ECOLOGY

Revitalising Barren to Bountiful

VicenteFerrer

Rural Development Trust

Rural Development Trust

IMPACT

At a Glance

Demographic Reach

84,43,109

horticulture plants were given
to 25,591 farmers covered in 2894 villages
Tribal Welfare

Tribal Welfare

5,298

tribal families sensitized
about eco-rehabilitation

Geographic Reach

2,649 villages covered

under Ecology sector programmes

30,329 hectares of land developed green cover through various programmes.

Father Ferrer's Philosophy

A perpetual guiding light for all at RDT, Father Vicente Ferrer was loved and admired across the world not only by those who had to the privilege to meet him, but also those who got to know about his noble causes.

Following his principles of 'Work beyond duty' and 'Concern for others', RDT functions on the philosophy of action, and works closely with the needy. He believed that development institutions (NGOs) need to become permanent social organisations that work with poor and needy people at a grassroots level, and cater to their changing needs at all times. He supported long term strategic planning, aimed towards the

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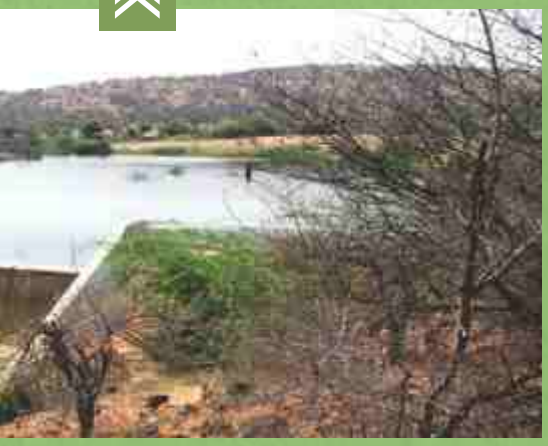
42,518

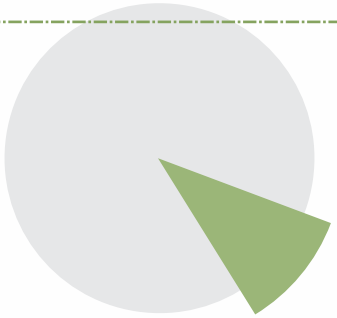
hectares of additional land brought under irrigation by **conserving 76,707 cubic tones of water**

3,112

rainwater harvesting structures constructed in 622 villages



Fund Allocation



9.4%

for **Ecology** related programmes

complete eradication of issues like drought, poverty, discrimination, etc. He considered people as the main actors in their development process, and always aspired to reach out to the poorest of the poor.

His work was dedicated to ensuring that the poor could live with dignity and self-respect and was a strong advocate of equal opportunities for men and women, the able-bodied and Persons with Disabilities, while encouraging all sections of society to live in peace and harmony.

> "If we join hands, we will transform this world."
>
> **Vicente Ferrer**
> *Founder - RDT*

ABOUT

Rural Development Trust

The Rural Development Trust (RDT), also known as Fundación Vicente Ferrer (FVF) in Spain, has worked in the Indian states of Andhra Pradesh and Telangana for nearly half a century.

Since its inception in 1969, **RDT has endeavoured to improve the quality of life among the rural poor, especially among marginalised and underprivileged communities, small & marginal farmers, children, women, Persons with Disabilities,**

those affected by HIV/AIDs and orphans. The organisation's programmes today cover various focus sectors in 3,589 villages spread across 111 Revenue Mandals across 6 districts of Andhra Pradesh and Telangana, including 224 villages inhabited by the Chenchus in the Nallamala forest area of Srisailam district.

RDT has worked for all-round sustainable social transformations, assisted by the government and various agencies in working to ensure that the rural poor receive the same attention and benefits enjoyed by their better-off brethren. **Organizationally, RDT works in ten sectors, each involving the efforts of many individuals, from committed villagers, subject-matter experts, field staff, specialised development workers, trainers to RDT's senior managing team.** These sectors, viz. Education, Women, Community Health (including care for HIV/AIDS patients), Hospitals, Habitat, Community-based Rehabilitation (CBR), Ecology, Chenchu Tribal Development, Sports, and Culture, look at addressing specific social issues. **The purpose of the RDT's integral development approach is to touch the rural lives through many sectors, simultaneously.** For instance, while programmes run by the Community-

> 3,589 villages spread across 111 Revenue Mandals in 6 districts of Andhra Pradesh and Telangana.

Vision

A caring, just and environment-friendly society promoting social harmony and peaceful coexistence and balancing the needs of people and nature.

Mission »

based Rehabilitation sector work to ensure that PWDs have improved opportunities to Education, Health and Livelihood, the Sports and Culture sectors' works are essential for the growth, self-esteem and self-confidence.

RDT has stressed upon empowering community-based organisations (CBOs), whose members, irrespective of their social background, can participate in the process of bringing about socio-economic change. Over the years, CBO members have come to play a vital role in planning, execution, monitoring and follow up of programme interventions either carried out by Government or RDT.

Today, RDT comprises 1,920 senior and mid-level managerial staff, professional and technical staff, grassroots and support-level staff

who are highly experienced and suitably trained in their respective fields of work. In addition, there are 3,037 volunteers including Community Health Workers (CHWs) and Community-Based Teachers (CBTs) at the village level who are trained by the organization.

Among the trustees of RDT are members of the Rayalaseema Development Trust (RYDT) and the Women Development Trust (WDT). The former runs a family planning centre and professional school at Ananthapuram along with programmes related to culture and sports, while the latter runs a referral hospital at Kanekal as well as community health programmes. FVF extends support to these sister concerns of RDT to carry out these specific sectoral works.

In its efforts towards mobilizing resources for the cause of the poor, RDT set up its first Resource Mobilization Centre in Mumbai in 2012, and the next in Vijayawada in 2015, to engage with the committed individuals and having them participate in the struggle to ensure that the rural poor come out of poverty and lead a dignified life, on par with other members of society.

Our Dharma

Concern for the poor and needy

Work beyond duty

Reaching as many poor as possible

Pursuit of excellence in work

- **To eradicate extreme poverty and human suffering.**
- **To work towards implementing eco-efficient agriculture that ensures the sustainability of livelihoods and encourages harmony between human beings and natural resources.**
- **To ensure that educated youth from poor families have diversified job opportunities fetching a decent salary and affording an improved status in society.**
- **To ensure that Persons with Disabilities have access to equal opportunities and are the main actors in their struggle to lead a life of quality and dignity.**
- **To work towards the empowerment of women by helping improve their socioeconomic status and sensitising both men and women to deal with issues such as gender discrimination and violence.**
- **To be a value-based professional organization being dynamic and creative in nature, untiring in hard work and motivation, humanistic in approach, strong in its commitment to share the aspirations and struggles of the poor and permanent in time but flexible to adapt to the changing needs of people.**

MESSAGE FROM THE

Executive Director

Our ecosystem can fulfil all of human beings' basic needs. Right from the food we eat, materials for shelter, to the air we breathe. But like all resources, it has its limits, and calls for judicious management and conservation.

Some of the ways of resource use that have been followed since centuries may not be right for today's demands by a growing population and strained budgets. Under these circumstances, **we have taken guidance from experts, trained the people in new agricultural and land management techniques, and together we have tried to extend the productivity of our most fundamental assets, land, water and livestock.**

Ananthapuram is not a naturally bountiful landscape, every bit of productivity has to be coaxed and drawn from the land with hard work. It's arid, drought prone, and the sociological conditions that prevailed 40 years ago when RDT first began to work here were quite different from what they are today.

The state government and various agencies, including RDT, have worked on many eco-projects jointly and separately with the enthusiastic support of the poor rural farmers. **Slowly, but surely, ecological balance is being restored and life-transforming achievements are being reaped.**

Women have emerged into leadership and entrepreneurship roles in livestock management, and have improved livelihood prospects of not only their own families, but also whole communities. Not to mention, the huge boosts their confidence and economic standing have received. Cattle productivity, in conjunction with better land, crop and water-management practices can now tide a family's fortunes over in times of drought.

Uncontrolled soil-erosion, poor soil nutrition, mono-cropping, sole dependence on rain-fed farming, these are some of the poor practices that farmers are now sensitized against, and work actively to curtail and overcome.

RDT's role through it all has been to assist the people in overcoming the vagaries of their environment, undertaking drought-proofing measures, and at the same time increasing land productivity through crop diversification. **To this end, we've encouraged the adopting the use of micro irrigation systems and improved agricultural practices and educated people about and enabled access to non-renewal sources of energy.**

We've also helped in establishing linkages where possible to government support, subject-matter experts, private agencies and market networks for a harmony between people's use of natural resources and the benefits they derive from them.

It has been only through committed collaborative effort that we are seeing a much changed and fruitful landscape emerge where there was once an arid, dusty and ungiving terrain.

Anne Ferrer

Uncontrolled soil-erosion, poor soil nutrition, mono-cropping, sole dependence on rain-fed farming, these are some of the poor practices that farmers are now sensitized against, and work actively to curtail and overcome.

MESSAGE FROM THE

Ecology Director

RDT's Ecology sector can really be said to have started in an initiative for nutrition and employment undertaken in the early 70s called 'Food for Work'. From there onwards, it has bloomed into a detailed and comprehensive sector in which rural farmers receive information and various inputs on making the most viable use of scarce resources like water and finite ones like farmlands and forests.

One of the first activities undertaken by the people, as a part of Father Ferrer's response to seeing three consecutive drought years in the early 70s, was the digging of open wells. In those days, rain-fed ground wells were the only source of water, which were mostly on the properties of higher-caste landlords and dependant on precarious rainfall in drought=prone Ananthapuram. If the people had access to water of their own, their dependence on landlords' wells could be reduced – since that dependence came with many conditions that subjugated poor rural farmers.

The underlying philosophy when RDT works with the people has always been to support them in self-sustainable initiatives which empowers them to cross the strict lines drawn by caste and gender in their society. In that sense, the work carried out by the Ecology sector has not only revitalised the land, but also rural farmers' prospects and women's participation and economic independence.

