

# Vigyan Ashram Status Report

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## A] Dr. Kumud Bansal Award for "कहाणी पाबळच्या विज्ञान आश्रमाची" book:

Yashwantrao Chavan Prathisthan, Mumbai gave Dr. Kumud Bansal Award to book 'Story of Pabal's Vigyan Ashram' (Marathi). Dr Yogesh Kulkarni accepted the Award at the hands of Hon. Member of Parliament Smt. Supriyatai Sule and renowned Marathi writer Mr. Sunilkumar Lavate and Dr. Vasant Kalpande in an award ceremony on 5<sup>th</sup> January.



## B] Make-a-thon of rural science college girls:



The 3<sup>rd</sup> Make-a-thon program for rural science college girls was conducted during 13<sup>th</sup> to 17<sup>th</sup> January at Pabal campus. Girl students of Physics & Electronics department from Annasaheb Awate College (Manchar, Pune) participated in Make-a-thon to learn 'digital fabrication' skills. A total of 14 girl students worked on innovative project ideas (water jar cleaning tool, poultry water steriliser, Gesture control robot etc.) through design-thinking methodology. We are very thankful to La-Foundation (Dassault Systems) for providing financial support for the program.

## C] ASMITA project updates:

Asmita project become operational. Master tailor Mr. Hrushikesh Ghule (Rajgurunagar) trained 12 ASMITA members in stitching formal shirts. Women members produced 12 units of shirt. Team also worked on manufacturing 100 units of Kitchen apron & 100 head-caps, hand-bags with embroidery and wall-hangings. Team earned a community service of Rs.18511/- by selling these products.



## D] DST-SUNIL project updates:

### Polyhouse climate control system development:

- Ms. Sophia Wang (Aerospace Engineering graduate & Fab-Nomad intern from MIT, Boston) joined Vigyan Ashram for 1 month internship program. She is working on understanding evaporative cooling in polyhouse & Self-Sufficient village (Fab-Village) concept. On 29<sup>th</sup> Jan Suhas, Sophia and Ranajeet visited KVK Narayangaon to learn on 'hydroponics farming & automated climate



control' system. They also visited polyhouse at Kharpudi village (Rajgurunagar) on 24<sup>th</sup> Jan to discuss with farmer practices for temperature maintenance in Rose crop, under polyhouse condition.

- On 31st January, Yogesh Yadav (Soil Science, Subject Matter Expert, KVK, Narayangaon) and Ganesh conducted 1-day on-field training cum workshop on 'organic fertilizer application' for polyhouse. It was found that, with Potash Rich Organic Manure (PROM) application, farmers got 30 to 35 % more yield when the dose of fertilizer was reduced by 40 %. These results are encouraging and team is communicating it with other farmers for wider adoption.

#### Black-Soldier-Fly (BSF) based composting & poultry farming:

- Ganesh visited backyard poultry farming beneficiaries in Dimbhe region of Ambegaon block (Pune) on 4th January. A review meeting was conducted with 37 tribal women supported by 'Shashwat-NGO'. He also visited 'egg incubator' entrepreneur Mr. Prashant Pote at Asane village. Prashant completed 1<sup>st</sup> batch of egg incubation with 75 % success rate & willing to invest in higher capacity machine as full-time enterprise.
- At Rajgurunagar Muciple Council (RMC) 19.50 metric tons (MT) of wet waste was processed using Black Soldier Fly (BSF) larvae. Total 30.6 kg pupa produce was obtained from breeding chamber.



#### Red-Chilly dryer:

- Nandurbar district in Maharashtra state is known for high quality red chili production. Solar dome dryer was installed at Patel's farm (red chili trader) with 200 kg fresh red chili loading. Prasad & Aaman, conducted field trial of solar dome-dryer at Yashpal Patel's farm in Pachorabari village (District-Nandurbar) during 16<sup>th</sup> to 22<sup>nd</sup> January. Trial showed 9 kg/day water removal rate with 6 % drying efficiency. The maximum drying temperature of 42 to 45 °C was recorded during trial period. This drying efficiency is much lower than earlier 17 % and 11 % at Pabal campus & Narmadalaya (Madhya-Pradesh) respectively. Lower drying efficiency was due to foggy weather and dew formation at Nandurbar district.
- Prasad and team visited Krushi Vigyan Kendra (KVK), Nandurbar on January 16<sup>th</sup>. They met Dr. Rajendra Dahatonde & subject matter experts in post-harvest technology. Possibilities of collaboration w.r.t chilly drying, field trial & data collection was discussed during the meeting.



