AGROECOLOGICAL PRACTICES OF DAYALBAGH EDUCATIONAL INSTITUTE FOR THE ATTAINMENT OF A SELF-RELIANT AND SELF-SUSTAINED UTOPIA



Dayalbagh Educational Institute (Deemed to be University) Dayalbagh, Agra

Dayalbagh, translated as 'Garden of the Merciful', situated to the North of Agra, Uttar Pradesh, India is a simple, self-reliant, and self-sustained, serene, and tranquil place where its inhabitants lead a holistic life of "Better Worldliness" based on the principle of "Fatherhood of God and Brotherhood of Man". However, it is best known for its quality and value-based education imparted to all by the renowned Dayalbagh Educational Institute (D.E.I).

Sustainability and sustainable development, buzz words these days, have always been the essence of Dayalbagh and the Dayalbagh Educational Institute. Sustainable development is the idea that human societies must live and meet their needs without compromising the ability of future generations to meet their own needs. The Dayalbagh model has evolved and is best defined by the 'Sigma Six Quality, Values and Attributes'. The model provides for the integration of six qualities: Innovation, Water Quality, Air Quality, Education and Healthcare, Agriculture and Dairy Practices, and Human Values. This model has sustainability at its core and best describes the Dayalbagh lifestyle. It is an example of a self-contained community that has provisions for almost all its requirements within itself with very little dependence on others. The concept has been named as taking care of everything from "Maternity to Eternity'. It is a unique blend of modernism and simplicity that has reached a pinnacle of scientific, agricultural, technical, educational, and cultural excellence and yet is an epitome of simplicity and high values. It has amenities of modern society including state of the art educational institutes (from pre-primary to doctorate), hospitals, industry, banks, residential colonies, agricultural farms, pharmacy, etc.

The Superman Evolutionary Scheme

Superman Evolutionary Scheme is the unique methodology for the development of superman for pre-nursery children of 3 weeks to 3 years have been established. They participate in a bio-socio-cognitive-evolutionary scheme in spiritual and natural surroundings. They learn and educate themselves by doing, observing, exploring, and interacting with peers and nature. This engenders in them the spirit of brotherhood of mankind, societal commitment, discipline, the ability for hard work, selfless service, humility, cooperative spirit, and dignity of labour.

Their consistent participation in activities makes them physically fit, mentally agile, and spiritually blissful. The New Supermen have been defined as complete men, therefore these tiny tots, evolving

as Supermen, are taught to pray regularly with devotion for the purification of the body, mind, and spirit. Working in the fields in the early morning under the loving watch of Revered Prof. Prem SaranSatsangi, engenders the spirit of brotherhood of mankind, societal commitment, discipline, the ability for hard work, selfless service to society, humility, cooperative spirit, and dignity of labour. Participation in musical and other cultural activities humanizes them.

AGRICULTURE AND DAIRY: SUSTAINABLE AGROECOLOGICAL PRACTICES

Agriculture and Dairy

Agriculture is fundamental to Dayalbagh life and officially started on 1600 acres of the undulating, sandy, arid piece of land with dunes, cacti, and thorny bushes around eighty years back. Dayalbagh has also had a state-of-the-art dairy farm since 1926. Since then, they have progressed in leaps and bounds. Fieldwork is replicated with success in various colonies in India and abroad on the lines of Dayalbagh and in the tribal villages of Rajaborari, Harda District, in Madhya Pradesh. It is a need-driven, self-sufficient, sustainable, environmentally friendly, scientific venture providing food for its residents and pilgrims and adequate fodder (green and bhusa (straw)) for its livestock. Besides a variety of fruits, flowers, plants, and herbs are grown.

Agroecology: The Systems Approach to Agriculture at Dayalbagh/D.E. I.

At D.E.I and Dayalbagh, Agroecology is an integrated approach for long that simultaneously applied ecological and social concepts and principles to the design and management of food and agricultural systems. D.E.I. reaches out to optimize the interactions between plants, animals, humans, and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. Dayalbagh is not only following the agroecological principles but has also succeeded in achieving most of the Sustainable Development Goals (SDGs) set by the UN for a better world.

Agroecological Practices at Dayalbagh/D.E. I

- Multiple bio-ecosystems thrive in Dayalbagh. These include various crop fields, vegetable gardens, fruit orchards, fodder fields, medicinal herb gardens, biodiversity parks, Mansarovar garden, etc.
- Plants of every kind, including those that are unusual for the climate, have been successfully grown e.g., bananas, grapes, oranges
- Vertical diversity: Fruit orchards with over 9000 plants and trees are lined with bougainvillea, followed by bushes and towering trees as the third layer that functions as wind barriers. Plants in the core remain protected from hot summer winds and chilly winter winds, thus creating a microclimate, suitable for cultivating delicate fruit plants.
- Spatial diversity: Examples include intercropping sugarcane and *gavar*; weeds like *bathua* which grow along with *chana* and *masoor* are not destroyed by weedicides but allowed to grow and collected periodically for livestock and alternate consumption.
- Temporal diversity: Crop rotation using legumes like *arhar* and groundnuts for nitrogen fixation.

- The agriculture activities are spread to other colonies of Dayalbagh, also catering to the students of various distance education centers. Rajaborari estate has a wide variety of crops and trees including corn, bamboo, and teak; Nandurbar in Maharashtra has a sunflower plantation.
- Diversity is maximized through the emphasis on crop-livestock systems. (Livestock is allowed to graze the remnants of the fields after harvest and weeds are used as fodder for livestock)
- A variety of green fodder-like berseem is grown in the fields for the livestock.
- There is sharing of knowledge and expertise to and from amongst D.E.I. (academic institute), Dayalbagh agriculture/dairy, community members, NGOs like SPEEHA, etc.:
 - Examples include: a technique to plant bananas in Dayalbagh environment was shared by an expert from the community; skilled local bamboo artisans shared architectural techniques.
 - Indigenously produced products like cold-pressed mustard oil, organic manure, liquid manure, etc. produced in the dairy are available for distribution in colonies.
- Nitrogen fixation is achieved by natural processes like intercropping and crop rotation instead of using chemical fertilizers.
- Crop Management is an integral part that helps to increase productivity. It includes crop classification, good timing for the planting of the crop, the timing of irrigation, and the best method for irrigation according to crop type.
- Agriculture in Dayalbagh mostly follows the concept of zero chemical fertilizers and pesticides. Pure organic farming is done by using biofertilizers and organic manure from dairy.
- To minimize dependence on groundwater, rainwater harvesting facilities (ponds serving as reservoirs) have been installed. Recycled water from STP in Dayalbagh is used to irrigate the fields.
- Drip irrigation, water conservation, and waste management practices have led to a 40% decrease in water consumption and a 40% decrease in the cost of production of vegetables.
- Lab-scale treatment of wastewater is also in progress using various biochars prepared from rice straw, mango seed shells, sugarcane bagasse, etc.
- Nutrient cycling is promoted through mulching in agricultural fields and gardens.
- Bio-diverse agricultural farms retain nutritional value and prevent topsoil erosion.
- Agroecological practices help to self-regulate pest outbreaks. Indigenously made pesticides like neem oil and other methods are used.