The sector has evolved with changing times and technology. Earlier activities have given way to ones that make better use of unreliable, dwindling or increasingly costly resources. Open wells and flood/basin irrigation have slowly given way to drip irrigation using solar-powered bore-well pumps. Sole reliance on forest wood for cooking has come down and made way for smokeless stoves and so on.

The people govern these activities through committees composed of men and women from their own villages, and linkages are in place to share best practices and innovations for the betterment of the entire community. Some communities can actually send out produce to other districts and states where earlier basic subsistence was a struggle. Green cover and bio-diversity are also on the rise and the villagers are aware of taking care of the land and optimising its productivity like never before.

I personally am very privileged to have been part of the movement to renew our district's agricultural and economic prospects and hope Ananthapuram will grow from strength to strength in the Ecology sector.

G.Nageswara Reddy

The sector has evolved with changing times and technology. Earlier activities have given way to ones that make better use of unreliable, dwindling or increasingly costly resources.

THE EARLY YEARS

Ecology

RDT's Ecology sector works to transform Ananthapuram from an arid, unyielding landscape into one of plenty of green cover - grasslands, crops and forests. Its programmes are directed towards eco-regeneration and creating self-sustainable land-based livelihoods.

Ananthapuram district is a rain shadow region - bereft of both south-west and north east monsoons - which means the rainfall pattern is either sparse volume spread over many days, or lots of volume over few days, neither of which is ideal for crop survival and paves the way for recurring droughts, an arid agro-ecology and consequent hardships. Overall, the district receives very poor annual rainfall, the second-lowest in India at 540-550mm annually across just 35.5 days, behind only Jaisalmer, in Rajasthan.

The undependable rain patterns made land-dependant livelihoods very difficult to manage 40 years back. 29% of what little rainfall the district did receive was lost to surface run-off, about 13% was used to water crops and greenery, about 19% filtered down to the water table, and the rest was lost to evaporation. **In the year 2004, only twelve out of the sixty-three Mandals comprising Ananthapuram fall within the safe category of ground water utilisation, according to the Ground Water Department of the district.**

Severe soil erosion was also a problem, owing to the districts undulating terrain and severe windy seasons, which made it prone to top-soil depletion; in places, the top soil layer was as little as 9". The landscape has dry lands consisting of large tracts of loamy soil, much rocky land, red-soil, some clay-based soil and some marshy wetlands which made the average land profile poor at retaining water and nutrients and therefore difficult to till. **In summary, water erosion, shallow rooting depth, gravelly soil-composition, moderate slopes, and soil salinity, compounded by poor climatic limitations seriously affect cultivation in the district.**

All of these factors meant that water was scarce, and above-ground reserves were sorely exploited to yield what could be had from farming. There were no alternative means to irrigate land with other than rainfall, there were no perennial rivers in/around the area and the tendency was to grow traditional crops - like groundnut and castor in dry-lands and paddy in wet-lands – which were water-intensive and heavily dependent on annual rain patterns.

Under the circumstances, only about 10.5% of cultivable land was being used for its purpose, as opposed to 33%, which is what the 52 sub-regions of the district, or Mandals, needed to be self-sufficient.

The mismanagement of land due to lack of awareness of how to use water judiciously and optimising land usage was compounded by superstition and religious rituals that called for wood burning which added deforestation to the list of factors adversely affecting land productivity. The way communities were structured then - only the better-off landlords had open wells – meant once community water sources dried up and rains flagged, result would be a certain prolonged season of crop-failure. **Poor rural farmers, having no subsidiary occupations to fall back on, resorted to either working for bigger landlords, or migrate to seek labour work elsewhere.**

India's Land Ceiling Act, enacted in 1976 allocated lands to farmers in the district, but it wasn't necessarily cultivable. **Rural poor farmers usually**

Timeline

Milestones of Ecology Sector, providing sustainable livelihood through diversified agriculture

1969-1979

RDT started the Community Credit Fund System

1986

Land development activities initiated to bring new land under cultivation

1987

RDT initiated ecological conservation processes

received allocations of undulating and rocky land, besides which, the farmers did not have the financial wherewithal to develop and till their land, further unable to source and buy saplings for cultivation, they would often seek debt from the richer landlords/farmers. They also usually did not own any means of transportation like the bullock carts that could help them mobilise inputs outside of their immediate surroundings. In fact, livestock as a means of support was sorely lacking among rural poor, lower caste farmers, what few animals they had were of low yield due to poor nutrition- goats and cows usually. Bulls for pulling ploughs usually belonged to richer farmers, opening another avenue of dependency among poorer farmers. **In effect, while they had been provided with lands they practically had no working capital, livestock (and subsequently manure) or access to other input factors that could help them out of the vicious cycle of tenancy farming, bonded labour or migration they were faced with.**

Objectives

- **Establishing access to improved groundwater levels through rainwater conservation and recharging.**
- **Improving awareness of and setting up of water-saving irrigation systems.**
- **Adopting micro irrigation systems and improved agricultural practices, ultimately resulting in an increase in irrigated land-area as well as growing of at least two crops a year.**
- **To improve and diversify farmers' source of livelihood from livestock by rearing cross-breed Jersey cows and graded-Murrah buffaloes, as well as high yield sheep, goats and pigs, and growing fodder crops.**
- **To improve crop production, reduce costs and increase income through diversified cropping patterns with a focus on fruit plantation, vegetable cultivation and floriculture.**
- **To facilitate a more ecologically balanced environment with improved natural vegetation and increased wildlife by engaging local bodies and community-based organizations(CBOs) in widespread afforestation of barren hillocks and wastelands, and taking up of stringent protective measures by committed rural farmers.**
- **Curtailing migration in small and marginal farmers and landless agricultural labourers, especially youth. Creating avenues of engagement in farm and non-farm based income generating activities, with appropriate skills trainings, to fetch a self-sustainable income.**
- **To enable greater functionality by CBOs in addressing issues concerning ecological regeneration, environmental development and sustainable agriculture.**
- **Creating and improving access to renewable non-conventional energy resources (solar and biogas) with both, RDT and government support.**
- **Improved production and marketing capacities via co-operative enterprises in select villages for an enhanced synergy between production and market gains.**
- **Enabling bulk marketing, processing and value additions for improved revenues.**

Tackling draught by altering the landscape was always a part of Father Ferrer's larger goals. He dreamt in the 1970's of changing the landscape to one where natural resources, land and people existed harmoniously. His visionary approach for the ecology sector was that "bigger problems need bigger solution". Then, the 70s also saw three successive years of drought, which severely impoverished communities. **Father Ferrer devised the 'Food for Work' programme in 1973 to assist villagers – a barter program where they were enlisted to help with basic land renewal jobs like clearing rocks and digging wells, in exchange for Rawa (semolina) and oil.** The 'Food for Work' programme was so successful, that this period saw the installation of 8000 open wells and a boost to groundnut and castor farming, among other traditional crops.

Seeing also that the quality of the land needed improvement to sustain itself, RDT saw ecology measures as an area where farmers could work jointly to restore ecological balance in their regions, and improve land-based productivity and revenues.

Poor rural farmers were largely wage or bonded labour, or migrated for work to help meet their commitments and sustain their families –conditions that the initiatives of RDT's Ecology sector have helped in softening, and in some cases reversing.

1988-1991

Rain water harvesting and alternative energy option explored - biogas and smokeless Chulahs

1990

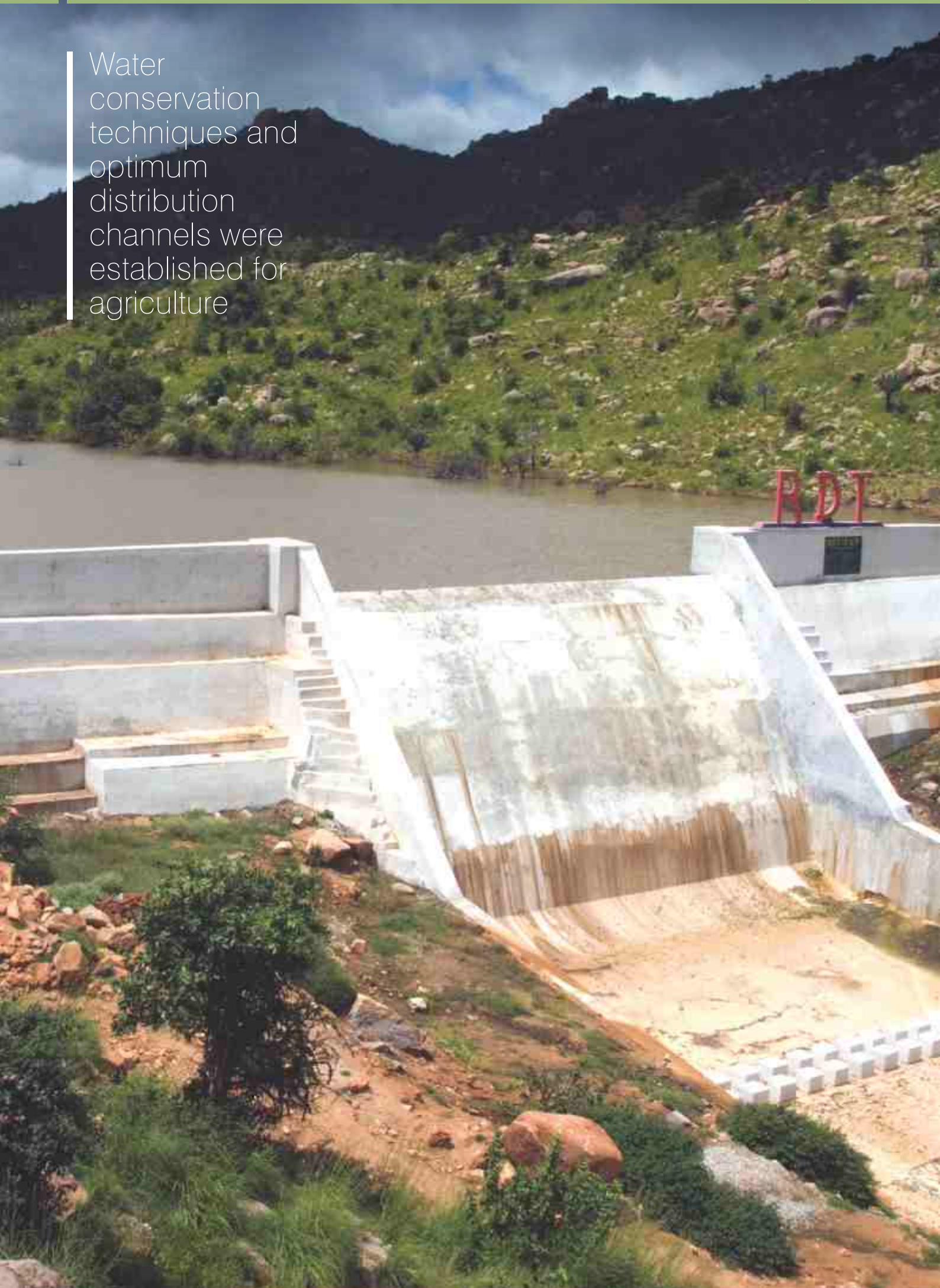
Horticulture and crop diversification

2003

Popularization of CB Jersey Cows and Graded Murrah Buffaloes for economic betterment