**Photosynthesis analyser**

#### Other research-fellow projects:

- Photosynthesis equipment: LI-COR 6800 is one of the most advanced equipment for analysing photosynthesis efficiency of plant leaf by with controls environmental conditions (CO<sub>2</sub>, light intensity, moisture etc) for the duration of a measurement. SunSeed APV is a startup, working on developing Agro-Voltic (solar PV + farming) farming model. The data generated on photosynthesis efficiency of plants will help to understand its performance under shade conditions. On 5<sup>th</sup> January, LI-COR 6800-Photosynthesis analyser is installed at Pabal campus. Mr. Ravi & Mr. Nimish from SunSeed APV provided installation & on-field data collection training to DIC lab students. DIC students will use LI-COR 6800 for generated data of photosynthesis for 10 selected vegetable & flower crops.
- Pranit & Megha prepared 450 H<sub>2</sub>S trip test bottles while generating community service of Rs.9000/-. Megha also started trials on developing a protocol for oxalic acid (C<sub>2</sub>H<sub>2</sub>O<sub>4</sub>) recovery from industrial influent water.
- Shrutika made 7 explants of banana plants in Plant Tissue Culture (PTC) lab. She has also shifted 3 explant bottles in 2<sup>nd</sup> stage of propagation.
- A first meeting of the Local Programme Advisory Committee (LPAC) for review of the SUNIL program was conducted on 29th January through video Conferencing (VC) mode. Dr. Anuradha Poghut, Dr. Naredra Shah, Prof. Anand Rao, Dr. Arun Dixit, Mr. Yogesh Yadav, Dr. Yogesh Kulkarni were present for meeting. Ranajeet Shanbhag (PI) and Dr. Pooja Doshi (Co-PI) presented progress made under the project during past 12 months.



**Photosynthesis analyser**

- TAP RISE: Local Program advisory committee for TAP RISE project was held on 28<sup>th</sup> Jan. It was held under chairmanship of Prof. Dr. Agnihotri. Development Alternative and Vigyan Ashram team made presentation of the progress done under TAP-Rise project.

## E] DBRT skill training update:

- **Bhorgiri trek:** On 2<sup>nd</sup> & 3<sup>rd</sup> January, DBRT students participated at 15 Km 'Jungle-trek' from Bhorgiri to Bhimashankar and also visited 'Sahyadri-School'. Students cooked their own food during trek. 39 students and 4 teachers participated in the trek.
- We are trying to get DBRT course recognised under NCVT in credit framework. Dr. Yogesh Kulkarni visited NIOS, New Delhi on 21<sup>st</sup> Jan. to attend meeting with NCVT team.
- Mrs. Jyoti Gawade (Member coordinator ASHA-for-Education) visited Pabal campus on 6<sup>th</sup> January. She interacted with DBRT students on their learnings, career plan etc.



Following are some of the section specific learning activities of DBRT as-

- **Home & Health section:** Students in home & health section, conducted a health-check up camp for NCC students in Pabal village school. They tested blood-group, haemoglobin and BMI of 35 students in health-camp. Students processed 50 kg carrots to make 'ready-mix gajar-halwa'. Students also processed 30 kg potatoes to produce dried chips and shreds. Students learned making of papaya-candy, moringa-chikki, till-laddu and gulab-jamun as regular learning activities. They also processed 37 kg bread-flour to learn bakery skills and made chocolates to distribute on 26<sup>th</sup> January program. Total value of their community service was Rs.19951/-.
- **Agriculture & Animal husbandry section:** A new poultry egg incubation was inaugurated by loading 200 eggs on 6<sup>th</sup> January.
- **Workshop section:** Workshop section students, learned basics of brick-laying while constructing 160 ft<sup>2</sup> wall for kitchen. Students also learned basic skills in lathe machine operations and TIG-welding machine. Total value of their community service work was Rs. 26791/-.
- **Energy & Environment section:** Students of energy & environment section, fixed an Electrical Vehicle (EV) charging point near parking area. They repaired 2 switch boards and made a dancing-light strip while practicing basic electrical fitting skills. Students repaired CCTV camera ports in agriculture-section. Total value of community service of section was Rs.11399/- for this month.