Fig. 1 Agricultural fields of Dayalbagh

Recent Developments

- **2013:** D.E.I. undertook the establishment of several biodiversity parks at different locations, and the current count stands at 25.
- **2015:** An area of about 10 acres was created near D.E.I. International Seminar Hall Complex (D.E.I. Dairy).
- **2016:** Fruit Orchard was developed during monsoon in 2016, where over 9000 plants and trees were planted by students as part of their Agriculture Operation programme.
- **2016:** The ideas of agroecology extended to empowering rural and tribal communities at Rajaborari through the establishment of nano- and micro-enterprises ATMA, ADyNAM, and AAM karkhanas.
- **2017:** A massive programme of land reclamation took place at D.E.I. Khasra 359 adjoining the Mughal Road. This area of more than 10 acres was planted with trees and vegetables and greenhouses were erected to produce exotic fruits and vegetables such as micro-greens, cherry tomatoes, strawberries, etc.
- **2018-2020:** Development of D.E.I. Solar-Agriculture Farm under the DST Mission Innovation R&D Project, of 300 lakhs
- **2019:** Work began on setting up a solar agriculture farm in the Dairy premises. The Centre for Rural Entrepreneurship (CORE) was also established that year to encourage and support self-help groups in the rural community. ATMA, ADyNAM, and AAM became subsets of the CORE.

- **2020:** D.E.I. began experimenting with intercropping of vegetables at its International Seminar Hall Complex site. The area under agriculture at that site was further extended and we began supplying vegetables regularly to Dayalbagh's Bhandar Ghar.
- **2021:** Another major initiative was started, with the creation of D.E.I. Anupam Upvan an area of about 84.34 acres. Here, agroforestry has been started with peanuts, potatoes, soybeans, etc. being planted.

It is worth pointing out the stellar role played by our biodiversity parks during the novel covid-19 pandemic. These large open spaces allowed us to safely conduct classes and exams so that there was no disruption in the academic schedule despite lockdowns. Not only this, but these areas have also become in effect, massive "green lungs" for the highly polluted city of Agra and nearby areas.

Medicinal plants

Around 3 acres of land is utilised to grow medicinal herbs. These are directly supplied to the Dayalbagh Ayurveda Pharmacy who prepares an array of products like Chawanprash, Dant Manjan, Churan, and many other medicines which are available at an unimaginable minimum cost.

Collaborations and Research in Agriculture

- D.E.I have signed MOUs with major agricultural universities in India such as Nauni University and Pantnagar University. The international MoUs include those with Michigan State, University of Manitoba, and University of Arkansas all of which have major Agriculture programmes.
- It is worth mentioning the role of The Advisory Committee on Education (ACE), to hold the ACE of Agriculture, Consciousness, and Entrepreneurship, all of which contribute to community-based agroecological practices.

Major research projects being carried out and implemented in agroecology include:

- **IRGA photosynthesis measuring systems** have been installed in the field to measure the rate of photosynthesis and correlate it with the yield of the crop and trees. The data collection is continuous and measures the change in yield with minor changes in input value of CO₂, light, and temperature. The data can be shared through Cloud.
- **Hi-Tech Greenhouses** have been erected to facilitate protected cultivation of crops, especially off-season crops like tomato, pepper, broccoli, cucumbers, strawberries, etc. Greenhouses are also used to acclimatize plants developed through tissue culture. Polyhouse conditions such as humidity, temperature, soil temperature, rate of photosynthesis, etc. are controlled remotely from the labs.
- Programs like Unnat Bharat, per drop more Crop, Shishu Pryogshala Plant life cycle, and research in rural domain with international collaboration are promoted.

- To know the precise weather conditions, data for local soil temperature, humidity, volatile gases, and climatic temperature and humidity, wind speed and direction, atmospheric pressure, and rain are collected through **sensors** placed at different locations.
- **Solar Agriculture Farms** where agriculture can be performed in the land beneath the solar modules. The combination of solar farming with agriculture increases the land yield to more than industrial land yield and the increase in the cost of a module support structure is more than compensated by the cost of the land salvaged.



Fig. 2 Solar Agricultural farms.

Smart Truck Tracking System

The smart truck tracking system is a web-based application used to track the location of the Agriculture Farm Trucks during Wheat and Paddy Harvesting. This System also provides online instructions to all the concerned volunteers i.e., loading in-charges, unloading in-charges, and truck drivers. The software has a geofence feature that lets one define the geofence for different fields and name them. Whenever the vehicle enters or leaves the geofence the information along with the time is stored in the database and alert messages are sent to the monitoring team. If this system is used effectively it helps in monitoring and controlling the trucks efficiently and in optimizing the round-trip time of the trucks.



3. Live location of trucks and geofencing of farm fields



Gaushala: Dairy Farming.



Fig. 4. Dayalbagh Dairy farm (Gaushala)

The Gaushala (R.S.S Gaushala) established in 1926, was regarded as Asia's finest dairy. Today, it has 1,100 cattle comprising of high-yielding indigenous breed cows and buffalos and producing over 1,500 litters of milk daily, which forms an important part of the lacto-vegetarian diet. Having a blend of modern technology and ancient wisdom in a spiritually charged environment and working on scientific techniques related to Breeding, Feeding, Health, and Facilities Management, Gaushala isaligned to the Sigma Six Q-IVA Model of Dayalbagh Way of Life. Gaushala contributes immensely to the ecosystem. While milk, butter, and buttermilk serve as an important source of nutrition for human consumption, cow dung and urine help the cultivation of hundreds of acres of land without the use of chemicals.



Fig. 5. Gaushala- In synergy with 'Dayalbagh way of life'

The Gaushala in the last few years has increased emphasis on the indigenous breeds of cows and buffalos. The *Bos Indicus* breed cows are known to have farmer-friendly micro-organisms in their digestive tract. As a result, besides giving nutritious and good quality milk, their cow dung and urine are equally full of nutrients.

Gaushala follows the zero waste and zeroes pollution principle.