2005

Micro-irrigation system and solar energy programmes introduced



Water conservation techniques and optimum distribution channels were established for agriculture

PROGRAMME ONE

Water Harvesting

The fast-dwindling water supply system has been revitalised by introducing various methods of rainwater harvesting, and ensuring the efficient utilisation of rainwater by establishing catchment and distribution infrastructure.

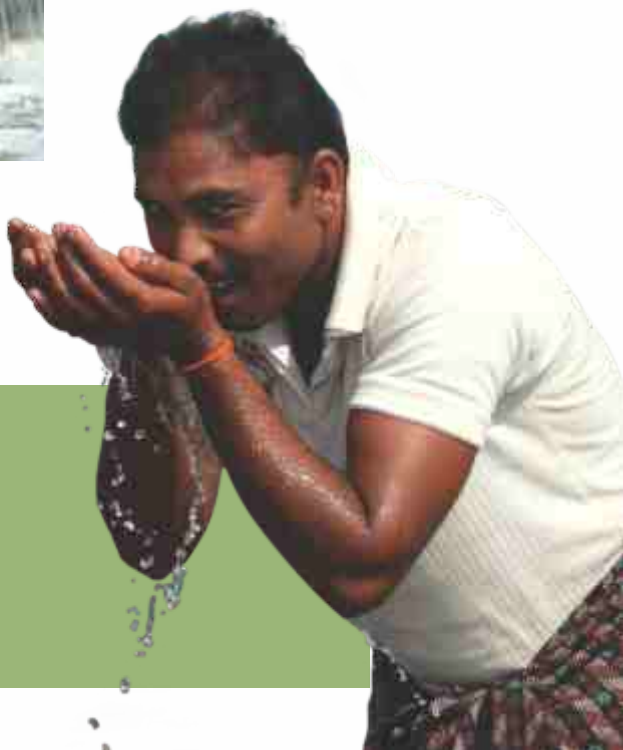
There was a growing need to create awareness and understanding about rain-water conservation and harvesting in order to optimise water-usage. Water bodies were built. The process was carried out by Watershed Committees which had 10-12 representatives chosen by RDT. These committees with the help of subject-matter experts and RDT, selected viable land and appointed labour for construction of watershed structures. Between 1988 till the early 2000s watershed structures of limited capacities were constructed and repairs were made to existing structures.

RDT and the State Government have also partnered the villagers under Mahatma Gandhi National Rural Development Guarantee Scheme (MG NREGS) in building percolation tanks, renovating older check dams and tanks and building new dams, and pick-up anicut channels (re-channelling streams for irrigation) to ensure reliable storage and redistribution of water for irrigation.

The year 2005 saw a major impetus to the water-harvesting programme with funding from donors for the *'Adventure Water Project'*. Under this project, large & old irrigation tanks that were built during the 15th and 16th centuries, and had been breached due to poor maintenance were renovated & converted to percolation tanks. Additionally, there were also many new tanks built. **Around 300 large capacity watersheds ranging between 50 – 300 TMCs were either renovated or built over a period of 3 consecutive years with an average of 100/year.**

Highlights

- **3,112 rainwater harvesting structures were built and 2.709 TMC of water were stored, and a further 42,518 ha. were brought under irrigation in the district**
- **549 farm ponds were dug to ensure storage of water and replenishment of groundwater**
- **Water stored in the structures constructed by RDT so far, can potentially irrigate 1,26,413 acres of land**
- **Water body constructions by RDT have had a tremendous effect in augmenting groundwater potential**
- **Productivity of land has increased substantially with higher yield of crops.**



Evolution

Since **2003** RDT intensified its water harvesting measures to ensure water conservation

Staff Speak

"While introducing the water harvesting program, RDT had a futuristic vision, which is to empower Ananthapuram village to become the role model for entire nation. With introduction of the irrigation programmes, especially water harvesting in association with Indian government, it is bettering lives and livelihood prospects, not only in Ananthapuram but also in its nearby regions. Some of the aspects of projects have been replicated in other parts of India as well."

Mr. C.Vijaya Bhaskar Reddy
Asst. Technical Director

The success of water harvesting project has improved the financial status of farmers in Ananthapuram, who are now accessing better education and transforming their lives.

Dr.K.V.Suryanarayana
Professor in Civil Engineering, SRIT College, Ananthapuram

Check Dams were the most important infrastructure build by RDT. The main goal was storage of water and supply to the fields and villages close to them, not only for productivity of crops and agricultural purposes, but also for personal use.

Subsurface Barriers. RDT has built five subsurface waterproofed barriers beneath the top soil level to not let the water seep down further.

Supply Channels are built above-ground to transport water from one place to another. Cultivable area has gone up 41% in the last 16 years due to the increased range of water availability made possible by these channels. RDT's role has been of maintaining channels already laid down by the government.

Pick-up Anicuts were built to re-channel/regulate and optimise flows of streams to increase the efficiencies of water distribution for irrigation.

Paradigm Shift

Lack of water meant lack of habitation. Now that the water can be harvested literally on the home turf, there is no more migration to cities as labourers. Farmers particularly youth are staying put and lead a life of dignity.

Activities taken up under water harvesting structures by the end of March '2015

- 286 Check Walls
- 583 Percolation Tanks
- 3 Pick Up Anicut
- 68 Improvements to old water bodies
- 1241 Check Dam
- 346 Renovation of Old Tank
- 6 Supply Channel
- 546 Farm ponds
- 5 Sub Surface Barriers

By the end of March '2015 , the Ecology Sector constructed 3084 structures in the district with its interventions in agriculture and Ecology.

Success Story

Mr. Sathyamaiah, 43, belongs to a backward community in Nagireddipalli village, Ipperu Panchayat, Kudair Mandal in Ananthapuram district. He has 1 ½ acres of grape garden and, in spite of having 4 bore-wells on his property, he still spent nearly Rs.2,50,000/- on water for the garden due to poor water levels in them. **The purchased water came in tankers from 3km away and formed a major portion of his costs.**

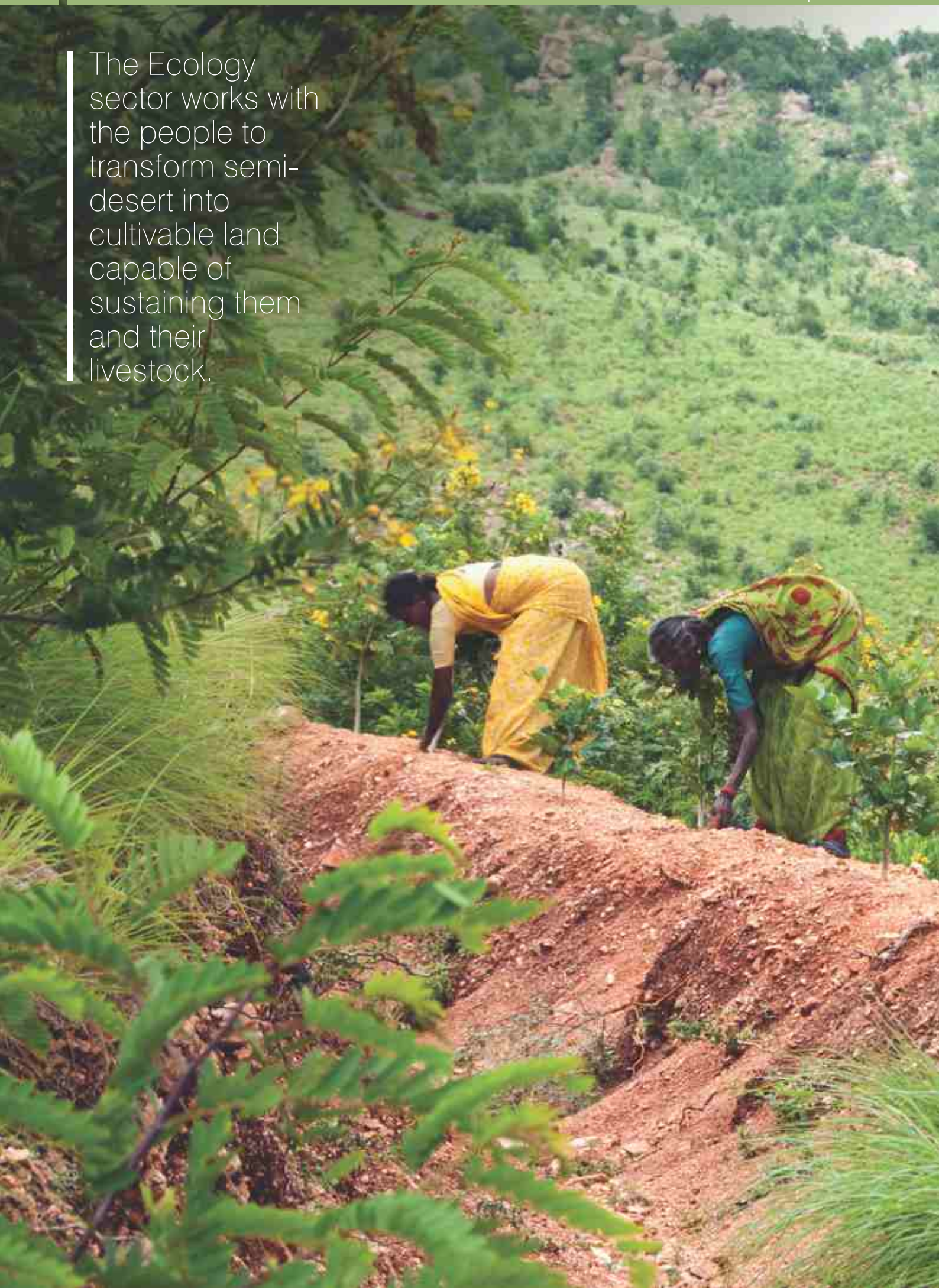
A group of village farmers including Mr. Sathyamaiah requested RDT to help them construct a Percolation Tank to conserve water in and around the village. The villagers, including Mr. Sathyamaiah, worked enthusiastically with RDT and the job was completed in 2014. Subsequent rains enabled 17 bore wells in the village to recharge. **This project was a huge success in the village, as the yields began to improve, pushing up incomes and helping villagers' prospects flourish.**

