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JAL JEEVAN PROJECT FOR WATER & VILLAGE DEVELOPMENT

Water conservation and livelihood project at Medak district in Telangana State, India

Project Report, March 2021

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CONSERVING ENVIRONMENT & EMPOWERING LIVES

13+
years

100
wells
recharged

2,50,000+
lives
transformed

Touching lives

2.5 lac+
cubic meter
water storage
capacity created

25,000+
industrial
workers trained

2500+
household
electrified on solar

AWARDS

- Advit Foundation is empaneled with TISS CSR Hub.
- Advit Foundation is empaneled with NGO Darpan and the National CSR Hub of the Indian Institute of Corporate Affairs, MCA.
- Empaneled with Skill Council for Green Jobs.
- Empaneled with National Water Mission, Department of Water Resources, Ministry of Jal Shakti, GoI.
- Awarded the first CII beyond the Fence Project award for an industry in Rajasthan in 2009.
- Awarded the Impact Award for Skill Development at the Impact Conclave by Sambodhi in partnership with Bill and Melinda Gates Foundation, SIDBI, YES Bank in 2016.
- Managing Partner - Haryana Renewable Energy Development Agency (HAREDA) from 2009-2015.
- Managing Partner – Centre of Excellence on Solar Electronics at National Institute of Solar Energy, MNRE, Govt. of India.
- Training Partner – Green Skill Sector Council and NSDC, GoI for Solar Electronics.
- Training Partner - HARTRON (Haryana State Electronics Development Corporation Ltd.) for Solar.
- Training Partner – TISS Mumbai B.Voc on Solar Electrical.

Contents

Project village : Mahamadnagar, Kowdipally block, Medak district, Telangana

livelihood organisations. In a country like India where poverty, lack of nutrients, post-harvest losses, and gender inequality still prevails in the agricultural sector, it is important to address the issues with a promising approach and technology to create an economically aligned community. Advit's rural skill upgradation centre, Aarohan, is located in village Pachala in Phagi block of Jaipur district in Rajasthan.

EMPOWERMENT

The initiative undertakes Environment awareness, action and health and safety programmes among school children, community members and industrial shop floor workers. The efforts are to guide how natural environments function, and particularly, how human beings can manage behavior and ecosystems to live sustainably. The programme also designs and undertakes planning and impact assessment of development projects.

A FEW GLIMPSES OF ORGANIZATION'S WORK

- Design and construction of micro watersheds/ water conservation models. Have undertaken more than 18 water conservation structures in more than 25 villages in Phagi, Mandore, Rothwara, Dudu blocks in Rajasthan and Amravati (Maharashtra), Medak (Telengana), Kolar (Karnataka).
- Undertaking Solar Electrical Training with certification from NSDC and Green Council for Skill Jobs. Trained more than 2000 candidates since 2013.
- B.Voc Training partner with TISS for undertaking Solar Electrical Training.
- Set-up Aarohan – rural self-employment training centre, at village Pachala in Phagi, Rajasthan.
- Electrified more than 2500 households in the rural parts of Rajasthan and Haryana using solar home lighting systems.
- Undertaking Safe Chemical Handling trainings for workers of apparel, metal, leather and accessories industries all over India.
- Implemented occupational health and safety trainings for 25 carpet weaving industries in Panipat, Haryana.
- Runs an environment education & school upgradation programme-Prakriti Eco School programme.
- Undertaken solar electrification of forest guard cabins at Pench and Bandhavgarh forest reserves in Madhya Pradesh.
- Undertook revival of handloom clusters in Kerala post Floods in 2018.
- Distribution of 100 energy efficient cooking stoves in Phagi, Rajasthan.
- Facilitated set up of community toilets in 5 villages in Phagi, Rajasthan.
- Facilitated set up of large scale drinking water system in Behror. Haryana.
- Facilitate industries to comply with environment standards - Undertake energy efficiency trainings, audits and other resource conservation methods for various industrial processes.
- Implemented roof top rain water harvesting for buildings. Designed and constructed 3 large models for institutions in Gurgaon.

ANNEXURE III

ADVIT FOUNDATION – Brief Profile

Advit Foundation (www.advit.org) is a not for profit development organization, working on Conservation of Environment Resources and Livelihood Enhancement. Advit Foundation has sought to conserve the environment and empower communities through its Water Centred Design for Life where people can manage behaviour and ecosystems to live sustainably.

