

Sadivayal Village Development Model

— Smart Sustainable Tribal Hamlet for Community

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Amrita Self Reliant Village (Amrita SeRVe) adopted Sadivayal village, Coimbatore, one of the remote tribal village of Tamil Nadu, to develop it as the first Smart Village. The village, 45 km away from Coimbatore District, with an average population of 150 belongs to the Irula Community of Scheduled Tribe. Amrita SeRVe smart village focuses on how villagers utilize local resources better in access to food and nutrition, education, healthcare, and access to clean water and sanitation. In Amrita, SeRVe agriculture acts as a catalyst for development and capable of addressing unemployment, health, education, gender equality, and boost income.

Keywords: Agriculture, Amrita Self Reliant Village, Education, Gender Equality, Health, Smart Village, Sustainable Village

ACCORDING to Census 2011, there are around 649,481 villages in India out of which 145,000 are tribal villages; so there is a need for nourishing and developing the tribal villages as a smart village. It is expected that half of our population would be rural even in 2050. After 75 years of independence, still, there is a significant gap between rural and urban India. Despite there being several past initiatives by governments at all levels – Central, State and Local, many of the policies did not achieve the desired impact, schemes have not reached the rural people, and level of improvement has not kept pace with the expenditure of the government. Lack of a holistic focus on the villages as a unit is some of the causes.

The Alternative Model

Amrita SeRVe was launched in September 2013 and ushered in sustainable development in village clusters across India. Since then, the focus has been on areas in which to begin a series of changes that start from basic needs; safe and nutritious

food, education, and health for all. Teach villagers the skills to live in communities, share their resources and work in a group so that the village economy will be robust and making community self-reliant. A village is the basic unit that contribute to the GDP as they are the providers of the Nation's food supply.

Smart Village India gets its foundation from Mahatma Gandhi's vision of *Adarsh Gram* (model village), promotes the concept of integrated rural development by involving majority of the population after Independence in 1947. Hence, for the overall development of the country, the focus must be given to the grass-root level, and that means the core areas should be agriculture through which all other parameters such as health, education, job, and economy can be achieved.

Working Model

The Mata Amritanandamayi Math (MAM) selected 101 villages throughout India with the goal of holistic development and helping them to become self-reliant role-model villages for the Country. By

2017, Amrita SeRVe had started its work in 21 States. Village Coordinators from Amrita SeRVe looks after the activities in each village. Following flagship programs targeting cross-sections of village population were introduced:

- *AMMACHI Labs*– provides skill training program to rural women and arrange internship program for students from various streams to know India better by staying and learning from villagers;
- *Amrita CREATE*– educates rural and tribal people through tablet technology and appoints tuition teachers;
- *Amrita Center for International Programs (ACIP)*– the central point for international academic relations at Amrita University and that sends foreign students to the village for research projects.

The role of village coordinators in Amrita SeRVe is based on the concept that - learn from villagers their tradition, culture, beliefs, and way of life. The village coordinators work in villages with responsibility and sensitivity towards social, cultural, economic and environmental issues.

Amrita SeRve mainly focuses on seven areas: Health, Water and Sanitation, Education, Agriculture, Income Generation, Eco-Friendly Infrastructure and Self Empowerment.

Working Culture

- Village Coordinator (VC) works as the interface to the villagers in all development process
- Conducting the participatory rural appraisal (PRA), base-line surveys, training and capacity building programs.
- Ensuring women's participation and priority should be given to the weaker section of the society and their requirements are adequately reflected in each program.
- Preparing detailed reports on local resources available for development including water, land, and energy uses.
- Undertaking engineering surveys, preparing engineering drawings and cost estimates for any structure to be built.
- Facilitate to open bank accounts, birth and death certificate, health cards, ration cards, and Aadhar card.
- Facilitate to start Village Development Committees (VDC's), Self-help groups (SHG's) and Farmers groups (FG's).
- Make sure that all institutional arrangements are made at the village level and to ensure people's participation by creating committees that are capable to solve various problems at the village level and administrative level. The committee also acts as a watchdog for program implementation and oversees all the matters about the development of the villages.

Aims of Amrita Smart Village

- Homes to each household.