Mr. Sathyamaiah's bore-wells were also recharged and enabled substantial cuts to his expenses on watering his crops and improved yields to 16 tonnes and a net income of Rs.6,90,000/-. **This year, he expects nearly 32-35 tonnes grapes and an increase in net income of up to 9-10 lakhs.**

Mr. Sathyamaiah,
Farmer

> "With RDT's help, I am no longer depending on purchased water, which has made a big difference to my costs and profits from my farming."

The Ecology sector works with the people to transform semi-desert into cultivable land capable of sustaining them and their livestock.



PROGRAMME TWO

Land Development Activities

The root issue that needed urgent attention among the rural poor in 1969, when Father Ferrer first arrived in Ananthapuram, was the availability of food, any food. This basic need led to the inception of the 'Food For Work' program in 1973, which was the foundation for RDT's land-development activities.

The mid 70s saw 3 successive years of drought in an already-arid Ananthapuram. **Father Ferrer hoped to help villagers achieve a harmony between their interaction with the environment and their natural**

resources. Seeing that land quality needed improvements in order to reap increased returns, but knowing that poor rural farmers did not have the financial means to carry them out, the Community Credit Fund was conceptualised with ActionAid in 1979 by Father Ferrer. It was a joint micro-finance initiative between RDT and men's collectives, to improve farmers' access to liquidity for investment in the rain-fed crops which were cultivated at the time. Diesel engines, ecological know-how and other inputs were provided to community groups under the project, which covered approximately 250 villages comprising 40-50 families per Sangham.

In 1987, RDT initiated the 'Ecological Employment Project', a holistic approach to land rehabilitation, watershed development, feasibility and construction of bio-gas plants from ridge to valley. This was established with the help of experienced govt. officials who were subject-matter specialists in the domain of agriculture, engineering, forestry etc. The organisation, Action for Food Production (AFFP) was also instrumental in early training of RDT staff in matters of vegetation and ground-water management. The project was conceived to generate employment and move towards achieving parity between landed & landless farmers, and address the concern of migration for livelihood due to poor returns from the land. **A crucial component of the 'Ecological Employment Project' was to halt**

Highlights

- **368 Rock Filled Dams (RFD) have been constructed to prevent the soil erosion.**
- **Contour Bunding initiatives have covered a total of 1,12,484 hectares of land.**
- **Land Development Measures were undertaken in 1,34,526.8 acres of land in 1,436 villages covering 65,647 farmers resulting in bringing 8,806.68 acres of additional land under cultivation.**

Evolution

1987 Curtailing erosion via bunds and Rock-Filled Dams

Staff Speak

When RDT intervened in the region in 1970s, we saw a dire need for developing the land for cultivation as the region was dying under those climatic conditions. Thus our team came up with soil and moisture conservation measures, which were required for better crop yields. RDT educated the farmers about bunding and terrace farming. All the efforts of RDT helped the agriculture of this region to prosper and conserve the natural resources.

K.Beeralingappa
Asst. Director, Ecology Sector

soil-erosion and better the quality of the soil by restoring its top layer through extensive bunding, especially in undulating terrain and on slopes.

These interventions were accompanied by steady education about the reasons for undertaking these particular steps and why soil quality was so bad to begin with. A large proportion of lands were located in undulated terrains and hillock regions, covered with boulders, which did not provide any scope for cultivation, but the majority of the people in this district were dependent on agriculture. Researching the factors leading to poor yields and hindrances in farming, soil and moisture erosion was a common aspect.

By definition 'soil erosion' means wearing away of the top-soil in fields. The top-soil is the most fertile as it contains the most organic, nutrient-rich materials, which is very beneficial for the crops. Of the several factors behind soil erosion, one of the major ones is the sloped and undulating terrain of Ananthapuram. Another is the strong winds during the month of June, July and August. So through late 1980s till early 2000s, **Community Watershed Committees, with financial and technical assistance from RDT (via subject-matter experts) surveyed and selected suitable land for bunding, and depending on the soil quality and gradient of the land, boulders were cleared and bunds were constructed of packed earth, stones or rocks (Rock-Filled Dams - RFDs) to curtail erosion.** The Community Watershed Committees also prepared project plans and budget estimations for the farmers/users, identified labourers and delegated duties to them, prepared work reports for various stakeholders – including the government, oversaw the collection and utilisation of funds – including vendor pay-outs, and usually undertook the maintenance supervision/responsibility for the works carried out.

> "Introducing the process of soil and moisture conservation to the farmers made tremendous effort in improving the irrigation system, as well as quality of crops being cultivated."

G.Hanumantharayudu
Regional Director, Bathalapalli

Paradigm Shift

With the introduction of Land Development Activities, the previously non-arable land has come into the purview of irrigation. This has remarkably appreciated the land value, and the villagers' net worth has gone up.

By the end of March-2013, 1,33,112 acres of land was treated under 'Land Development Programme', benefiting 55,987 poor farmers in 1,175 villages

Success Story

Govindappa belonged to Sankaragalli community in Madakasira region of Ananthapuram. He was living in a house provided by the government and has 21/2 acres of land.

R.D.T. was a familiar entity in the sectors of education, hospitals, women welfare related programs in the region and in May 2014, members from the Ecology team initiated land development activities in our village.

The land for this reason was divided in two categories. One, which was under the community, located near the hills. Second, where the part of the land was filled with rocks and boulders, and was unsuitable for cultivation. The 2½ acres of land which was mine, had 10 per cent of it under the second category

With RDT's intervention, and introduction of their work in our village, helped in clearing out of large rocks from the land. This made the land fit for cultivation.

Govindappa planted groundnut seeds after the monsoon season for harvest. Earlier, before RDTs intervention, he would sow only 60 kilograms of seeds, but this time he was able to sow 65 kilograms. It was a great success for him to be able to increase his yields and income. **This success helped him gain confidence on the various innovations by government or by RDT to maintain his land and boost his income.**

Govindappa Sankaragallu,
Farmer

"I am very thankful to RDT to introduce their programme here, which enables us to earn more, increase our yields and enhance our lives."

Optimising the use of dwindling water resources and taking measures to restore it.

PROGRAMME THREE

Promotion of Micro-irrigation Systems

Given the poor ground-reserves and the lack of regular rainfall, it was important to restore balance to the state of the water table, and putting sustainable irrigation practices in place- ones that would use as little water, with as little wastage and a more extensive reach than before.

By the early 2000s, as open well and rain-fed farming became increasingly infeasible owing to depletion of above-ground resources and irregular rains, the need was felt to turn to water management techniques that were less intensive and optimised water usage. The AP state government was conducting a Micro-Irrigation Programme- APMIP, and their efforts worked in tandem with RDT's to benefit a larger footprint of villages and communities.

RDT's efforts were known by the banner of *'Sustainable Diversified Horticulture through Drip and Solar Irrigation'.* Farmers dug bore-wells to move from purely rain-fed and open-well-based irrigation to ground-water irrigation. They then were made aware of the benefits of drip-irrigation in comparison to the previously followed flood and basin irrigation. **Counselling inputs led to reduction in the exclusive dependence on heavily water-dependant traditional crops like groundnut, castor, red and green gram, and the rise of mixed cropping practices - alternating fruit and vegetable cultivation, using drip systems to water these crops.** The systems introduced were drip irrigation, sprinklers and micro-sprinklers.

Drip irrigation

Drip irrigation is suitable for fruit crops, vegetable crops, oil-seeds, plantation crops, forest trees etc. The system is highly efficient compared to other

Highlights

- **About 11,545.50 ha. of new land has been brought under irrigation in the district**
- **19,635.40 ha. of land was covered under drip irrigation benefiting 14,476 farmers spread across 1,787 villages with an efficiency of 85%**
- **10,943 sprinkler irrigation sets and 258 micro sprinklers were distributed covering an extent of 11,545.50 ha. in 814 villages up to the end of March' 2016.**
- **The fruit plants cultivated using drip irrigation systems have an improved survival rate of 95% to 100%.**

Evolution

2004 Micro-irrigation initiatives promoted to conserve underground water resources

Staff Speak

"The introduction of micro-irrigation systems helped immensely in expanding the practice of horticulture in this region. I saw the growth not only from the cultivation perspective, but also of farmers' wealth and confidence in the entire region. Initially we were only capable of growing groundnuts, and other limited crops, but with this system introduced by RDT to farmers, their horizons and learning expanded to include new means to improve yields. With the success of this introduction, the system was implanted in other regions of India as well."

