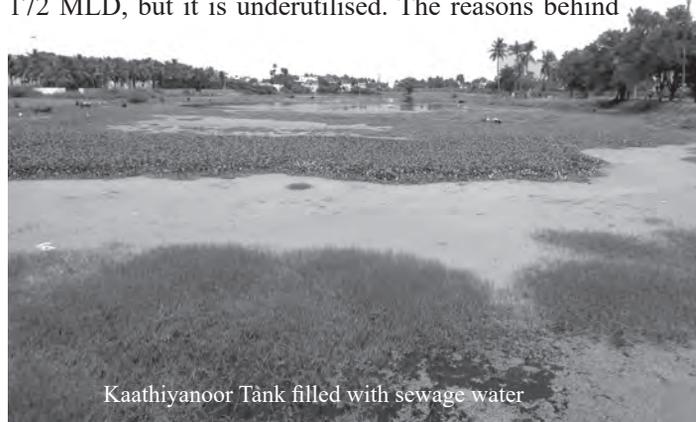
as a source of income. We have received money from the contractor for our village. That's why we allowed heavy sand mining", said one of the farmers.

However, this was not the case of farmers in **'Kuthiraikuthi'** village. Farmers of 'Kuthiraikuthi' tank stood against the contractors. "We depend on the tank for our domestic and irrigation needs. Our children play near this tank. During festival we take water in this tank and prepare 'pongal' (Traditional food) as an offering to 'Amman' (a folk goddess). This tank is the treasure of our ancestors which is guarded by 'Karuppu Sami' (Folk God). We will never allow anyone to mine sand from this tank" said one of the women involved in the protest. The villagers petitioned to the district collector, MLA and also the chief minister to establish their rights. Finally, the administration came forward to renovate the tank as expected by the villagers.

RCC lining of channels under JnURM has also impacted the urban farmers adversely. The lining has not only reduced recharge to shallow aquifers, but has also cut off the water supply to some of the irrigation tanks. The channels were deepened by a metre from their existing bed levels. This increased the difference in elevation between the bed level of the channels and that of the

feeder channel. **'Kaathiyanoor tank'** is one such tank which has lost its supply from the Sottathatti channel. Now, the feeder channel receives irrigation water only during high flow period. This shows how absence of people participation could defeat the purpose of the scheme.

The Central Pollution Control Board (CPCB) in a report to National Green Tribunal has said that 63% of the sewage in urban centres is flowing untreated into the water bodies. Madurai on average generates 97.93 million litres sewage per day (MLD), out of which only 26 MLD is treated and disposed. The combined capacity of the two sewage treatment plants (STPs) is 172 MLD, but it is underutilised. The reasons behind



Kaathiyanoor Tank filled with sewage water



Water weed infested Sewage fed Sinthamani Tank

underutilisation of the STPs are the poorly connected underground drainage (UGD) system, direct disposal of sewage and leakage of drainage pipes. **‘Sinthamani Tank’** is one of the 13 tanks that are fed by untreated sewage water.

Sewage entering the tank system infests the whole chain of tanks in the downstream. Since there is no fresh water supply to the tanks, people use this untreated sewage water for agriculture. Research findings by Madurai Kamaraj University showed presence of heavy metals that exceeds the desirable limit in agricultural produce from this area.

Farmers of ‘Sinthaamani and Thuliyappatti tanks face a unique issue. Purple headed swamp hen, one of the birds that come under wild life conservation is scissoring

the entire transplanted paddy nurseries in the sewage irrigated command area. The farmers use ‘saree fence’ and watchmen creating noises by striking plastic bottles as protective measures. The hen is found particularly in this area. Due to this reason, farmers are losing 20% to 30% of their profit.

Sewage contamination has created stress over access to drinking water and the market is making a profit out of it. There are more than 50 ‘packaged drinking water’ companies at Kochadai along the river bank of Vaigai. There is no regulation over quantity of abstraction and quality of water supplied. On average, a family is spending minimum of Rs. 300 per month on drinking water alone. In drought years, farmers in Madurai have been purchasing water for irrigating ‘Malli farm’ and for the survival of livestock. The community which does not



Purple headed swamp hen, playing havoc in farmlands



Sample of paddy nursery scissored by Purple head swamp hen

have purchasing power is accessing contaminated water compromising hygiene.

Though we deliberate much on urban water bodies in Madurai City, it resembles the scenario in other global cities where equilibrium of the ecosystem has almost lost its ground. The urban community thinks that tanks have lost their purpose in a centralised system. A study carried out by DHAN Foundation in collaboration with Bhabha Atomic Research Center (BARC) reveals that 80-90% recharge of shallow aquifers could be met through renovated irrigation tanks. This proves that the statement 'tanks have lost their purpose' is a mirage. Renovation of existing tanks and converting them into percolation tanks would improve both quality and quantity of the groundwater.

It is the need of the hour to understand the relevance of water bodies in present and future – a community perspective. It is time to redesign, restructure, restore and rejuvenate the existing water bodies in the city involving a multiple stakeholder approach. Academicians should come forward to conduct studies to help identifying tanks that can be converted into percolation tanks, demarcate encroachments in tanks, and redesign irrigation tanks for their existing command area.

It is important to restore feeder channels and sand mined irrigation tanks based on their current relevance. Roof water harvesting and utilising the same for drinking at individual households, feeding temple tanks using effective storm water harvesting and conveyance system are also some of the strategies that can be studied and implemented.

Urban sanitation demands 100% UGD coverage and linking individual households to the system. This will allow maximum utilisation of existing STPs. The water treated by STPs should be monitored regularly as per irrigation standards. Regular check on heavy metal accumulation in food produces is mandatory. It is also important to identify spots where decentralised systems such as DEWATS, reed bed system, bios wales, etc. can be implemented.

Researchers accept that 100% recycling is not possible and there is always a residue as a result of recycling

which is highly toxic and not disposable. Recycling process also demands notable energy, human resources and conviction.

Management does not consist of barring a community from access to the resource in order to meet the demands of another and imposing the waste generated on another community. It is about effective distribution of resources based on science and virtue. The essence of management strategy is choosing what to do and what not to do. It is not only the duty of public system, but also the responsibility of a democratic citizen.

The water scenario at Madurai is a miniature of the global scenario of resource management. European and American countries that are extracting natural resources from Gulf countries are imposing their e-waste in African countries such as Zambia and Somalia. This is the global scenario where the equilibrium of ecosystem has almost lost its ground, where capitalism and globalisation are slowly losing ground.

The irony is that the solution for this global as well as local issue was also developed before half a century in the same Madurai City. J.C.Kumarappa, E.F.Schumacher and Ivan Illich, economists who stayed in Madurai, provided structure to the Gandhian economics. Their economics revolve around a common point of 'responsible and self-regulated consumerism' which is just opposite to the human history of consumption, which is a tribal way of consuming resources. Human history shows that the human being always has the tendency to own as much as resources he can. However, it is time for a U-turn; a U-turn from centralisation to decentralisation; a U-turn from over consumption to responsible consumption. □



Paddy cultivation in command area of Sindhamani Tank using sewage water

Transformation of Mallapur into “A Model Village”

Rathod Neelesh*

Mallapur village is situated nine kilometres away from Indervelly mandal, the headquarters of Adilabad district. Mallapur is a hamlet of Tejapur Gram Panchayat and a part of Dharmasagar watershed. The Dharmasagar watershed consists of five hamlets and covers 890 ha of Watershed area. The Mallapur village has 89 households comprising a population of 600 people.

The community consists of tribal gonds and except two families (land less) all other families have land holding of 1 to 3 ha.

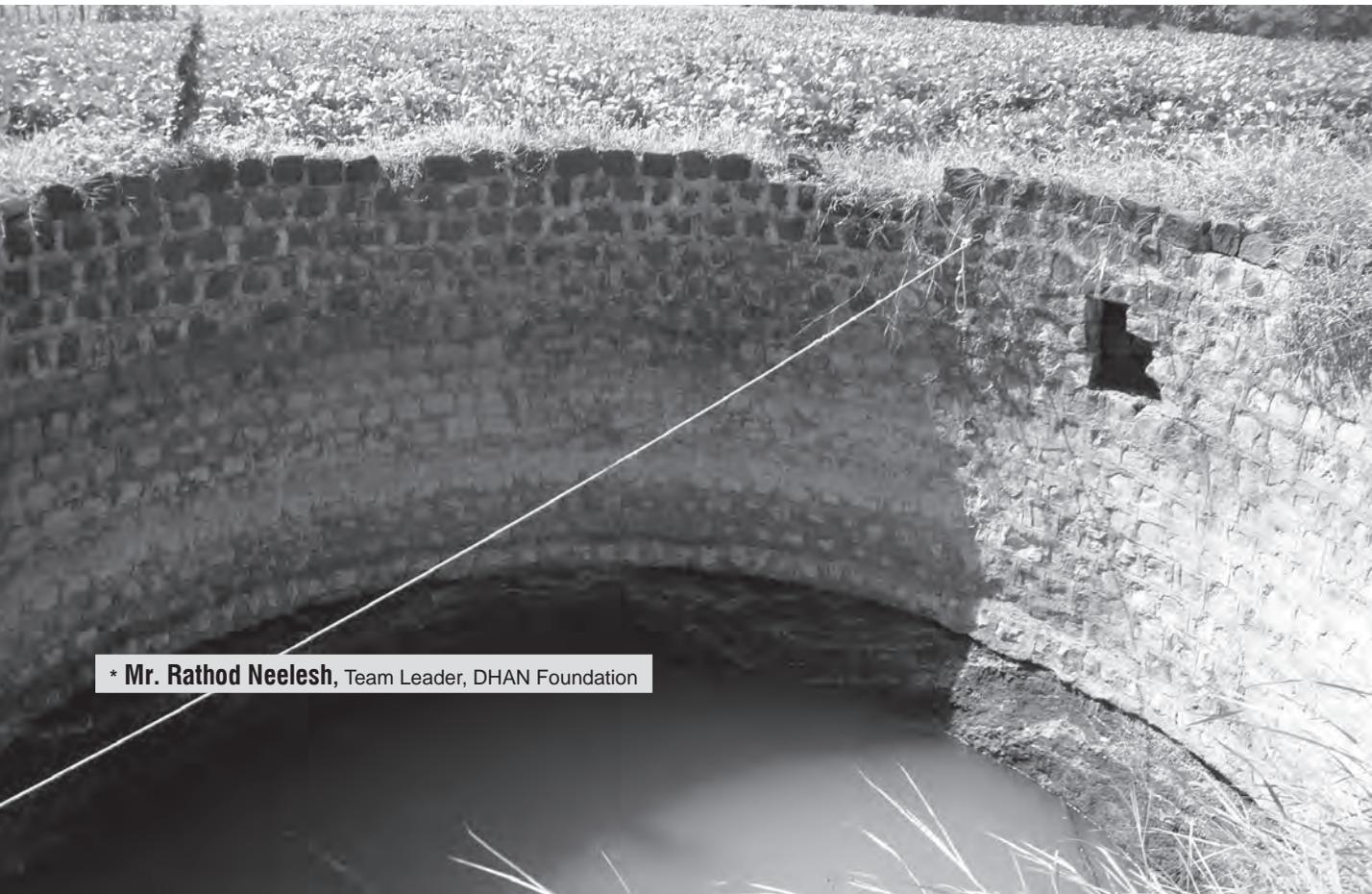
When we started our programme in 2000, the tribal families were 100% dependent on money lenders. Most of the families indulged in consumption of alcohol. They depended on rain-fed farming and they cultivated cotton as a mono crop during kharif. There was heavy soil erosion and no water conservation structures in the village. In their