- **Computers & service sector:** Students are undergoing online training at computer lab. Depending on their interest students are undergoing following online course: Cake & baking, Mobile phone repairing, Basics of electricity, CCTV installation etc. They are learning this in the computer lab at their own pace and in their free time. Students are learning use of AI tools like Google teachable machine, Quickdraw tool, suno.ai, Essay modification using Chatgpt etc. to enhance their learnings.

## F] Fab-Academy 2025 & Technology development updates:

- Fab-Academy-2025 course started from 22<sup>nd</sup> January at Pabal campus. It's a hands-on learning course on application of digital fabrication with rapid-prototyping digital-fabrication tools. Course is conducted by Fab-Foundation (<https://fabacademy.org/>) where students from around the globe participate to learn project based

technical skills. This year, we have 3 students from Maharashtra, Rajasthan and Andhra-Pradesh state. Students will stay at Pabal campus for next 6 months to complete assignments & project activities.

- 36 students (9<sup>th</sup> class) from Anand-Niketan school (Nasik) attended 3 days residential ‘tinkering workshop’ during 28<sup>th</sup> to 30<sup>th</sup> January. Students enjoyed making of bird house (carpentry), simple robot (basic electronics), screen-printing (laser cutting), making of key-chain (3D printing) and stay at campus.

## G] Atal-Tinkering-Lab (ATL) & DIY lab update:

Students from 11 ATL labs in Andhra-Pradesh, Telangana and Karnataka state are participating in Atal Innovation Mission (AIM) & Dassault Systems supported by ‘Made in 3D-SEED the Future Entrepreneur’ competition. Team is also providing technical support Samagra Shiksha (Andhra-Pradesh) department for starting 730 new ATL’s in PMSHri schools in state.



Following online sessions were conducted for ATL lab students & instructs as:

Date	Topic	Link
ATL Andhra-Pradesh		
21-Jan	Healthy & Junk Food Identification with Papertronics	<a href="#">Click Here</a>
28-Jan	How To Measure Mass, Force and Pressure Using Load Cell	<a href="#">Click Here</a>
ATL Karnataka		
03-Jan	Automatic Emergency Braking System	<a href="#">Click Here</a>
10-Jan	ATL Dashboard and tranche	<a href="#">Click Here</a>
24-Jan	Ohm’s Law	<a href="#">Click Here</a>
ATL Telangana		
08-Jan	Persistence of Vision	<a href="#">Click here</a>
22-Jan	Healthy & Junk Food Identification with Papertronics	<a href="#">Click Here</a>
29-Jan	Scratch Programming	<a href="#">Click Here</a>

**Do-It-Yourself (DIY) lab update:** DIY lab conducted 11 training sessions for enthusiastic tinkers in January month. Following are some of the highlighted learning of students as –

Weekly batches students learned making circuits for blood-group identification, making of paper flute, optical illusion toy, making parallel circuit board etc. Total 76 students participated in tinkering activities.

- 140 students of AISSMS Polytechnic and 40 students from Rishi Gurukulam, School (Pune) visited DIY lab to explore facility and learning opportunities during 20 to 28 January.



## HJ Entrepreneurship Development Program (EDP) update (VATF):

WSHG entrepreneurship development training: A 3 day training workshop on 'rural entrepreneurship' was conducted for Women Self Help Group (WSHG) members during 30<sup>th</sup> January to 1<sup>st</sup> February. Training was organized in collaboration with AFARM & Seva Sehayog Foundation at Chalisgaon (District-Dhule). Total 20 trainee participants learned basic business development concepts like 'SWOT' analysis, customer profiling, cost-calculations, branding & marketing etc. through hands on activities.