Advit set up the Solar Information Centre at The National Institute of Solar Energy Gwal pahari under Ministry of New and Renewable Energy, GoI. Is a training partner with the Skill Council for Green Jobs and NSDC, GoI for Solar Electronics and runs a solar training centre with HARTRON. Advit was the state nodal partner managing the Rajiv Gandhi Renewable Energy Park in Gurgaon for Haryana Government from 2009 - 2015.

Our environmental resources are not infinite. Therefore, at Advit Foundation, our endeavour is to explore endless possibilities and solutions for their conservation. Our initiatives are focused on conservation of water and access to clean energy, overall socio economic development of the poor, skill upgradation and entrepreneurship trainings and holistic village development. This is achieved by unleashing traditional knowledge, identification of new technology and improved communication tools to undertake environment awareness and conservation initiatives.

Advit team closely works on skill up-gradation for climate change adaptation with communities as well as farm-based livelihood organisations. Advit has set up a rural skill training centre, Aarohan, in village Pachala in Phagi block in Jaipur District of Rajasthan where more than 100 women are trained every month. In a country like India where poverty, lack of nutrients, post-harvest losses, and gender inequality still prevails in the agricultural sector, it is important to address the issues with a promising approach and technology to create an economically aligned community.

Advit operates through the following programme areas :

CONSERVATION

The water conservation initiative ensures water availability for drinking, sanitation, agriculture and livestock. As the water scenario improves in the region, the scope and the need for other development activities emerge. The success indicators measured are developed degraded lands, overall socio-economic development of the poor, mitigating drought conditions, employment generation and poverty alleviation.

ENVIRONMENT

The programme is a strategic intervention to address some of the key issues in India's renewable energy development plans which stress upon promotion of the use of renewable energy/ clean energy and development of associated service delivery mechanisms in the country. The program will enable a strong, diverse, and well trained solar workforce. This program ensures that solar instructors are well connected to solar employers, and vocational and engineering students are trained to help increase solar adoption and improve solar installation.

LIVELIHOOD

New skills are introduced and existing ones are upgraded among the community. Advit team closely works on skill upgradation for climate change adaptation with communities as well as farm-based

PROJECT ACHIEVEMENT

This intervention of Jal Jeevan project for water conservation and village development mobilized more than a hundred rural community members. These included women and farmers to set up a model for rain water conservation and adopt renewable energy based new skills. These new skills facilitated processing of farm produce thereby preventing spoilage and enhancing income. Adoption of water conservation models and clean energy technology would not only transform the food economy in the region leading to better practices and furthering of income but also conserve environment.

Project deliverables are as follows :

1. Setting up of a water recharge structure
   - A 5000 cu m water recharge structure was set up in a low lying area. This was implemented post site survey mapping, catchment area calculation and run-off estimation.
   - Awareness sessions on water quality and quantity were conducted at the panchayat office premises.
   - Water user groups were created and appraised on how to maintain and manage the water structure.
2. Installation and training of rural community on AAGUN solar dryers. This technology introduction will help farmers increase shelf life of the produce and prevent spoilage till they find a market connect. Training and mobilisation are crucial elements of this intervention to build long term sustainability and easy adoption of these technologies.
   - Two AAGUN dryers were set up within the premises of the village sarpanch.
   - About 30 women SHGs were trained on Aagun technology and making of market ready products, technology usage and applications. Besides, awareness sessions were undertaken for more than 70 community members.
   - Sessions on drying, packaging and branding of farm produce were conducted.

The project overall has a holistic impact of environment in both the areas of mitigation and adapatation of climate change.

Mitigation : Reduction of emissions by usage of thermal energy storage based, clean energy technology for preserving agricultural produce and processing produce into high value items. Reduction in resource wastage by aiding farming communities to use clean technology to preserve food produce.

Adaptation : Supporting the farming communities with alternate methods to preserve their produce and process them into high value items. Enabling them to adapt to fluctuations in agricultural output and market price due to climate change and other factors.