- The cow dung and urine in Gaushala are collected and put to the following use:
 - a. A portion of it gets converted to **Biogas** thus trapping the polluting methane gas and burning it to convert into electricity while the slurry is used in agriculture farms.
 - b. It is used to make products like Beejamrit, Jeevamrit, Ghanajeevamrit, Dasaparni, and other natural farming products as a substitute for chemical fertilizers.
 - c. Some of it is converted into farmyard manure for enriching the soil before sowing the crop.
 - d. The wastewater from washing and bathing is collected, dried, and forms a rich source for the Solar Agriculture farm initiative being run by the institute.
 - e. A portion of it is converted into Dasparni, an inoculant, which is diluted in water and sprinkled in the air to help reduce air pollution.



Fig. 6. Gaushala-Zero waste and zero pollution

Innovations in Gaushala by the Dayalbagh Educational Institute

The collaboration of the Gaushala and D.E.I. has led to the rapid development of the Dairy in a very short period. On one hand, D.E.I. has facilitated through its research and technological interventions, the modernisation of the diary converting it into a precise and smart Dairy farm. On the other hand, an increase in the production of milk has led to the establishment of a Dairy Technology course where the students can earn a B.Voc in Dairy Technology in turn converting the excess milk to fine, tasty, and hygienic dairy products.

Smart Dairy Farming

D.E.I. has embarked on a noble mission to transform the R.S.S. Gaushala into a state-of-the-art Gaushala with the use of RFID, ICT tools, Management Software, Sensors, and modern practices for precise management of Nutrition, Health, and breeding of the cattle.



Fig. 7. Elements of smart dairy farming

• **RFID Tagging, Radio Frequency Identification (RFID) ear tagging** has been done for the cattle for their precise identification, easy segregation on the field retrieval of their records from Precision Dairy Farming software, and for Real-Time Location Tracking.

The Precision Dairy Farming software has been developed with the following modules:

- 1. Pedigree Info Module for recording the complete pedigree information about the cattle
- 2. Real-time Milk yield Recording Module
- 3. Health & Treatment Module to keep track of open cases & treatment history
- 4. Breeding Module for improving the efficiency of Artificial Insemination and reducing the number of open days.
- Smart Breeding: Breed Improvement is being done using Artificial Insemination (using highquality Semen) for evolving cows that are high milk yielding, disease-resistant, and fit for the local conditions. Other advanced scientific techniques like the use of sexed semen for reducing male births and oestrous synchronization are being used.
- Heat Stress Management of Dairy Cattle Using Thermal Humidity Index: Cattle are affected by environmental factors including temperature, relative humidity, air movement, etc. Heat

is the component that governs all the metabolic activity in cattle. Any change in the body temperature from 101.5^{ID}F can adversely affect the cattle, and this is known as Stress. To estimate the occurrence and severity of stress and to evaluate environmental effects on dairy cattle, scientists developed an index that combined measures of both ambient temperature and relative humidity. This index is called Temperature Humidity Index (THI).

Smart Cooling System has been implemented in RSS Gaushala to tackle the heat stress in cows/cattle. The design and implementation of this system are based on misting and high-speed air circulation. The sensors in the system measure temperature and humidity and based on these measurements the controller operates the misting and air circulation system to maintain the THI index in a range that is comfortable to the cattle. This system has led to a substantial increase in milk yield.





Fig. 9. Smart cooling system

Dairy Technology



Figure. 10.R.E.I. Dairy. D.E.I

• A dairy technology plant has been set up to provide in-house training to the students. Using

this facility, the students make a variety of nutritional value-added dairy products which not only cater to the needs of the local community and D.E.I. on a non-commercial basis but also give them practical exposure to entrepreneurship in the Dairy Sector.

- The Dairy plant produces a variety of dairy products under hygienic conditions and with good nutritional value. Only natural ingredients are used for flavoring and they also have less fat(1.5%) and less sugar (3%) so that they can be consumed on regular basis. These products are regularly being exported to the USA and other countries on a non-commercial basis to provide exposure to the students on export procedures.
- Smart Food Quality Testing Lab, a state-of-the-art lab for Microbial analysis, chemical analysis, and Testing Instrumentation has also been set up in D.E.I. to meet the requirements of all levels of FSSAI testing. This lab is equipped with many smart rapid testing machines to facilitate the rapid precise testing of food/ dairy products.
- An automatic bottle filling and crown capping machine, automatic bottle washing machine, and automatic whey separation machine have been introduced in this Dairy Plant with an intend to evolve this as a Smart Dairy Plant.
- In entire Northern India, D.E.I. is privileged to have the first students' run a mini dairy plant with FASSI License, HACCP certification, and a commercial permit from the US Department of Agriculture for the import of flavored milk and butter from D.E.I.



Fig. 11: (a) Automatic Bottle Filling Machine (b) Automatic Crown Capping Machine (c) Automatic Bottle Washing Machine.

DAYALBAGH: A HEALTH CARE HABITAT AND ECO-VILLAGE

A Healthy Habitat

Dayalbagh as the name suggests is indeed a Healthcare Habitat and an eco-village. Dayalbagh is a lush green garden colony with trees, bushes, lawns, orchards, and parks. Dayalbagh area is said to be the Lungs of Agra as it's difficult to find such a green belt elsewhere in the city. People from the town come to Dayalbagh for the morning walk. The air and water are pure, and their quality is

routinely checked. Fresh organic produce from the farm including cereals, pulses, vegetables, and fruits is available for consumption by the residents at subsidised rates. These are also supplied to the community kitchen where residents can avail two nutritious and balanced meals every day. Pure milk (from cattle fed on organic fodder) and various products like butter, shrikhand, buttermilk, etc. are also supplied to the residents. Besides, the active lifestyle of the residents also contributes to the Healthcare Habitat. Daily physical productive work in the open fields in an air full of oxygen and a spirituality charged environment contribute immensely to their mental, physical and spiritual health. Physical exercise, rigorous daily routine, healthy Lacto-vegetarian food, pure milk adds to the attributes of healthcare. An active Mahila Association and canteens run by D.E.I. provide nutritious and healthy snacks to the residents and pilgrims in the fields, colony, and in D.E.I.

Figure 12: Health and PT and self -defense PT by women



Figure 13 Children of age group 3 years to 8 years doing voluntary selfless social service Figure 14: Children performing Health care exercises wearing facemasks, helmets and maintaining social distance under the able guidance of their teachers

Besides, there are various measures to maintain air free from pollution. These include:

1. Residents are encouraged to walk, cycle or use e-rickshaws and other transport vehicles run on electricity or solar energy provided by local authorities for travel within the colony.

- 2. Use of vehicles run on fossil fuel is discouraged
- 3. Burning of domestic biomass, crop residues, and crackers is banned,
- 4. All houses have piped-in Green Gas

5. The Community kitchen and hostel kitchens use solar power for cooking

6. Tree plantation is a regular feature.

7. During high air pollution periods, such as the harvesting and threshing of crops, fogging, and sprinkling are done.

8. Use of plastic bags in Dayalbagh is banned.

Affordable State of the Art Healthcare for All

Dayalbagh has charitable medical and healthcare facilities (Saran Ashram hospital) for its residents and neighbouring communities based on modern (allopathy) and other systems of medicine (Ayurveda, Unani, homeopathy, and AYUSH).