Training workshop on 'Social media' marketing: On 18th & 19th January, training workshop on 'use of social media' for advertisement & promotion of small enterprises was conducted at JPNC, Kothrud, Pune. Total 10 budding entrepreneurs participated in the training to learn use of poster designing tools (Canva), social media platforms like WhatsApp, Facebook, YouTube etc. along with Search Engine Optimization (SEO), Google Ads, Email clients etc. Mrs. Nikita Agarwal (Director – Times & Trend Academy, Chinchwad) conducted hands-on training sessions.

### Marketing linkage & mentoring support:

- **Agri-Exhibition:** As a part of marketing linkage to budding enterprise, EDP team participated in 'Global Agriculture Exhibition' at Krushi Vigyan Kendra (KVK), Narayangaon (Pune) during 9<sup>th</sup> to 12<sup>th</sup> January. Innovative technologies developed by EDP beneficiaries viz. domestic egg incubator, hydroponics farming, temperature-humidity data logger for polyhouse, solar water-pump etc were displayed in the exhibition. Our alumni entrepreneurs as Rutuja Vishwasrao (Annapurna Foods), Pramod Pansare (Shrinath Foods), Seema Durgude (Gurukrupa Papad & Vedika Masale), Laxman Joshi (R Harishchandra Dudh Dairy) sold various food products worth Rs.50000/- during the exhibition.
- **Meeting with tribal department:** On 17<sup>th</sup> January, a meeting was held for discussing opportunities in technology based rural entrepreneurship in tribal communities. Meeting was attended by Mr. Amol Waghmare and Mr. Pradip Desai (Project Manager, Integrated Tribal Welfare Department, Ambegaon, Pune). Ganesh presented work of EDP along with on-field support for technologies like crab farming, domestic egg incubation, apiculture etc.
- Saurabh visited Vishal Garud (Pritesh Foods, Kalewadi, Pune), Arun Kamthe (Kamthe Agro Services, Shindawane, Pune), Dr. Jayashri Nalkar (Swayam Millets House, Manjari, Pune) and Megha Padwal (Megha Pets Accessories, Fursungi) on 24<sup>th</sup> & 30<sup>th</sup> January for on-field support.
- Ganesh visited Mr. Aryan Ahvale (DBRT, 2023-24 batch student). Aryan started his 'sliding window fabrication' enterprise at Wagholi (Pune). Ganesh guided him on business plan, expansion, marketing etc. aspects.
- Licencing & enterprise registration support provided to 6 new enterprises (Udyam Certificate-2, FSSAI License-2, Shop Act-2)



**Global Agri Exhibition, Narayangaon**

**Hero of the month:** **Mr. Keshav Tribhuvan** started "Om Sai Flower Decoration" a flower decoration & event management enterprise at Chinchwad (Pune). Keshav has attended a 'event management training workshop' by EDP. He has invested Rs.5 lakh in new business and expecting gross turnover of Rs.40,000/- per month.

## I] Installation of 3-Phase on-grid solar power generation system (STARS Forum):



Three phase Electricity bill of Vigyan Ashram is coming average Rs 15,000 per month. We already had single phase net metering system. Therefore we decided to go for, 'On-grid 3-phase' solar photovoltaic electricity generation system. A 15-kW capacity system with 30 solar panels (550 Wp) with build in inverter system was installed with help of Schaeffler India under its CSR and STARS Forum.

## J] Teacher training program for STEM project @ West Bengal (STARS Forum):

A teacher training program on implementing 'Science Technology Engineering & Mathematics (STEM)' education program in Murshidabad district of West-Bengal state was conducted during 27<sup>th</sup> January to 1<sup>st</sup> February. A 3 days hands-on activity based training was conducted at 2 locations; M. K. Girls High School, Berhampore and M. N. Academy, Lalgola. Total 200 teachers attended the training. The activities were designed with low material cost and linkages with 6<sup>th</sup> to 8<sup>th</sup> class curriculum. Training was conducted by master trainers from selected schools under guidance of Vigyan Ashram & STARS Forum team of Mr Ranajeet Shanbag, Mrs Komal Kadam, Ms Archana Shinde.



