



Sustainable  
Water  
Resources  
Development  
**Environment**



Health  
Awareness  
initiatives  
for women  
in rural areas  
**Healthcare**

Skill  
Development  
**Education**



**Business Continuity Plan**  
Preserving Nature  
Creating value for customers & society  
Strategic Sustainability Initiatives



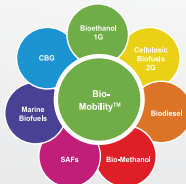
**BIOFUEL**



**WASTE  
WATER  
TREATMENT**



**CBG  
(Compressed  
Bio-Gas)**



**BIO- MOBILITY**



**PHARMA GRADE ALCOHOL**

**“Resilience through Challenging Times”**

**Business Sustainability Report  
2019 - 2020**

History created as Dr. Pramod Chaudhari becomes first Indian to be honoured with 2020 George Washington Carver Award for Innovation in Industrial Biotechnology and Agriculture by Washington DC-based Biotechnology Innovation Organization (BIO) and IowaBio.

Instituted in 2008, the award is named after celebrated agricultural scientist, inventor and environmentalist, George Washington Carver. It is the highest recognition for outstanding contribution in the Industrial Biotechnology sector worldwide.

The recognition is testament to Dr. Chaudhari's exemplary leadership, pioneering endeavours, and his relentless pursuit in building a sustainable ecosystem for the advancement of a bio-based economy.

### Exemplary Leadership & Contribution

- Building Bio-Based Economy
  - Development of sustainable Bio based Value-chain
  - Pioneering and entrepreneurial Spirit
  - Industrial Bio-technology & Application in biological engineering
  - Environmental science, Bio refining and bio based products

## George Washington Carver Award



### Exemplary Leadership & Contribution

- Highest level of International Recognition
  - First Indian to ever receive
  - Demonstration of India's tech Prowess
  - Joins Elite league of pathfinders
  - Global Brand Ambassador for Industry

# George Washington Carver Award 2020



**George Washington Carver Award 2020** was presented to **Dr. Pramod Chaudhari** during the **BIO IMPACT Digital Ag & Environment Conference** on September 22, 2020.

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## Chairman's Message

I am happy to write to you and hope that you and your dear ones are healthy and well.

Catching the world unaware, the Covid 19 pandemic has put health, security and economy at risk. Government machinery, organizations, institutions and common people are rethinking long term goals to factor in the uncertainties caused by the pandemic. I am happy to note that Praj responded to the outbreak with alacrity-- taking preventive actions and supporting our stakeholders, be it customers, shareholders, employees, suppliers or society.

Days into the lockdown, we implemented a Business Continuity Plan to protect business interests and support customers. Praj responded to the shortage of essential hand wash sanitizers (HWS) by offering free and open access of its HWS manufacturing technology. We also provided remote commissioning assistance and offered to manufacture and supply specialised reactors required for HWS on a fast-track basis.

Our employees stepped up, supporting customers in their production schedules even if it meant travelling across state lines to commission plants. We ensured their safety and adherence to statutory travel regulations.

Employees who worked from home were equipped with IT facilities. We provided additional medical insurance, established a detailed response protocol and as a precautionary measure, deputed single points of contact to offer crucial support.

To help beef up testing and ensure accuracy in results of Covid-19 tests, Praj Matrix lent a RT - PCR (reverse transcription polymerase chain reaction) system to govt-authorised Diagnostics Laboratory in Pune to cater to the ever-increasing load of the samples.



We were honoured to contribute to the PM Cares Fund, Pune Platform for Covid-19 Response assisted by MCCIA and to the Maharashtra and Gujarat CM Relief Funds.

Our dedicated efforts towards water conservation, preventive healthcare for women and skilling initiatives for youth continue in rural areas as part of our responsibility towards a building a self-reliant India.

