नवीन एवं
नवीकरणीय ऊर्जा मंत्रालय
MINISTRY OF
NEW AND
RENEWABLE ENERGY

सत्यमेव जयते

MINDFUL IMPRESSIONS

Targeting 2070 Workforce - A GRIHA Publication

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Developed by:

GRIHA Council
Core 1B, 3rd Floor,
India Habitat Centre,
Lodhi Road,
New Delhi - 110003

Tel: (+91 11) 46444500/24339606-08)
Email id: info@grihaindia.org
Website: www.grihaindia.org

PREFACE

It is with great pride and a deep sense of responsibility that I present this booklet on the evaluation of 379 Navodaya Vidyalaya Samiti (NVS) schools including 312 PM SHRI schools under GRIHA for Existing School (ES) rating variant. This is a significant marker in our collective efforts to embed the principles of sustainability into the very fabric of our educational institutions. GRIHA Council has always been committed to fostering an environment where sustainability is not just a concept but a living experience.

By integrating sustainability into daily operations and activities of schools, we ensure that students and teachers become active partakers in our stride towards sustainable future. The 2070 goals, which aim for net-zero emissions and a significant reduction in our environmental footprint, cannot be achieved without the active involvement of today's youth, who are the decision-makers of tomorrow.

The students and teachers of these NVS schools are at the forefront of this endeavor. By adopting sustainable practices, these schools are not only reducing their environmental footprint but also setting a powerful example for others to follow. This booklet is an evidence of the collective effort and devotion of the NVS community to create a sustainable environment.

I would like to extend my heartfelt congratulations to the Navodaya Vidyalaya Samiti, the principals, teachers, administrative and non administrative staff, and students of these schools, as well as my team at GRIHA Council, for their unwavering commitment towards this initiative. Together, we are building a more robust and sustainable built environment, one that will support and foster the ambitions of future generations.

Sanjay Seth
Vice- President
&
C.E.O GRIHA Council

MESSAGE

Schools play a pivotal role in providing a conducive environment to our budding generation in acquiring the right set of knowledge, skills, values and attitude required for the sustainable development of our country as we attempt to mitigate climate change. Navodaya Vidyalaya Samiti (NVS), an autonomous body under the aegis of the Ministry of Education, Government of India, set up the Jawahar Navodaya Vidyalayas (JNVs) to harness and predominantly unlock the potential of rural talent. These schools have evolved into an unparalleled success story in the realm of school education in India. NVS schools are also integral to the PM SHRI School initiative, where out of 661 NVS schools, 312 schools are actively involved as PM SHRI Schools.

To further our commitment to sustainability, NVS entered an Memorandum of Understanding (MoU) with GRIHA Council during the 15th GRIHA Summit in 2023. Under this collaboration, 379 schools across India were evaluated by GRIHA Council, on various sustainability parameters under the GRIHA for Existing Schools rating. Most of our schools have achieved 4- and 5-star ratings. Through this exercise, students and teachers were sensitized on the various aspects of sustainability that can be integrated in day-to-day lifestyles.

This publication "Mindful Impressions – Targeting 2070 Workforce" is a dossier of the reduced environmental impact of all these schools, as against conventionally operational buildings, by integrating sustainable practices such as energy, water and waste management along with tree plantation. Furthermore, adoption of strategies for cultural and heritage conservation, universal accessibility and environmental awareness have turned these schools into models of sustainability that empower the community and support the holistic development of students.

I extend my sincere appreciation to the Principals, Vice Principals, In-Charge Principals, teaching and non-teaching staff and students for their dedication and efforts to make their schools sustainable. I also acknowledge the invaluable guidance and training provided by GRIHA Council, which has been instrumental in facilitating the evaluation process. This collaboration has set a benchmark for sustainability in educational infrastructure, offering our students a unique opportunity to learn and grow within a sustainable framework. We are dedicated to cultivating a cadre of informed, educated and trained individuals, who will serve as environmental stewards, contributing to the vision of a developed India by 2047 and beyond, as we accelerate sustainable development towards 2070.

Shri. Vinayak Garg
Commissioner,
Navodaya Vidyalaya Samiti,
Ministry of Education.

ACKNOWLEDGEMENT

GRIHA Council would like to thank Navodaya Vidyalaya Samiti for being a part of the journey to sustainability and to participate in this green building drive.

We are grateful to Shri Vinayak Garg, IRSEE (1995), Commissioner, Navodaya Vidyalaya Samiti (NVS), Ministry of Education, Government of India (GoI) for spearheading this activity.

We would like to thank Shri Sameer Pandey, I.R.S., Joint Commissioner (Admin), NVS, Ministry of Education, GoI for carrying the zeal to create environmental awareness amongst students and teachers across the country.

We express our sincere gratitude to Shri Gireesh Kumar, Deputy Commissioner (SA), NVS, Ministry of Education, GoI for his able assistance which allowed for successful completion of the activity within the stipulated timelines.

We would like to express our sincere gratitude to all principals for extending their support in the thorough implementation of green building strategies in the school campuses.

We would like to convey our thanks to the teachers, administrative staff, non-administrative staff and students for their commitment towards the cause of sustainability and facilitating the entire process of rating with their genuine efforts.

Last but not the least, we would like to thank the Ministry of New Renewable Energy (MNRE), GoI and The Energy and Resources Institute (TERI) for their unwavering support to GRIHA Council in promoting sustainability and in the endeavor to build green infrastructure across the country.

TABLE OF CONTENTS

Contents

Contents

Page No.

INTRODUCTION

An Overview

Building operations and construction account for more than one-third of global energy-related carbon emissions. Buildings, to some extent, reflect the ideology and thinking of their occupants. This is even more valid for schools wherein students spend the majority of their waking hours during their formative years in the school buildings.

Educating students about sustainability is essential for global sustainable development. Education may raise awareness, empower individuals, and can help students learn the importance of safeguarding biodiversity, conserving natural resources, and mitigating climate change. Students can actively participate in sustainable practices such as recycling, energy conservation, and sustainable consumption patterns, by cultivating an environmental friendly mindset.

The GRIHA for Existing Schools rating has been formulated with the intent to develop a proactive attitude amongst students and teachers to reduce their environmental footprint and adopt a greener lifestyle.

Key Features

1) Simple calculator based approach for case of understanding by school students.
2) Simplified sustainability concepts for easy implementation by students and teachers.
3) Simplified technical terms for students.
4) Fun activity based learning.

GRIHA for Existing Schools Rating

The rating has been developed as a framework to evaluate and rate the environmental performance of existing school campuses. The evaluation is done using calculators with pre-fed data; students and teachers work collaboratively to meet the requirements of the rating. The rating is a 50-point system consisting of six primary sections, namely energy management, occupant comfort, air quality, water management, waste management and social parameters.

Table 1: Points system in GRIHA for Existing School rating along with the corresponding star rating

Points Achieved	Star Rating
25-29	★
30-34	★★
35-39	★★★
40-44	★★★★
45-50	★★★★★

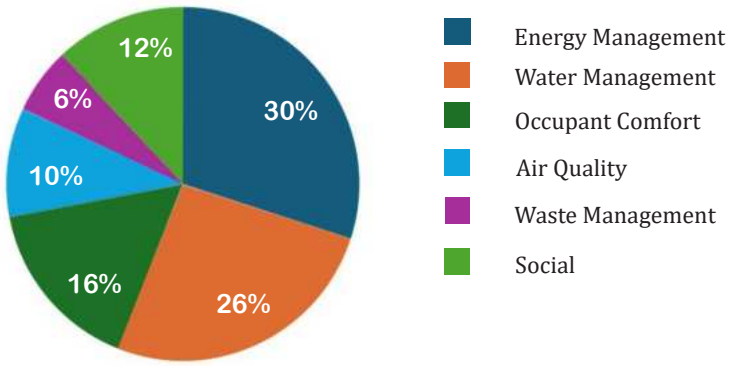


Figure 1: Percentage weightage of different sections of GRIHA for Existing School rating

The rating intends to imbibe the concept of resource conservation in students by means of play activities, there by converging towards the national targets.