households, there were no toilets and many houses had no proper electricity supply. Community assets such as overhead tank, community hall and other government infrastructure were underutilised or in defunct state. There was no proper education and the support for girls' higher education was nil.

“Mallapur experience of DHAN showcases how continued engagement with communities could help overcome development challenges. The continued engagement had resulted in a sustained overall development widely visible across all spheres.”

There was total lack of awareness about agricultural inputs and marketing of their agricultural produces. As there was no water in summer for domestic use and drinking purpose, people struggled a lot and there was high migration. Families were solely dependent on fire wood for cooking. There was no insurance coverage and no individual interest to progress economically. Child deliveries at home and lack of health awareness was common. Due to their poor economic situation, they could not celebrate traditional festivals and marriages.

* Mr. Rathod Neelesh, Team Leader, DHAN Foundation





DHAN Foundation's intervention in the village commenced in 2000 through the promotion of self-help groups (SHGs) and subsequent bank linkages. In 2007, revival of tanks was initiated with financial assistance of NOVIB, North India. In 2008, IGWDP Watershed Programme was initiated in the village. In order to address the above mentioned issues, household survey, preparation of resource mapping, social mapping, and SHG-level discussion were done to identify the beneficiaries and evolve ways to address major issues in the village. Discussions with farmers helped to identify their farming issues.

Soil and water conservation works under NABARD's IGWDP (Indo German Watershed Development Program) aided to complete land treatment using the ridge to valley approach. Under land treatment activities such as earthen bunding with stone outlets, chain of farm ponds, drainage line treatment (stone gully plugs) with sunken pits and stone bunding were created.



The value of work done was Rs.10 lakhs, including people's contribution of 20%. After the completion of land treatment, the ground water level increased in the existing open wells, farm ponds and thus increased soil moisture. Now, every farmer is cultivating rabi also. The individual yield has increased by 45% for cotton and other crops.

Plantation: Mass level plantation and protection of existing plants were focused upon in Mallapur village. Tree saplings of teak, sweet orange, guava and bamboo were raised. Now, in the village, they have 50 sweet orange plants, 40 guava plants, 3,500 seethafal plants and bamboo in 5 acres and teak plants in 20 acres. Those farmers have started getting yield from sweet orange, seethafal and guava and generated additional income of Rs. 20,000 per year.

Livelihood support: Seven landless and small farm families received support for sustaining their livelihood from the revolving fund of the village watershed committee. They started activities such as tailoring, petti shop and livestock development worth Rs. 2,00,000. These families earn Rs. 3,000-4,000 per month through these activities.

Community Shramadan: Realising the need to keep common assets accessible, they started doing volunteer shramadan in 2008. Since then, they organised shramadan as and when needed on the first of every month. Thus, they have renovated a community hall, revived water tank and open well, cleaned the drainage, revived irrigation tank, repaired electrical line, developed village common place for common meeting and culture programme and dug pits for plantation. This community voluntary-ship is still being practised.

Financial linkage: The community got access to financial linkages through their SHGs since 2002. However, in 2008, farmers were facilitated to avail crop loans from the Telangana Grameena Bank (TGB), Indervelly. Gradually, over the years, they started getting crop loans. Now, that all the eligible farmers have availed crop loan linkages ranging from Rs. 30,000 to 1 lakh, the farmers have received loans of Rs. 55 lakhs as of 2017. This apart, all the six SHGs have also got linked with the bank for Rs.27 lakhs. Thus, the total loan amount released by the bank for the village is Rs. 82 lakhs.

Agriculture intervention

- With financial support from NABARD, this village was sanctioned Rs 4.55 lakhs for Farm Yard Manure (FYM) application. Through this intervention, all the 82 farmers applied 146 tractors of FYM in their fields. The farmers on having realised the advantage of applying FYM continue the practice of applying FYM in their fields.
- To ensure quality inputs (seeds and fertiliser), bulk purchase was introduced in 2014. Totally, 650 kilograms (500 kg of cotton seeds, 150 kg of red gram, green gram, black gram and soya seeds) of seeds for Rs. 15 lakhs were purchased and supplied in 2016. This effort has given them a savings of 20% on the input cost.
- 12 Farm ponds were dug-out to adopt vegetable cultivation.
- Change of crop pattern from mono crop to mixed crop to multiple crops such as pulses, millets, plantations and traditional crops has started showing wonderful results.
- Fish rearing was introduced in 2005 in the tank with support from the Fisheries department, NFDB and



KVK. 6,000 fingerlings are being deployed every alternate year and they are getting good yield every year. On average, they cultivate 1 ton every year. The harvested fishes are predominantly used for own consumption and a part of it is being marketed.

- To encourage water management technology adaptation, sprinklers were provided to 13 famers in collaboration with the agriculture department. Farmers started using sprinklers for cotton during kharif, thereby making crop sustainability certain and having an increased yield of 20-30%. Most of the farmers also opt for tomato as second crop.

Enriching Social Values

On witnessing the positive trends in their lives, in 2008, the farmers evolved social norms in accordance with the village needs. They evolved norms such as ban on alcohol, tobacco consumption and cutting trees. They have been practising this norm voluntarily. There were very few deviations since then. The youth in the village formed a youth association in 2009. This association has been taking up the responsibility of event management in family functions and festive celebrations voluntarily.

During the last panchayat election, this village facilitated the panchayat leader to be selected unanimously. Thus, they obtained Rs.7 lakhs as financial incentive from the district administration. .

Development of infrastructure development

- Laid down 60 metres of concrete road through Gram Panchayat for Rs.1.5 lakhs from the funds of financial incentive received for the unanimous selection of panchayat leaders
- Constructed 30 toilets out of the 89 households by incorporating NEREGA, remaining households were in the process of constructing toilets
- Revival of the village irrigation tank with ITDA (Integrated Tribal Development Agency) and desilting of tank under Kakatiya mission of Telangana government has guaranteed water for common needs.

Other intervention: Seventy gas cylinders were supplied to women members of the SHG with support from HP gas agency in collaboration with ITDA subsidy.



Solar village: Eighty-two families have installed solar lights (two LED bulbs, a fan and a cell phone charger point) with support from IGWDP contribution and through linkages with bank loan. The unit cost of the initiative is Rs. 16,750/- for each household; 30% (5,025) of the cost was met by the IGWDP and balance of Rs. 11,725 was mobilised from bank loan with 40% (6,700) subsidy from NABARD.

Social security village: All families are covered under the Prime Minister insurance scheme (100%) and every member has a bank account. All the families were enrolled in the Pradhan Mantri Suraksha Bima Yojana (PMSBJY), Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and the Aam Aadmi Bima Yojana (AABY). Last year, two families received claim settlement against the death of the insured family member.

Major impact

The consistent works of DHAN has helped the village to address some of their development issues that stood unresolved for a long time. This village has become a model for other neighbouring villages. The development initiative has improved every farmer's family economically and ensured their child's education. Now that there is improved awareness on adopting agriculture technologies, health care and construction of pucca houses with toilets. there is no outward migration in this village.

Year-wise interventions

- 2008 - Soil and water conservation and revival of irrigation tank
- 2009 - Financial inclusion and building traditional among the tribal community and social norms
- 2010 - Financial linkages with banks and collective marketing
- 2011 - Agriculture technology adaptation and multiple crop cultivation
- 2012 - Education and health focused
- 2013 - Sanitation and promotion of solar village
- 2014 - Sanitation and agriculture inputs
- 2015 - Social security
- 2016 - Value addition of produces and promoting producer organisations
- 2017 - Sanitation and building people institutions.

Acknowledgement

We acknowledge NOVIB & NABARD for their support in this initiative. We would like to hail the contributions of Mr. Athram Bheemrao, President of Rajul Vayalagam, Mr. P. Anandrao, Ex Sarpanch of Tejapur GP and Vayalagam member, Mr. Bapurao, Mr. D. Raju, Mr. G. Haridash, Members of Vayalagam, Mr. Joseph, Mr. Jagadeesh, Associate of Indervelly, Mr. Kamalakar, M. Program Associate of Indervelly, and Mr. Layaque Ali, Project Executive, Indervelly in their efforts to engage the community of Mallpur. □

Tamil Nadu River Week – 2017

Coming together to revive the lifelines (Rivers)

Gurunathan A & Praveen Kumar S*

“By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes”.

- ‘Transforming our worlds: the 2030 agenda for Sustainable Development’, UN General Assembly, 2015 (one of 169 targets)

Rivers are an important source of fresh water and considered as the lifeline of any nation. India is blessed with numerous river systems, both perennial and non-perennial. The water from the river systems is used for drinking, irrigation, transportation, electricity, and fisheries. From ancient times, civilisations have prospered on the banks of rivers across the world. The health and ecology of the rivers are pertinent to a country’s economic growth and food security. WWAP (World Water Assessment Programme, UNESCO) states that “More than 80% of sewage in developing countries is discharged untreated, polluting rivers, lakes and coastal areas.” India is also following the same pattern, thereby polluting India’s precious water resources, especially the rivers.