- Open-defecation Free village (ODF).
- Safe drinking water and regular power supply.
- Records of complete household, agriculture land, land deeds (pattyam), water resources, crop pattern, bank account, health cards, and applicable services and schemes.
- Development based activates should be approved by the village committee.
- Income generation activates should be implemented within the groups.
- Facilities to keep domestic animals.
- Awareness of government schemes such as Drip Irrigation,

Amrita SeRve Model Village
Details of Model Village

Country	India
State	Tamil Nadu
District	Coimbatore
Block	Thondamuthur
Panchayat	Madvarayapuram
Adopted Village	Sadivayal
Agency	Amria SeRve
Language	Tamil
Religion and Caste	Hindu, ST
Community	Irula
Pincode	641114

Solar Panels Lighting Systems on streetlights, etc.

ATTRIBUTES OF SMART VILLAGE

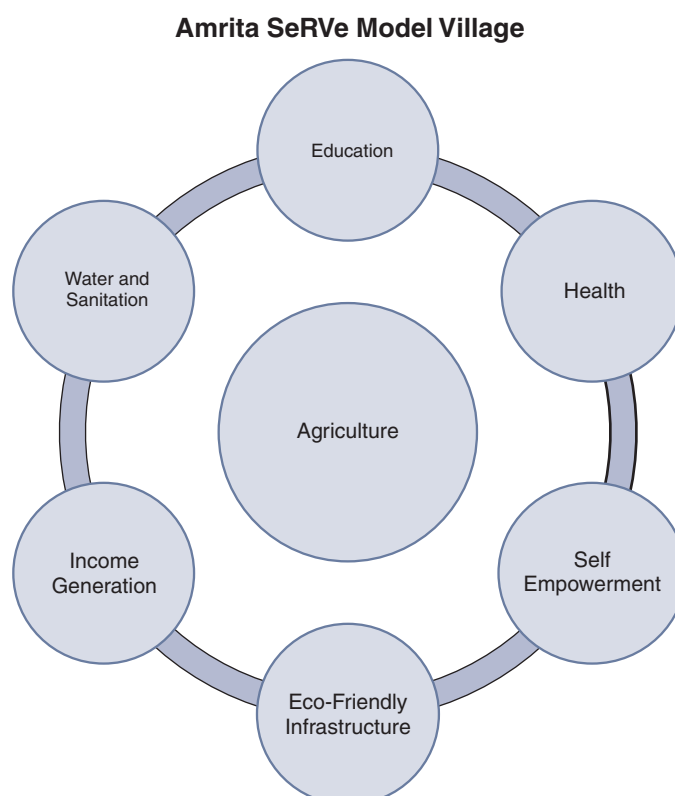
Role of Village Coordinators

Maximum land use in villages – Bring maximum land under cultivation through proper irrigation facilities, using various government schemes, promoting and supporting a local variety of staple foodgrains using organic methods and proper marketing support.

Need to switch to organic farming as a group

Amrita VIVASAYAM SANGAM (Farmers group) farming initiatives are a huge step forward for impoverished farmers to work together and bring themselves out of serious debts. Sadivayal is a tribal village in Tamil Nadu and their farmers' group was the first such endeavor. Their first year together was 2016, and they, much to their surprise and satisfaction, experienced a profitable crop of organic rice. The decision to experiment with organic was most definitely unknown terrain. The farmers in Sadivayal are now committed to taking it further.

Amrita SeRve's Major Steps in Agriculture Organic agriculture was practiced at 35 acres of land at Sadivayal Village, Thondamuthur Block, and Coimbatore Districts. In the absence of irrigation facilities, villagers primarily practiced rainfed agriculture, and once in a year, they cultivated rice. However, as agricultural production was not sufficient for most of the families to sustain them throughout a year, they resorted to daily wage labour activities in the nearby forest area. The main objective of the Amrita Farmers Groups is to improve the livelihood of poor and marginal farmers by organizing