Ramanjineyulu,
Sector Team Leader (STL)

conventional methods, since a greater area can be brought under cultivation. Undertaking drip-irrgation on a large scale has contributed to uniform growth of plants, water and energy saving, and optimization of returns Initiated around 2004, RDT established linkages with reputed private irrigation firms in the domain of irrigation to install the system of piping, demonstrate its benefits and train villagers in its use and maintenance.

Sprinklers and micro-sprinklers
It is a technique by which water reaches the plants in the form of localized 'rain'. Sprinklers and micro-sprinklers were raised higher off the ground than drip-systems, and allowed for an even water spray over the crop. Using this system additional areas were brought under groundnut cultivation using the same quantum of water as before. Farmers were able to grow two crops per year compared to other agricultural crops; and sprinkler systems are especially suitable for groundnut farming – which was a heavily relied upon crop in the region. There is also micro-sprinkler system, which distributes water to the root zone of plants.

The advantages of both systems were that while less water was used to irrigate crops, less was also lost to evaporation- a problem with flood-based irrigation. Weeding was lessened, the systems were significantly less labour-intensive and reliance on traditional fertilisers was reduced- since water-soluble fertilisers and medicines, could be delivered through the system. Lastly, the crop was evenly watered and resulted in uniform growth. **Of all these, the greatest benefit was the reduced dependency on labour, which was traditionally as much as 60% of a farmer's cost, and which is in particularly acute shortage today.**

"The micro-irrigation program was launched with multiple motives of conserving water, improving crop yield and assuring better incomes for farmers, all of which it has succeeded in achieving."

Mr. G.Nageswara Reddy
Sector Director

Paradigm Shift

Resources define class system. With the advent of Micro Irrigation Systems, previously poor farmers with no access to abundant water resources can self sustain and this has led to social parity.

Efficiency of different types of irrigation

Drip irrigation
85-95%

Flood irrigation
30-50%

Sprinkler irrigation
70-85%

Furrow irrigation
50-70%

Success Story

Today, Mr. Vishnuvardhan is a paprika cultivator of Muddalapuram village, Kudair Mandalin Ananthapuram district. **Before diversifying his cultivation, he only sowed tomato in his 3 acres of land using flood-irrigation.** He would reap an average yield with a total gross income of ₹ 64,000 and a net income of ₹ 24,000, which was severely insufficient to sustain his family. Flood-irrigation meant a high level of water usage for a nominal yield and reduced returns.

To improve their prospects, he and his village farmers requested RDT's help in installing an in-line drip system. RDT brought in an irrigation form which installed the systems and demonstrated in detail the working, maintenance and benefits. Mr.Vishnuvardhanalso diversified into growing Paprika Super Deluxe variety crop in 2 acres of his land in 2014. This cropping change boosted the productivity and quality of his soil which then boosted his production to 43 quintals yield with a gross income of ₹ .4,12,800, and net income of ₹ 2,84,800 in a span of 8 months. **This allowed him to clear all his previous debts.**

Mr.Vishnuvardhan,
Farmer

"It is a miracle for us to see that conditions of our lands and crops are improving with new methods being introduced by RDT. Without the timely introduction of drip farming in our village, none of us would have been able to come out of indebtedness"

Crop diversification and horticulture were introduced to maintain soil productivity

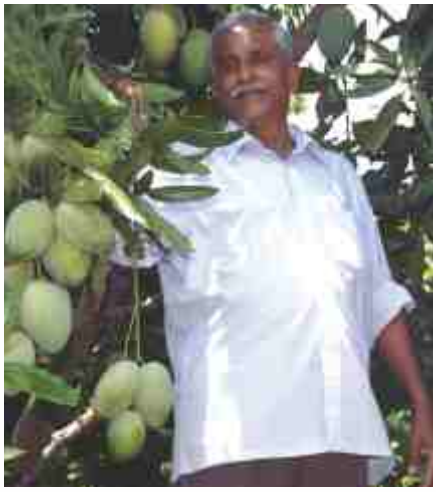
PROGRAMME FOUR

Diversification of Crops and Horticulture

Mono-cropping was the main practice followed till the 90s, each farmer relying on one or two traditional water-thirsty crops. Over time, reliance on crops like groundnut in dry lands, and paddy in wetlands, meant that aboveground reserves were increasingly over-exploited.

Knowledge of sustainable practices of water-conservation was also low, which meant farmers knew no alternative cropping options. **Mono-cropping came with a set of problems that got aggravated with sustained practice:**

- **Incidence of root diseases in crops**
- **Faster depletion of water reserves and soil-nutrients when solely depending on water-thirsty traditional crops.**



With technical inputs from experts via RDT, farmers were made aware of mixed cropping, and its optimising effect on the water reserves, and they were introduced to the idea of trying out horticulture instead of traditional water-intensive cropping. **In parallel, farmers were also sensitised about restoring the water table and a knowledge base was laid for practicing water conservation as well as optimal cropping.**

For dry lands, crops like bajra, jowar, millets, horse gram, pulses, and maize were introduced. Whereas for wet land or irrigated lands, commercial crops like vegetables and flowers were grown. One of the key challenges faced when mixed cropping was suggested in wet/irrigated lands via fruit plantation, was that most fruit plants would take approximately 5 years before there would be any yields. **So in order to reassure and insulate people from lengthy harvest cycles, they were advised to plant three different crops - vegetables, fruits and traditional crops, all on the same piece of land.**

Drought-resistant crops were explored and experimented with, and were divided into short-term yield crops - 2-3 months, e.g. watermelon, tomato; medium-term yield crops - up to 1 year, e.g. banana, papaya, chilli, onions; and long-term yield crops - up to 5 years, e.g. mango, sapota, guava. Horticulture in particular caught on well among villagers.

During 1996-1997, RDT promoted awareness of using tissue-culture bananas as a viable inter-crop. Until then, bananas were largely unavailable

Highlights

- **Over 7,64,000 species of fruit plants have been provided at subsidized rates to farmers**
- **67,783 families have been encouraged to set up kitchen gardens**
- **RDT brought 52,531 acres of land under fruit plantation with crops like mango, banana**
- **The entire area of Ananthapuram is earning approximately Rs.115 crores collectively today**

Evolution

1990 onwards

Villagers received training and infrastructure inputs on the use of horticulture, floriculture and vegetable cultivation

Staff Speak

"It was a sad state of affairs in Ananthapuram and surrounding regions in terms of agriculture and its impact on the people. From the late 1980s, RDT supplied rain-fed crops and slowly evolved to the system of horticulture, which gave the farmers a sense of hope to grow and have self-sustained life. For us also, it was great work towards maintaining the ecological biosphere for a longer term."

M.Priyanka
M.Sc.(Hort.), SMS(Hort.)

in Ananthapuram and saplings were brought from the neighbouring Kadappa districts. Kuderu was the first place where tissue-cultured plantains were experimented with. **Despite the fact that bananas are water intensive they were promoted for two reasons:**

- They could yield produce for 3 consecutive years starting from the first year meaning farmers had access to interim income while intercropping with other longer yield-interval crops.
- There was a scarcity of bananas in the district
- In the 90s, the state and Indian central government were also conducting a horticulture programme- NHM (National Horticulture Mission), and both efforts worked in concert to drive awareness about and increase the footprint of horticulture, among rural farmers in Ananthapuram.

In Sept 2014, RDT distributed a total of

- 84,43,109 saplings of various species of fruit plants
- 269 units of vermi-compost kits for organic farming at the subsidised rate of Rs.35,000 for both the shed built and the worms

Kitchen gardens/backyard horticulture was promoted as they put waste water to good use. In addition to this, they added to farmers revenues as well. 71,294 sets of kitchen-garden/ back yard horticulture kits were distributed. The kits composed of seeds and saplings of useful plants and trees like chilli, brinjal, tomato, papaya, drumsticks, spinach, cluster beans, curry leaves, coconut and others. **A new culture of plenty has evolved in this previously fallow district, where farmers barely had enough, now go confidently outside to other neighbouring districts and even to Karnataka to sell crops like potatoes, beetroot, cauliflower, cabbage – crops that were unheard of as this area's produce.** What's more, the practice of keeping nurseries has also been inculcated and taken hold and today prosperous farmers run greenhouses on their plots.

"RDT brought hopes and growth to our region, with the new crops helping improve the overall economy. Today we are all engaged in further development of the region rather worrying about our situations."

K. Sidda Reddy,
Farmer

Paradigm Shift

Now, there is a general sense in the villagers, that change is the name of the game. Armed with the acquired knowledge of diversification, they are now always willing to learn more and evolve. This has enabled them to take risk and try new crops and succeed.

1990

onwards RDT provided crops and fruits suitable to climatic conditions to boost agriculture

Percentage of household using land for inter crops along with horticultural crops

Success Story

Mr. R. Oomla Naik, 32, belongs to Beluguppa Thanda village, and grew groundnut on his lands, just as his ancestors did. **Crop yields of groundnut were not able to sustain his family members and his debts increased year by year and reached up to Rs. 70,000/-.** In this situation, he requested RDT's Ecology staff for their help. RDT officials inspected his land and suggested that he plant banana under the 'Diversified Horticulture Programme'.

He was provided seedlings for 9 varieties of banana, and was assisted in setting up drip-irrigation systems by RDT and received fertilizers and pesticides from Government under the 'Tribal Welfare Programme'.

With further information inputs on cultivation, water management, and pest and disease management from the officials of RDT, Mr. Naik got nearly 47 tonnes of banana yield with a gross income of Rs. 5,17,000/-and a net income of Rs. 2,87,000/- within a span of one year.

Mr. R. Oomla Naik,
Farmer

> "I never expected this much of amount in my life. Without the technical and financial help from RDT, I could not have achieved this much progress"

Livestock management was begun to provide a sustainable source of additional income.

PROGRAMME FIVE

Promotion of Livestock

With improved means of land management and irrigation, agriculture, which was once extremely labour intensive, is not so anymore. This has opened up avenues of alternate incomes, lessening people's dependence on agriculture, and hedging against possible crop failures.