Medical Camps by D.E.I. Social Service Units

Multi-specialty Free Medical Camps are held in the neighborhood in co-operation with the D.E.I. Social Service Unit. Besides, these free medical camps are also held at other branches regularly for the poor and needy. This is a multidimensional activity that does not only give highly specialised treatment to the villagers and the poor but also has many brain-stimulating activities for the children. These are organised by D.E.I. and its multimedia cell. There are computer literacy games like Hole in the Wall for the children. The advantages of medical camps are evident from this figure.

An Eco-Village

Eco-villages are urban or rural communities of people attempting to combine a supportive social environment with a low-impact lifestyle. To do so, they combine elements of ecological design, permaculture, ecological construction, green production, alternative energy, community-building techniques, and more. Eco-villages are living sustainability models. They are a practical and accessible means of combating the destruction of our social, ecological, and spiritual settings.

Dayalbagh is a tranquil and pleasant eco-village/city with mainly self-sustaining agricultural output, water harvesting, and growing usage of renewable solar energy. Education, agriculture, and industry all thrive in a way that is both harmonious and environmentally sustainable. Dayalbagh has become greener and more sustainable since its foundation in 1915, despite its growing population. The eco-growth of Dayalbagh is an amazing example of material and spiritual development. It is a typical example of a self-sustaining, environmentally friendly human habitation in intimate harmony with nature.

Self-Reliant Community Kitchen

Bhandar Ghar or the community kitchen serves lunch and dinner to residents and visitors of the Dayalbagh colonies. Wheat, rice, lentils, mustard oil, vegetables such as potatoes and onions, and other raw materials are grown and produced in the Dayalbagh fields thanks to the selfless labour of Dayalbagh residents and visitors. The Bhandar Ghar employs a small number of full-time employees, while most of the work is done by teams of volunteers ranging in age from 18 to 90 years old. Most of the cooking is done on induction using solar power.

Disposal of Sewage and Garbage

A proper sewage system and garbage disposal are in place. Each household segregates garbage into biodegradable (kitchen waste) and non-biodegradable waste. For effluents, there are well-established treatment facilities. Irrigation is done with treated water. Biodegradable waste is pooled and transported to composting sites directly, while non-biodegradable waste is sent to recycling centers.

Greenery Galore

Even inside the colony, there are many shady, ornamental, and fruit trees. Hedges line the streets, and beautiful flowers and plants adorn individual houses, the streets, and the entire colony. A voluntary Horticulture party looks after the maintenance of these plants regularly. Every morning, the volunteers can be seen watering, pruning, and trimming the plants.



AIR AND WATER QUALITY

The Chemistry department of the Dayalbagh Educational Institute regularly monitors the air and water quality of the colony and also the water supplied to the agricultural fields. It also assists in developing techniques to keep the air pollution levels low and to purify and reuse wastewater.

Air Quality

Regular monitoring of PM10 and PM2.5 (Inhalable Particulate Matter) is done at several locations in Dayalbagh and D.E.I. campus. Besides, online Ambient Air Quality Monitors are installed at three locations which give real-time data on PM10 and PM2.5, levels of trace gases like CO₂, CO, SO₂, NO, and NO₂ along with meteorological parameters like Relative Humidity, Solar Radiation,

Temperature, Wind Speed, Wind direction and UV Index and Health Risk-based Air Quality Index (HAQI).

Air Quality Index (AQI) is calculated based on the globally accepted United States Environmental Protection Agency (USEPA) Model. **The Air Quality at Dayalbagh in comparison to Agra City (Sanjay Place UPPCB Monitor Report) is almost always better and in the Moderate category of AQI.** The encouraging AQI results at Dayalbagh are a result of it being a green, serene, and sustainable modern eco-village. To further improve the air quality some of the recent initiatives have been as follows:

- **Misting and spraying (with fine water droplets)** is done four times a day to combat pollution by removal of suspended particulate matter.
- Cordoning off the dust-generating agricultural activities by using green canopies.
- Restricted movement of vehicles (Petrol and Diesel) is rigorously observed in Dayalbagh and commuting through public electric vehicles is encouraged.
- Water Fountains have been deployed at various locations which run along with misting activities.
- The grass is not uprooted at fields and open spaces. Along all the streets and lanes in the Colony, the open spaces and footpaths have been covered by grass to prevent erosion of soil and dust to reduce atmospheric dust.
- Pollutant-absorbing plants have been planted along the roadsides.
- A Wind Augmentation Air Purifying Unit (WAYU) is deployed at various sites which can reduce pollution by trapping PM2.5 and PM10.
- The use of Air Conditioners is banned in the residential colony and is restricted only to Laboratories equipped with sophisticated Instruments requiring low temperature for operation and maintenance in the Institute.

Under the Multi-Institutional PAN India study, the ISRO Geosphere-Biosphere Programme has equipped D.E.I. with Online analyzers for Ozone, NOx, and CO which are recording ambient levels every 5 minutes 24x7, 365 days since 2009.

Water Quality

The Institute is involved in the testing quality of drinking water at Dayalbagh colony to ensure the supply of clean and safe water to residents and students.

- Potable water from all the wells (10 in number) is monitored every week to ensure that the water does not contain coliform bacteria.
- Subsequently, wells are treated with Potassium Permanganate to maintain zero or a permissible number of coliforms.
- Chlorine and Potassium Permanganate levels of the wells are monitored daily.
- This enables the residents of Dayalbagh to consume water from wells without passing it through the RO plant thus saving a large amount of water.

- Chemical parameters (Dissolved Oxygen, Chloride, Hardness, Total dissolved Solids) are also monitored fortnightly.
- Dayalbagh has given land at a nominal rate for sewage treatment plant (STP) and the treated water is used for irrigation of agricultural fields so that water table in potable well waters is maintained.
- STP water is also tested weekly to check Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD).

WASTE MANAGEMENT AND RECYCLING

Concepts of self-governance, waste minimization, minimalism, optimal utilization are values imbibed in the founding principles of Dayalbagh and D.E.I. A conscious effort is made by citizens at every step of living to restrict wastage and to optimally use resources like water, electricity, and vehicles for commuting.

More recycling means agricultural production with lower economic and environmental costs. **Waste is a human concept** – it does not exist in natural ecosystems. By imitating natural ecosystems, agroecological practices support biological processes that drive the recycling of nutrients. Increase resource-use efficiency and minimize waste and pollution.