A Collaboration for Sustainable Development

In the journey of climate action, GRIHA Council has been joined by various organizations/institutions and individual stakeholders sharing the intent of creating and promoting sustainable infrastructure across the country, that has created success stories that give hope for a better future.

With the same intent, GRIHA Council and NVS got into a Memorandum of Understanding in December 2023 during the 15th GRIHA Summit under which 379 NVS schools including 312 PM SHRI Schools across the country were given green building rating after evaluating them on the environmental parameters as specified in the GRIHA for Existing Schools rating.

NVS was set up as Jawahar Navodaya Vidyalaya in 1986 with the aim to bring out the best of rural talent. The Navodaya Vidyalaya Samiti works towards providing quality education to talented rural children and raising conscious and aware citizens in a residential school setup. PM SHRI School, a prestigious scheme sponsored by the GoI, intends to develop and ameliorate these NVS schools in ways that nurture students to build equitable and inclusive society and provide them with high standard education that make them an informed global citizen.

GRIHA Council was founded by TERI with support from MNRE to promote the development of green buildings and habitats in India through GRIHA rating. The process of promoting sustainable infrastructure involves capacity building by conducting awareness programmes for all stakeholders in the value chain, project specific workshops and site visits for handholding and on-site implementation of green building strategies.

The association between NVS and GRIHA came with the aim to equip the students with right knowledge not only to improve their curriculum skills, but also to raise responsible citizens who are sensitive towards the environment they are living in. This collaboration between NVS and GRIHA Council is one of the most crucial because here the stakeholders are the youngest citizens of the country having a blank slate of mind, all set to learn from their surroundings. Every piece of information provided to these budding minds lays the foundation of their and nation's future. The knowledge imparted in these residential schools does not stay limited to the students but is also taken back to their families sowing the seeds of knowledge and awareness at grass root levels.

As the whole world has come together in this climate action, the future of the planet lies with these young minds all around the globe who will be the workforce for 2070 net zero emission goal.

With the aim to meet this net zero emission goal through built environment and raising awareness on the subject, GRIHA Council and NVS schools joined hands to implement green building strategies in 379 schools in the first phase of the rating programme to achieve GRIHA Existing Schools rating and work towards attaining self-sufficiency.

The evaluation process for the rating involved-handholding orientation workshops to guide the school teachers and students on the requirements and intent of the rating, along with site visits to assess the on-site implementation of green strategies.

The impact of the overall rating program extended from reduction in energy and water consumption, conversion of solid waste to resource, plantation of trees to improved liveability.

The Outcome

The outcome of the collaboration was encouraging as a significant improvement was observed (based on figures as shown in the book) in the sustainability quotient of the schools. This included:

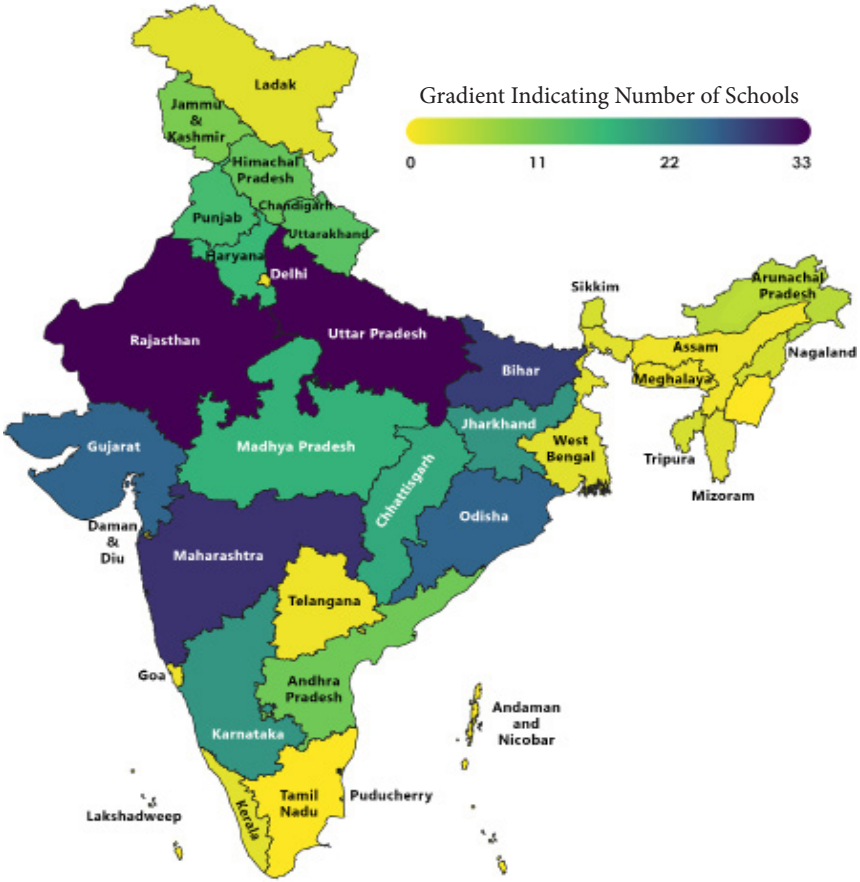
1. Installation/additional installation of renewable energy systems in the schools to minimize their dependency on outside sources,
2. Installation of wastewater treatment and solid waste management systems,
3. Implementation of maintenance and housekeeping protocols for better and unhindered performance of the installed systems and premises,
4. Installation of energy efficient indoor and outdoor lighting along with efficient plumbing fixtures and
5. Improved liveability, occupant comfort and accessibility.

Through this rating program, students at NVS not only learnt the concepts of sustainability in theory but also gained practical experience in implementing sustainable practices and operating and maintaining green buildings effectively.

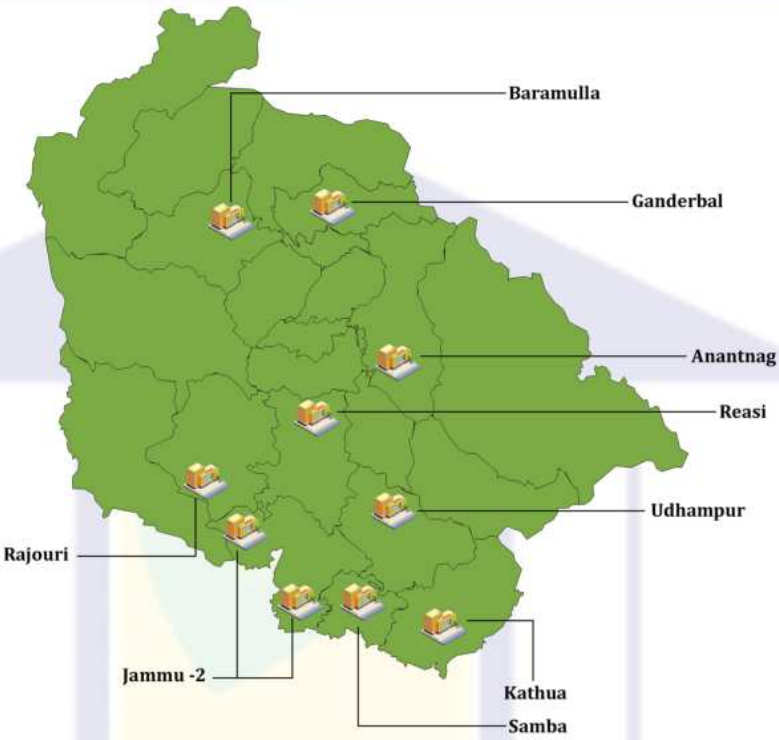
ABOUT THE BOOK

This book is a compilation of the impact of all 379 projects in terms of energy and water savings, renewable energy installation, quantum of waste diverted from landfill, rainwater harvested, tree plantation and subsequent CO_2eq reductions. The schools have been categorized state wise, or in clusters of adjoining states. The book is supported with photographs of a few schools to show the implemented strategies.