Praj is associated with Samarth Bharat Punarbandhani Yojana (SBPY) by Jankalyan Samiti to help people whose livelihoods have been affected by the pandemic. Citizens are helped with education, healthcare, counseling, skill development and towards self reliance.

As a leader as well as corporate citizen, we are privileged to have done our best despite the challenges posed by the pandemic. I thank you for your unfailing support. We are confident of emerging stronger from this pandemic with unwavering focus on our vision of making the world a better place.

Yours truly,

A handwritten signature in blue ink, appearing to read 'Pramod'.

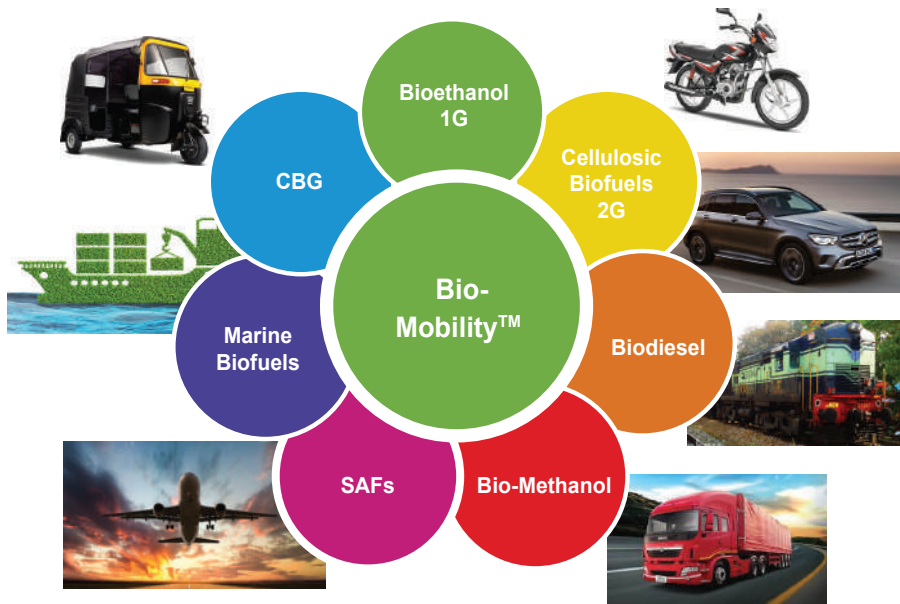
Pramod Chaudhari  
Executive Chairman  
Sept 2020, Pune

## Bio-Mobility™

As part of the overarching circular bioeconomy theme, Praj has pioneered the Bio-Mobility™ platform that envisages use of renewable biological resources to produce carbon-neutral transportation fuels across all modes of mobility i.e. surface, air and marine. It comprises of Biofuels both in liquid as well as gaseous form & are derived by processing feedstock such as agri residue, molasses, cane syrup, grains, oil seeds.

Praj is at the forefront of leading the future of transportation with its technology solutions for producing 1<sup>st</sup> & 2<sup>nd</sup>-generation (enfinity) bioethanol, bio-diesel, compressed bio gas and sustainable aviation fuel (SAF).

The Bio-mobility™ platform helps address challenges such as high GHG emissions, air pollution and associated health hazards. It leverages the existing infrastructure of the automobile & auto component industry and at the same time creates entrepreneurship & employment opportunities for the farming community. It also has far reaching impact across several stakeholders such as boosting rural economy & encouraging energy self-reliance, unmatched by any other alternative.



Praj has been ranked No.1 among the 'Best Places to Work in the advanced bio economy 2020' by US based magazine, Biofuels Digest. The most widely read biofuels daily had conducted a survey among its readers worldwide and Praj won among 297 organizations to secure this honor.

This award is recognition of Praj's pioneering work over three decades in the advanced bioeconomy. The No. 1 ranking is the result of relentless efforts of Praj's talented workforce, inspiring leadership, culture, technological prowess and above all, Dr. Pramod Chaudhari's vision of making the world a better place.