Tamil Nadu has 17 major and minor rivers and most of them are heavily disintegrated. A few of the rivers are west flowing, but the majority are east flowing originating in the Western Ghats, the most important being the river Cauvery and its tributaries (Bhavani, Noyyal, Amaravathi, and Kodaganar), Vaigai, Gundar, Vaippar, Thamaraparani, Palar, etc. Various factors such as encroachments, dumping of solid wastes, bio medical wastes, letting of untreated sewage water, sand mining and damming of rivers and its tributaries, etc. have degraded and upset the whole ecology of the rivers in Tamil Nadu.

With a view to raising debates and awareness about the importance of rejuvenating rivers, India River Week was first organised in 2014 in New Delhi by a consortium of institutions comprising WWF-India, SANDRP, Toxics Link, INTACH, and PEACE Institute. Its second meeting was held in 2016 in New Delhi. After seeing the tremendous success of this initiative, it was decided to conduct the Tamil Nadu River Week on the same the theme. DHAN Foundation, Madurai intends to undertake this initiative jointly with few potential consortium partners. The foundation which has experience on the theme owing to their earlier meritorious works hereby announced the first Tamil Nadu River Week 2017 at Madurai on 27-28 June 2017 on the following broader theme namely.

‘River as Ecosystem’

Scope, Challenges, and Pathways to Restore River Ecosystems

The Tamil Nadu River Week, the first of its kind, was organised at the Tata-Dhan Academy, T. Malaipatti village near Vikramangalam during 4-5 July 2017 with the objective of assessing the current status and extent of damages in the rivers of Tamil Nadu. The main objective



* **Mr. Gurunathan A**, Director, Tata-Dhan Academy & **Mr. Praveen Kumar S**, Project Executive, Water Knowledge Centre

of the Tamil Nadu River Week is to open a multi-stakeholder dialogue about Tamil Nadu rivers, its status, challenges, and pathways to restore river as ecosystems. Different experts, technocrats, agriculturists, and student communities actively participated in this two-day event.

A. Gurunathan, Director, Tata Dhan Academy (TDA) welcomed the guests, farmers, students, practitioners and various other experts who eagerly participated in the event. He told the audience that the Water Knowledge Centre convenes this event to open a multi-stakeholder dialogue for assessing the current status and extent of damages in the rivers of Tamil Nadu and determine the indicators for defining a healthy river ecosystem.

M. P. Vasimalai, Executive Director, DHAN Foundation delivered a Special Address. Rivers and people are interconnected in various aspects. He shared that DHAN Foundation has been working for the last 25 years in the water sector. In the initial years, the approach involved renovation of individual tanks; over the period it has enhanced into renovation of a chain of tanks and then it has focused on sub-basin level. Now, the foundation is focusing on restoration of tanks with a basin approach. He said that the present status of rivers is degrading very fast and it is high time to adopt necessary remedial steps through collective action involving all the stakeholders. These initiatives will have a greater impact and success.

Madurai District Collector, K. VeeraRaghava Rao, IAS inaugurated the event on 4 July 2017 and stressed the importance of considering the river as an ecosystem. Water scarcity is increasing day by day and it is important for all of us to protect and conserve the river ecosystems. The natural resource which has been existing for over thousand years will be gone if the present condition persists. He also shared that how he and the corporation commissioner are monitoring the status of Periyar and Vaigai water credit and the drinking water status of Madurai. He stressed the importance of individual responsibility towards environment protection. There are two types of pollution: institutional and individual. Institution pollution can be controlled by the government but curbing individual pollution demands involvement of the individuals. He requested everyone to contribute in three ways “Plant and grow more trees, Minimize



and dispose of solid waste safely including non-bio degradable wastes. Do not waste precious natural resources”. He also requested everyone to undertake joint action to protect and save our water bodies not for us but for our next generation.

Key Recommendations

After two days of deliberations, the participants had a detailed discussion and came out with the following key recommendations.

1. The growing menace of declining river health has to be seriously looked into by the government, citizens and other stakeholders. It is a collective responsibility as well as individual responsibility to protect rivers from dying.
2. The river is the lifeline of the society and hence the destruction of biodiversity and ecology of the originating sites of river should be immediately stopped.
3. Cauvery Management Board and Cauvery water regulation committee should be constituted by the Government of India immediately.
4. River basin based river management board/authority/sabai by involving farmers, women and all related government and private institutions should be constituted and proper training and awareness about the health status of the river need to be created in order to preserve the river ecosystem without further deterioration.
5. All encroachments in the flood plains of the rivers must be evicted. In the flood plains, river pollution due to discharge of liquid waste and dumping of solid waste must strictly be stopped by the joint and

coordinated work of state pollution control boards, civic bodies as well as elected representatives of respective constituencies.

6. Greening national accounts concept based studies and research should be encouraged on the rivers which are extensively damaged, namely, Chennai Rivers Palar, South Pennaiyar, Cauvery, Noyal, and Amaravathi, Vaigai, and Thamirabarani.
7. Current river status can be broadly demarcated in three colour codes such as blue for a 'Healthy' state; Pink for a 'Threatened' state and Red for a 'Sick' (compromised, critical, destroyed) state.
8. Nearly 12 broad indicators were identified to assess the health of the rivers.
9. Tanks and other water bodies in the river system should also be integrated into the revival plan of the river ecosystems.
10. Village and Panchayat level rain gauge installation and data dissemination to the farmers free of cost could indeed address uncertainties faced by the farmers.

Paper Presentation

Three lead papers and twelve technical papers were presented in the forum focusing on various rivers of Tamil Nadu, associated problems, challenges, and the way forward by various experts and academicians in the water sector.

Paper Presented in Tamil Nadu River Week, 4-5 July 2017			
S. No.	Name of the Presenter	Designation	Paper Title
1	Dr. S. Janakarajan	Professor (Retd.), MIDS and President, SaciWATERs	From bad to worse, The state of rivers in Tamil Nadu – An overview of critical issues
2			Methodology to assess the state of health of rivers
3	Dr. S. Mohan	Professor, Environmental & Water Resources Engineering, IIT Madras	Water quality monitoring of major rivers of Tamil Nadu
4	P. Balakrishnan	Research Scholar, Environmental & Water Resources Engineering, IIT Madras	Emerging contaminants and its impacts on River Ecosystems
5	Dr. B. J. Pandiyan	Director, Water Technology Centre, TNAU, Coimbatore	Amaravathi River – Supporting livelihoods and industrialists
6	V. Muthuvijayan	Former Special Chief Engineer, TN PWD	River Cauvery – Ecology & restoration
7	R. Venkatasamy	Former Superintending Engineer, TN Agri. Department	Macro level transformation of Vaigai River Basin
8	X. S. Britto Raj	Agricultural Engineer, Dindigul	Rescuing Cauvery –Need of the hour
9	Dr. S. Samuel Asir Raj	Professor, Department of Sociology, Manonmaiam Sundaranar University, Tirunelveli	Thamirabarani River
10	P. Selvan Paul Raj	Thiyagarajar College of Engineering	A study of rainfall trends and variability for Vaigai River Basin
11	R. Prakash	Regional Coordinator, DHAN Vayalagam (Tank) Foundation	Pennaiyar River Basin – Status, scope and challenges
12	S. Praveen Kumar	Project Executive, Water Knowledge Centre, Tata-Dhan Academy	Vaigai River & Madurai City – Issues and way forward
13	J. Mohan	Regional Coordinator, DHAN Vayalagam (Tank) Foundation	Engaging community for reviving water bodies in Pambar Kottakaraiar Basin
14	U. Vellaiappan	Regional Coordinator, DHAN Vayalagam (Tank) Foundation	Challenges and future for Gundar Basin development
15	B. Saral Navroji	Regional Coordinator, DHAN Vayalagam (Tank) Foundation	Challenges and future for Vaippar River

Nutritional Security through Kitchen Garden

Vasantha Kumar N K & Girisha P J*

Fruits and vegetables do not fight disease; it is their absence that causes disease.

Vegetables and Its Health Benefits

Vegetables stand as the cornerstone of a healthy diet. They supply nearly all of the vitamins and minerals required for good health. Vegetable contains fibre and a few of them, such as legumes, are great a source of plant protein. Vegetables have little or no fat, no cholesterol and are low in calories. Vegetables are nutrient dense. They have a few calories yet contain, **““** high level of nutrients and minerals.

Raw vegetables are the best source of vegetable nutrients; however, cooked vegetables contain some of their original nutrition properties. Raw vegetables are most often consumed as salads or alone. With the increase in health awareness, improvement in the various electronic appliances, vegetable consumption in other forms is becoming more common. Due to their high

nutrition content and their low levels of natural sugars, vegetables are often the main ingredients in fresh juices and green smoothies. Drinking raw fresh-pressed juice is not only a great source of nutrition, but has been used as a protocol to heal various illnesses.

Why Is It Important to Eat Vegetables?

For people to stay healthy it is very important to have a healthy diet. A healthy diet means a balanced mix of rice, pulses, vegetables, greens, fruit, etc. Vegetables play an important role in meeting the energy needs and thus protects against diseases. Vegetables are especially important for the young, and for the pregnant and nursing women. Inadequate diet during child growth and adolescence can lead to impediments in physical and mental development with lifelong consequences.

When it comes to women health, there are many ways in which balanced food intake contributes

The nutritional security efforts of Chilume Federation, Tumkur through Kitchen Garden highlights how collaborated efforts with stakeholder could ensure the objective of ensuring nutritional security for the poor. **””**



* Mr. Vasanthakumar N K, Team Leader, DHAN Foundation & Mr. Girisha P J, Project Executive, DHAN Foundation



to the well-being of a woman. The common health problem that pregnant and lactating women and children suffer from is anaemia or lack of blood and malnutrition. It is found that more than 50% of the pregnant women suffer from anaemia in the developing world. It is also found that anaemia is more prevalent in pregnant women than in normal women. This is mainly due to non-availability of essential micronutrients required to be healthy.