Water structure location (before rains)

Low lying area filled with water

Low lying area-part of it deepened

Deepened area carrying more water

AAGUN dryer installation: SHG meeting with the sarpanch

ANNEXURE II

List of Women SHGs Participants

Vill: M.d. nagar

S.No	Name	Village name/FPO/SHG	Contact details	Signature
1				
2				
3			8074656630	
4				
5			7675974291	
6				
7				
8				
9			9652134158	
10			9676079792	
11			8498051140	
12			9849736792	
13			9898726767	
14				
15				
16				
17				
18				
19				
20				
21				
22			8074984876	
23			9133197172	
24				
25			9014115028	
26			9704704571	
27			8374504871	
28			6	
29			6302198251	
30				

Details of the village sarpanch:

Name: Divya Reddy

Village: Mahamadnagar

Block: Kowdipally

District: Medak

State: Telangana

Sarpanch with SHG members in front of the dryer

BACKGROUND

Project purpose

Project Jal Jeevan, was initiated in the year 2015 -16 in association with Canara HSBC Oriental Bank of Commerce Life Insurance Company. The main objective of this project was to ensure availability of water for drinking, sanitation, livestock and agriculture for the communities. Water conservation structure was set up in the project village – village Pachala, Phagi block, Rajasthan. Over the months the water accumulated increased soil moisture, recharged wells thereby ensuring supply of drinking water, reducing salinity and fluoride level in the groundwater and improved cropping pattern.

Those who owned land were benefitted more from Project Jal Jeevan since their agriculture produce increased. However, those who did not own agriculture land too were looking forward to initiatives that would improve their living conditions and income. Thereby, Project Jal Jeevan-Aarohan was initiated in year 2016. Under this Project, skill demonstrations were setup at the skill centre in village Pachala. Demonstrations on Biogas, Solar mobile charging station and solar cookers were installed. The community members were trained in the installation, usage and maintenance.

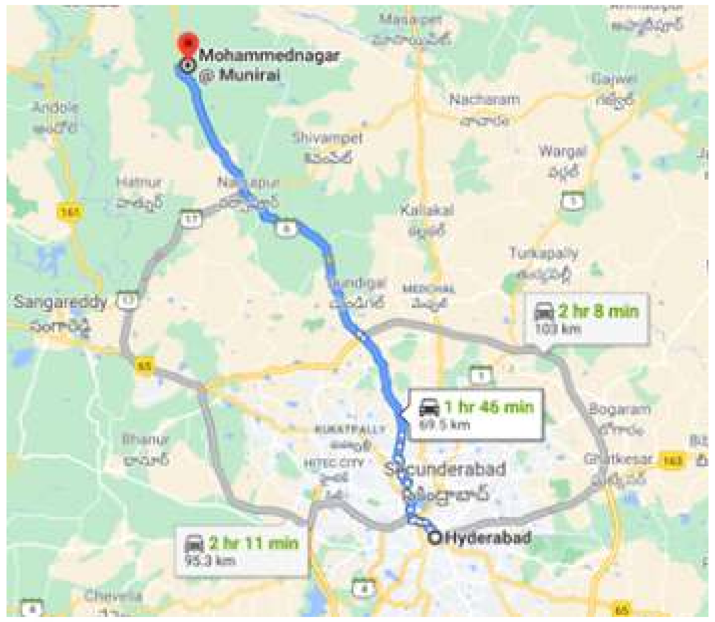
In 2017, Project Jal-Jeevan -Aarohan II was undertaken that focused on reaching out to the communities in village Pachala to promote renewable energy. Four biogas systems and one solar mobile charging station was setup in Pachala, Solar dryers, fixed type solar cookers and herb packaging system were setup at the skill centre to improve access to energy and enhance livelihood.

Project Jal Jeevan for water and village development now replicates the initiative at another location i.e. Telangana. The focus is on setting up water structures for ground water recharge and introducing a new skill with focus on livelihood enhancement.