## Technologies for Sustainable Solutions

Praj's mission of providing sustainable decarbonization solutions through a circular bio-economy is reflected in its array of technological solutions for a greener and cleaner planet. Whether consuming lesser resources, helping reduce greenhouse gas emissions, generating rural employment, boosting economy or improving profitability for customers, Praj continues to develop and deploy technologies for sustainable solutions. Its R&D Center, Praj Matrix, is the innovation hub, engaged in research in industrial biotechnology, biofuels, renewable chemicals and futuristic biochemicals for various applications.

In FY 2019-20, Praj filed 131 international patents, securing 6 Indian patents and 41 foreign patents. Praj now has 84 patents to its credit.

As part of commercialization of proprietary CBG technology, Praj has set up a demonstration plant to showcase its end-to-end capabilities to industry stakeholders. This plant will be used to test, improve and optimize the technology further. The ground-breaking for construction of the plant was done at the hands of Dr. Raghunath Mashelkar in December 2019.



*CBG Demo Plant adjacent to Praj Matrix, Urawade*

In FY 2019-20, Praj Matrix launched an Enzymatic Biodiesel technology which is feed stock agnostic. Praj Matrix is working on optimization of the tocopherol and rice bran wax technology by enhancing yields and productivity. The rice bran wax produced by Praj Technology is being tested by a US- based MNC for coating applications.

During FY 19-20, your Company has developed and deployed technologies to help customers maximize profitability by upgrading existing plant capacities while reducing the energy/ water footprints. Praj's integrated process solutions such as Maximol, PROFIT, SHIFT, help customers in reducing their energy footprint while improving operating costs. These solutions help customers reduce the greenhouse gas emissions from the plants as well as effluent generation.

To combat the Covid-19 pandemic there is renewed focus worldwide to strengthen the public health system and medical infrastructure. Pharmaceutical grade alcohol, that has several applications such as hand sanitizers, disinfectant for medical/laboratory instruments & equipment, syrups, antibiotics etc., is experiencing enhanced demand. Ethanol manufacturers around the world are therefore keen to produce pharma grade alcohol and are looking for efficient technology solutions. With Ecosmart, Praj's patented technology for the high quality pharma grade alcohol, your Company is in pole position to cater to this new market opportunity.

## Recognition for Sustainability in Operations

As a pioneer in the global bioeconomy, Praj has been recognized for its initiatives in areas such as innovation, manufacturing, human resources, and health and safety. Besides being ranked No 1 among the 'Best Places to Work in the advanced bio economy 2020' by US based magazine Biofuels Digest, the company has won multiple other awards, as follows.

### 1. R&D and Innovation :

Golden Peacock Eco-Innovation Award 2019 by Institute of Directors, India in recognition of 'Enfinty', Praj's 2G technology.



### 2. R&D and Innovation :

Industrial Green Chemistry World Award for its improved technology development for furfural.



### 3. Manufacturing :

Pune Manufacturing Leadership Award 2019 for manufacturing excellence from CMO Asia



**4. Health, Safety and Environment (HSE) :**  
Best Environmental & Safety Performer award  
among vendors for Praj's team at SPR  
Distilleries, Mysore



**5. Health, Safety and Environment (HSE) :**  
HSE Sphere Award by TOYO Engineering for  
best HSE performance

**6. Human Resources :**  
Pune Best Employer Brand Award 2019 for best  
in class HR practices from CMO Asia



## Negotiating COVID-19 Crisis

The outbreak of the Covid 19 pandemic has globally put public health and economy at risk like never before. Due to the imposed lockdown, supply chains were at a standstill, factories were closed and people were confined to their homes resulting in the entire value chain coming to a grueling halt. This has compelled organizations to revisit their strategies and business plans.

Despite being affected by the lockdown like any other industry, Praj has remained resilient, staying focussed on creating value for customers while rallying around important stakeholders namely, society, suppliers and employees.