**STEM vetting workshop:** We are preparing STEM activity manual in Bengali.

We had conducted workshop from resource person of SSC board in Kolkta in Sept 2024. During the workshop we have identified STEM concepts in the curriculum which needs to be explained by hands on approach. Between Sept 2024– Jan 2025, we had worked on the STEM concept and identified the activities. A workshop to get approval of those activities from experts in SSC board, a STEM concepts vetting workshop was organised on 9<sup>th</sup> and 10<sup>th</sup> Jan at Kolkatta. Yogesh visited Murshidabad district on 7<sup>th</sup> and 8<sup>th</sup> Jan to attend HM Meeting of 100 schools in Murshidabad district. STEM learning program will be implemented in these 100 schools.

## K] Introduction to Basic Technology (IBT) program updates:

### IBT Maharashtra:

- i) **Design-Thinking training workshop:** IBT students from Kohinde, Vahangaon, Nigade, Dhamari, Waghera, Katraj, Asade school participated in 'design-thinking' training workshop at Pabal campus during 6<sup>th</sup> to 9<sup>th</sup> Jan. Aim of the training was to train students in methodology of 'innovation & prototyping' for their science projects. Total 36 students from 7 schools worked in teams to ideate on 'problem definition', prepare drawing using CAD software, learn fabrication process and use AI based tools for preparing posters of their projects. Teams will present their prototypes in 'Seed the Future Entrepreneur' competition conducted by Atal Innovation Mission (AIM) & Dassault Systems.
- ii) **Science Park visit at Pimpri:** Students from Dharmveer Sambhajiraje Madhyamik Vidyalay, Tulapur visited Science Park at Pimpri, Pune on 9<sup>th</sup> January. Students were engaged in hands on activities at Kalpakghar. Kalpakghar is a community tinkering centre initiated by IISER Pune in collaboration with Pimpri Chinchwad Science Park and supported by Tata Technologies Ltd. At Kalpakghar, students participated in the activities, and learned STEM concepts.



Students learning activities in schools:

- IBT students at Kohinde School fabricated man-hole door water tanks in school. They got order for 2 units of (5.0 Sqft) man-hole door for newly constructed water-tanks in school. Value of community service was Rs.4500/-.
- IBT students in Chaas school participated in the construction of wall for bull-racing track in village. As a part of village Yatra bull-racing track was repaired by villagers. Students completed construction work for 25 ft \* 3 ft brick wall while working with local meson. Total value of their work was Rs.6800/-.
- Students of 9<sup>th</sup> standard in Dhamari IBT school repaired water taps & installed new water tank in Khandoba Mandir. Students learned basic plumbing & metal fabrication skills through this activity. Students earned community service of Rs.7000/- through this activity.
- Students of 8<sup>th</sup> & 9<sup>th</sup> standard in Gulani school, repaired playground equipment for ZP primary school on the occasion of Republic-Day. Students welded un-functional toys, re-painted them while showcasing their learning in IBT section. They documented activity in short video reel- <https://youtube.com/shorts/BzJtUNtizyg>
- 9th class students of Shivkar IBT School, created a kitchen garden in the school. Students also fabricated a cement-pots for their garden while learning cement-mortar mixing, molding & casting skills. School administration appreciated their effort in making a kitchen-garden through self-made pots.



#### **Updates on Learning-By-Doing (LBD) and STEM program (STARS Forum):**

- In the month of January, total 305 teachers underwent 'Learning by Doing –STEM teachers training' at Lucknow. Total 6 training batches were conducted with hands-on training activities of agriculture, home & health, electrical and mechanical workshop section from 15 to 18Jan, 20 to 23 Jan, 27 to 30 Jan).
- We have 4 online training sessions for school instructors covering periscope, making natural colours, use of soaps & detergents and PET bottle-based rocket.