About the Project location

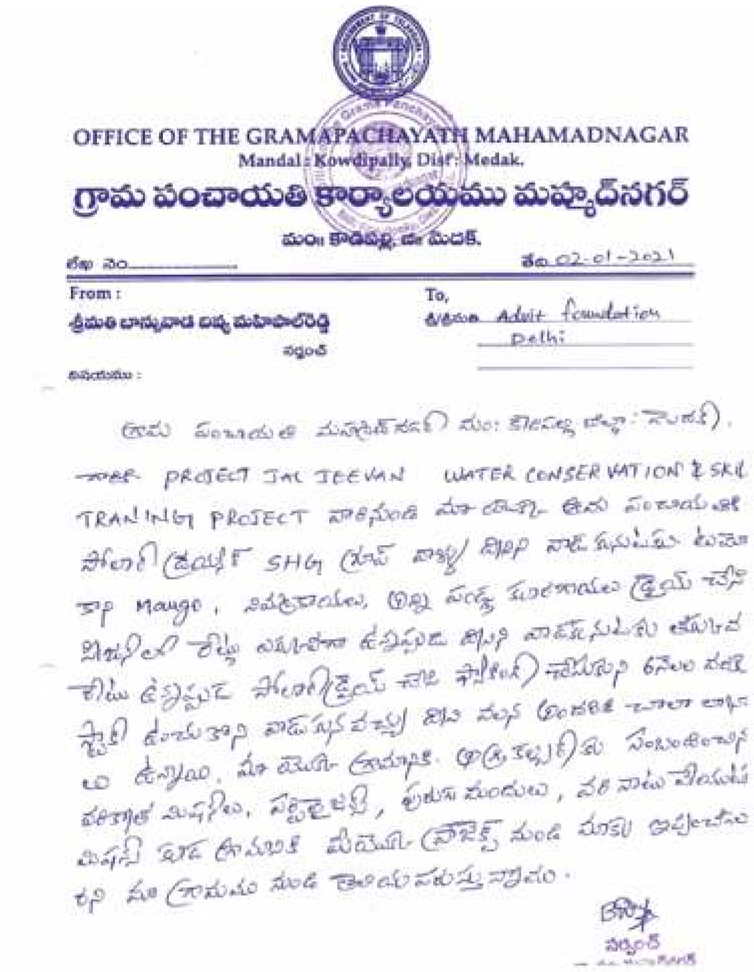
Village Mahamadnagar in Kowdipally block, Medak district of Telangana state is the project location. This village is roughly 70kms north west of the state capital Hyderabad. This village lies in the vicinity of Narsapur forest range hence there is a large presence of SC and ST population in this region. 36.6% of the village community are STs and 7.6% belong to SC. Literacy rate in the village is around 46.2% but the presence of women SHGs are very high.

Medak district in which the village is located is one of the most backward districts of Telangana. It is one among the ten districts of Telangana Region with a geographical area of 9,699 km^2. It forms a part of Deccan Plateau under Godavari basin and lies between North Latitudes 17°27' and 18°18' and East longitudes 77°28' and 79°10'. The district is divided into 46 revenue mandals, with its Headquarters at Sangareddy. The district has a population of 3031877 (as per 2011 census). The population density is 313 persons per sq.km. The forest cover is 91,390 hectares and the net area sown is 4,80,841 ha.



ANNEXURE I

Acknowledgement letter from village sarpanch


OFFICE OF THE GRAMAPACHAYATH MAHAMADNAGAR

Mandal : Kowdipally, Dist : Medak.

From :

To,
Advit foundation
Delhi

PROJECT JAL JEEVAN WATER CONSERVATION & SKIL TRAINING PROJECT ... SHG ... Mango ...

Letter translation:

We thank Advit foundation for Project Jal Jeevan water conservation and skill training project. Women SHG groups in our village will benefit from the solar dryer. We can dry tomato, mango, papaya, moringa and sell it at higher price. The water structure will benefit the entire village. This region is agriculture intensive so we request you if you can provide us with machinery related to agriculture. The panchayat will own and maintain this common property through SHGs.

Thank you

Divya Reddy,
Mahamadnagar Village Sarpanch

PROJECT INNOVATION & SUSTAINABILITY

To ensure sustainability, the project was handed over to the village sarpanch. Water user groups have been created to take care of the water structure.

AAGUN dryer is an innovative technology that can be looked at as a backyard business model in households.

Technical benefits

- The novel part of the solution is the solar energy powered 24 hours continuous operation with use of PCM (Phase Change Material).
- The hybrid PCM solution eliminates the crop wastage possibilities because of weather uncertainties after heater integration with the system.

Environmental Benefits

- Reduced GHG emissions owing to use of clean energy.
- Large tracts of lands, otherwise used for growing firewood can be saved. This corresponds to 0.2 hectares of forest land being saved/year per system.