- Drip irrigation, water conservation, and waste management practices have led to a 40% decrease in water consumption and the cost of production of vegetables. Lab-scale methods of treatment of wastewater are being explored using biochars prepared from rice straw, mango seed shells, sugarcane bagasse, etc.
- All waste from the community kitchen including peels of vegetables is used to feed livestock at a dairy.
- Cow dung and urine are recycled to produce organic manure and biogas.

Waste Management @ D.E.I.

Minimalism, simple living, and optimal utilization of resources are among the core values of the Institute and the neighborhood community. Following are some significant practices:

Solid and Liquid Waste Management

The campus is provided with a complete set of garbage bins for wet and dry waste. The collection of garbage from these is done daily. In the future smart bins with embedded sensors will be designed. Wet waste and biomass are used for composting whereas paper waste, tetra packs, cotton fabrics are recycled through our paper recycling unit. The use of plastic is being minimized and a part of its waste generated is used for upcycling. The work of recycling (wherever possible) of other non-biodegradable waste is in progress.

A 150 cm biogas plant is installed on the dairy campus to produce biogas using cow dung which is easily available from the community dairy farm. The biogas is then used to generate electricity for lighting and heating applications in "Gaushala". Operation and maintenance, vermicomposting, and composting using bio-waste are also carried out by students.

Paper Recycling Unit

A huge amount of paper (examination copies, notebooks, cartons, tetra packs, etc.) are used in various activities in the Institute. To handle this waste a paper recycling unit has been installed in the University Sustainable Innovation Center (USIC). The recycled paper thus generated is used to make file covers, envelopes, folders, notepads, etc. Efforts are on to make A4 recycled paper so that it can be used for printing purposes and in examinations.



E-Waste Management

Computer and their peripherals and other electronic devices are repaired and refurbished and their life extended. An E-Waste Garden – "THE BEAUTIFUL USE OF E-WASTE" has been created on the campus. Working with E-Waste recyclers, BRP Infotech Pvt Ltd is being explored.

Water Resource Management

To minimize our dependence on groundwater, rainwater harvesting facilities have been installed in the University. Ganga Jal Project is supplying water to the university. The riverbank filtration (RBF) plant has been installed to provide clean and pure drinking water in near future to neighbouring villages and the university. The project is funded by DST in which a sustainable method of sand filtration is used. Lab-scale treatment of wastewater is also in progress using various biochars prepared from rice straw, mango seed shells, sugarcane bagasse, etc. For water conservation, smart taps are used in the toilets of the University.

Sanitation

Toilets all over the campus and in the hostels are modern and clean. Bio-toilets are also available on the campus where fecal matter is treated and converted into the water using DRDO technology.



SKILL DEVELOPMENT AND ENTREPRENEURSHIP

Skills to Entrepreneurship

Vast experiential knowledge on blending skill with conventional education has made D.E.I. the Number One University in skilling of India. D.E.I. runs 7 Bachelor of Vocation courses: Apparel Manufacturing, Dairy technology, Textiles, Food Processing, Renewable Energy, Automobile Engineering, and Water Sanitation & Solid Waste Management. It has launched degree programmes in Footwear Technology and Civil Engineering (besides its long-existing Electrical, Mechanical, and Automobile Engineering), Bachelor in Architecture, and Bachelor in Fine Arts. The D.E.I. has also introduced Master of Vocation and Ph.D. programmes in vocational courses.

The new Courses are linked to National Skill Qualification Framework (NSQF) and being skill-based will enable students to mature into entrepreneurs. The Dairy Technology course has an FSSAI and HACCP-certified laboratory. D.E.I. is the only university where products made by students are exported abroad.

D.E.I. is also building a household entrepreneurial model for tribal and rural women through its ATMA (Apparel & Toys Micro-Manufacturing Association) project which has taken off in the Rajaborari- Timarni tribal belt of M.P. and rural areas of MTV Puram in Tamilnadu. Two other

vocational skill-based courses have been started at Amritsar and Rajaborari. These are AAM (Automotive and Multi skills) garages, planned as Karkhanas for tribal students, and AdyNam (Agriculture & Dairy Nano-processing of multi-products).

The Institute encourages its students to become 'job enablers'. Right from Class I itself, students are introduced to skill development labs to discover and develop their potential. In its current version, the D.E.I. Education Policy includes and emphasizes cooperative entrepreneurial education with multiple linkages ranging from household to international industry sector through SEZ-DBMS (Special Economic Zone (SEZ)-Satellite Nodal Points/ Nodal Districts (ND Points)-Satellite Big-Villages (<u>B</u>-Points)- Satellite Medium Villages (<u>M</u>-Points)- Satellite Small Villages (<u>S</u>-Points)) framework for growth and development of N/MSME's (Nano/ Micro Small and Medium Enterprises) in the country. Thus, D.E.I. intends to move, through Skills to Entrepreneurship, from REZ, (Rural Economic Zone) to SEZ and finally to international markets.

Rajaborari Village

- A tribal village cluster in district Harda (M.P.)
- 10 tribal hamlets having a population of 5000 people
- A cluster of 10 villages nestled in dense Bamboo and Teak forests in the hilly terrain of Harda district in Madhya Pradesh.
- Consists of *Adivasis*, belonging mainly to the Korku and Gond tribes who live on forest produce and undertake shifting cultivation (of crops *kodun* and *kutki*).
- Has a total area of 7988 acres, of which 5069 acres is forest land.
- 85% of the population is Scheduled Tribe (ST)



D.E.I. Initiatives

The various initiatives are taken by D.E.I. for Sustainable Rural Development in Rajaborari Tribal Village Cluster and for creating employment and enhancing economy for *Adivasis*

- Enabling human development by providing education: Education
- Bring about Improvement in basic amenities: Health & Hygiene
- Providing better livelihood opportunities through entrepreneurship: Entrepreneurship & Skilling.
- Providing the Umbrella of Education:
- Quality education made available at the doorstep of the 1,200 underprivileged students
- A unique model of education where the student has the facility to receive pre-nursery to university education right at their doorstep with the use of technology and highly passionate staff.
- D.E.I. Schools in Rajaborari Tribal Area.
- State of the Art Facilities at Tribal Villages.
- E-lectures from University Campus to the Tribal Areas (500 miles away)

Education through vocation



• D.E.I. -BSNL Communication Services at Rajaborari Village Cluster



• The institute has established an ICT which is connected through EDUSAT link provided by ISRO, leased line connectivity between Dayalbagh, Agra.



 ICT has enabled D.E.I. to offer low-cost, quality education, routed via its Distance Education and ICT Centers, in a wide variety of vocational and mainstream courses. These courses provide need-based education to facilitate self-employment and nano/micro-scale enterprise development.

D.E.I. -Seneca (Canada) Collaboration: Successful Collaborative Course for Students from Tribal Areas and Canada.