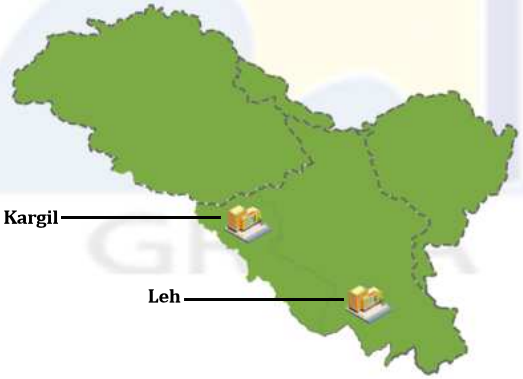
"Mindful Impressions- Targeting 2070 Workforce" showcases the results of the determination and hard work of NVS teachers, administrative staff, non-administrative staff and the students who are our workforce for 2070 net zero emission goal.



JAMMU & KASHMIR AND LADAKH



TOTAL RATED SCHOOLS IN JAMMU & KASHMIR: 10



TOTAL RATED SCHOOLS IN LADAKH: 02

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
5,817	398	246

70,146 Kl
Water Reduction Achieved

2,598 Tons
Waste Diverted from Landfill

1,039 Tons
Organic Waste Treated

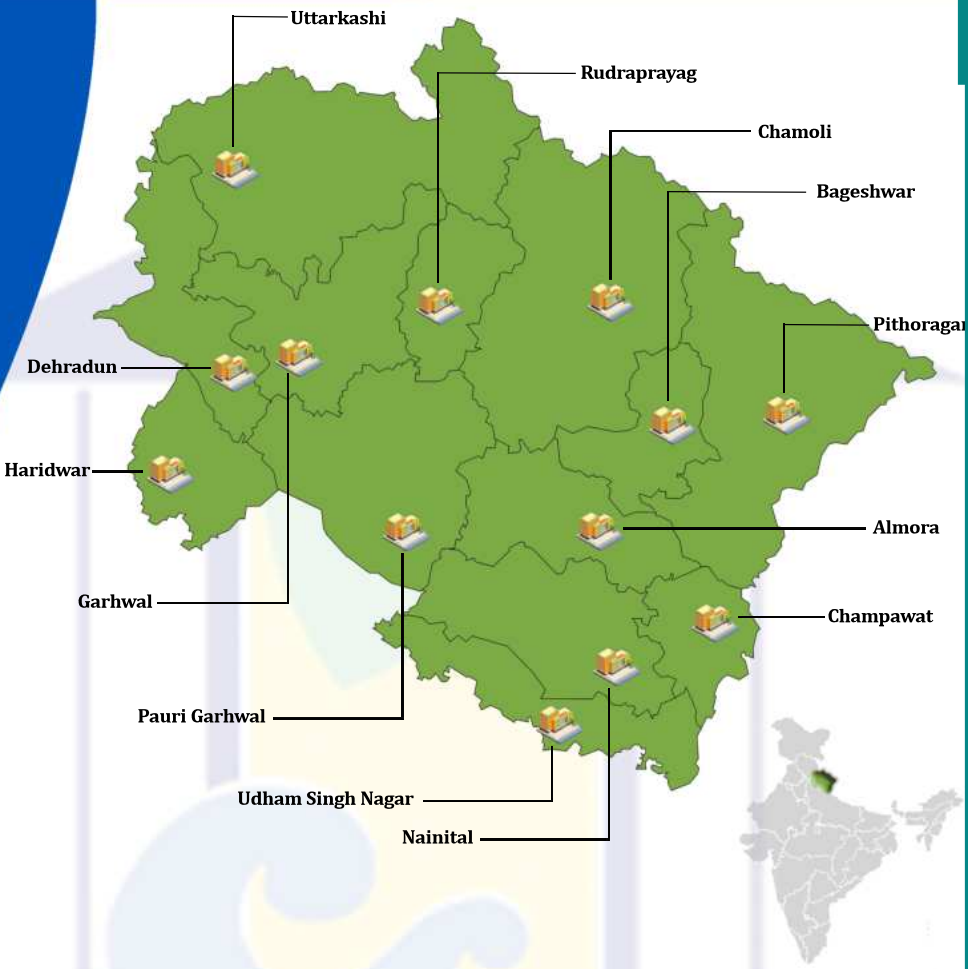
175 kWp
Total Capacity of Renewable Energy Installed

562 Kl
Rainwater Recharge

188 Tons
CO_2eq Reduced

10,229
Trees Planted

UTTARAKHAND



TOTAL RATED SCHOOLS IN UTTARAKHAND: 13

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
5,851	350	192

69,044 Kl
Water Reduction Achieved

2,557 Tons
Waste Diverted from Landfill

1,023 Tons
Organic Waste Treated

1,061 kWp
Total Capacity of Renewable Energy Installed

333 Kl
Rainwater Recharge

1,440 Tons
CO_2eq Reduced

40,047
Trees Planted

HIMACHAL PRADESH

TOTAL RATED SCHOOLS IN HIMACHAL PRADESH: 12

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
5,289	299	202

62,532 Kl
Water Reduction Achieved

2,316 Tons
Waste Diverted from Landfill

926 Tons
Organic Waste Treated

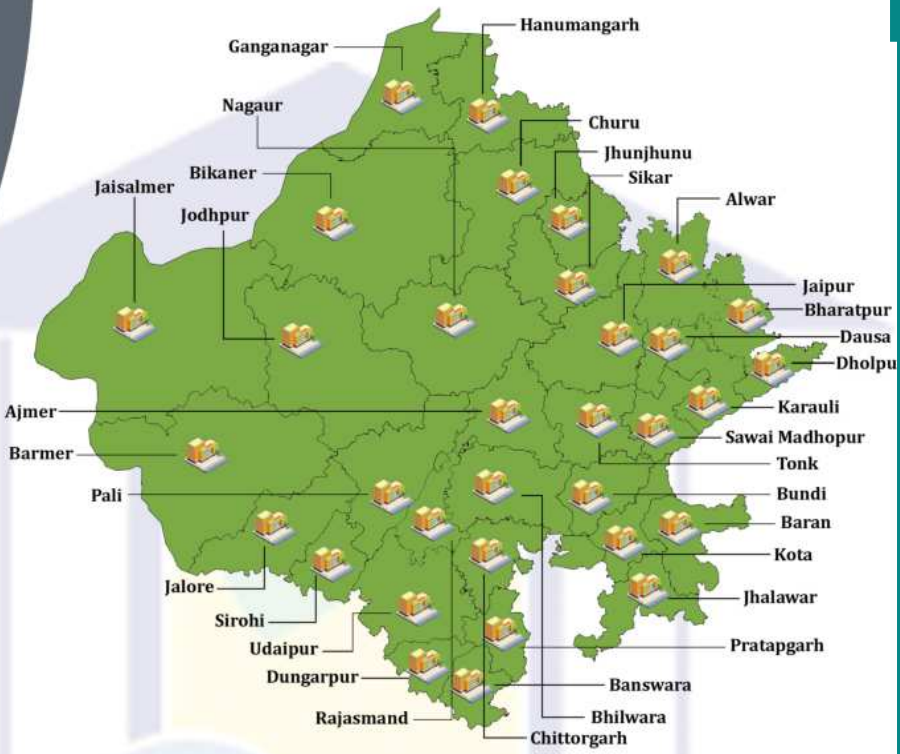
211 kWp
Total Capacity of Renewable Energy Installed