them into groups and helping them adapt innovative Agricultural activities and to improve the overall security of farmers- food, social, health, and safety. After various discussions with the farmer's groups, it was concluded that to enhance the income of farmers, group farming is the best method. The increase in their income could only be possible by group farming and the all-round support from various line departments using convergence method and the project investment, which can lead to sustainable livelihood enhancement. Training the farmers on fertilizers, seeds will lead to agriculture activities that are economically independent and socially empowering. The convergence method is the need of the hour. On 9 May 2016, a resolution was passed at the village, where 20 most deprived families of the village were selected to start group farming and a bank account in Canara Bank was opened under the name of Amrita Vyavasayam Kulu. Together they defined the responsibilities and formulated guidelines for internal management. The Amrita SeRve team focused approach to addressing various needs of farmers. Starting with the activities like selection of seed, soil testing, seed testing, crop planning, water budgeting and water conservation. Upon completion of the discussion, farmers began their activities on 20 June 2016. The farmers themselves save seed for the next cultivation, there is no necessity for buying the seed from an external source. They also use cow dung and urine from their cattle which is free of cost to make bio-fertilizers and biopesticides. In addition to cow dung and urine, they need some fruits, jaggery, etc. to make biopesticides, which costs around ₹ 2,000 for each farmer. Since the material costs for purchasing inputs are reduced, there is no need for external transportation. For labour-intensive work, labour is sourced from the farmers themselves who are working on their land, thus the amount spent on labour is also reduced. Even though the work required is the same in both convergence and outsourcing, the

rate for the work per person is reduced by half, and the total amount also gets reduced by almost half the outsourcing amount. The total amount spent on outsourcing amounts to ₹ 58,000, whereas convergence came in at ₹ 25,000, reflecting a saving of ₹ 33,000 by group farming. The farmers, group gained confidence in November 2017 they started organic farming with a new vision to convert the whole cultivable land of the village of 40 acres to an organic farm. The nearby hamlet also drew inspiration and started cultivating Bhavani rice, which was once the traditional rice of Tamil Nadu. After this great success, the following year in 2017 and 2018-19 they decided to expand to 40 acres and have had surrounding villages express interest in learning from them and converting to natural methods of farming as well. By 2019, around 5 villages started cultivating Bhavani Rice.

In Jan 2018 farmers received land deed (pattyam) and eligible for applying organic certification. Since 2018, Amrita SeRve has been working with the Tamil Nadu Agricultural University to obtain organic certification via the Tamil Nadu Department of Organic Certification under the National Programme for Organic Production (NPOP). For this purpose, the farmers needed to get the soil and water examined by the Soil test department, Tamil Nadu Agricultural University (TNAU). The certificate covers the production of mixed vegetables, mango, and rice. The land is subjected to annual inspections for maintaining status. This empowers farmers to receive more value for their products and thereby increases their annual income. The projects are continued from the last 3 years is key to eradicating poverty, hunger, and malnutrition in the Sadiyavail village. In 2020, Sadiyavail village became the first Organic Certified village in Tamil Nadu. The Certificate was issued by the Department of Organic Certification, Tamil Nadu Department of Organic Certification, Tamilnadu Agriculture Department under the National Program for Organic Production (NPOP).

Income Generation

To empower women, Amrita SeRve engaged women in a variety of occupations and conducted many training programs and supported them in marketing the products.

Eco-Friendly Infrastructure

Amrita SeRve is encouraging massive afforestation - planting trees and restoring wetlands, natural resource management enhancing existing water management system that protects, restores, or mimics the natural water cycle and eco-friendly waste management system. Amrita SeRve through its program aims to make every village self reliant, safe and a better place to live

Amrita Vishwa Vidyapeetham is presently researching the methods of tribal craftsmanship. Blending contemporary practices with traditional techniques paves the way for innovation, especially in the area of weather resistance. As such, a team has begun exploring the benefits of the cutting edge construction material, Compressed Stabilised Earth Blocks (CSEBs), by constructing a model house on the Amrita's Coimbatore campus.

Since Amrita Vishwa Vidyapeetham activities are closely coupled with in-depth research in the tribal villages, a vast number of advancements are expected in this area over the coming years.

Tree planting

Over the last two centuries, the vast deforestation surrounding the villages has been so severe that today only a handful of isolated trees can be found in dusty fields or plain grasslands. This has a serious impact on agriculture and groundwater levels. Forests maintain soil fertility and cool local temperatures, allowing rainwater to sink into the ground. With their strong roots and branches, trees protect from landslides, flooding, and strong winds. Relentless forest clearing has resulted in receding forest boundaries, leading to droughts and extreme weather.