RTPCR System

Amidst the lockdown, the government had permitted the production and supply of essential goods and services. This included hand wash sanitizers (HWS), recognized as an effective measure to control the spread of the pandemic but which is experiencing acute shortage in the market. To address this situation, Praj stepped forward to offer free and open access of its HWS manufacturing technology. The company also provided remote commissioning assistance, and offered to manufacture and supply specialized reactors required for HWS on a fast-track basis.

There is an overwhelming response of more than 500 interests representing different industrial segments nationally and internationally. Your company is in various stages of discussion with them to help them jumpstart manufacturing of HWS.

Beefing up testing and its accuracy is one of the sure-fire ways to fight the spread of the virus. Recognizing this crucial need of the public health system, Praj Matrix had lent RT-PCR (reverse transcription polymerase chain reaction) system at Govt. authorized A.G. Diagnostics Laboratory in Pune. The instrument helped A.G. Diagnostics cater to the ever-increasing load of the samples and detect, track and study the virus.

Praj was honoured to contribute Rs. 1.76 cr. to combat the pandemic; Rs. 1.01 cr. to the PM Cares Fund, Rs. 25 Lakhs to Pune Platform for Covid-19 Response assisted by MCCIA and Rs. 50 Lakhs to Maharashtra Chief Minister's Relief Fund and Gujarat CM Relief Fund.

The company's work-from-home policy for its employees empowered them with IT facilities to serve customers. This enabled technical experts to commission domestic as well as international projects remotely allowing customers to begin production as planned.

Praj collaborated with partners to streamline supply chain aberrations to the extent possible and formulate alternate sourcing plans to honour customer commitments.

As a leader among technology-led EPC solution providers for process plants, your company considered it a privilege to continue to serve customers, society and its own employees in these testing times. Your company is confident of emerging stronger and more resilient from this pandemic.

## Health & Safety at Work

Employee safety is the most critical concern at Praj. To ensure well-being of everyone, all our facilities including project sites adhere to Health Safety and Environment (HSE) norms. A well-documented HSE policy and adoption of ISO 14001:2015 and ISO 45001 for Environmental Safety and Occupational Health & Safety management system helps us fulfill the goal.

Periodically conducted trainings on fire fighting, emergency response, first aid, road safety help us keep constantly in touch with the importance of safety and alertness. The Safety Week observed during 4th-11th March, 2020 saw activities like poster and slogan competitions, trainings and expert sessions on active lifestyle.



*Committing to safety : Safety week celebration at project site in the Philippines*



*Safety First : Fire drill at Praj Tower*

## Commitment to Building a Sustainable Community

“The world today is facing challenges on different fronts such as health, livelihoods, unemployment, deterioration in the environment, among many others. With a focus on ameliorating sections in rural Maharashtra, the Praj Foundation has invested significant time and effort in water conservation, skill development and preventive healthcare for women. I am pleased that the ripples of our work have benefited many and penetrated several homes across the state. We stay committed to giving back to the community and making the world a better place.”



**Mrs. Parimal Chaudhari,  
Director, Praj Industries Ltd.  
& Managing Trustee, Praj Foundation**

## Environment

Water is an enabler for equitable and sustainable socio-economic development. Unfortunately, several parts of Maharashtra have been facing water scarcity over the past few years. Water conservation structures especially on streams have become defunct due to lack of maintenance and a majority of them were filled with silt.

Increasing droughts in the past decade have affected agricultural production. Repeated crop failures and surmounting debts were making farming unsustainable. Farmers began migrating to cities for alternative employment. A sustainable solution to address water shortage had to be found. To address this, Praj initiated the 'Sustainable Water Resources Development' initiative in severely drought affected villages in Jalna, Aurangabad Ahmednagar and Pune districts.