547 Kl
Rainwater Recharge

281 Tons
CO_2eq Reduced

55,167
Trees Planted

RAJASTHAN



TOTAL RATED SCHOOL IN RAJASTHAN: 33

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
18,843	1,049	665

2,22,015 Kl
Water Reduction Achieved

8,223 Tons
Waste Diverted fromLandfill

3,289 Tons
Organic Waste Treated

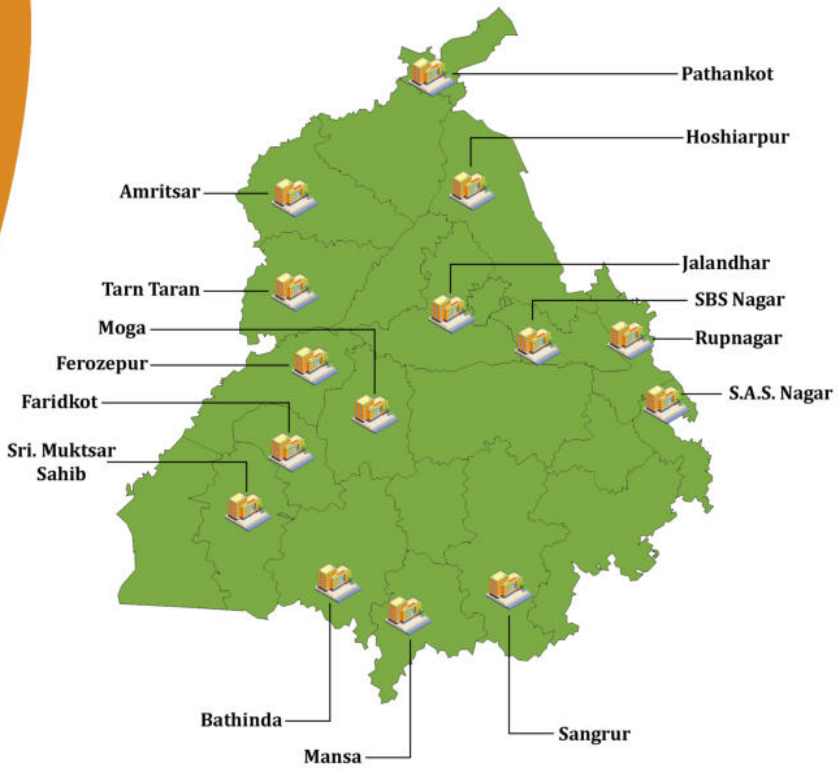
2,021 kWp
Total Capacity of Renewable Energy Installed

10,416 Kl
Rainwater Recharge

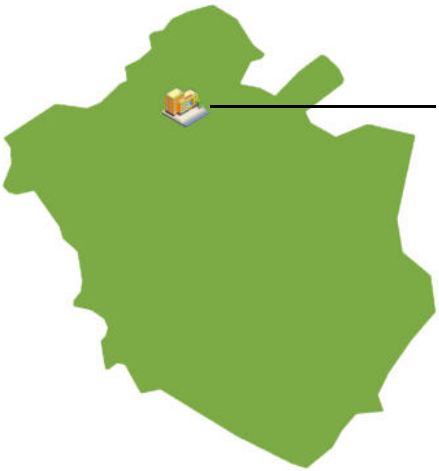
2,760 Tons
CO_2eq Reduced

1,17,903
Trees Planted

PUNJAB & CHANDIGARH



TOTAL RATED SCHOOLS IN PUNJAB: 15



TOTAL RATED SCHOOL IN CHANDIGARH: 01

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
8,123	461	314

96,098 Kl
Water Reduction Achieved

3,559 Tons
Waste Diverted from Landfill

1,424 Tons
Organic Waste Treated

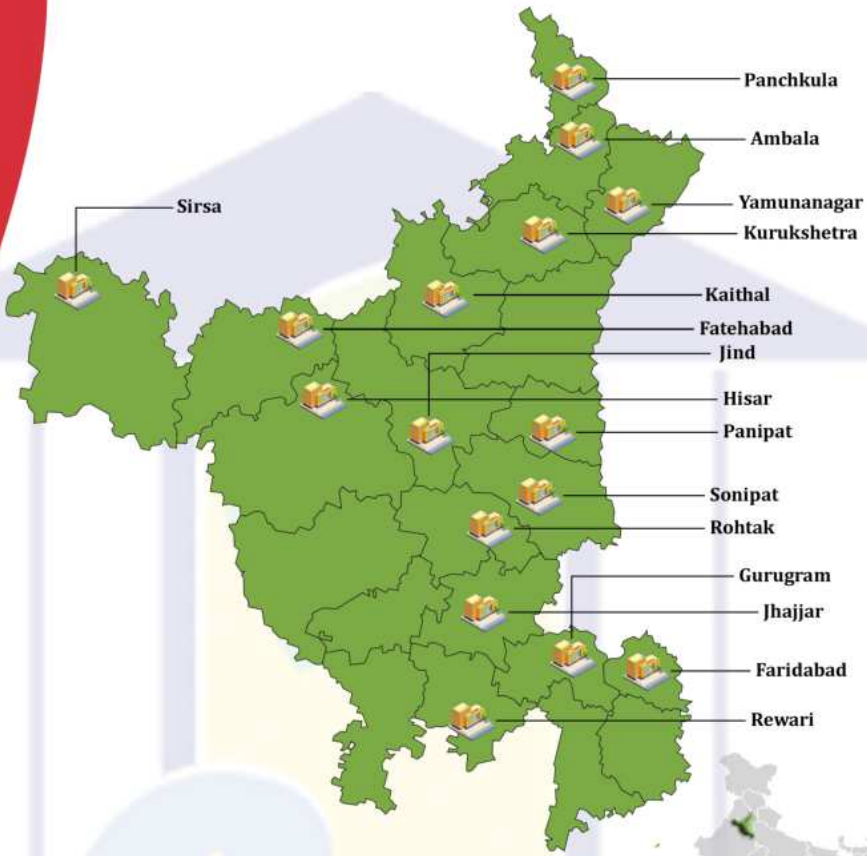
191 kWp
Total Capacity of Renewable Energy Installed

483 Kl
Rainwater Recharge

245 Tons
CO_2eq Reduced

32,170
Trees Planted

HARYANA



TOTAL RATED SCHOOLS IN HARYANA: 16

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
7,483	408	335

88,840 Kl
Water Reduction Achieved

3,290 Tons
Waste Diverted from Landfill

1,316 Tons
Organic Waste Treated

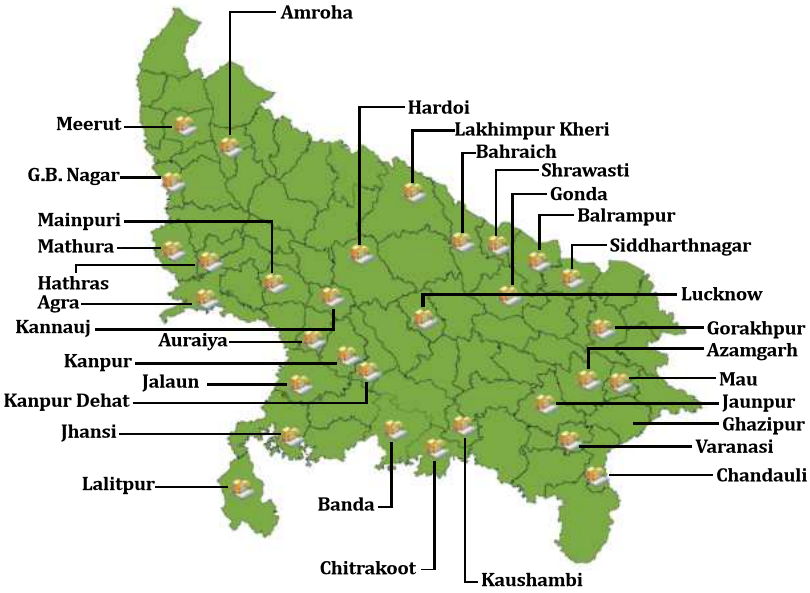
833 kWp
Total Capacity of Renewable Energy Installed