Students from Seneca College (Canada) with their course certificates





D.E.I.-Stanford-DBT Collaboration: First International Workshop in Rajaborari Tribal Area (April 2019)



Skilling to Rural Entrepreneurship: Improving their Livelihood

- Employment through Rural Entrepreneurship
- Three Skill Enhancement Programmes were started in Rajaborari to provide training in Garment manufacturing, Soft Toys manufacturing, Food Processing of local agro/dairy products, and General Workshops for local needs.
- Four centres are now functioning in Rajaborari, Mogradhana, Salai, and Kairi villages, which serve as the nucleus of entrepreneurship for the local Adivasi population.
- To enhance the income of the households in the tribal villages of Rajaborari leading to upgradation of social capital. The three entrepreneurship schemes or three *karkhanas* (rural resource centers) were established:
 - ATMA (Apparel and Toys Micro-Manufacturing Association)
 - **ADyNaM** (Agriculture and Dairy Nano-processing of multi-products)
 - AAM Garage (Automotive and Multi-skill Garage)
- These rural resource centers provide life-long learning opportunities, facilitating enhanced productivity, profitability by fostering intra village, inter-village, and rural-urban cooperative entrepreneurial linkages.
- ATMA (Account of Apparel and Toy Manufacturing Association):
- The women are earning a moderate amount of income and are financially contributing to the family income on account of ATMA.

- The SHG's have already stitched 1504 school uniforms for the MP government schools earning Rs 54,075 and are expecting a work contract of about 8000 more uniforms every year.
- Upskilled women are making apparel, toys, bags, home furnishings (>200 women).



- Workshops on appropriate quality production, producing standard sizes, and producing acceptable large quantities of women-wear have been done.
- Appropriate cutting technologies, sewing machines, and other types of equipment are provided.



• The product is being marketed at local and state levels as well as international markets.



JUGGAD OUTLET AT D.E.I.

DEI Dairy Technology Plant, Rajaborari (A Working Model And Training-cum-Resource Center For the Local Rural Community)							
4,225 Liters of Milk Procured from Villages (Rs. 147,875/-) in 10 months	Made Paneer, Khoa, Ghee, Shrikhand, Khoa Peda, Khoa Burfi, Lassi, Gajar Halwa, Rabri, Butter, Buttermilk	Rotational Capital of Rs. 16,000/-	Products being Sold locally in Rajaborari, Timarni and Harda	Daily Milk Testing	Pasteurizer	Paneer Frame	Cream Separation
							H
Challe	mass of Dainy Fa	rming in Raiabo	rari Araa		WAR KON		
Small Individual Milk Produce				Micro-Bakery	Chilly Pickle Mak	ing M	ango Pickle Making
Distance Barrier					Contraction of the second		
No Value Addition					-		n n n n t t t
No investment in Cattle Feed						reets	000

BEST PRACTICES OF DAYALBAGH EDUCATIONAL INSTITUTE DURING COVID



Teaching & Learning

- Adherence to Academic Calendar
- Regular Classes via Online
 Platforms
- Regular assessment & semester exams via online mode
- Uniquely designed Take Home Exam based on Learning Outcomes & Higher Order Thinking Skills
- Virtual Labs for conducting
 Practical Exam
- Conference Tools for Viva & GD/Seminar
- Support for Hindi language users
- Flexibility for all learners



Community Practices

- Mandatory use of helmets and masks in & around campus
- Regular Screening of staff and students by Doctors 24 x 7
- Free distribution of Homeopathy Medicine
- Social Distancing strictly followed
- Sanitization of vehicles and premises
- Working in shift under hygienic conditions
- Volunteering for continuity of essential services
- Health Exercise and PT for women & children



Outreach Activities

- Empowering Local SHG for mask production
- Online workshops & webinars for training teachers (1900)
- Awareness through newspaper, poster, video messages(>30), songs & poems by NSS volunteers on social media platforms
- Sanitization of village
- In tribal area of MP, SHG preparing masks, converting farm produce into long shelf life products, free medical service to 25000 villagers and distribution of food.

Anupam Upvan Project: Agroforestry

In 2021, a major initiative is the creation of D.E.I. s Anupam Upvan of about 84.34 acres. Agroforestry has started here with peanuts, potatoes, soya beans, etc. being planted.

Agroforestry has the strongest impact potential on poverty reduction (SDG 1) and hunger alleviation (SDG 2), as well as on climate action (SDG 13), and biodiversity conservation, and sustainable land management (SDG 15). In addition, agroforestry at D.E.I. contributes to other goals by improving gender equality (SDG 5) and health (SDG 3), as well as by increasing access to clean water (SDG 6), sustainable energy solutions (SDG 7), and responsible agricultural production (SDG 12).

A table has been provided which lists all the kinds of trees and plants that are being planted as part of this project.

3	S.No.	Name of Trees	Scientific Name	Number of Trees
4	1	Mango	Mangifera indica	3710
5	2	Teak	Tectona grandis	6000
6	3	Paras/ Peepal	Ficus religiosa	170
7	4	Redwood	Sequoia sempervirens	190
8	5	Banana	Musa	170
9	6	Red Sandal Wood	Sequoia sempervirens	160
10	7	White Sandal Wood	Santalum album	380
11	8	Guava	Psidium guajava	820
12	9	Gulmohar	Delonix regia	400
13	10	Neem	Azadirachta indica	180
14	11	Tamarind/Imli	Tamarindus indica	300
15	12	Jamun	Syzygium cumini	400
16	13	Bamboo	Bambusa vulgaris	130
17	14	Papaya	Carica papaya	1135
18	15	Karonda	Carissa carandas	4000
19	16	Alfonsa / Mango	Mangifera indica	300
20	17	Rudraksha	Elaeocarpus ganitrus	10
21	18	Sapota	Manilkara zapota	15
22	19	Budha Belli	Jatropha podagrica	10
23	20	Anjeer	Ficus carica	100
24	21	Bougainvillea	Bougainvillea spectabilis	20
25	22	Almond	Prunus dulcis	10
26	23	Cashew	Anacardium occidentale	
27	24	Apple	Malus domestica	20
28	25	Others		700
29			Total	19330
30				
31	1	Flower		
32	2	Marigold	Tagetes	8500
33	3	Mogra	Jasminum sambac	10
34	4	Rose	Rosaceae	1090
35				9600
36				

The International Centre for Agroecology (ICA), New Jersey

Dayalbagh Radhasoami Satsang Association of North America (DRSANA), Columbia, Maryland, USA intends to launch The International Centre for Agroecology (ICA) at Old Bridge, Pension Road, New Jersey, USA on Basant/ Holi 2022 during **February/ March 2022**. The ICA would emerge as an International Centre for conducting Research and Development in the vast field of Agroecology. The ICA would host research scholars and scientists, Practitioners and community thought leaders' administrators, multinational leaders, and international organisations of repute from across the globe towards evolving prescriptions/norms for the contemporary and futuristic global challenges of inequitable food availability, resource-intensive agricultural massive water systems, deforestation, scarcities, biodiversity loss, Soil depletion, to name a few.