Eating vegetables provides rich health benefits – people who eat more vegetables and fruits are likely to have a reduced risk of chronic diseases. Vegetables provide nutrients vital for health and maintenance of the human body metabolism. Eating a diet rich in vegetables and fruits as part of an overall healthy diet may reduce the risk of heart disease, including heart attack and stroke, certain types of cancers, obesity, and Type 2 diabetes. Eating vegetables and fruits rich in potassium may lower blood pressure, and may also reduce the risk of developing kidney stones and help to decrease bone loss. Eating vegetables that are lower in calories, instead of higher-calorie food may be useful in lowering calorie intake.

Improving Nutrition through Home/Kitchen Gardening

One of the easiest ways of ensuring access to adequate macro and micronutrients is to produce and consume different kinds of vegetables from the garden. Kitchen gardening is the easiest way of growing desirable fruits and vegetables on our own piece of land. It can be grown in the empty space available in the backyard of the house or a group of women can come together, identify a commonplace or land and grow the desired vegetables, fruits, etc. This can benefit the women and community as a whole. Home-grown vegetables are organic, low cost and could be totally free from chemicals and pesticides. Kitchen garden is sometimes called backyard or home garden. These gardens have an established tradition and great potential for improving household food security and alleviating micronutrient deficiencies. Most importantly, it gives direct access to diverse nutritionally rich vegetables. It also increases the purchasing power through savings on food bills.

This is especially important in rural areas where people have limited income-earning opportunities and poor access to markets. Gardens are also becoming an

NUTRITIONAL SECURITY WITH KITCHEN GARDEN

(Case study of Roopa, Arakere village, Gowri Kalanjiam, DHAN Foundation. Tumkur)

Roopa lives in Arakere village with her husband and two children. She is a member of Gowri Kalanjiam. They live in a concrete house; half km away from her house, she owns a piece of land. This land was unkempt for a long time having many weeds, bushes and wild creepers all over.

She attended the training organised for introduction of the kitchen garden. After training Krishi Vigyan Kendra, Hirehalli supplied seeds to them through our Federation as part of Nutritional Kitchen Garden Promotion Programme (Bhu Samruddi Yojana). The entire family worked for two days and cleared the wild plants and levelled the land. They sowed the seeds of various vegetables such as Bitter Gourd, Radish, Bottle Gourd, Broad Gourd, Cluster beans, Brinjal, Green Leafy, Ridge Gourd, Pumpkin, Ladies finger, etc. Their children fetched water from a nearby hand pump and watered the plants. The kitchen garden was well looked after by the family.

The plants germinated well and had healthy growth. Within three months, they started getting vegetable yield. Without any big investment, her family was able to consume fresh vegetables worth about Rs. 1,050/- a month for over six months. Now, the family has achieved nutritional security to a greater extent. They also distributed some of the surplus vegetables to their neighbourhood families, free of cost as a goodwill gesture.

"I am very happy that my Nutritional Kitchen Garden has come up so well. Earlier, we used to eat groundnut and chilly powder with meals. We could afford the luxury of eating vegetables only on festival days. But, now every day is a festival for us! Thanks to DHAN Foundation for providing us the training to raise the Kitchen Garden and for supplying good quality seed through Krishi Vigyan Kendra."

Roopa's vegetables' yield in 6 months

Figures in Kgs

Amaranth	8	Onion	7
Radish	7	Chilli	4
Spinach	7	Ridge Gourd	4
French Beans	5	Pumpkin	45

increasingly important source of vegetable supplies and an additional income resource for poor households in peri-urban and urban areas.

Nutritional Security Measures in Tumkur region

In Tumkur region, there are six locations devoted to nutritional security measures. As part of the focus of this year on nutrition security in our region, we have facilitated the kitchen garden programme in all the federations. This is done to ensure nutritional security for the member families apart from promoting health initiatives such as sanitation, personal hygiene, and safe drinking water. In this process, we have disbursed Palak, Amaranth, spinach and Radish, other vegetable seeds from Krishi Vigyan Kendra (KVK) Hirehalli and Kalanjium Thozhilagam Limited (KTL) for around 700 beneficiaries. Apart from this, as a pilot initiative in collaboration with KVK, we disbursed 250 seeds kit, which contains organic fertilisers and pesticide free of cost. Each packet contains 10 types of seeds.

The concept is promoted to ensure nutritious food to the member family. Before the distribution of the seeds, we organised a programme with KVK scientists. In that event, subject matter specialists attended and educated the members about the essential nutrition contained in those garden vegetables. We also intend to conduct a sample study of families to analyze the impact created through this kitchen garden programme.





Overall Objective of the Kitchen Garden

Enhance community nutrition and livelihood security by means of building capacity of SHG members to sustainably manage farm-based resources.

Objective of the Activity

- Reduce the expenditure on vegetable purchase by the members
- Ensure fresh vegetables without inorganic mix
- Facilitate the availability of vegetables at the doorstep
- Ensure self-consumption for their family and the neighborhood

Process followed

1. Need assessment in the field

As a first step towards the importance of organic vegetable consumption, an orientation was given to the staff and the people functionaries. The staff, in turn, provided orientation and awareness to the Kalanjiam members on the importance of kitchen garden. They also generated the demand from the community. Based on the need assessment, 250 women were selected and invited to the programme. After orientation and education, the seed kits were disbursed.

2. Training

Twenty-five associates from three locations were provided training for promoting kitchen garden activities with knowledge on essential nutrition and health benefits of each seed in the packets. We have also imparted training on how to treat household waste water and use it in the garden as natural fertiliser and also on a safeguarding mechanism to be followed for promoting kitchen garden. The selected members were educated to monitor the mortality of the seeds, yields, consumption, and income earned from kitchen garden produce.

3. Follow-up visits

Our Kalanjiam associates encourage implementation of these activities through self-health governance system. Our field staff also visited the beneficiaries for monitoring the growth of plants. The regional team

monitored the overall monitoring and implementation. Day-to-day follow-up visits were done by cluster associates and weekly follow-up visits were undertaken by the federation coordinator or community accountant.

Awareness creation among the targeted members was done through training programmes on the importance of nutrition, positives of the kitchen garden and the health benefits of vegetable consumption. These training programmes motivated the women and their involvement to grow the plants and ensure timely follow-ups.

The Nutrition Seed Pocket contains Amaranth, Spinach, Radish, Pumpkin, Ridge gourd, Tomato, Chilli, Ladies finger, Onion, French beans and Cowpea.

Status of Seed Pocket Procured

S. No	Particulars	No. of seeds packets received	Purchase amount
1	KVK	250	Free for Project by ZP
2	KVK	500	Rs. 12 per pocket
3	KTL	20 Kg Radish	Rs. 5,000

Promotion of kitchen garden is one of the best ways to ensure nutrition security for the Below Poverty Line (PPL) population. Our initiative has created a greater impact on achieving nutrition security among the BPL population with a small investment. These kitchen gardens have obtained very high returns (25 times) in terms of monetary value. It has also resulted in generating additional income to the beneficiaries with least expenditure. The kitchen gardens have actually increased fresh vegetable consumption among the participant family members. It has also facilitated balanced nutrition intake from their own garden. We have plans to increase the number of beneficiaries so that this pilot initiative gets widened to all the potential members in our Kalanjiam system.

Way forward

Ensuring nutrition security for BPL population could well be done through promotion of kitchen gardens.

It will create a greater impact on achieving nutrition security with smaller investment. The kitchen garden activities could also yield very good income to the beneficiaries. Consumption of fresh vegetables from their own garden will result in healthy living conditions through the intake of balanced nutrition. In our region, we realised the larger impact of these activities and we plan to increase the number of beneficiaries and reach the total potential members in our Kalanjiam groups.

DHAN Foundation would like to thank KVK for supplying kitchen garden seed packets and the time spent by the scientists in educating our staff as well as beneficiaries. The technical assistance provided by the KVK scientists has helped our members in cultivating the seeds and getting a better yield. We particularly thank all the cluster associates and staff for the support and good working relationship as we continue to spread the message of kitchen gardening. It is anticipated that the training for gardeners in the region will continue (members) in future, which requires more support from KVK, Hirehalli. Once again, we thank KVK for its immersive support. We also look forward to community-related projects that can reach the real beneficiaries of our institution.

Acknowledgement

We would like to express our thanks to Mr. Loganadhan, Senior Scientist, and Head, Krishi Vigyan Kendra, Hirehalli, Tumkur for their financial and technical aid in this endeavor. We also thank Mr. Somashekar, Subject Matter Specialist in Plant breeding and Mrs. Radha, Subject Matter Specialist in Home Science, KVK, Hirehalli, Faculty Guide, for their technical assistance and demonstration to the members. Our sincere thanks to Mrs. Shashikala, DHO, Tumkur for her departmental collaboration in getting free HB Checkup for members. Our admiration to our regional coordinator. Mr. N K Vasanthkumar for his guidance. We greatly appreciate our federation leaders, SHG Members, staff and associates for their whole hearted involvement and spontaneous response in the activity. □

Communities Spearheading Sanitation!

Sindhu P D*

Mysuru region in DHAN Foundation is spread over Mysuru, Chamarajanagar and Mandya districts in Karnataka. The first location initiated in this region was Malavalli in Mandya district, which is a rural block, Kollegala is another rural federation promoted in Chamrajanagar district. There are five federations promoted in urban locations such as Mysuru town, Bannur, Nanjangud, Periapatna and H D Kote.

When the nation is fast moving towards the goal of Swachh Bharath, we also felt the need to engage our community in this agenda. We are working with 30,000 families in these eight federations. When we conducted a survey in these federations, we came to know that out of 30,000 families, 8,658 members do not have toilets and as many as 1,545 toilets are in defunct state.

We started with awareness programmes in the villages during the cluster meetings. We also collaborated with the Panchayats to take the mission forward. Our consultations with the members revealed that many families have space but have not constructed a toilet for want of funds. Due to the drought, people find it hard to make their living with meagre income.

As the people were not ready to construct toilets due to lack of money, we took up the cause with the Panchayats. The Panchayats came forward to issue a subsidy on immediate completion of toilets. So, we designed a

special loan product of Rs. 15,000 for the members to take-up the construction of toilets. The loan funds were accessed from commercial banks through their self-help group (SHG) linkages. The Panchayats also committed themselves to release toilet subsidies without delays, so that SHG members can close their loans in the groups.