493 Kl
Rainwater Harvested

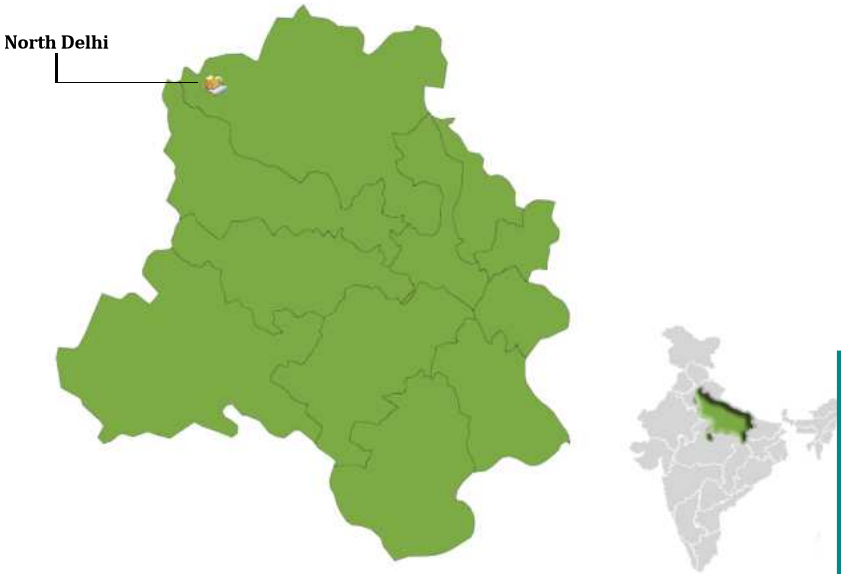
1,068 Tons
CO_2eq Reduced

40,452
Trees Planted

UTTAR PRADESH & DELHI

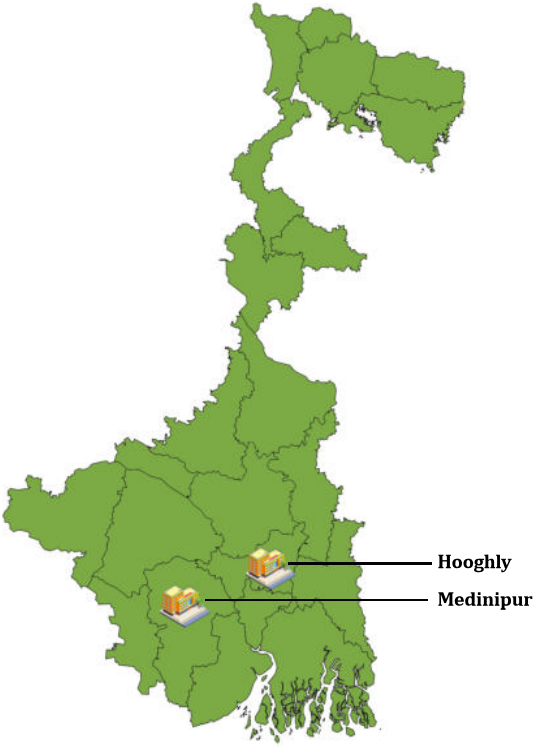


TOTAL RATED SCHOOLS IN UTTAR PRADESH: 33



TOTAL RATED SCHOOL IN DELHI: 01

WEST BENGAL & MEGHLAYA



TOTAL RATED SCHOOL IN WEST BENGAL: 02

TOTAL RATED SCHOOL IN MEGHLAYA: 01

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
1,553	82	46

18,154 Kl
Water Reduction Achieved

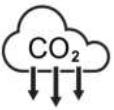
672 Tons
Waste Diverted from Landfill

269 Tons
Organic Waste Treated

214 kWp
Total Capacity of Renewable Energy Installed

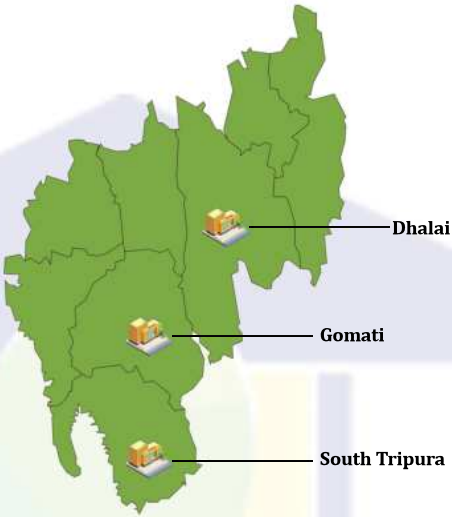
252 Kl
Rainwater Recharge

263 Tons
CO_2eq Reduced



3,146
Trees Planted

TRIPURA & MIZORAM



TOTAL RATED SCHOOLS IN TRIPURA: 03

TOTAL RATED SCHOOLS IN MIZORAM: 02

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
2,248	79	51

24,948 Kl
Water Reduction Achieved

924 Tons
Waste Diverted from Landfill

370 Tons
Organic Waste Treated

Renewable Energy has not been installed

561 Kl
Rainwater Recharge

No Carbon has been reduced

6,375
Trees Planted

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
14,391	846	552

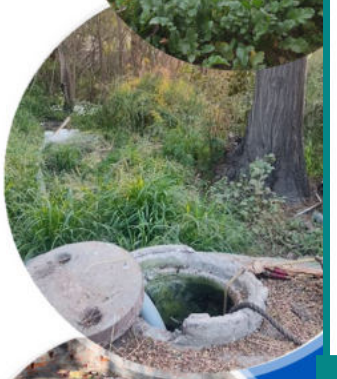
1,70,521 Kl
Water Reduction Achieved

6,316 Tons
Waste Diverted from Landfill

2,526 Tons
Organic Waste Treated

2,279 kWp
Total Capacity of Renewable Energy Installed

1,030 Kl
Rainwater Recharge



3,037 Tons
CO_2eq Reduced

41,322
Trees Planted

BIHAR

TOTAL RATED SCHOOLS IN BIHAR: 28

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
12,284	622	458

1,44,331 Kl
Water Reduction Achieved

5,346 Tons
Waste Diverted from Landfill

2,138 Tons
Organic Waste Treated

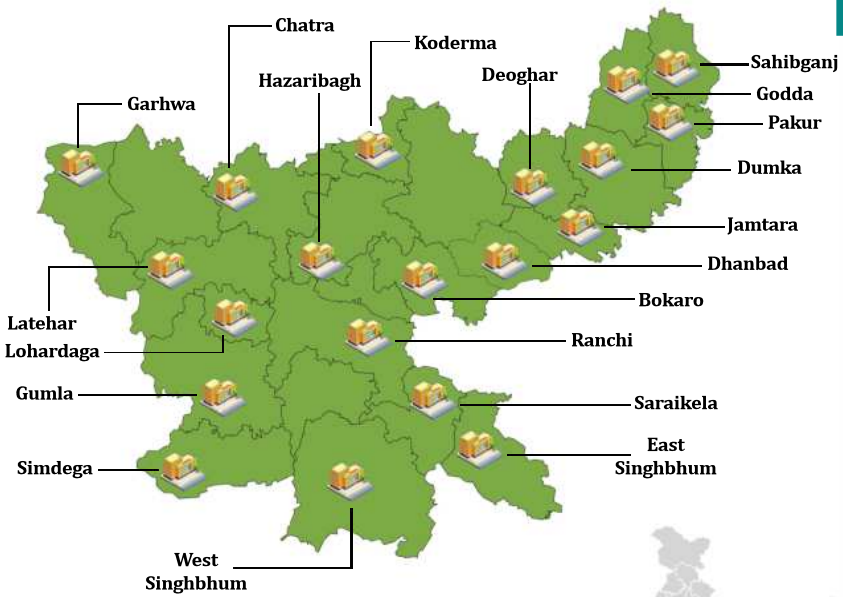
135 kWp
Total Capacity of Renewable Energy Installed