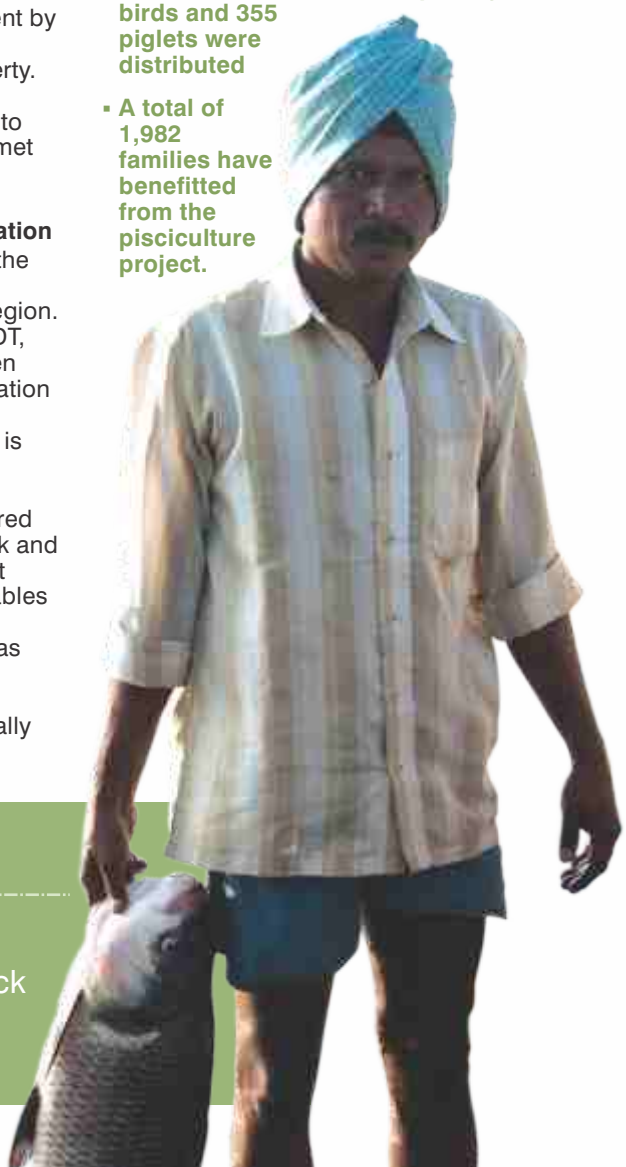
Livestock
Livestock rearing however, has expanded greatly, and has provided women in particular with previously unknown empowerment and unexplored avenues for entrepreneurship. One of the major requirements of the program was that people signing up for the program must have enough space or land to keep animals, create a shelter, stacking of production, and be able to maintain. The livestock programs included facilitating the purchase of cattle cross-bred with Jersey cows and Murrah buffaloes which yielded double the amount of milk - approximately 10 litres/day as opposed to the 5-6 litres/day produced by indigenous breeds. Villagers were given training inputs regarding their maintenance and optimising yield. Additional inputs on profitably selling the milk were part of the module to ensure women received a thorough understanding of the entire business cycle.

Pisciculture
Pisciculture is a method in which breeding, rearing and transplantation of fish is done by artificial means. This slowly becomes a natural fish farm where raising and then selling fish takes place. Pisciculture was experimented with to a small extent by villagers and collectives already having watersheds on their property. These candidates were allotted fingerlings with RDT's assistance to farm and sell; these efforts have met with encouraging success.

Encouraging Women's Participation
RDT encourages women to take the lead in the development of their families, and subsequently, the region. Also, in the other programs by RDT, the team observed that the women were a strong force in implementation and also showed good decision-making skills. Dairy development is one of the critical projects, which benefitted from the attention of women, since in general, they cared for the animals' upkeep. Livestock and dairy management helps in asset creation for women, and also enables her family to tide over drought situations by selling milk which has consistent demand. Today in the region, each woman owns 1 to 4 milking animals and is economically

Highlights

- **7,170 milk cattle have been provided on loan to women as of March'2016**
- **1.8 crore shearlings have been provided to 1,982 families across 53 villages**
- **As of March 2016, 51,865 poultry birds and 355 piglets were distributed**
- **A total of 1,982 families have benefitted from the pisciculture project.**



Evolution

2004 Establishment of Livestock Development Activities

Staff Speak

"In 2004, to bring diversity and overall growth of the region, we realized that the participation of women was very important. So RDT organized the Dairy Development Program, open to all, giving ideas on cattle breeding, milking of cows, and ways to maintain this work. It was a great success with the women also participating in the development process."

Dr. E. Vidya Chand,
M.V.Sc., SMS (Vet.,)

"RDT has taken up Dairy development as supplementary to agriculture to boost rural economy in the district. It provided sustained income to rural poor and enabled the women's empowerment."

Dr.K.Balasesha Reddy,
B.V.Sc, Retired Asst. Director, (AH)

self-sufficient.

In time, cows and buffaloes, sheep, goat, pigs and poultry birds were added in this integrated farming system. A woman from a target group for this program typically received Rs.25000 in an interest-free loan to buy cattle. She was also given training in care of the animals and their basic health care. Retired veterinary doctors' services were sought to provide more specialised services as needed. More than 15,000 cows and buffaloes have been bought under this scheme and provided to villagers to manage. **The year 2004 saw 1,550 households becoming involved with dairy management, yielding a total revenue increase of almost Rs.3 crores annually, which has jumped to the total of over Rs. 25 crores today. In particular, drawing women to the fold of dairy activities has been successful in elevating their social standing, self-esteem and bettering families' income prospects.**

Paradigm Shift

Anantapur and adjacent areas were acutely short on nutrition and suffering from many deficiencies. Villagers having indulged in the livestock, along with agriculture, have shown encouraging improvements in the nutrition level.

95% **household benefited by dairying activities and within this, 81% overcame social and economic barriers in society**

Success Story

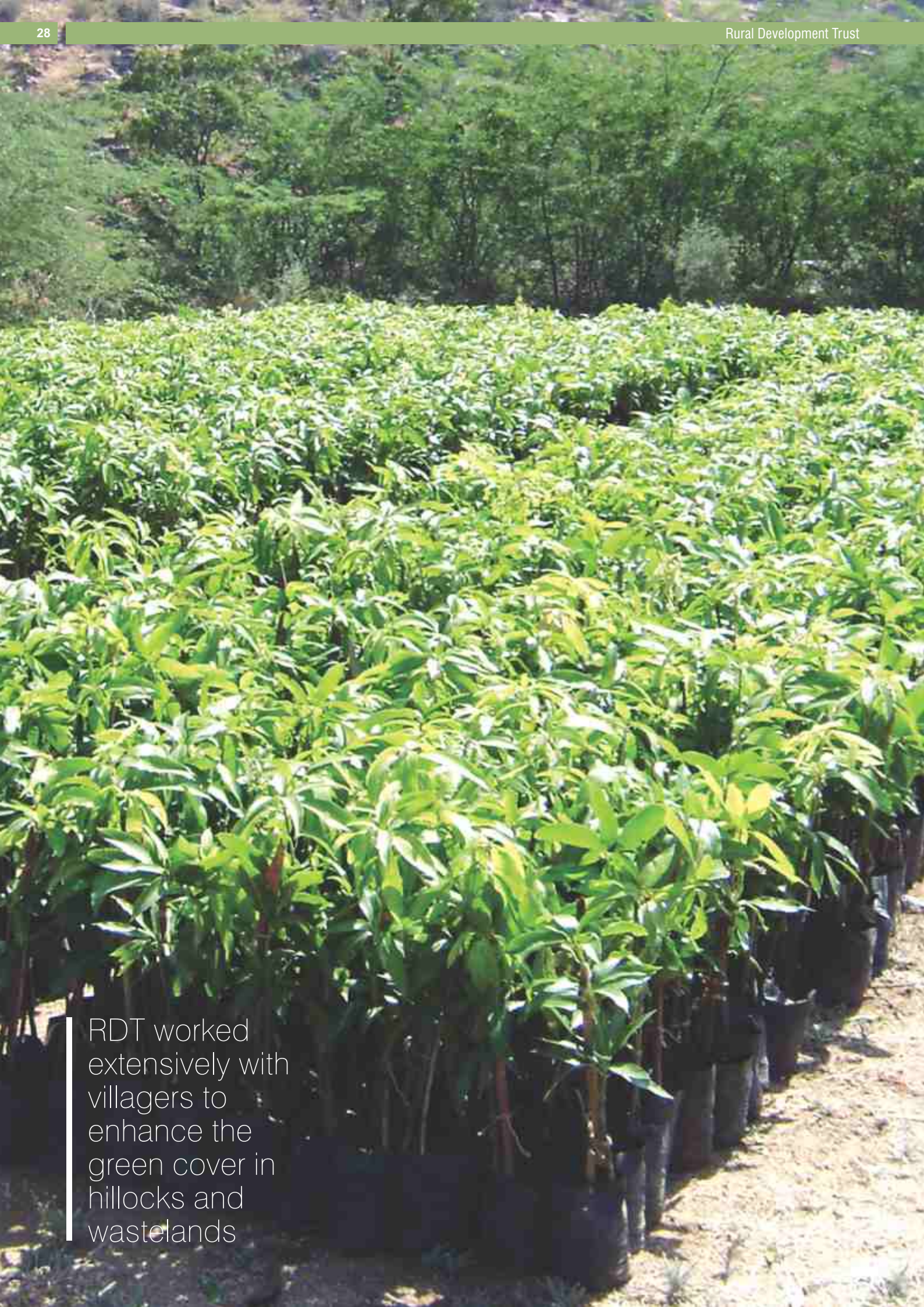
Ms. Kavitha, 26, Moolagiripalli village, Uravakonda Mandal, has been growing groundnut in 0.65 ha. of land, but the crop yields were not able to sustain her family. She wanted to purchase one milch animal to get an additional income, and approached RDT for help in getting a graded Murrah buffalo, which would cost nearly Rs.40,000.