AGROECOLOGICAL PRACTICES AT DAYALBAGH AND D.E.I CONCERNING ELEMENTS OF AGROECOLOGY AND SUSTAINABLE DEVELOPMENT GOALS

Agroecology and Sustainable Development Goals

The output of industrial agriculture or its progress is simply measured by calculating the agricultural yield per unit area. However, simply evaluating the yield is not adequate. New methods that assess the impact of our agricultural systems, need to be developed. Organisations, like the FAO and IPES-Food, have built more holistic instruments of measurement. The Sustainable Development Goals (SDGs) have recently been established as a benchmark against which progress can be measured. Recent case studies practicing agroecology in Africa have shown that practicing agroecology contributed to 10 of the 17 Sustainable Development Goals (Farrelly, 2016). Agroecology itself has ten elements that are interlinked and interdependent. They are a guide for policymakers, practitioners, and stakeholders in planning, managing, and evaluating agroecological transitions.

1. Diversity

Adapted at D.E.I., Dayalbagh

Multiple bio-ecosystems thrive in Dayalbagh. These include various crop fields, vegetable gardens, fruit orchards, fodder fields, medicinal herb gardens, biodiversity parks, Anupam Van garden, etc.

Vertical diversity: Fruit orchards with over 9000 plants and trees are lined with bougainvillea, followed by bushes and towering trees as the third layer that functions as wind barriers. Plants in the core remain protected from hot summer winds and chilly winter winds, thus creating a microclimate, suitable for cultivating delicate fruit plants.

Spatial diversity: Examples include intercropping sugarcane and *gwar* (cluster bean); weeds like *bathua* (*Chenopodium album*) which grow along with *chana* (black chickpea) and *masoor* (red lentil) are not destroyed by weedicides but allowed to grow and collected periodically for livestock and alternate consumption.

Temporal diversity: Crop rotation using legumes like *arhar* (pigeon peas) and groundnuts for nitrogen fixation.

Diversity is maximised through an emphasis on crop-livestock systems (livestock is allowed to graze the remnants of the fields after harvest and weeds are used as fodder for livestock).



SDGs Impacted:



2. Co-creation and Sharing Knowledge

Adapted at D.E.I., Dayalbagh

IRGA photosynthesis measuring systems have been installed in the field to measure the rate of photosynthesis and correlate it with the yield of the crop and trees.

Other ICT tools, precise management of nutrition, health, and breeding of the cattle have also been developed by D.E.I.

Programs like 'Unnat Bharat', 'Per drop more Crop', 'Shishu Pryogshala' – Plant life cycle and research in rural domain with international collaboration are promoted.





D.E.I has MOUs with many national and international institutes and industries and is involved in state-ofthe-art research in fields related to agriculture and dairy.



Hi-Tech Greenhouses have been erected to facilitate protected cultivation e.g., tomato, pepper, broccoli and cucumber. Greenhouses are also used to acclimatise plants developed through tissue culture. Poly-house conditions such as humidity, temperature, soil temperature, rate of photosynthesis etc. are controlled remotely from the labs.

Radio Frequency Identification (RFID) ear tagging has been done for the cattle in the dairy farm (R.S.S Gaushala) for their precise identification, easy segregation on the field retrieval of their records from Precision Dairy Farming software and for Real Time Location Tracking.



SDGs Impacted:



3. Synergies

Adapted at D.E.I. Dayalbagh

Livestock grazing systems contribute to ecosystem services such as habitat preservation and soil fertility (cow dung and urine).



Nitrogen fixation by natural processes like intercropping and crop rotation instead of using chemical fertilizers.

The practice of not destroying weeds but regularly and periodically removing them, does not deprive the main crop of nutrients but also helps utilise the weeds as mulch and feed for livestock creating synergies between different components.





Livestock manure is an important source of nitrogen for the crops, highlighting synergies resulting from crop– livestock integration.

SDGs Impacted:



4. Efficiency

Adapted at D.E.I., Dayalbagh



Moving towards zero chemical fertilizers and purely organic farming by using bio fertilizers and organic manure provided from the dairy. Crop Management is an integral part which helps to increase productivity. It includes crop classification, timely planting and irrigating crops and appropriate irrigation methods in accordance to the crop type.





The concept of solar agriculture farms has been developed which would enable agriculture to be performed on land beneath the solar modules and would increase the land yield to more than industrial land yield.

Renewable solar energy is predominantly used to power the colony, the university, diary and agricultural farms.





To know the precise weather conditions, data for local soil temperature, humidity, volatile gases and climatic temperature and humidity, wind speed and direction, atmospheric pressure, and rain are collected through sensors placed at different locations. The air and water quality is monitored on a regular basis.

SDGs Impacted:



5. Recycling

Adapted at D.E.I. Dayalbagh



To minimize dependence on ground water, rainwater harvesting facilities (ponds serving as reservoirs) have been installed. Recycled water from STP in Dayalbagh is used to irrigate the fields.



Drip irrigation, water conservation and waste management practices have led to 40% decrease in water consumption and cost of production of vegetables. Lab scale methods of treatment of wastewater are being explored using bio chars prepared from rice straw, mango seed shells, sugarcane bagasse etc.

All waste from the community kitchen including peels of vegetables is used to feed livestock at dairy.

Cow dung and urine are recycled to produce organic manure and biogas.





Nutrient cycling is promoted through mulching in agricultural fields and gardens.

SDGs Impacted:



6. Resilience

Adapted at D.E.I. Dayalbagh

Agroecological practices help to self-regulate pest outbreaks. indigenously made pesticides like neem oil and other methods are used.

Since its inception, Dayalbagh is self-reliant self-sufficient in providing a healthy nutritional diet to all residents.



Biodiverse agricultural farms retain nutritional value and also prevent topsoil erosion.



No activities stopped during the pandemic. The residents continued to be selfsufficient without any need for external aid. Even during the Covid-19 pandemic, the immunity of the residents was not compromised primarily due to an active lifestyle, clean environment, safe protocols, and social distancing.





Rural women in Rajaborari distributing handmade masks free of cost.

SDGs Impacted:



7. Human and Social Values

Adapted at D.E.I., Dayalbagh

Most tasks of the community are shared by the residents including safety and security. Simple lifestyle, humility help residents focus on mutual well-being, support each other, and lead a life on the principle of better worldliness.

Schools and educational institutes provide quality and value-based education to their residents and adjoining communities.