1,593 Kl
Rainwater Recharge

169 Tons
CO_2eq Reduced

25,881
Trees Planted

JHARKHAND



TOTAL RATED SCHOOLS IN JHARKHAND: 20

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
9,772	643	468

1,17,536 Kl
Water Reduction Achieved

4,353 Tons
Waste Diverted from Landfill

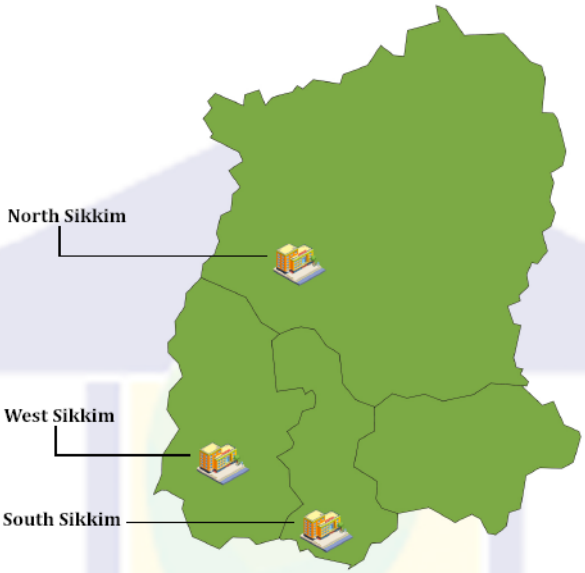
1,741 Tons
Organic Waste Treated

813 kWp
Total Capacity of Renewable Energy Installed

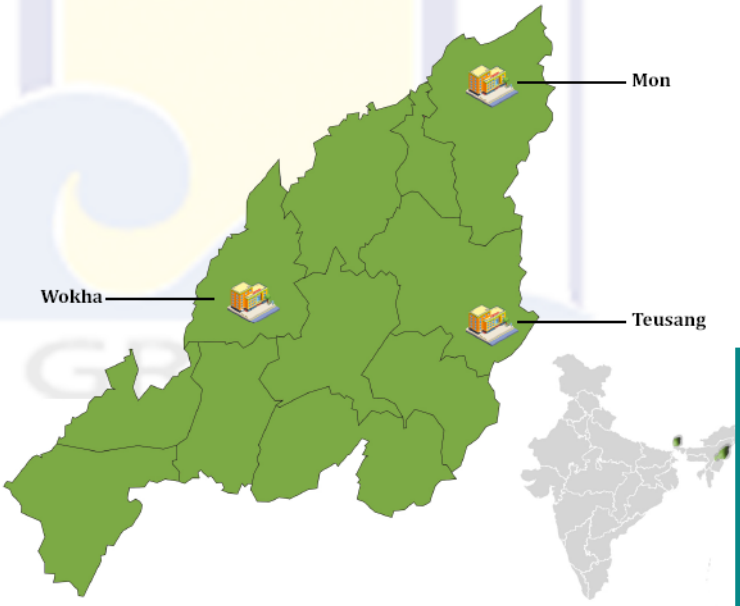
1,364 Kl
Rainwater Recharge

1,073 Tons
CO_2eq Reduced

25,791
Trees Planted



TOTAL RATED SCHOOLS IN SIKKIM: 03



TOTAL RATED SCHOOLS IN NAGALAND: 03

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
2,027	107	91

24,429 Kl
Water Reduction Achieved

905 Tons
Waste Diverted from Landfill

362 Tons
Organic Waste Treated

53 kWp
Total Capacity of Renewable Energy Installed

247 Kl
Rainwater Recharge

54 Tons
CO_2eq Reduced

6,325
Trees Planted

ARUNACHAL PRADESH & ASSAM

TOTAL RATED SCHOOLS IN ARUNACHAL PRADESH: 05

TOTAL RATED SCHOOL IN ASSAM: 01

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
2,978	164	107

35,089 Kl
Water Reduction Achieved

1,300 Tons
Waste Diverted from Landfill

520 Tons
Organic Waste Treated

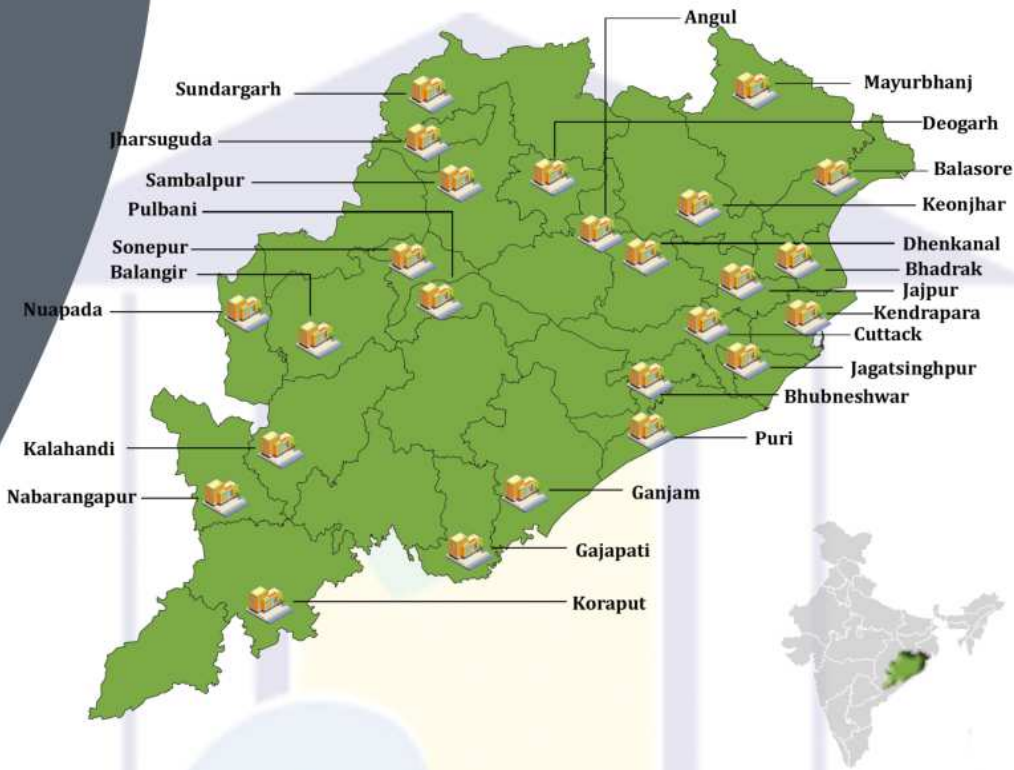
09 kWp
Total Capacity of Renewable Energy Installed

2143 Kl
Rainwater Recharge

40 Tons
CO_2eq Reduced

3,472
Trees Planted

ODISHA



TOTAL RATED SCHOOLS IN ODISHA: 25

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
7,518	335	183

1,24,750 Kl
Water Reduction Achieved

4,620 Tons
Waste Diverted from Landfill

1,848 Tons
Organic Waste Treated

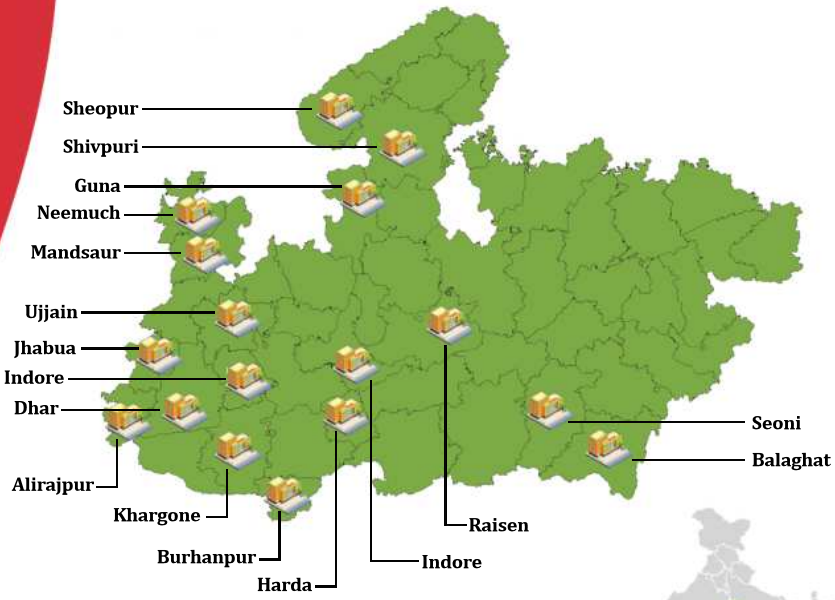
23 kWp
Total Capacity of Renewable Energy Installed