On World Environment Day (5 of June), children were taught how to prepare seed-balls from a mixture of soil, cow dung and fertilizing herbs

such as Neem. One or several seeds are enclosed in this mixture, dried in the sun, and then placed in any available space just before the onset of monsoon rains. This ensures the sprouting and growth of the plants.

Renewable energy

The most important end-use of electricity is the lighting of homes and streets. It was found preferable to install small solar-powered home lighting systems, consisting of one small panel, a battery unit, and three lights. Amrita SeRve, together with Amrita Vishwa Vidyapeetham's Center for Wireless Networks and Applications (WNA), has worked on low cost and durable models for villages. Both plants are self-sufficient, providing a steady supply of electricity to all the households in each community. These systems were

pioneered by students and faculty of WNA while the actual work in the villages was facilitated through the Live-in-Labs® program together with Amrita SeRve.

Self-Empowerment

Amrita SeRve uplifts villages by facilitating activities to financially empower, socially reconnect, and internally harmonize the outer with the inner.

CONCLUSION

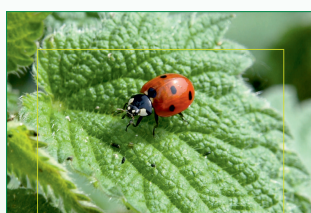
Villages are the backbone of India and agriculture hampers the economic growth of the country. "India Lives in its village" stated by Gandhiji himself tells us that if you want to develop the nation, you must start development from the villages. Indian economy and growth depend on agriculture and a major part of

GDP contributed through agriculture. With the production of agriculture activity of \$375.61 billion, India is the second larger producer of agriculture products. India accounts for 7.39% of total global agricultural output. Smart Villages based on agriculture helps to reduce this migration by ensuring food and nutrition security, providing good health, education, employment, connectivity, technology, and clean environment. To meet all SDGs; the village plays a major role by exploring new opportunities for the rural population and support the concept of Rurbanization (Rural Transformation).

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HANDBOOK OF INTEGRATED PEST MANAGEMENT

To reverse the loss of environmental resources and also to reduce biodiversity loss, the Government of India has Integrated Pest Management (IPM) as part of the National Agricultural Policy. Integrated Pest Management emphasizes the growth of a health crop with the least possible disruption to agro-ecosystems and encourages natural pest control mechanisms. IPM is not new – mechanical, cultural and biological tactics were used by farmers for hundreds of years before chemical pesticides became available. Besides, there are IPM techniques that have been developed more recently and are effective in suppressing pests without adversely affecting the environment.



HANDBOOK OF
INTEGRATED
PEST MANAGEMENT



Indian Council of Agricultural Research
New Delhi

The task of spreading the message of IPM across is tough due to poor awareness about the subject among people in line-departments as also among the farmers. The information on integrated pest management as a whole is scattered. This *Handbook* comprehensively deals with all the aspects of integrated pest management in field crops, horticultural crops under traditional, protected systems. Information on basic strategies and tactics of different methods of management including mass production of biocontrol agents, IPM policy and pesticide registration is provided in comprehensive form.

The *Handbook of Integrated Pest Management* comprises 82 chapters which are well written in lucid language with crispy sentences by the renowned scientists. The role of IPM is elucidated with different pests like *Trichogramma*, *Bacillus thuringiensis*, *Nomuraea rileyi* etc. and agricultural crops like rice, wheat, maize, sorghum, pearl

millet, pulses, soybean, rapeseed mustard, groundnut, minor-oilseed crops, sugarcane, cotton, jute and mesta, potato, vegetable crops, fruits, grapes, citrus, banana, pomegranate, coconut etc. This *Handbook* will provide information of available useful technologies to educate on how to reduce or judiciously use chemical pesticides, safeguard ourselves from chronic poisoning, save the National environment while also reducing input costs and raise farmers' income. This compilation will be useful to teachers, students, trainers, line-department personnel and policy makers.

TECHNICAL SPECIFICATIONS

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