In 2014, with an investment of Rs.15,000 as her share and the remaining Rs.25,000/- interest-free from RDT, she was able to do so. In 0.20 cents of land she grew green fodder for the buffalo to graze upon. Ms. Kavitha got 10 litres of milk per day, a gross income of Rs.79,200 and a net income of Rs.60,000/- per year.

The incremental income from milking and cow-dung has helped her overcome her financial difficulties. Now she is planning to purchase another buffalo with the support of RDT.

Ms.Kavitha, Livestock Rearer,
Moolagiripalli village

"The Dairy Development Programme is a boon for us by giving path towards sustainable development and economic confidence."



RDT worked extensively with villagers to enhance the green cover in hillocks and wastelands

PROGRAMME SIX

Afforestation Programme

In Andhra Pradesh about 22 per cent of the area is covered with forest, of which only 10 per cent falls in Ananthapuram district. The forest is highly fragmented, with sparse vegetation. RDT promoted measures like barren hillock regeneration, social forestry and avenue plantation.

Of the aggregate land area of Ananthapuram (19,135 sq. kms.) vegetation covers only 2.5% and forest cover 10.5%. The reason is high climatic temperatures and the higher incidences of summer fires, in a landscape punctuated by hilly, and undulating terrain. Of the remainder, according to the survey of National Wasteland Development Board (NWDB), New Delhi, 16% was wasteland- i.e. barren land, hillocks, stream/river beds and saline lands. This land was declared as 'Common Property Resources' (CPR), and allocated to village communities for common use. To address the issue of growing desertification and forest fires, RDT and the villagers partnered in an afforestation drive. This program emphasised to bring one third area under vegetation, to optimize use of wastelands and agricultural lands through agro forestry, improve socio-economic conditions of the people living in the region by providing avenues to gain employment and other livelihood source and enhance environment with green cover. At present 1,467 hectares of barren hillocks have been covered and social forestry has been applied on 241.74 hectares of land.

Some of the initiatives undertaken were, horticulture production on hillocks and ridges- i.e. fruit trees like Custard Apple –Sitaphal and avenue plantation- i.e. tree plantings alongside roads. School plantation-drives were also extensively practiced where the children were sensitised about reforestation, and were placed in charge of the saplings they planted. **To bring back forest-cover, forest tree plantings of eucalyptus, tamarind and neem among others, and lastly, tree plantings were carried out for village-beautification.**

Around the year 2000, there was an initiative from AP state called *'Chinta Nischinta'*, literally 'worry-free Tamarind', which promoted tamarind plantation on wastelands as a means of income generation for Panchayats. This programme ran in tandem with RDT's initiatives in afforestation. **For all these, RDT sourced saplings and seeds from government and private agencies and entrusted village committees to oversee plantings, protect the resulting growth from those who would cut trees or use the land for cattle-grazing.**

To a limited extent, RDT also gave saplings to landowning villagers wishing to practice afforestation, even if for commercial purposes. Improved afforestation levels increased the avenues for gainful employment and eco-friendly livelihood patterns. Afforestation has also had a positive impact in increasing the district's green cover, averting soil erosion and in conservation of soil moisture. **Resultingly, the district has seen the optimized use of wastelands and**

Highlights

- **33% of the district is today covered in vegetation solving the problem of desertification.**
- **Tree plantation helped in combating soil erosion and reducing global warming.**
- **At present 1,467 ha. of barren hillocks have been covered and social forestry has been applied on 241.74 ha. of land**
- **Improved afforestation levels increases avenues for gainful employment and eco-based livelihoods**
- **203.65 kms of roads are lined with avenue trees and plants.**
- **Near Penukonda village, 950 kgs. of seeds of 20,000 forest species, have been planted**

Evolution

1987 Conscious efforts were put in place to enhance the district's green cover

Staff Speak

"Rural Development Trust focused to address the challenges of Ananthapuram's ecology. With this project of replenishing the natural habitat of the region, we could pave the way for further growth of the region in terms of occupation, vegetation, and maintaining ecological balance. This growth has taken years of efforts of education and maintenance, and has helped RDT and people of Ananthapuram to build strong bond of friendship and trust which looks to improve the future."

Sri. B. Lakshmikantham,
Retd. Deputy Conservator of Forests.

"It is due to RDT's intervention that we could see after 20 years, a green belt of forest in the region which has once been a desert"

Ivan Alvarez,
Development Co-operation Technician, Spain

agricultural fallow lands through agro-forestry practices.

EDC (Ecology Development Committees)

EDCs were constituted in 2010 to coordinate the various activities of the Ecology sector in their areas, since it was found that project-specific committees were limited in nature. Members of the committee range from 6-12 depending on the size of the village with an equal representation of women. These members are provided with regular trainings and are also given timely updates in technical knowledge, special trainings by subject-matter experts, workshops and exposure visits for women. **This improved accountability and sharing of best practices enables the committees to oversee the various ecological endeavours underway in their communities.**

Paradigm Shift

Initially, people wouldn't think twice before slaying a tree. Now, seeing the hardwork in planting and maintaining a tree, people have become more sensitive and considerate towards nature and ecology.

Afforestation activities taken up by the organization by the end of March' 2015

Activity	Cumulative number by the end of March'2015
Barren Hillocks Covered	1305
Afforestation /Natural vegetation - Avenue plantation	154.75
Social Forestry	209.54

Success Story

Palavenkatapuram is located at 15 km from Kalyadurg Mandal headquarters and hosts 500 households in the village, which includes 70 families belonging to Schedule Caste/Schedule Tribes. RDT workers have been associated with the villagers since the 80s with initiatives in agriculture and horticulture.

Previously, people used to cut trees heavily for fuel and timber purposes. Slowly, with inputs from RDT's sector workers, villagers were sensitised about protecting vegetation & trees in the hillocks. An Executive Committee of 15 members was constituted and set common rules and regulated them collectively with the support of community members.

Some of the rules were:

- No one should enter the designated hillocks with an axe
- Free grazing for the cattle is allowed
- For cutting of grass Rs.10 per head-load was charged
- If anyone cuts trees, heavy punishment would be imposed

With time new resolutions are passed by the committee, and many new members are leading the program. Nearly 40 members have participated in extending voluntary labour to carry out the planting operations and nearly 3000 trees have been planted.

P. Ramachandrappa,
Chairman of the committee

"This initiative by RDT has not only helped replenishing our village but also helped in farming, getting employment and preserving our natural resources."

Non-conventional energy sources were introduced to help farmers meet their energy needs

PROGRAMME SEVEN

Alternative Energy

Irrigation and other ecological initiatives undertaken called for some level of reliable electricity. To supplement the energy availed from the AP State Board, RDT worked with the villagers in training them about alternative sources of energy.

Ananthapuram required a boost of electricity for irrigation of crops, which was limited in the region, and thus affecting the farming community. **Addressing this concern, RDT introduced pump sets, driven by solar power and systems of drip irrigation, which supplied water to horticulture crops timely and efficiently. Further, the organization introduced the usage of non-conventional energy sources like biogas and smokeless stoves.** These interventions by RDT boosted the income of this region and contributed towards bringing a positive change in the standards of living.

Solar pump sets

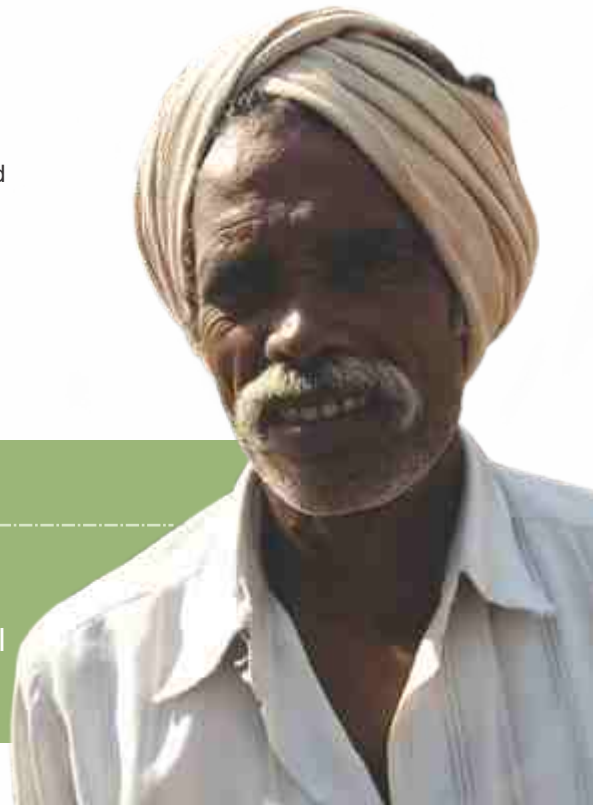
RDT introduced solar water pumps, powered by photovoltaic cells; to reduce the use of fossil fuel powered conventional electricity. This establishment highly benefited the people who were living far from the grid. Initially, the photovoltaic systems were introduced to selected farmers only. **These solar panels provide farmers energy to pump groundwater from bore-wells, and use it in their lands through drip irrigation systems.** In this program the usage of renewable energy not only benefited in irrigation, but also conserved electricity costs for the beneficiary families. An SPV pump generated 12.6 units of electricity a day, which would have cost Rs. 4.5 per unit. With 448 SPV pumps allotted, 5645 units of electricity consumption

are saved daily, and the cumulative annual savings on electricity to farmers works out to nearly 17 lakh rupees.