Since the government's main focus is also on sanitation, it came out with an innovative and compulsive policy of linking the Public Distribution System (PDS) benefits with that of toilet construction. So, the people were instructed to get toilets constructed if they wanted to receive ration from the PDS. This stand also compelled the people to come forward to take up the mission.

In 2016, we conducted cluster Mahasabha in all the seven federations. We invited the block executive officer, Swachh Bharath Mission Officer and Taluk Health Officer (THO) to the Mahasabha to spread awareness among the people and also emphasise their commitment to release the toilet subsidy amount through the Panchayat to the members as early as possible. We made it a point to focus only on sanitation in the Mahasabha event. The Mahasabha is an event in which as many as 800 members from each cluster would participate.

We organised a procession in each Mahasabha. Members carried placards and raised slogans on sanitation and hygiene. The procession went through the villages to

Dist. Admn. honours 15 activists



Fifteen women from all the taluks in Mysuru were felicitated by the district administration as part of Women's Day celebrations at Kalamandira in city this morning. They were honoured for the Swachh Bharat awareness they have created at their villages. MP Pratap Simha, MLAs M.K. Somashekhar and G.T. Devegowda, ZP President Nayeema Sultan, ZP CEO Shivashankar, Women and Child Welfare Department Deputy Director K. Rakha, Zoo Authority of Karnataka Chairperson Mallige Veeresh and MYLAC Chairman H.A. Venkatesh were present.



* Ms. Sindhu P D, Senior Project Executive, DHAN Foundation

Swachh mission faces fund crunch in Mysuru

As there's not enough money to make initial payment, poor villagers are postponing toilet construction

K RATHNAPUR Mysuru

PRIME Minister Narendra Modi's Swachh Bharat Abhiyan (Clean India Campaign) has many hurdles to overcome in Mysuru district.

As there's not enough money to make initial payment, most of the poor villagers are postponing the construction of toilets at their homes.

Under the programme, the government gives subsidy to the poor to construct toilets. But the amount is reimbursed only after the construction of toilets.

As most of the beneficiaries are daily wagers and the poor, they are finding it difficult to make initial payment for toilet construction.

Though the scheme was in force from September 2014, with no source of earning due to drought, many villagers have postponed the construction of toilets in Mysuru, sources said.

Only 72,774 toilets were built, though there was a target to construct 2,38,037 units from October 2014 to June 2017.

Padma, a tailor at B Seehalli, said though they are aware of the scheme, they did not have money to construct toilets.

"After drought, situation has gone from bad to worse. Now, it has become hard to earn even Rs 2,000 a month. So how can we spend thousands of rupees to build toilets," she said.

Kavya of Rathnapuri village said:

INDIVIDUAL TOILET SUBSIDY

General

7,200	4,800	
Central fund	state fund	

SC/ST

7,200	7,800
Central fund	state fund

When we came to know that people don't have money to provide them loans through nationalised banks

P D Sindhu, Dhan Foundation regional coordinator

"As we didn't have initial money, we had postponed the construction for two years. This year, village heads, whose economic condition is good, took initiatives to build the toilet. The government should release money at least in phases, so that the poor will get benefited."

"For below poverty line families, it has become difficult to manage money to build toilets. So we have roped in private organisations to construct toilets from October 2016. Due to which we have achieved 89 per cent target in Hunsur taluk," said ZP member Push-

pa Amarnath. Dhan Foundation is assisting villagers to build toilets by providing them loans.

Foundation district regional coordinator P D Sindhu said: "When Swachh Bharat Mission was launched by the Centre, we promoted sanitation, hygiene, and cleaning. When we came to know that people don't have money to build toilets we decided to provide them loans through nationalised banks."

"There are 2,000 self help groups with 30,000 members and they have some savings. They are linked with nationalised banks and motivated to build toilets. We have so far built 500 toilets in Mysuru city, Nanjangud, Periyapatna, Kollegal, HD Kote, Bannur and two centres at Malavalli," she said, stressing the need of sanctioning initial amount by the government for toilet construction.

"After digging pit, the beneficiaries have to take photographs at three stages. Only after final phase (completion of toilet), applications will be submitted to the Gram Panchayats concerned and after inspection by officials, money will be sanctioned," said Vigodanahalli GP member Venkatesh.

Zilla Panchayat chief planning officer Prabhu Swamy admitted that most of the villagers don't have initial money to build toilets and said they are taking measures to rope in private companies and NGOs to build toilets.



toilet under construction at B Seehalli in Bannur, T Narasipur

create awareness among the villagers. The members took an oath to have the toilets built in three months. Also, they vowed to maintain a clean environment and start revival and reuse of the defunct toilets. Witnessing the community response all through the events, the Block Executive Officers were very happy to support the Kalanjiam members in constructing toilets and released the subsidy immediately.

We also encouraged the community leaders to act as facilitators in promoting the toilet construction in their neighbourhood. As many as 70 such community leaders were involved in the process and they were imparted special orientation and awareness on the need for constructing toilets and its health implications. Realising the importance, many of the facilitators were deeply engaged in transforming themselves into activists to promote the cause of toilet construction.

The initial responses were snail paced. In Bannur federation, 190 members came forward at first. Similarly, 50 members from the B C Halli Panchayat, Kodagalli Panchayat, 70 members from Madgalli village, and 70 members from Maliyur showed interest. However, with sustained efforts of the district administration, DHAN's field staff and community leaders, people slowly started showing interest in constructing toilets in their homes. Last year, through the SHG credit support, 2,493 members have constructed toilets in their homes in the Mysuru region.

The community facilitators were honoured by the Mysuru district administration for their active role in propagating the cause. They were instrumental in promoting awareness among the SHG members and acted as a catalyst in reaching the goal of Swachh Bharath. □

Addressing the gaps in disaster management: Balasore district, Odisha

Dheivanai P*

Coastal Conservations and Livelihoods Programme (CALL) of DHAN Foundation in association with Centre for Research and Advanced Centre for Enabling Disaster Risk Reduction (ACEDRR) in Tata-Dhan Academy undertook a study focusing on addressing the gaps in disaster management in Balasore district of Odisha.

Study area

The study focused on documenting best practices and assessing gaps at the levels of individuals, communities and mainstream institutions to mitigate disaster hazards and improve the resilience community. It was carried out in Bahanaga, Balasore, Baliapal and Bhograi blocks in Balasore district, which has a coastline of 81 kilometres and five major river basins such as Subarnarekha, Budhabalanga, Jalaka, Kansabansa and Sono. Geographically, these blocks are prone to natural disasters, viz., flood, cyclone, heat wave, drought and other conditions such as salinity and hailstorm.

Methodology

The study used qualitative methods such as structured interviews to document the best practices among

individuals, community and mainstream as well as quantitative approach of conducting case studies, focus group discussions, block and regional workshops to validate the survey responses and prioritise identified best practices in disaster management for scaling up. Snowball sampling method was used for identification of samples. The study focused on finding out gaps observed in disaster management and local best practices to overcome disaster hazards in the areas of early warning, livelihood activities such as agriculture, livestock, fishing, standard of living, health and nutrition, community and mainstream stakeholder practices.

Context

Balasore district is located on the eastern coast of Odisha and has constantly been at the centre stage of natural calamities such as floods, cyclones, etc. These events pose serious threat to lives and livelihoods of the people of this district. The central government has estimated the losses caused by cyclone Phailin and subsequent floods as Rs. 21,770 crore, which is more than the state's annual plan outlay of Rs. 21,467 crore¹.

¹ Deccan Chronicle, The largest circulated English daily in South India, Kochi, Thursday, 28 November 2013



* Ms. Dheivanai P, Senior Project Executive, DHAN Foundation

Odisha has been encountering a disaster almost in every alternate year. The Super cyclone in 1999 took 10,000 lives, but, the same velocity of natural hazard Phailin could not eliminate human lives because of preparedness, strong early warning system and timely mass evacuation. However, the asset loss was huge, the state administration was unable to offer relief to the 3.9 million people who were rendered homeless by Phailin. The loss can be minimised by Community Based Disaster Management (CBDM) approach. The aim of CBDM is to reduce vulnerabilities and strengthen people's capacity to cope with hazards. This bottom-up approach has considered communities to be the best judges of their own vulnerability and can make the best decisions regarding their well-being and disaster management². Community involvement is essential during preparedness, response and rescue, which is envisaged in Balasore district disaster management plan in 2014-15 by forming Disaster Volunteer Force at village level. Odisha government recommends multi-hazard disaster management prospective to mitigate impact of natural hazards³.

Government and other stakeholders have been providing a number of facilities during and after the disasters, but could not promote resilience among the vulnerable communities. Mitigation efforts were limited to few stakeholders, and no efforts were made to promote community-based organisations to sustain disaster management. Indigenous practices which are effective in mitigation were sporadic and those proven practices were not scaled-up.

Best practices to address the gaps in disaster management

The outcome was analysed in the areas of early warning with livelihood activities such as agriculture, livestock, fishing, standard of living, health and nutrition, community and mainstream stakeholder practices.

2 Dr. Suvit Yodmani, 2000, Disaster Risk Management and Vulnerability Reduction: Protecting the Poor, Paper Presented at The Asia and Pacific Forum on Poverty Organized by the Asian Development Bank

3 Sri Sanatan Mallik, OAS (SAG), Collector and District Magistrate, 2014-15, Balasore District Disaster Management Plan

Early warning

The early warning information was propagated through various modes, but the vulnerable communities did not realise that the wind speed of 260 km/h would create such a heavy asset loss. Even though, 96% of the people were not willing to move into the shelter after receiving the early warning, mass evacuation of the vulnerable community by the stakeholders has minimised life risk.

Livelihoods

Agriculture: Seventy-two percent of the respondents' lands were in submerged areas, which are prone to floods. Irregular pattern of rain during flowering and harvesting stage destroyed entire paddy crops. Farmers, who were mostly small and marginal in nature, faced triple losses by way of losing income from the destroyed crop, losing investments made on standing crop and revival of damaged land.