Social Benefits

- Ensures better, cleaner workspace. No open drying. The product retains it fresh look and nutrition as it dries in controlled condition for 24 hrs.
- Doubling farmers Income.
- Employment opportunity for trained individuals.
- Entrepreneurship opportunities.

Community innovation

Due to the presence of forest in the vicinity, the village faces monkey menace. To protect the fragile elements of the solar dryer from monkeys, the community has designed and installed a protection iron mesh cover as shown in the picture below.

The picture below shows the village settlement and the water structure. The distance between the village settlement and the water structure is roughly 300m.

Basis for intervention

1. **Livelihood initiative :** Mahamadnagar village is primarily an agriculture intensive belt with lot of vegetables grown. Due to variations in the market price of these perishable commodities it's a common phenomenon every year to see a lot of tomatoes being discarded. Women empowerment through livelihood augmentation initiatives of rural communities have tremendous potential to address key developmental challenges such as socio-economic inequalities, energy access, natural resource management etc. Village Mahamadnagar has a large number of SHGs who are keen on starting with various livelihood projects. Hence addressing the food wastage as well as providing livelihood opportunities for rural women through Aagun based solar drying solves multitude of problems.

2.. **Water Initiative :** Ground water is one of the important sources both for domestic and irrigation purposes in the District and is being exploited through large diameter dug wells and bore wells. The common ground water abstraction structures are dug wells and bore wells and their yields mainly depends on the recharge conditions in the area. Yield potential of the aquifers in the consolidated rocks varies widely from 3 to 7 lps. Due to indiscriminate drilling of bore wells, the yields have dropped drastically. Lack of recharge to fracture confined aquifers have led to existing bore wells becoming defunct and failure of new bore wells. The average annual rainfall of the district is 910 mm, which ranges from nil rainfall in December, January and February to 229 mm in July. July is the wettest month of the year. During pre-monsoon season the depth to water level varies from a minimum of 3.85 mbgl (Medikonda) to a maximum of 21.00m.bgl (Kohir). Most of the area has water levels below 5 mbgl. Water level ranges from 5-10m and above 10m water level in Zahirabad, Kohir, Sangareddy and Kondapuram. The district is mainly dependent on ground water for its irrigation due to scanty rainfall. About 1,65,930 abstraction structures viz., dug wells, bore wells and deep bore wells exist in the district. Hence creating a water recharge structure would enable retaining the rainwater and recharging open wells and bore wells in the vicinity of the structure.

PROJECT IMPACT

The water structure would directly benefit 3000 community members and at least 6000 indirect beneficiaries. The total holding capacity of the water structure is 5000 cu m.

Brief population details of the beneficiary village areas:

Village name	Block	No. of households	Population	Farmer families	Landless	BPL	Area under agriculture
Mahamadnagar	Kowdipally	669	3229	428	241	520	1380 hectares

Expected outcomes and Impact within 2 to 3 years of project implementation :

1. Environmental Impact

A.` Increase in ground water level as well as soil moisture, thereby ensuring water availability for agriculture, livestock, sanitation and drinking.

- Total water storage capacity of approximately 5,000 cu m created.
- Adequate water supply to roughly 2500 livestock in the village resulting in increased milk production and revenue.
- Water retention would increase moisture retention and recharge of bore wells resulting in higher agricultural yield.

B. The community will be trained on the usage and adoption of a clean technology.

C. The project will result in reduction in food spoilage in the target areas, indirectly leading to conservation of natural resources such as water and energy.

D. It will also result in reduction of Greenhouse gas emissions due to burning of food waste in landfills.

2. Social Impact

A. The community will be empowered with the technical knowledge of set up of water conservation model as well as using and maintaining clean energy technology.

B. The communities will be empowered to have better negotiations with middle men since they will have alternative methods of storing the surplus and processing/preserving it.

- Community members are trained in a new technology for food processing.
- Women SHGs would be empowered to be financially sustainable.
- Socio-economic inequality is expected to improve.

3. Economic Impact

A. The area would see an increase in agriculture produce due to presence of groundwater.

B. The target community / cooperative will be able to link horticulture produce like tomato, mango, ginger and other fruits/ crops without worrying about spoilage.

- Will encourage entrepreneurship among community for better livelihood opportunities.