1,415 Kl
Rainwater Recharge

6 Tons
CO_2eq Reduced

34,131
Trees Planted

MADHYA PRADESH



TOTAL RATED SCHOOLS IN MADHYA PRADESH: 17

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
9,598	489	359

33,328 Kl
Water Reduction Achieved

1,234 Tons
Waste Diverted from Landfill

494 Tons
Organic Waste Treated

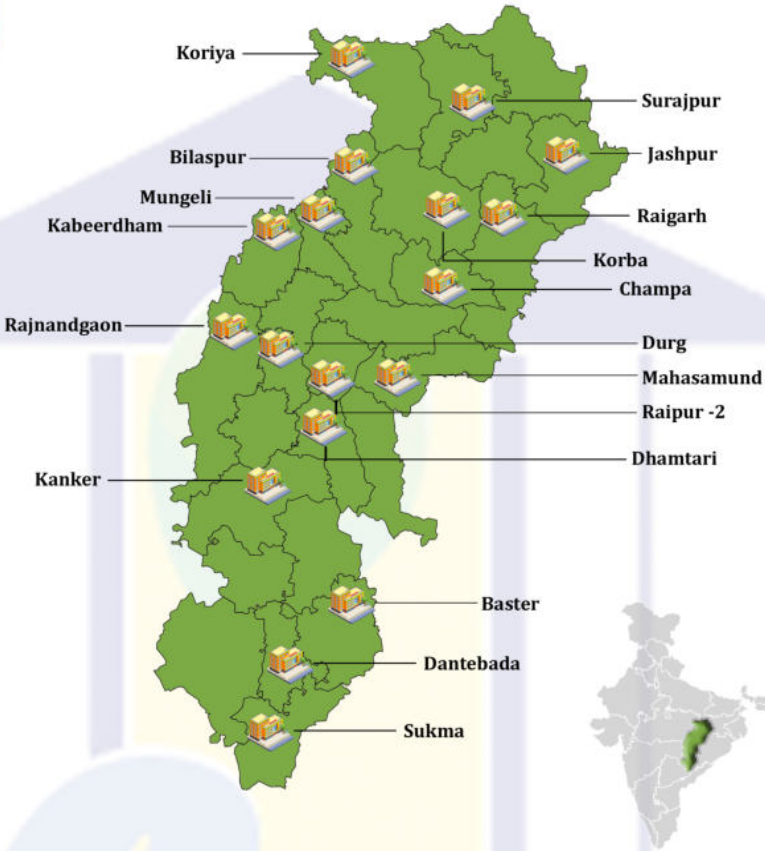
1,143 kWp
Total Capacity of Renewable Energy Installed

1,001 Kl
Rainwater Harvested

471 Tons
CO_2eq Reduced

1,30,279
Trees Planted

CHATTISGARH



TOTAL RATED SCHOOLS IN CHATTISGARH: 18

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
6,639	353	244

78,148 Kl
Water Reduction Achieved

2,894 Tons
Waste Diverted from Landfill

1,158 Tons
Organic Waste Treated

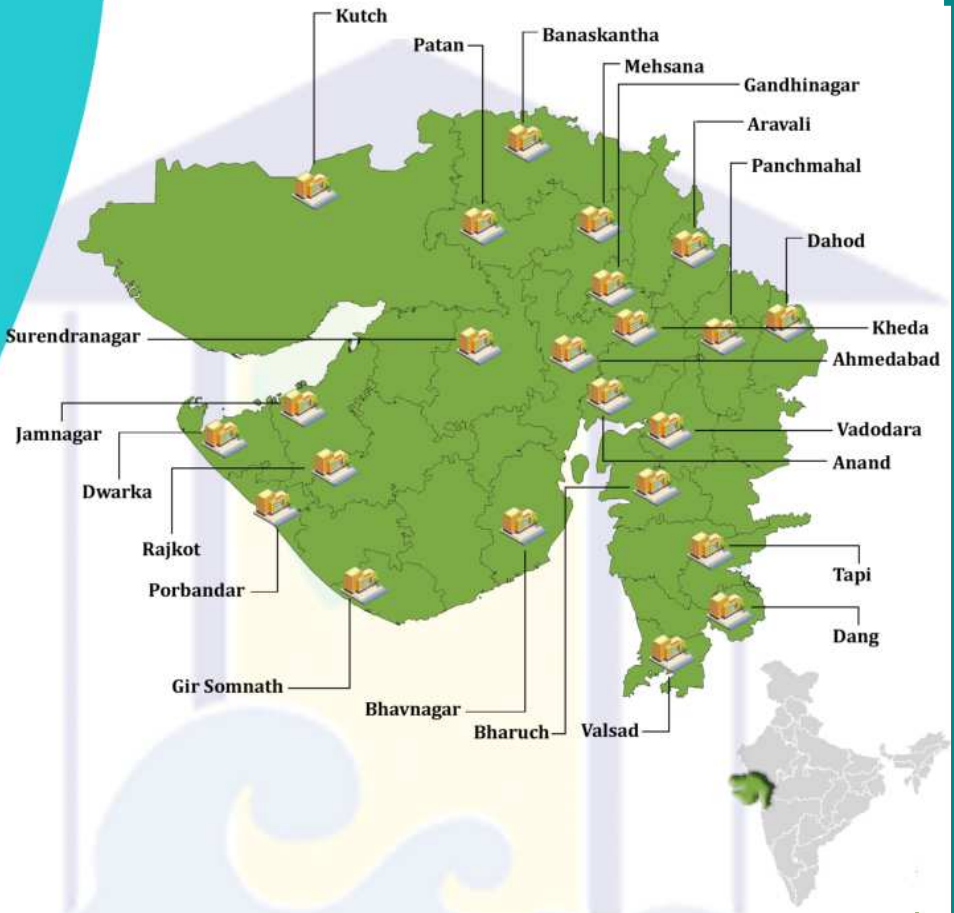
432 kWp
Total Capacity of Renewable Energy Installed

1,404 Kl
Rainwater Recharge

561 Tons
CO_2eq Reduced

28,101
Trees Planted

GUJARAT AND DAMAN&DIU



TOTAL RATED SCHOOLS IN GUJARAT AND DAMAN & DIU: 25

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
8,173	427	220

1,34,794 Kl
Water Reduction Achieved

3,157 Tons
Waste Diverted from Landfill

1,997 Tons
Organic Waste Treated

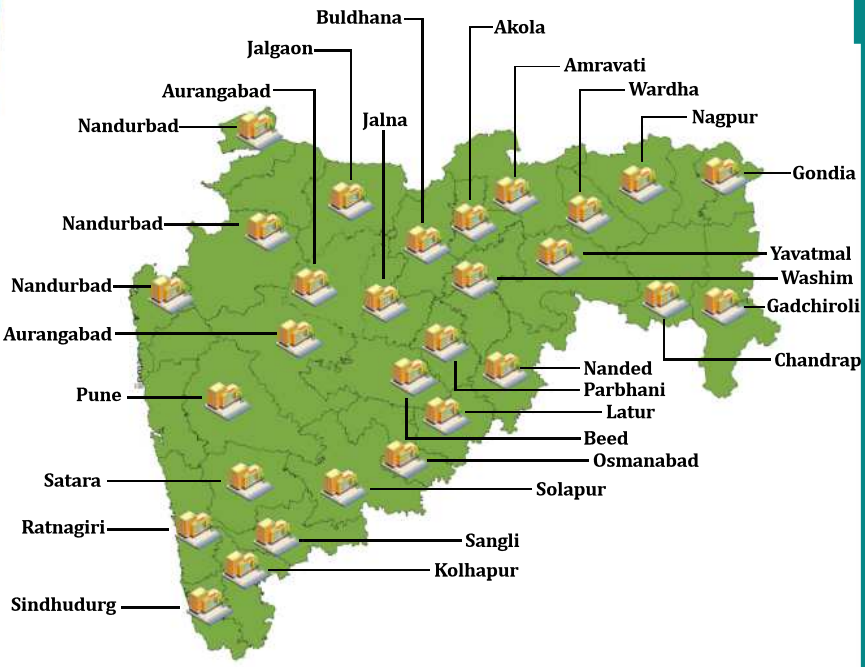
1,365 kWp
Total Capacity of Renewable Energy Installed