During this year seven additional villages were included where 16 water retention structures were repaired. Almost 2,14,000 m<sup>3</sup> silt was removed from stream beds resulting in enhanced storage capacity for about 866 million liters of ground water.

37 villages spread across eight talukas of the districts are now covered. Your company has completed these projects in collaboration with the local community and NGOs like Janakalyan Samiti, Ahmednagar, Savitribai Phule Ekatma Samaj Mandal, Aurangabad, Deepastambha Charitable Trust, Pune and Gram Gaurav Pratishthan, Pune.

The outcome of the interventions has been highly encouraging. Post monsoon, these structures could store water thereby replenishing ground water and rejuvenating wells in a 2-3 km radius. The village which was getting drinking water every year by tankers from December onwards for the past 4-5 years now has drinking water available throughout the year.



Items	2019 -20	Cumulative (Since 2015)
Number of sustainable water resources development projects in Ahmednagar, Jalna & Pune Districts	7	37
Silt removed from river beds (m <sup>3</sup> )	2.14 lakhs	18.99 lakhs
Surface as well as ground water stored (million liters)	866	9266
Rejuvenation of open wells	373	1253
Rejuvenation of Bore wells	72	661
Area benefitted by protective irrigation	1960 acres	12360 acres

*Rejuvenation of the percolation tank at Kumbhari village, Badanapur, Jalna*



*Rejuvenation of percolation tank at village Anterwali Khandi, Paithan, Aurangabad*







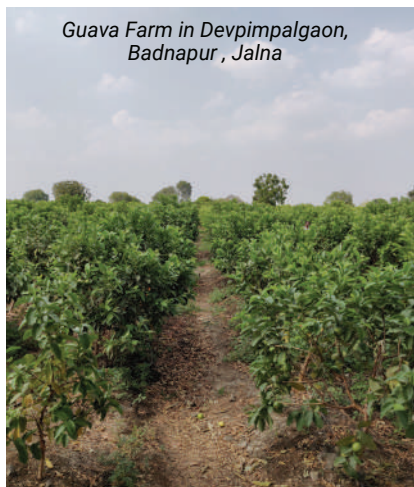
*The decentralised storage of water has enhanced ground water levels and farmers have enough water for crops and livestock. Many farmers have installed micro irrigation systems like drip and sprinklers thereby conserving water.*

Availability of protective irrigation has enhanced the productivity of agricultural crops and earned additional off-farm income from livestock. Several farmers have planted cash crops especially horticulture crops.

Protective irrigation to Kharip crops during the long dry spell of monsoon has enhanced crop productivity as well as farmer income. Sufficient water in wells have allowed farmers to cultivate Rabbi crops like wheat which was never grown earlier. The productivity of crops like cotton, corn, Jowar and wheat has increased by 50 to 80 %. Similarly area under horticultural crops such as guava, pomegranate, sweet lime and grapes has increased by 30%. Thus the project has resulted in enhancing crop intensity, pattern and diversity leading to Marketable surplus.



*Grape Grower from Matarewadi Badnapur, Jalna*



*Guava Farm in Devpimpalgaon, Badnapur, Jalna*



*Guava orchard from Devpimpalgaon, Badnapur, Jalna*



*Wheat intercropped with pomegranate at Padali, Badnapur, Jalna*

## Education

The Introduction to Basic Technology (IBT) Project for rural schools of Western Maharashtra is a pioneering project by Praj Foundation and Vigyan Ashram since 2014. Focused on strengthening basic skill education, students from 8th, 9th and 10th grade are trained in engineering, environment and energy, agriculture and animal husbandry, and home and health subjects under the guidance of expert instructors from relevant sectors. The 'Model IBT School' project is in line with target 4.7 of the Sustainable Development Goal 4 which focuses on life skills as an important part of youth development. The project has currently benefited more than 6500 students and more than 50 instructors

During the year, along with knowledge training, a new teaching method was introduced to enhance and strengthen the instructors' communication skills. Train the Trainers meet, and virtual training sessions to monitor implementation and progress in students was rigorously followed. The importance of the IBT Program and its link to Sustainable Development Goals was reinforced to instructors. The technique has also benefited students in developing and converting innovative ideas into reality more efficiently.