Dayalbagh has charitable medical and healthcare facilities (Saran Ashram hospital) for its residents and neighbouring communities based on modern (allopathy) and other systems of medicine (ayurveda, unani, homeopathy). Free medical camps at Dayalbagh and other branches are held regularly for the poor and needy.



Brain stimulating games and activities promoting computer literacy like 'Hole in the wall' for rural children at Medical Camps.

D.E.I offers various affordable skill development and vocational training courses to empower women and youth both on campus and through distance education centers all over India.





Incubation and entrepreneurial initiatives like ATMA (Apparel and Toy Manufacturing), ADYNAM (Agroecology and Dairy Nano Materials), and AAM (Automobile)Karkhana provide sustainable livelihood in Rajaborari.

SDGs Impacted:



8. Culture and Food Traditions

Adapted at D.E.I., Dayalbagh

Local and seasonal diets are emphasized. A Diet plan for children based on nutritious food is made whereas fast food is restricted.

Encouragement to make traditional snacks according to the season during special occasions.

Sugarcane and carrot juice are distributed when in season. Sprouts, groundnuts, and black chickpea are distributed regularly.



Variety of cereal crops, lentils, vegetables, and fruits are grown.



Bhandar ghar (community kitchen) provides balanced nutritious meals at subsidised rates daily. in converting fresh farm produce into agroproducts with longer shelf lives e.g., sundried tomato powder and raisins. They also manufacture various seasonal pickles, papad, and baked items.



Pure Spices from Rural India Unany Species Sell Hele Crosse Realismer Caster, Danier Hards (MP)

SDGs Impacted:



Responsible Governance

Adapted at D.E.I., Dayalbagh

The concept of self-governance is inculcated, and the citizens are conscious to self-restrict water usage, electricity use, and polluting vehicles within the colony, leading to better societal health and growth.

The local management ensures the health and well-being of the residents by ensuring the availability of subsidized food products like grains, vegetables, fruits given to the community at large.

A system of local governance at different levels includes Mohalla Panch, Sarpanch, Shiromani Nagar Committee (SNC), Nagar Panchayat.

Innovative remedies like misting to control air pollution and adding potassium permanganate regularly to sanitise the supplied water are carried out.

D.E.I have provided a 50 km long Proprietary Wireless Network facilitating communication services and internet to over 8000 rural people at Rajaborari. It helped students attend online classes during the pandemic.





Full-menu Mid-day Scheme launched in Radhasoami Adivasi Higher Secondary School, Rajaborari providing nutrition to 1000 students, of which 85% are scheduled tribes and 43% are girls.

Pollution is controlled by stressing on walking, using electric, solar powered and non-polluting vehicles like cycle rickshaws. Using vehicles running on fossil fuels is restricted.





Provision of free milk and nutritious snacks to young children in schools as well as agricultural fields.

SDGs Impacted:



9. Circular and Solidarity Economy

Adapted at D.E.I., Dayalbagh

Farms, dairy, and orchards generate produce for local consumption, avoiding transportation and wastage.

Bhandar ghar uses homegrown produce and further provides meals at highly subsidised rates to the community at large.

D.E.I recognize the role of management education in assisting micro, small and medium enterprises (MSMEs) and the free Business Advisory Clinic (BAC) promotes entrepreneurship in MSMEs.

By using low-cost Jugaad ideas and in-house technology, D.E.I have designed and developed its ecofriendly power grid. Rooftop solar panels and biomass plants generate enough electricity to make Dayalbagh self-sufficient in energy.



An in-house training dairy plant has been setup for the students to make a variety of products and give practical exposure to entrepreneurship in the Dairy Sector.

D.E.I. has effectively deployed Jugaad technology in partnership with BSNL to set up last mile mobile connectivity in remote villages which has facilitated e-education, telemedicine, and e-commerce in rural and tribal areas.





Students and women are trained in vocational skills which help set up Self-Help Groups leading to sustainable nanoenterprises through frugal innovation and low-cost input.

SDGs Impacted:

1 NO 2 ZERO 3 GOOD HEALTH DO OD HEALTH

AGROECOLOGY AT DAYALBAGH AND SUSTAINABILITY DEVELOPMENT GOALS

At D.E.I., human values, cultural characteristics, a healthy environment, committed society, internal, as well as external factors, all work in harmony to create better worldliness and develop higher consciousness. At D.E.I. we follow sustainable ecological values and interpersonal skills that are the essential requirements for any community/ society to thrive, promote overall well-being, and lead to higher wisdom. Cooperation becomes more effortless once individuals realize how internally (spiritually) every activity is self-fulfilling. Everyone is dedicated to the common purpose with the leader inspiring and setting a perfect example of selfless service at Dayalbagh. People at Dayalbagh are engaged in Seva which includes working in agricultural fields farms a major part of the daily routine, community service in education, medicine, social welfare, and upliftment, etc. The meticulously planned and executed agroecological model of Dayalbagh not only follows and fulfills the ten principles of agroecology but is also equipped to satisfy 100% of the UN 17 Sustainable Development Goals (SDGs) recommended by United Nations in 2015 for a better world. The model demonstrates that it can, not only influence social reform, address emerging global concerns, contribute to long-term national development, but also strive to go above and beyond by aiming for humanity's best possible physical, mental, and spiritual evolution. It is a unique model that should be emulated by the entire world.

IMPACT OF AGROECOLOGICAL PRACTICES ON THE COMMUNITY AND SOCIETY

1. The community is well nourished. Nutritional needs of both old and young are met because of

the diversity in crops and dairy products.

- 2. Overall mental, physical and spiritual health is enhanced as each person from a 3-week infant to a nonagenarian actively participates in the agroecological processes.
- 3. Children and students of all ages learn to coexist with nature, making them responsible and aware eco-citizens with a strong sense of love and protection for the environment.
- 4. When working in the agricultural fields, children and youth learn how to work together in a cooperative and coordinated manner to achieve a target.
- 5. Most importantly, children learn to value food and make every effort not to waste it as they observe and participate in the entire process from sowing to harvesting.
- 6. The fact that enormous expanses of area are covered by green fields, rather than shopping malls, roads, and vehicular traffic, benefits society greatly. The green fields are the city's lungs, a sight for sore eyes, and a carbon sink for greenhouse gases and pollutants.
- 7. The local ancillary industries, such as food stalls, benefit from the substantial agroecological activity, and a steady influx of members of the community from outside all year round.
- 8. The agroecological activity at Dayalbagh is one of the most visible manifestations of collective consciousness, with people of all ages and walks of life working together synchronously and selflessly, not for material gain but to please their Supreme Father and work towards the highest purpose of life and exemplifies the principle of Fatherhood of God and Brotherhood of Man.

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