Livestock rearing: The study showed that 68% of the people reared cattle followed by goat rearing (14%). Thirty percent of the people reported livestock loss due to disaster. Among them, only 14% of the people received compensation against the loss, which was also not enough to meet the entire loss. During the disaster, they set free their livestock and few people allowed their cattle inside their house. Freed cattle drank contaminated flood water that caused diarrhoea. Stored paddy straw stored became wet and could not be fed to the cattle. The government supplied cattle feed @ 500g per cattle, which was inadequate and unequally distributed.





Fishing livelihood: Thirty-two percent of the respondents were dependent on both inland and marine fishing. The cyclone season coincided with the fish breeding/off season, hence, the loss due to disaster was minimal for marine fishing. Cyclones in seasons usually affect fishing nets and damages boats. Inland fishing always carries risk due to disasters.

Housing

Seventy-two percent of the respondents' households were pucca. Almost, all the people had undertaken proactive steps to protect their houses from disaster hazards. The

steps taken were increasing the plinth level (86%), laying bricks in a row to prevent damage of plinth area by rainwater falling from the roof's edge (30%), tying roof to mud walls of the house (34%), tying roof of a house with veranda and mud walls with wooden pegs fixed to ground (30%), converting houses from Kutcha to pucca/semi-pucca (42%) and 2% of the people did not take any proactive steps to protect their houses. However, 44% of the people could not take sufficient proactive steps due to shortage of financial resources. Even, after taking these proactive steps, only 28% of the people stayed in their own houses during Phailin, remaining persons moved to the disaster shelter, village common places and homes of relatives with good houses. The disaster shelter was not accessible to the entire needy population in all the areas.

Electricity

Ninety-six percent of the households were electrified and they faced 15-20 days power supply cut during the disaster. The electricity substitutes during the disaster were kerosene lamp, candle, LED lamp and solar lamp. Most of the people stored kerosene prior to rainy season. During the disaster, candle and kerosene were provided by the government to the affected persons. Availability of generator was limited to 41% of the shelter houses,



out of which only 71% of the generators were in working condition. Seventeen percent of the shelters have not had enough electrical fittings.

Water

Most of the people have stored water in pots prior to the disaster. About 92% of the people stored sufficient quantity of water and remaining people managed by using tube wells in elevated places or flood water after filter treatment. The disaster shelters had proper water arrangements in drums, water pots and cans; few shelter houses had tube wells, but they were submerged in the flood.

Sanitation

Only 38% of the households have Individual Household Latrine (IHHL) in their premises, out of which, only 22% of the latrines were constructed in high elevated places, which could be accessed during disasters. Latrine usage by the women was higher than the men. Most of the persons resorted to open defecation during disaster which caused outbreak of diseases. If financial assistance was provided, 97% of the people showed willingness to construct latrines.

Food

Ninety-eight percent of the households stored dry food items such as puffed rice (98%), flattened rice (68%), biscuits (47%) and bread (31%), and few people stored mixture, snacks, sugar and salt also. Sixty-nine percent



persons collected fish from canals and consumed it. They also managed with food packets given by aid agencies. The main concern of the people was the increasing prices of food items during the disaster and sufficient relief materials were not evenly distributed to the needy people.

Health

Ninety-two percent of the villages reported disease outbreaks during Phailin, major diseases were common cold, fever followed by diarrhoea. Over 57% of the household members were affected by these diseases. Absence of first aid kit and lack of knowledge about the indigenous treatment was the major concern during a disaster. Only 12% of the people had first aid kits in their houses and other persons depended on village health nurses.

Disaster Emergency Kit

Frequent disasters have encouraged the community to have disaster emergency kits⁴ with them, nearly, 94% of

4 Recommended by Odisha Government State Disaster Management Committee





the people had disaster emergency kits, which consisted of dry food (Mudhi, Chuda, Gur, etc.) (100%), candles (70%), torch light with spare batteries (60%), match box (100%), valuables such as jewellery (19%), certificates, pass books wrapped in polythene (75%), land pass book, land record wrapped in polythene (81%), minimum clothes (98%), emergency cash (45%), list of emergency telephone numbers (15%), other urgent and relevant items (11%), medicines (6%) and other (2%). Fifty-eight percent of the respondents had babies with them, out of which, 50 percent of the persons stored baby food prior to the disaster in the disaster emergency kit.

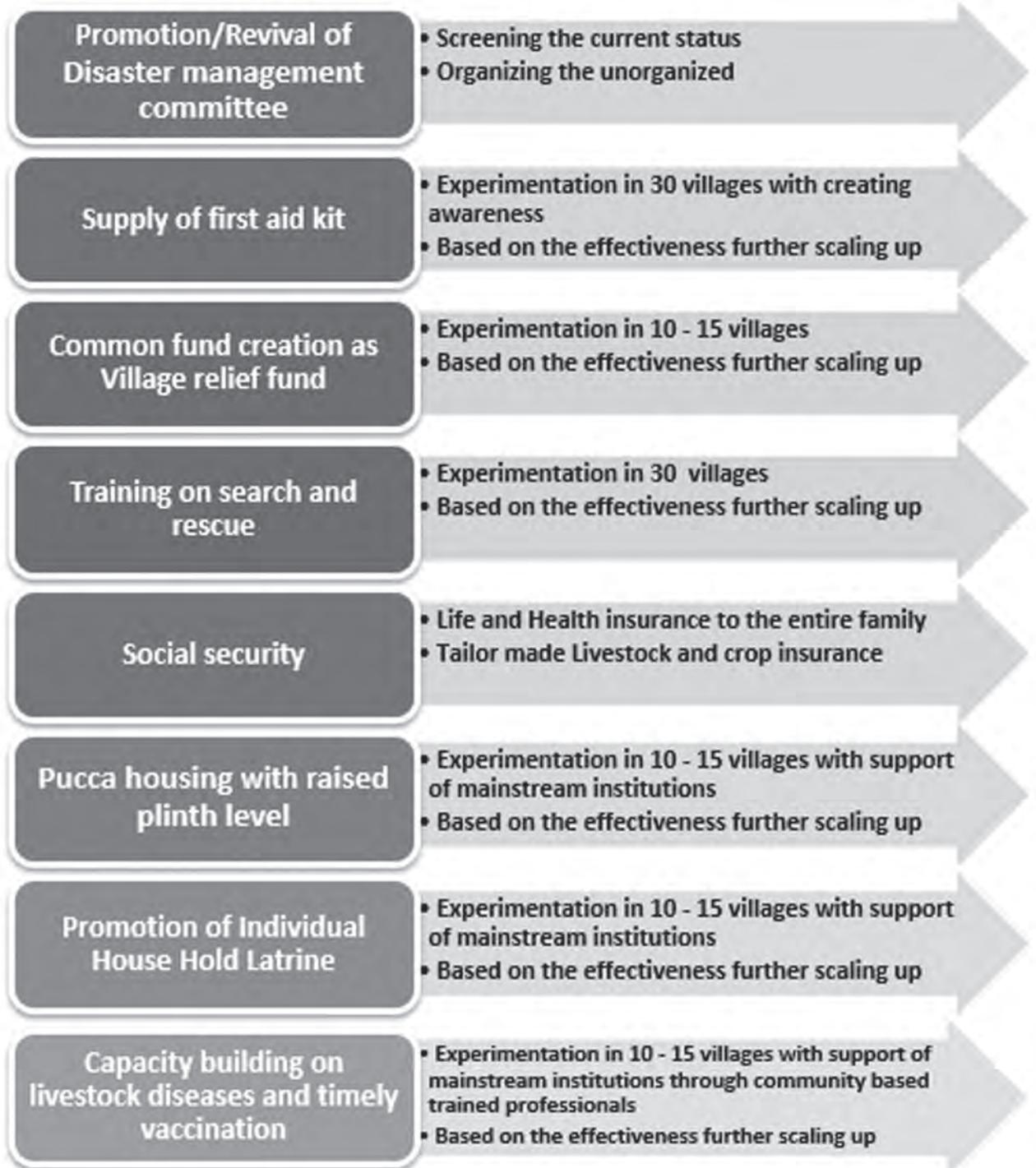
Now-a-days, the government and other stakeholders have realised the importance of community participation in disaster management. Likewise, they have promoted disaster management committees at village level, which are constituted of mainstream stakeholders and villagers. Here, the major challenge is in maintaining the liveliness of the existing committee. Committees exist in records, but, not in action. Roles and responsibilities framed to the committee members are in book form. There are no monthly meetings to ensure the liveliness of the committee. Even distribution of relief material to the needy people is a challenge to the government.

Way forward!

Community involvement is essential during preparedness and response and rescue, which is envisaged in the Balasore district disaster management plan in 2014-15 through promoting the Disaster Volunteer Force at village level. Mitigation efforts limited to few stakeholders, involving community-based organisations (CBOs) in disaster management, facilitates building a resilient community. Communities have created their coping mechanisms gradually, which is expressed in the form of local practices, which are sporadic with no scaling up of effective practices. CBOs can identify these practices for scaling up.

DHAN Foundation is involved in nested institution promotion in Balasore District, Odisha with the objective of village-level disaster management committee promotion and seeding self-help group concept to inculcate savings habit among poor women, apt credit support and capacity building on livelihood initiation, social security coverage and fulfilling health needs. The prescribed action plan will strengthen community resilience in disaster preparedness and risk reduction.

Findings and Leads for Action: DHAN Foundation's Balasore Region





NABARD honours DHAN Foundation

The National Bank for Agriculture and Rural Development [NABARD] celebrated its 36th Foundation Day on 11 July 2017, at Vigyan Bhavan in New Delhi. NABARD dedicated this 36th Foundation Day celebration to commemorate the 25th year of Self-Help Group (SHG) Bank linkage. The 25 years of SHG Bank Linkage Programme initiated in 1992 has reached more than 10 crore rural families across India. The SHG movement has not only helped to achieve the goal of poverty reduction

on a large scale, it has also acted as a tool to leverage women empowerment.

NGOs have been instrumental in spearheading the concept of SHG and subsequent bank linkages. NABARD make the most of the occasion by acknowledging the contributions of the NGOs. NABARD honoured the partners and stakeholders, who were part of spearheading the SHG-Bank Linkage Movement in the country. Union



Finance Minister, Arun Jaitley presided over the function and gave away citations of special recognition to select organisations.