Students from Shri Devi Shanta Durga High School - Vadachapat developed a manually operated low cost washing machine made from a discarded cycle. This project was awarded at district level science exhibition.

Students from Shri Sambhajirao Palande Patil Pragati High School - Mukhai developed a grey water recycling unit in their school campus to overcome water shortage for conducting agriculture sessions.

Students from Hutatma Umaji Naik Vidhyalay - Bhivdi organised an appliance repairing and maintenance camp on the occasion of National Science Day. Several people from the local community visited the camp and the revenue generated was used to maintain and upgrade the IBT laboratory.

Students from Dnyansavardhini Madhyamik Vidhyalay, Shirval prepared liquid handwash and distributed to the local communities as a part of their community services.





*Manually operated low cost washing machine prepared by IBT students*



*Liquid handwash prepared by IBT students*



*Appliance repairing & maintenance camp organised by IBT students*



*Grey water recycling unit prepared by IBT students*

## Preventive Healthcare

Praj Foundation believes that a healthy woman is the first step towards an empowered woman. Praj's approach of "Food is Medicine" is being implemented in 11 villages in Wada Taluka of Palghar district for 4 years covering 500 tribal beneficiaries. The programme focuses on eradicating anaemia and improving health of women by creating awareness through health sessions, promoting kitchen gardens for nutritional security, lifestyle improvement etc. to develop immunity .

### Enhancing Nutritional Security:

To ensure year round availability of vegetables, beneficiaries are motivated to establish kitchen gardens as a cost effective, holistic and practical model to meet the dietary requirements of a family. During this year, 100 % beneficiaries established kitchen gardens during the monsoon & post monsoon , growing 7 varieties of leafy vegetables, climbers and tubers. These gardens were nurtured with organic compost, growth facilitators and using bio pesticides. Beet root and Red Radish which improves haemoglobin were grown, the first attempt in their region.

80% beneficiaries have planted iron rich 'Haliv' in their kitchen which is consumed at least four times a week.

To promote consumption of local paddy and conserve the native germplasm, 50 kg seeds of 4 varieties were given from the 'Seed bank' to 20 beneficiaries for seed multiplication. The beneficiaries multiplied the seeds and returned almost double the quantity to the 'Seed bank'. The seeds will be provided for plantation during 2020-21 too.

### Wild Vegetables Festival:

Wild vegetables compensates for the deficit of leafy vegetables during Monsoon, and is known for it's medicinal & nutritional value. Parimal Chaudhari, Managing Trustee, Praj Foundation inaugurated the Wild Vegetables Festival. Documentation of 30 wild vegetables were shared through a 'skit' and innovative recipes using the vegetables were awarded to encourage consumption.

*A 'Tarpa' tribal dance by over 175 beneficiaries who participated in the festival*



*Beneficiaries presenting information about wild vegetables through a Skit*

*Parimal Chaudhari, Managing Trustee Praj Foundation tasting the dishes using wild vegetables*



### **Aarogya Samwad: A platform for Expression, Recognition & Encouragement:**

This year, as in the past years, Aarogya Samwad was conducted in the presence of over 250 beneficiaries and other guests. Women who overcame anemia, acidity, indigestion and problems related to reproductive health shared their experiences of improving their diet, habits, lifestyle. Women who generated substantial income around their homesteads from backyard poultry, vegetable and flower cultivation participated in a panel discussion.



*Parimal Chaudhari felicitating the winner of the competition*

### **Solar Dehydrator: Tool for Preserving food and Source of income**

With a view to preserve fruits and vegetables, their nutritional value and earn surplus income, the foundation introduced solar dehydration. Solar dehydrator dehydrates food in an energy efficient and hygienic way thereby enhancing its shelf life. They help during summer, when leafy vegetables are in short supply and expensive.