## L] Other tit-bits:

- i. 76<sup>th</sup> Republic Day was celebrated with full of joy & enthuse at Pabal campus. After flag-hosting students participated in the cultural programs including dance, folk songs, dramas etc. Students & staff participated in the 'Shramdaan' on 25<sup>th</sup> January. They worked at local primary school - Ekeri-Mala for repair of electrical fittings, repairing play equipments, entry gate, preparing planting bed for flowering plants etc. Students repaired school's toilet plumbing by fitting new pipelines and taps. Toilet wall was also repaired. The school gate which was damaged since last 3 years was repaired by welding. Also, the railings were coloured by students. The school playground was cleaned. Few students and staff was on another task of cleaning campus. DIC team found a water leakage problem at Grampanchayt tank. As a solution to this, on shramdan day, the team arranged the necessary arrangements to collect the leakage water and brought it to 'shet-tale'- farm pond of Vigyan Ashram. With this they stopped water wastage by 420 litters a day.
- ii. Arun & Kailas attended a 5 days training-workshop on 'प्रज्ञा-परिसर' (an emotional friendly college campus conducted by Dr. Anand Nadkarni (Institute of Psychological health) at Maharashtra State Faculty Development Authority (MSFDA, Pune) during 8<sup>th</sup> to 12<sup>th</sup> January.
- iii. Archana participated in 'STEM Educational activity' workshop organized by Centre for Creative Learning- IIT Gandhinagar during 30<sup>th</sup> December to 3<sup>rd</sup> January.
- iv. Priyanka Chuadhari attended 'She Leads Boot Camp-2025' organized by 'Wikipedia' foundation & CIS-A2K at Bangalore during 31<sup>st</sup> January to 1<sup>st</sup> February. 'She Leads' initiative aims to document 'Women in Leadership' role through small videos, articles etc.
- v. Weather record – Rainfall of the month – 00 mm (Total: 596.44 mm), Max temp-26.00°C, Min Temp –9.00°C, Humidity –89%, Water height in well– 2.90 M.
- vi. Energy consumption record- Electricity unit – III Phase-881 units, I Phase import- 2766 units, Export- 55, Solar generation (off-grid)- 125 units, DG used – 08:10 Hrs, Biogas- 60.6 m<sup>3</sup> (dung used 1212 kg)
- vii. Animal Husbandry section update – Milk production – 375 Kg (Gross profit Rs: 2750/-).
- viii. Online visitors: [www.vigyanashram.com](http://www.vigyanashram.com) – 1135 (Organic search- 602, Direct search-533). Campus tour visitors: 208.



## K] Data Report: <https://tinyurl.com/4ym5dej>

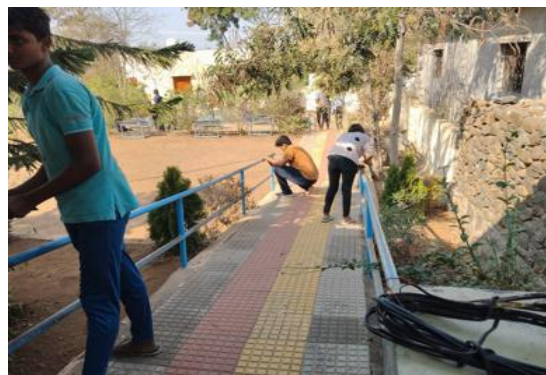
(Work at Vigyan Ashram is supported by: Asha for Education, Praj Foundation, EATON Foundation, LTI-Mindtree, SPA Education Foundation, UNICEF, TATA Technologies Pvt. Ltd, MAHLE Engineering Services Pvt. Ltd, Schaeffler India, Texol Engineering Pvt Ltd, INDUSA Endowment, Savitribai Phule Pune University, Dept. of Science & Technology, La-Foundation, The Prabhu Trust, STARS Forum and many individuals and foundations).



**Photo Gallery:**



**DBRT students enjoying at Bhimashankar**



**Shramdan on 25<sup>th</sup> January**



**DIC student operating LI-COR photosynthesis system**



**Teachers training in Uttar Pradesh**



**Teacher learning soldering during ATL training**



**KVK Baramati Visit**

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