On the event, DHAN Foundation was honoured for its contributions over 25 years to the SHG Movement. On behalf of DHAN, its Executive Director M.P. Vasimalai, and the Kalanjiam Movement's leaders Chinnapillai from Tamil Nadu, Suganya from Karnataka and Rukshana Misra from Maharashtra received the award. DHAN was part of the SHG-Bank Linkage pilot initiated by

NABARD in the late nineties. The first SHG linked by DHAN was Azhagu Kalanjiam in Azhagapuri village in Appanthirupathi block. Today, the Kalanjiam Community Banking Programme has transformed into a movement spread over more than 10,000 villages reaching out to over one million poor women with close to 49,000 Kalanjiam SHGs. The members have savings of Rs. 466.59 crores and have mobilised Rs. 1530 crores through bank linkages.

DHAN team members including A. Umarani, Chief Executive, DHAN Kalanjiam Foundation N.K. Vasanthakumar, Team Leader, Bangalore; and M. Kalyanasundaram, Chief Executive, INAFI India were present at the function.

M.P. Vasimalai, Executive Director, DHAN Foundation¹

SHG-Movement has signalled a paradigm shift in the development approach of the country with focus on gender-based social capital. Organising the unorganised poor communities for holistic development and poverty reduction has been the primary objective of the SHG movement. We have a mixed bag of results; it is a pity that over time the SHG movement has been reduced to a narrow narrative of bank linkage, access to credit and recoveries. Though access to financial services is critical and important to aid and abet development, SHGs have not still graduated from savings and credit to insurance and pension services, even in southern states where SHGs have advanced well. The social security schemes (PMJJBY, PMSBY and APY) have brought great opportunities and it is the responsibility of all the stakeholders to enable the SHGs to access the entitlement schemes.

SHG programme depends on the enabling environment for its effectiveness in addressing poverty and its sustainability as has been demonstrated by a few successful NGOs and civil society groups. DHAN's experience has reinforced this need more forcefully through networking of SHGs as federations which sets a platform for larger development. There needs to be a national acknowledgement of this critical element and consequential long-term support for enabling a process

¹ Excerpts from Souvenir published as part of celebrations of 25 years of SHG-Bank linkage by NABARD

which calls for public investment, not to mention great engagement in the regions where the movement is weaker like in North India.

There must be a freedom of expression for diversity of SHG models and approaches with core principles being kept intact. At this juncture of celebrating 25 years of SHG movement, it is more important that the governments (central/state) and other policy making bodies should critically look at successful stories of development outcomes in addressing all dimensions of poverty through SHG movement across the country and devise such policies and programmes to support and expand such initiatives and interventions.

H.K. Bhanwala, Chairman, NABARD

A quarter century is not a long time in the history of a nation that is many millenniums old. But, for 100 million rural women, the last twenty-five years of SHG movement have been like a leap through centuries. A small step in innovative banking turned out to be a giant step for women empowerment. For those of us, who have been part of the SHG movement, it has been an exhilarating and satisfying journey that has taken us through the huts and hamlets of India. It gave us moments of both joy and occasional despair, but in the end, there was the determination to take the movement forward from strength to strength.

The initial action research project of NABARD with MYRADA in 1987 convinced us that what the poor wanted was primarily to safe keep their thrift and that loans for livelihoods can be better appraised and customized by the members of the group. It also established that timely and hassle-free access to micro credit was more important than the rate of interest on such loans. A lot of preparation and research went into the launching of the pilot project in 1992. RBI became possibly the first central bank in the world to allow opening of savings bank accounts of informal groups.

A home grown microfinance model, way different from the other models adopted and practised world over, was about to unfold. A unique savings' led, self-managed, doorstep financial inclusion and bank outreach programme with least transaction costs and

participation of community at its core was mainstreamed in April 1996. At NABARD, we dreamt of providing financial services to more than a third of India's rural poor through 1 million SHGs in ten years, beginning from the year 1998. But, within a period of eight years of mainstreaming, 10.79 lakh groups were credit linked.

Being the largest coordinated programme with participation of more than 30,000 bank branches, more than 5,000 NGOs and numerous foot soldiers spread over all nooks and corners of the country it required anchoring on a scale never done before. Those were the days of hectic activity filled with massive promotional campaigns, capacity building and training exercises, exposure visits driven by the innate belief that this microfinance product could change millions of lives. The success of a programme can also be adjudged from the fact that SHGs not only got recognition from banks and the RBI but became a vehicle for convergence. A large number of stakeholders started using SHGs as vehicles of social sector services. There are numerous examples of NGOs and government departments using the SHG platform for delivery of social sector interventions. Many governments later also utilised the SHGs for poverty alleviation interventions. NABARD salutes all these stakeholders of the SHG movement.

This synergy between all the stakeholders has resulted in a vibrant community of 8.6 million SHGs today with savings balance of Rs. 16,114 crores. During 2016-17, bank loans worth Rs. 38,781 crores were disbursed to 1.9 million SHGs taking the credit outstanding to Rs. 61,581 crores. The year-on-year increase shows the fundamental strength of the concept. NABARD has taken upon itself to rejuvenate the SHG programme with focus on digitisation of SHGs through its e-Shakti initiative in 24 districts, besides other steps. The GOI's flagship poverty alleviation programme viz. National Rural Livelihood Mission has made large strides and taken up more than half the country's blocks for intensive implementation, emerging as a major player in the SHG space.

On the occasion of the silver jubilee of the SHG movement, I thank all these champions of SHG movement for continuing to guide the upscaling of this women-centric financial inclusion and livelihood movement. □

Madurai Symposium 2017

Development Stakeholders gather biennially at Madurai in a development market place, “Madurai Symposium” to share, learn from each other experience and practices and explore opportunities for collaboration. The symposium attracts diverse stakeholders in development: Community Organisations, Civil societies/NGOs, Government, Banks, Insurance Companies, CSR Foundations, Donors, Philanthropists, and Academia. The previous edition of 2015 saw the participation of 10000 stakeholders and deliberated on localizing the Sustainable Development Goals. Given the multifaceted development goals of SDGs, the Madurai Symposium 2017 would connect with the critical element of challenges in sustaining development processes towards achieving the goals. Building resilience is one of the crucial Challenges and Madurai Symposium 2017 seeks to engage with the topical theme in the context SDGs.

Date: September 20-24, 2017; Venue: Tamukkam Grounds, Madurai

We welcome development partners interested in organising or sponsoring events. Also we invite stakeholders to participate in the events and share their experiences. Please submit your nominations online @ <http://www.maduraisymposium.net/>

11th Development Film Festival: Short Film Competition

The Center for Development Communication of DHAN Foundation is pleased to invite filmmakers to take part in the Short Film Competition, organized as part of 11th Development Film Festival to be held at Thamukkam Ground, Madurai, India from September 20-24, 2017.

Theme: Small Millets-Our Food! Our Pride!

India is known for its rich and diverse culinary culture. Given the diversity in soil type, climate and farming, food heritage of the communities varies significantly and influenced by the locally available foods. Food as medicine is not something new to us; the basics of using certain foods to treat some illnesses have been well documented in our ancient texts. Our ancient wisdom on the medicinal and nutritional value of food, which has been a part and parcel of our culinary practice, needs to be preserved and passed on to the future generations.

Small millets are one of the oldest foods known to humans and possibly the first cereal grain to be used for domestic purposes. They are small-seeded grasses that are hardy and grow well in dry zones as rain-fed crops, under marginal conditions of soil fertility and moisture. Small millets are also unique due to their short growing season. Small millets, as a group includes finger millet (ragi), kodo millet (varagu), little millet (samai), foxtail millet (thinai), barnyard millet (kudiraivaali) and proso millet (Panivaragu). These tiny millets are known for their superior nutritional properties, including high micronutrient and dietary fiber content, and low glycemic index, when compared to rice and wheat. They are known for both preventive and curative medicinal properties. Once celebrated as native food, these small millets disappeared from our diets due to many reasons. These small millets were labeled as poor man's food while rice and wheat were considered superior. This low social status pushed these small millets to become rare foods. Also, changes in our culinary culture due to the influence of fast food and foreign foods on our children and youth are the reasons for the sorry state of our local, traditional and healthy foods including small millets.

This short film contest is aimed at challenging the food culture today and reviving the legacy of our native food, by way of promoting the image of small millets based traditional foods. Submit your Films with Submission Forms by September 05, 2017. The best film carries a prize money of Rs.25,000/-. For more information: <http://www.dhan.org/dff/>

Gram Swaraj: Myth or reality?

Pravin Bhikale*

Gandhiji had a vision of Gram Swaraj in independent India. He said that India's future is in the villages and insisted our focus on village economy. Swaraj lays stress on local governance, not a hierarchical government, but self-governance through individuals and the community.

Gandhi's Vision¹

Gandhi explained his vision in 1946. "This structure composed of innumerable villages there will be ever-widening, never-ascending circles. Life will not be a pyramid with the apex sustained by the bottom. But it will be an oceanic circle whose center will be the individual always ready to perish for the village, till at last the whole becomes one life composed of individuals, never aggressive in their arrogance, but ever humble, sharing the majesty of the oceanic

circle of which they are integral units. Therefore, the outermost circumference will not wield power to crush the inner circle but will give strength to all within and derive its own strength from it. I may be taunted with the retort that this is all Utopian and, therefore, not worth a single thought. If Euclid's point, though incapable of being drawn by human agency has an imperishable value, my picture has its own for mankind to live."

Now the question before me is, is this possible in today's India? Can a community-driven model be sustainable? Answers to all these questions are not so promising.

As a development worker, I am sharing some experiences from the field which is alarming for development workers who really wish to see the villages getting developed. I have been working in a community banking project since a year in Maharashtra. I have seen successful community-driven models of development in South India, especially the Kalanjiam Model of SHG in Tamil Nadu and Kutumbshree Model of Kerala. Both are two

¹ Part of content from the web link titled Widening Circles:
<http://www.mkgandhi.org/mom-gandhi/chap78.htm>



of the most successful models as the community plays a major role.