10 progressive tribal women from Avchitpada village invested 50% amount towards purchasing solar dehydrator while the balance amount was contributed by Praj Foundation.

These women were trained in operation and maintenance of solar drier for different raw material. They developed and standardised various products such as leaf powder (drumstick, guava, custard apple, palak, methi) vegetable chips ('Guar', bitter gourd ) and processed dried food items like stuffed chillies.

They were successful in marketing their surplus produce and have been receiving repeat orders from their customers in Mumbai.



*Parimal Chaudhari visits solar dehydrator facility*

## Major outcomes of the programme

### Health Intervention :

Over 70% beneficiaries have adopted interventions and over 50% have attained and maintained Hb above 12.5 g/dl.( against> 92% below 12.5 two years ago).

### Income generation :

- Over 350 (70%) beneficiaries earned average Rs.5000 -7000/- annually from sale of **poultry birds**.
- Around 100 (20%) beneficiaries earned average Rs. 20,000/- annually from sale of **variety of vegetables**.
- Around 125 (25%) beneficiaries earned average Rs. 35,000/- annually from sale of **jasmine & marigold flowers**.



## Personal Social Responsibility

Personal Social Responsibility (PSR) aims to positively influence and impact people and environment outside the immediate circle of our employees. Praj employees contribute their skills and time towards PSR by participating actively in various initiatives during weekends and public holidays.

### Water conservation at remote villages in and around Pasli, Velhe Taluka:

Velhe taluka in Pune District receives among the highest rain fall. However, the water flows away from the slopes and cannot be conserved. Hence, a shortage of drinking water begins in January and villagers have to travel distances to fetch water. One of the low cost and effective solutions is to build temporary check dams using soil and prevent the flow of the stream water. This helps to recharge ground water and wells in nearby areas . Water in the stream is also available for animals..

This activity is done during December and January, when the water is still flowing. Over 200 Praj volunteers constructed three temporary check dams in remote villages Kolambi, Shendwad, and Pasli in partnership with Paoolwaat Foundation.





## 2. Cleaning drinking water tank at Fort Raireshwar:

Fort Raireshwar, where Shivaji Maharaj at 16 took the oath for swarajya, is significant in Maratha history. Praj volunteers removed the accumulated silt and cleaned the surrounding of the tank that supplies water to two villages at the foothills.



## 3. Wall Painting at Schools

Over 80 Prajites painted the internal and external walls of New English School, Vinzhar, in Velhe taluka, at the foothills of the Rajgad fort. Run by private institutions, the schools have limited funds. Praj volunteers contributed towards supplies and delighted the teachers and students with freshly painted walls.



#### 4. Traffic Volunteering :

Prajites volunteered to create awareness at major traffic signals in different parts of Pune in an activity initiated by CII with Deepastambha Charitable Trust. Over 100 Prajites requested two-wheeler riders to wear helmets, adhere to traffic signals and practice safe driving practices always.



Several Praj employees have gone beyond the call of duty, their daily routine and comfort, to contribute to the community. Your company appreciates their dedication and selflessness and encourages more Prajites to offer their time and resources for the betterment of society.



## Highlights FY 2019 - 2020

Revenue	Rs mn.	11,023
PBT	Rs mn.	831
Use of renewable energy at various work premises	Kwh	3,21,455
Use of recycled water at various work premises	m <sup>3</sup>	4500
Potential to save CO2 emission through generation of ethanol capacity	MT	~6mn
Total number of employees*	Number	1177
Number of women employees*	Number	119
Number of days training	Number	1560
Number of patents filed	Number	131
Number of patents granted	Number	47

\*for Praj Group

### “Work from Home” moments @ Praj





Sustainable water resources development project undertaken at village Padali, Taluka Badnapur, District Jalna