The solar pump sets were provided only if certain pre-conditions were fulfilled; there had to be either an existing robust practice or high awareness of drip irrigation and an enthusiasm to manage the entire system. And the bore-well to be drilled would be shared amongst 3 or more households of the community. **As is with other projects, RDT co-owns the project with people and they have to make some nominal contribution to get the same installed.** These pre-conditions on which the sets were disbursed have

Highlights

- **As of 2014, 1,805 ha.of land were being irrigated using solar powered water-pumps**
- **4,429 biogas units were installed in 613 villages**
- **RDT distributed a total of 52,801 mobile smokeless stoves, 10,686 fixed smokeless stoves and 100 solar cookers as of March 2015**
- **52,801 households have benefitted from smokeless stoves improving fuel economy and the respiratory health of women**
- **RDT implemented solar energy project in a total of 253 villages reaching 1,008 people**



Evolution

2004 RDT promoted the use alternative energy solutions to bring down environmental damage.

Staff Speak

"The introduction of various means of alternative energy in Ananthapuram received a good response from the farmers and villagers for solar irrigation and as well as bio-gas and smokeless stoves. The idea of introducing these systems was very simple for RDT – to enhance villagers' life and boost the agricultural sector of this region. These methods did not only make an impact for farmers but helped women in utilizing their resources and conserving. This gave the people a sense of confidence to be independent of the climatic situation."

R. Sathyanarayana Setty
M.Sc. (Geology), Asst. Director, Ecology Sector

added to community-building, as families commonly share bore-wells and regulate each other's use of water, limiting wastage and, they have also become agricultural support partners.

Biogas

It was noted that villagers used firewood for cooking and other domestic needs. To bring down the dependency on wood as the sole fuel for cooking, **RDT promoted the construction and usage of biogas units in the villages. Before the introduction, the people were first educated on the disadvantages of using wood.**

Women were expected to procure firewood for cooking from the forests, which was a rather excruciating task; as it required long walks and heavy lifting all the way back to their homes. Additionally, the smoke from the firewood would cause respiratory issues in many women. Smokeless stoves were experimented with as a means to lighten women's work load. These were sourced from government agencies like NREDCAP (New and Renewable Energy Corporation of Andhra Pradesh) since the state government was also promoting the use of alternative energy. The system followed was that RDT prepared the list of target households, NREDCAP would visit premises and install the biogas shed or allot the stove/s and deliver the necessary training and RDT would release the required funds. To install a biogas plant, the household under consideration had to have at least 4 animals and 4 sq. mts. clear space, where a tank/unit would be built. Further, the tank called for 50 kilos of manure, and 50 lts. of water a day. **Benefits in using biogas were aplenty.**

- **It reduced deforestation**
- **The waste i.e. slurry, could be used as manure and was traded to purchase fodder for cattle**
- **It reduced the workload of women and they could now contribute towards more constructive work**
- **It was available round the clock**
- **With the usage of biogas, each family was able to save Rs. 4200 per year, cost otherwise spent on purchase of LPG cylinder.**

Smokeless Stoves

RDT introduced smokeless stoves mainly for cooking purpose. These stoves are small sealed containers with wood stored inside. It required less energy than usually required to light it, and saved on wood. Being smokeless, this system also has major enviornmental and health benefits.

"We must be responsible users and know how to be efficient in resource-management and conserving. Each farmer's efforts adds up to a big difference for the environment"

B.C.Dhanunjaiah,
Horticulture Officer

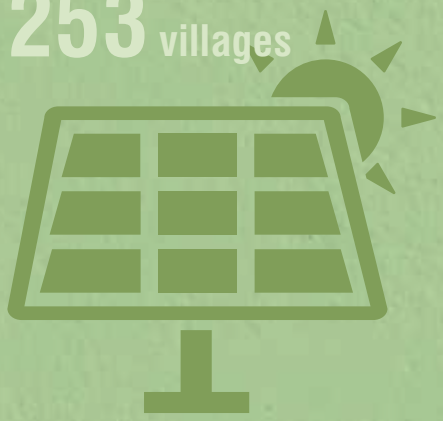
Paradigm Shift

In villages, homely chores were usually taken care of by women. With alternate energy channels, they have saved significant time and energy. Womenfolk now utilize it productively towards self-improvement or improving the quality of life of the family.

About **80%** of the households found that **smokeless stoves** are useful for fuel economy and **75%** households subscribed to the view that smokeless stoves promoted health of women in the family

By end of march 2015,

405 solar pump sets are installed by the organization to benefit **1,008** farmers in **253** villages



Of the total number of households,

4429 families have **biogas plants** at the instance of organization for cooking

Success Story

I was not getting sufficient income from groundnut cropping to sustain our family. In total I had taken nearly Rs.3,50,000 from banks, relatives and friends which I was finding difficult to pay back while feeding my family and saving for other requirements.

With information and assistance from RDT, I shifted my cropping pattern from groundnut to horticulture and vegetable crops. To reduce my costs on diesel and electricity, I also took RDT's help to install a solar-power pump to draw water for my fields. I got nearly 26 tonnes of chillies and with my reduced costs on fuel and electricity, I got a net income of Rs.4,07,600 in a period of 6 months. Today, I have not only paid back all my loans but I have also set up a biogas plant at my home and only smokeless stoves are used for cooking. All these things have further increased my incomes.

"I am so thankful for the start RDT gave me, these alternative energy solutions helped me save money and enhanced our lives."

Mr.Nakka Rangaiah,
Utakallu Village, Gooty Mandal

WAY FORWARD

Enriching the Lives

With enthusiastic support from the villagers and local bodies, technical and information inputs from experts, and working in tandem with government efforts the Ecology team has achieved much progress in the last 3 decades.

In its efforts to improve the lives and livelihoods of small and marginal farmers in chronic drought prone and backward regions RDT will continue to explore and educate farmers about diversified agricultural practices and protecting their environment. Small and marginal farmers, and landless agricultural labourers, especially youth, should receive inputs regarding farm and non-farm, sustainable, income-generating activities directed at bringing down, and eventually eradicating instances of farmer suicides, migration, poverty and needless suffering.Groundwater conservation by constructing Rainwater Harvesting Systems (RHWS) will continue to be a key-focus area and RDT will continue to take expert inputs in improving efficiencies in water usage, and minimising wastage. Strengthening of Ecology Development Committees will also continue in order to sustain the impact of eco interventions carried out in villages/Mandals. Diversifying villagers' sources of livelihood provides them with a buffer in hard times, livestock-rearing has been successful so far, and efforts will continue in these activities to improve yields, animal health and the cultivation of fodder crops.

Improving crop production, reducing costs and increasing incomes through diversified cropping patterns will continue to receive backing and promotion by RDT in its activity plan. These will be accomplished through improved practices in micro-irrigation systems and renewable non-conventional energy resources (solar and biogas) Additionally, RDT will also promote organic farming owing to the increasing awareness about and demand for organically-grown produce.

RDT will complement the efforts of the government, in association with R&D institutions, to make the district a unique Horticulture Hub, striking a balance between cultivation of vegetables, fruit plants, commercial crops including oil plants, cereals and millets, all optimally farmed using drip irrigation.

Rural communities should come to live in ecologically harmonious environment, with abundant natural vegetation and increased wildlife. Engaged local bodies, villagers and Community Based Organizations (CBOs) will continue to work jointly towards widespread afforestation of barren hillocks and wastelands and take up stringent protective measures to ensure their upkeep and prevent misuse.

And finally, farmers and RDT will work jointly towards improving production and marketing capacities by forming co-operative enterprises in selected villages for enhanced synergies in agriculture production and higher market gains through bulk marketing, processing and value additions.

INDIA *for* india

"Let your hearts respond and hands help"

India for India Initiative aims to encourage Indians, both people and institutions, to strengthen the hands of the Rural Development Trust in its mission against rural poverty and neglect in India.

India for India is an innovative concept initiated by RDT. It is based on the insight that an individual or community does not have to be affluent to hold concern for the underprivileged. In fact, empathy for the deprived is more likely among those who have known poverty first-hand. **RDT also believes that this example by deed from within the marginalised communities will be acknowledged and receive whole-hearted support from donors across the country.** Here we'd like to tell you about generosity of the poor, for it is among them that RDT launched its Hundis.

It all began in Ananthapuram district, where RDT has had its base since the 1970s, and among the populace it has worked with for over four decades. It follows the common custom of depositing small amounts on a regular basis to a Hundi, a collection box, usually for offerings to God. **RDT adapted the practice to pool together small donations from project areas to support the common cause.** RDT has established the tradition of collating all the proceeds from these Hundis on April 9, Father Ferrer's birth anniversary. **In 2014, there were over 85,000 of these Hundis. By the next year, this number had increased to 1,41,200. Likewise, from Rs 1.86 crores in 2014, the collected amount also grew to Rs.4.08 crores in 2016.** This beginning evolved into the *'India for India'* initiative, as many more villages lent momentum and the initiative spread across the boundaries of its project area.

The unique bottom-up approach of the initiative has inspired all sections of society especially students/youth and the poor people. It is they who are motivating their friends, colleagues, relatives, and neighbours to maintain Hundis.

Several of its slogans have caught on, and its message is carried forward simply and effectively. **As for the sum collected, in accordance with people's wishes, it is being utilized to fund the education of more than 700 orphan children in and near Ananthapuram district. Also, about 5,550 were provided with nutrition supplement.** The vitality of the *'India for India'* movement comes from the fact that thousands of poor families and various sections of people, including educational institutions and private business enterprises, within and outside project area have reached out with their support by maintaining such Hundis. In addition, RDT receives support for various projects and programs from banking, insurance and other corporate institutions in India.

Over 1.4 lakh Hundis maintained every year

If you feel, you must help too.

Small change brings significant change.

To contribute, setup a SEVA HUNDI and register details with the Foundation. Add amounts daily, if possible, and deposit annual savings into the designated account, on the birth anniversary of Father Ferrer, 9th April.

Other means to help

You can write a cheque in the name of **"Rural Development Trust"** and send it to our **Registered Office or Resource Mobilisation Center**. You can also donate online or via wire transfer to the following account details:
Bank Name: **IDBI**
Account Name:
Rural Development Trust
Account Number: **0208104000122993**
IFS Code: **IBKL0000208**
Branch Name:
Ananthapuram, Andhra Pradesh.

All donations to RDT are eligible for tax exemption under section 80G of the Income Tax Act, 1961.

www.rdtfvf.org

VicenteFerrer

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Produced by: www.thdtin.com