OUR APPROACH

Advit Foundation's approach is focused towards " sustainability and scalability" through adequate training, awareness and hand-holding of the community.

In the initial phase, small group discussion, focus person-to person discussions were conducted to promote easy adoption of the technical interventions. Local coordinators and trainers have been identified to take forward training of a larger number of community members both for new skill and water structure maintenance.

This will ensure long term sustainability of the initiative and easy adoption among the communities thereby leading to easy scale up in nearby geographies.

A step by step approach has been adopted to assess the situation on ground & develop the design of the project :

1. Collection of Data & preparation of implementation plan.
   - Data need assessment.
   - Data collection –state and district level.
   - Data analysis.
2. Resource analysis.
3. Implementation strategy.

Advit has been directly involved in the implementation of this project and some of the key roles and activities included :

1. Community mobilization.
2. Site identification and preparation.
3. Setting up of the AAGUN dryer.
4. Training women on operation, maintenance and usage of the technology.
5. Conducting trainings to village community for knowledge dissemination.

Role of Communities

The village community was actively involved in the project and agreed to take ownership, operation and maintenance of the Aagun drying technology as well as the water structure.

The project team for implementation constituted trained members. The team assisted in implementing all the components of the programme. Advit Foundation team designed and facilitated identification of the site after an initial baseline survey, initiated community trainings and set up the water structure and the drying units in collaboration with the CHOICE CSR team.

AAGUN dryer installation: gated premises

Local community member harvesting moringa

C. Through drying of produce, the communities will have an alternative method of processing their produce into a high market value product.

D. The communities will be able to progress from a raw food-based economy to a food production and processing-based economy leading to increase in income using environment friendly methods.

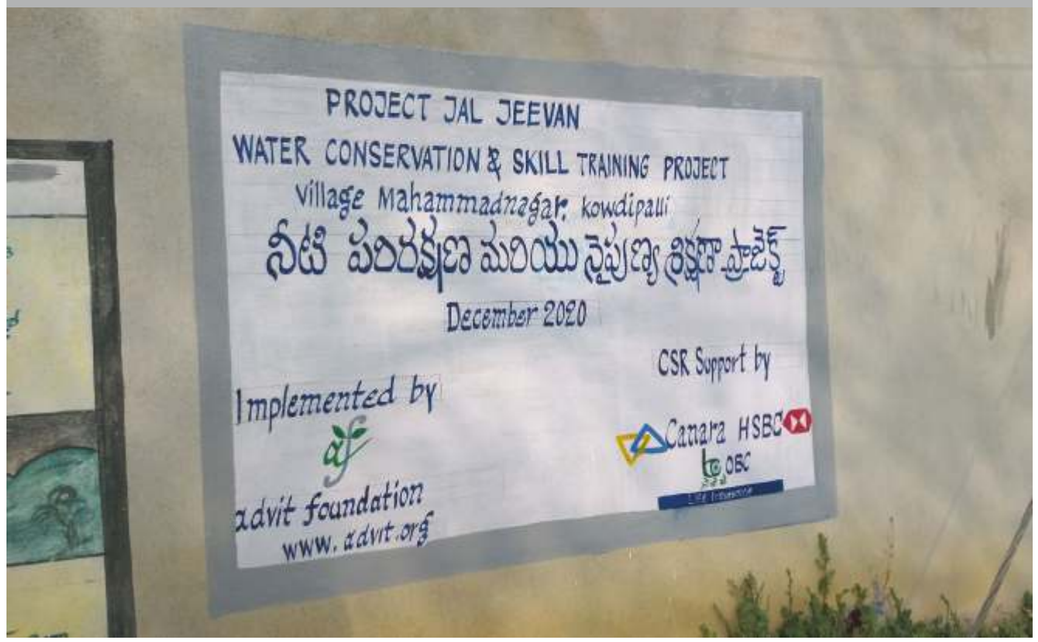
E. The reduction in food wastage could lead to more stable prices in the local markets.

F. Individuals with aptitude for entrepreneurship could take forward the cold storage and dryer model to produce new products for local and export market.

Glimpses of community mobilisation

Glimpses of existing village facilities

Display painting at the village entrance



AAGUN dryer installation






Village child-care centre

SHG training

Testing the dryer

Before drying

After drying

Packed Product