When I began to work in Maharashtra on the same models, I was continuously thinking about why such models are not successful in Maharashtra. I have visited many women from 9 districts of Marathwada on different occasions such as training, workshops, Mahasabha, etc. These experiences with all stakeholders of development make me wonder whether Gram Swaraj or community-driven models are a myth or real. Here, I reflect on the three crises for the Gram Swaraj or community-driven village system.

Crisis of perspective

After listening to communities, social workers and government officials, I came to a conclusion that all of us do not have share the same understanding and perspective of what it means. I feel that this lack of

shared perspectives needs serious attention. Unity among the community members: When we speak about shared vision, unity plays an important role it. In Gram Swaraj, the concept of unity is not just collective action; it is something beyond collective action. There are certain things which are act as catalyst for Gram Swaraj.

Addressing the problems of the needy: When a bank provides credit to SHGs, the loans are expected to be disbursed according to the needs of members as provided by-laws of SHGs. However, in a few of the SHGs, members avail loans of equal share. The reason for such equal disbursals may be to avoid conflicts while sharing, but it denotes people's unwillingness to spare money for the needy and wait for their turn.

Spending for constructive works: In Maharashtra, people spend money in lakhs of rupees for celebrating the leader's birthday, but are unwilling to pay for the development of schools. The same condition prevails

in Odisha too. In one of the villages in Odisha, where I conducted micro-research to assess socioeconomic conditions of the village, average income of the family was not more than Rs. 2,000 p.m; but collectively, they have spent Rs. 15,00,000/- during festivals. Instead of celebrating Dr. Ambedkar's birthday, why cannot people develop a good library for students? Instead of celebrating Ch. Shivaji's birthday, why cannot people conduct a programme to disseminate the work of great leaders? Unity lies in the rituals, celebrations, and social obligations but it has no takers in development.

Casteism, a big enemy: Whenever I visited any community group or any family, their first question is "tumhi konachya samajach" (what is your caste?). It is very painful that even after 70 years of independence, we are unable to make a dent in such a system. People are being respected based on Jati and not on Karma. Gram Swaraj demands development based on maati (soil) not based on Jaati (caste).

Ownership: Without ownership, one cannot expect community involvement in the development process. But, how is it possible when people are pessimistic about development? How many are ready to participate in the development of the village without any vested interest? Ralegaonsidhi village and Hiware Bazaar village are two of the best model villages in Maharashtra but what happened to those villages which are surrounding such ideal villages. These two villages took 25 years to come at this stage. One can imagine how many years will we need for 600,000+ villages in our nation to improve.

Enabling is the key: People are asking for subsidies, loan waiving, freebies, and donations and so on. Delivery would make them dependent for many generations and only through enabling a good model of development, we can liberate them.

Crisis of Willpower

Development should first take a deep root in all our minds. Collective will power is needed to fight the evils. Gram Swaraj needs unified action from all the stakeholders such as communities, government, NGOs and private organisations. Let us look at the functioning of School Management Committees (SMCs). Are our teachers

ready to empower SMC? Even latest amendment in the Right to Free and Compulsory Education 2012, Sec. 21 has defined SMC as "advisory body" only. How are parents empowered to ensure quality education to their children? Since the five-year plan, there is no single year where the Indian government has spent more 5% of the GDP on education.

Crisis of Women

Swami Vivekananda said that world's empowerment is not possible unless the woman is empowered. Our governments have introduced many schemes for women. Have these schemes been critically reviewed to examine whether they empower women and what is their impact? The first step of women empowerment lies in the psychology of men, not women. In Gram Swaraj, women play a major role but in reality, gramasabha is always male-dominated even though its president is female.

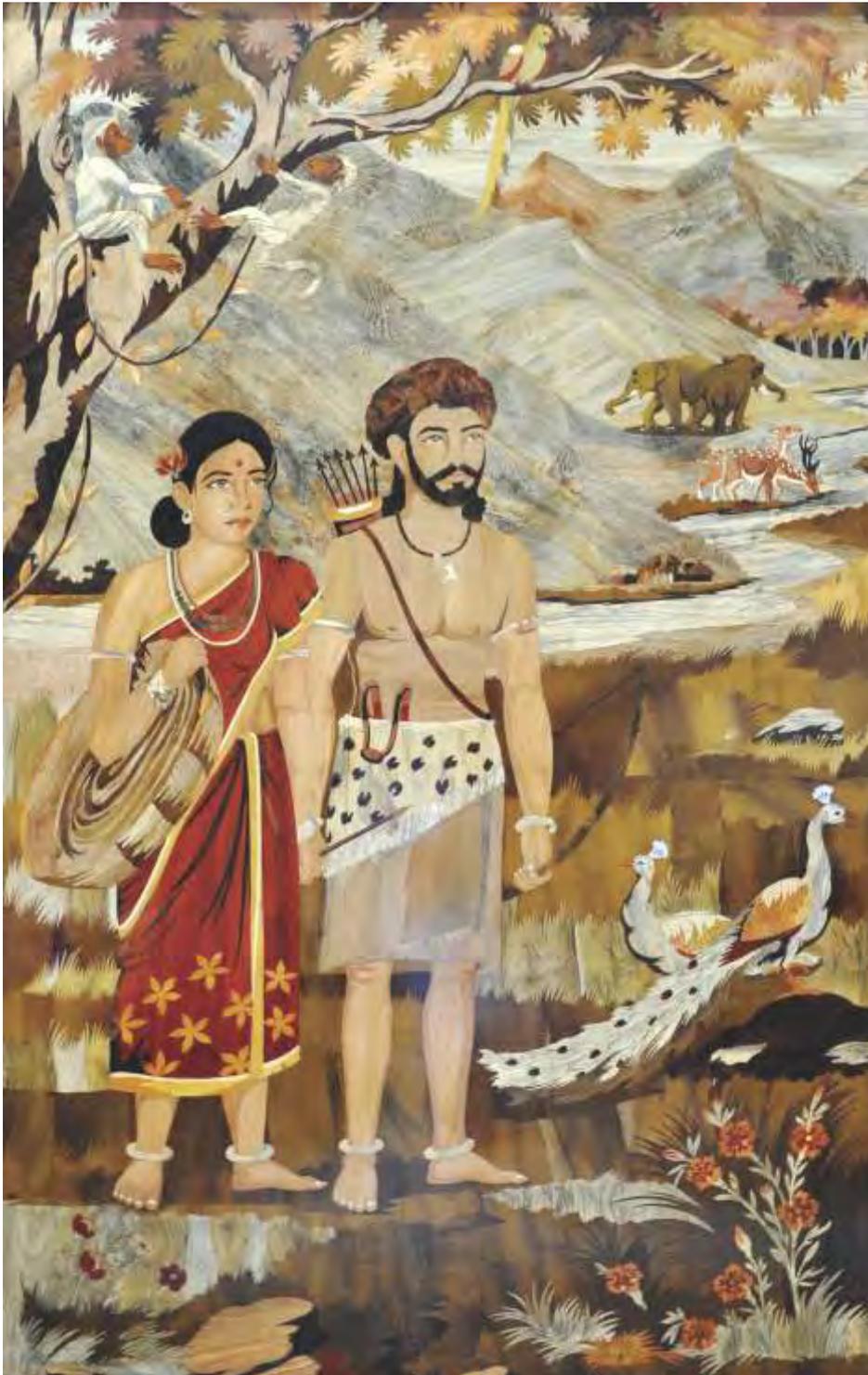
Way ahead!

Reflecting on these three impediments to Gram Swaraj from my short exposure to developmental work, I realise that it is a really an ideal concept and it should not be seen as a utopian concept. Our great leaders have left us their dream of an ideal nation, ideal society. But, how much have we achieved? And how are we going to achieve their dreams is the matter of my concern.

As developmental workers, we need to assume an important role in enabling the communities to bring about changes in their perspectives and practices seen as roadblocks for Gram Swaraj. We should work with a conviction that Gram Swaraj could be realised through deeper engagement with the communities and continuing it for a longer period.

The current situation may look grim, but we should not forget the turnaround stories of Alwar, Anand, Ralegaonsidhi or Hiware Bazaar that happened because of committed works. All these stories reinforce us the need for development workers to work hard and enable the people towards positive growth with a vision. Of course it is easily said, but in reality, it needs a Movement spearheaded by committed leaders and concerned youths to achieve it. Together we can make it. □

Kurinji



Mr. Paulraj, a Wood in-lay artist from Sivagangai, Tamil Nadu has made an artwork depicting Kurinji Thinai as part of a series on Ainthinai of Tamil Culture he is preparing. With the use of traditional hand-made cutting technique by applying cut-outs of a large number of wood collections in variety of colours and grain structures of the timbers, he has made this life-sized artwork depicting the fauna, flora and human life of Kurinji Thinai as a result of more than three months of hard work. This artwork has been displayed at Central Office of DHAN.

Kaathiyanoor Tank filled with sewage water



Paappanodai Tank, desilted more than 2 m below sill of sluice



Water weed infested Sewage fed Sinthamani Tank



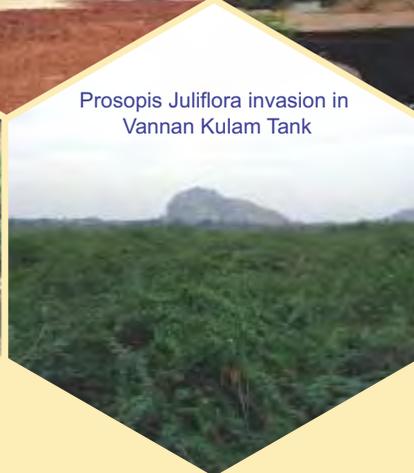
Kuthirakuthi Tank filled with water even in this drought year



Paddy cultivation in command area of Sinthamani Tank using sewage water



Prosopis Juliflora invasion in Vannan Kulam Tank



Sewage flowing to irrigation tank



This photo collage of water bodies in Madurai depicts their sorry state of today caused by human negligence. The river and tank nexus built beautifully by our forefathers have been lost and the citizens of Madurai encounter the impact by way of floods during monsoons and depletion of ground water in summers. Unless the communities get sensitised towards this issue and make collective efforts to reverse the damage, the future citizens of Madurai are going to face the challenge of survival. Let's take a U turn before everything is lost.



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