1,815 Kl
Rainwater Recharge

1,857 Tons
CO_2eq Reduced

22,705
Trees Planted

MAHARASHTRA & GOA



TOTAL RATED SCHOOLS IN MAHARASHTRA: 29

TOTAL RATED SCHOOL IN GOA: 01

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
7,575	423	377

1,66,406 Kl
Water Reduction Achieved

6,163 Tons
Waste Diverted from Landfill

2,465 Tons
Organic Waste Treated

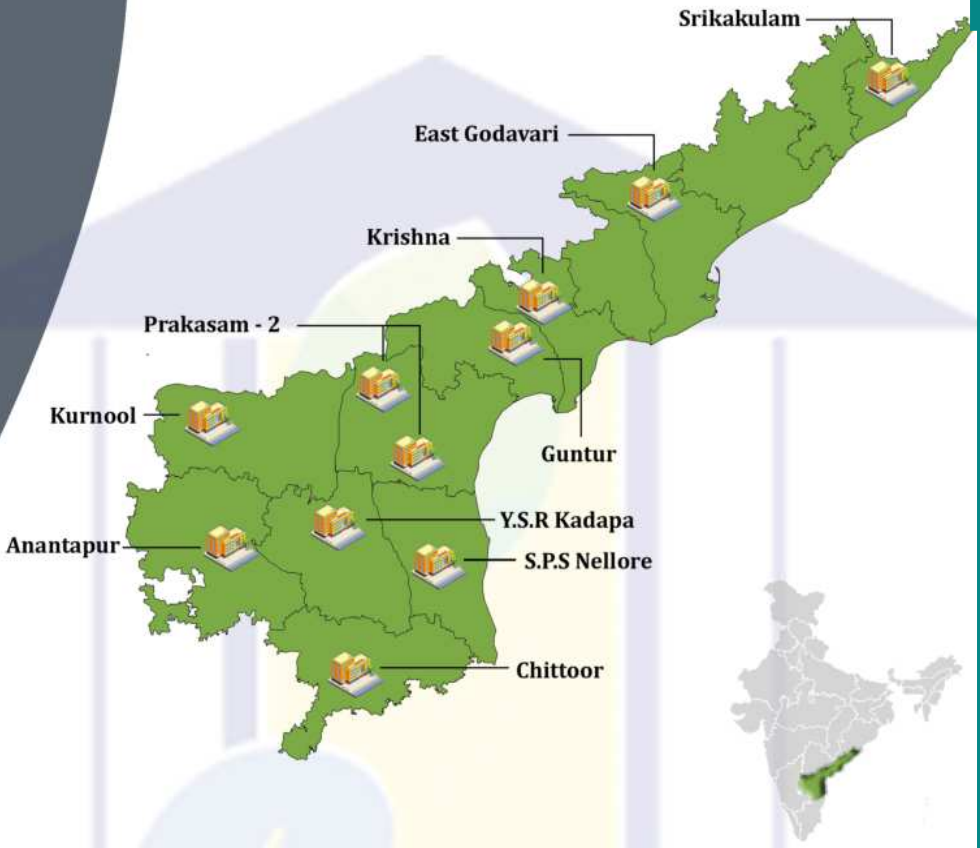
2,844 kWp
Total Capacity of Renewable Energy Installed

1,553 Kl
Rainwater Harvested

3,883 Tons
CO_2eq Reduced

64,365
Trees Planted

ANDHRA PRADESH



TOTAL RATED SCHOOLS IN ANDHRA PRADESH: 11

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
7,483	408	335

62,618 Kl
Water Reduction Achieved

928 Tons
Waste Diverted from Landfill

371 Tons
Organic Waste Treated

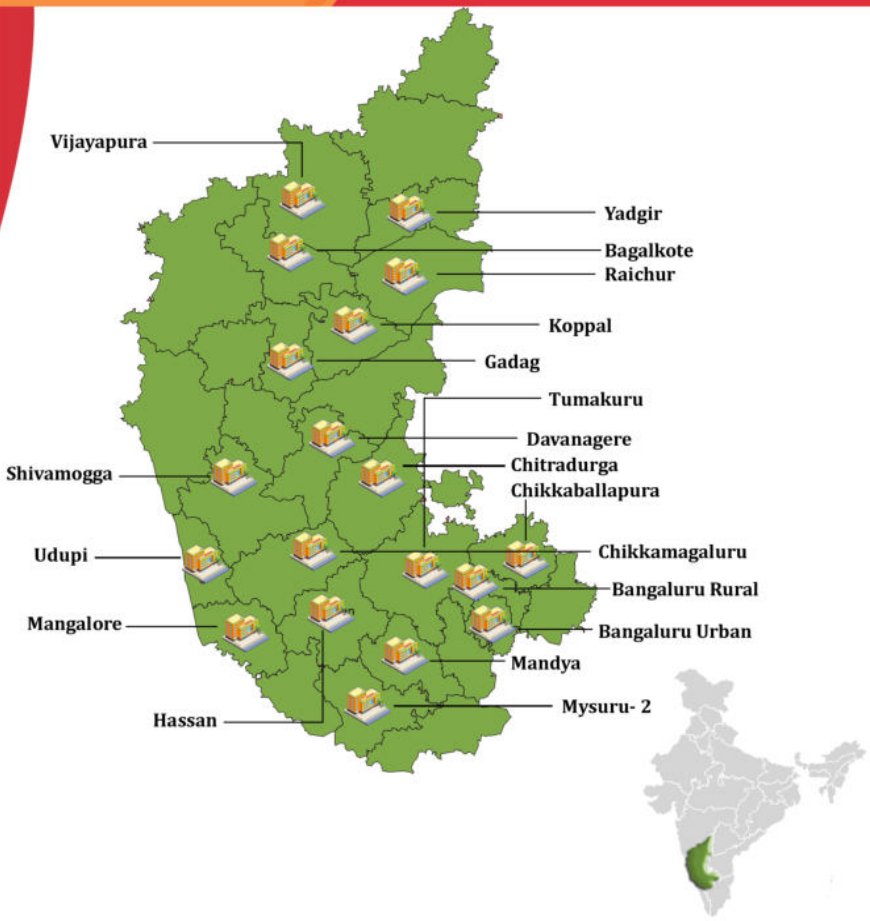
703 kWp
Total Capacity of Renewable Energy Installed

276 Kl
Rainwater Recharge

1,032 Tons
CO_2eq Reduced

5,774
Trees Planted

KARNATAKA



TOTAL RATED SCHOOL IN KARNATAKA: 20

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
8,072	413	408

1,03,407 Kl
Water Reduction Achieved

3,848 Tons
Waste Diverted from Landfill

1,539 Tons
Organic Waste Treated

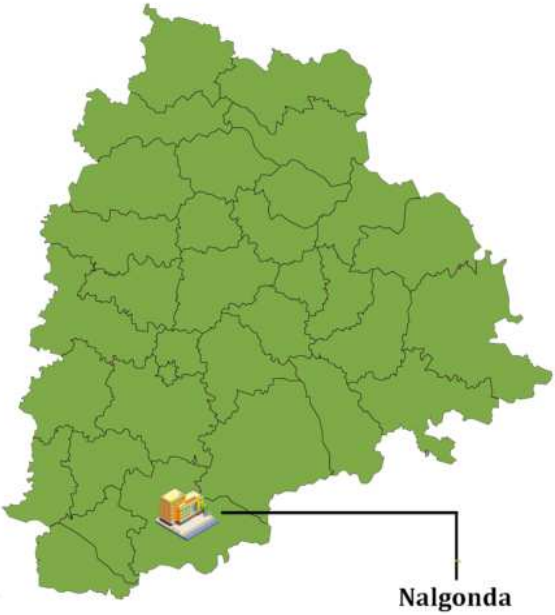
1,029 kWp
Total Capacity of Renewable Energy Installed

668 Kl
Rainwater Recharge

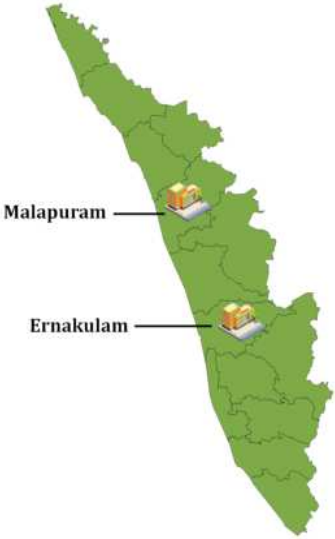
1,294 Tons
CO_2eq Reduced

23,135
Trees Planted

TELANGANA & KERALA



TOTAL RATED SCHOOL IN TELANGANA: 01



TOTAL RATED SCHOOLS IN KERALA: 02

TOTAL STUDENTS	TOTAL TEACHING STAFF	TOTAL NON-TEACHING STAFF
2,044	121	94

22,074 Kl
Water Reduction Achieved

817 Tons
Waste Diverted from Landfill

327 Tons
Organic Waste Treated

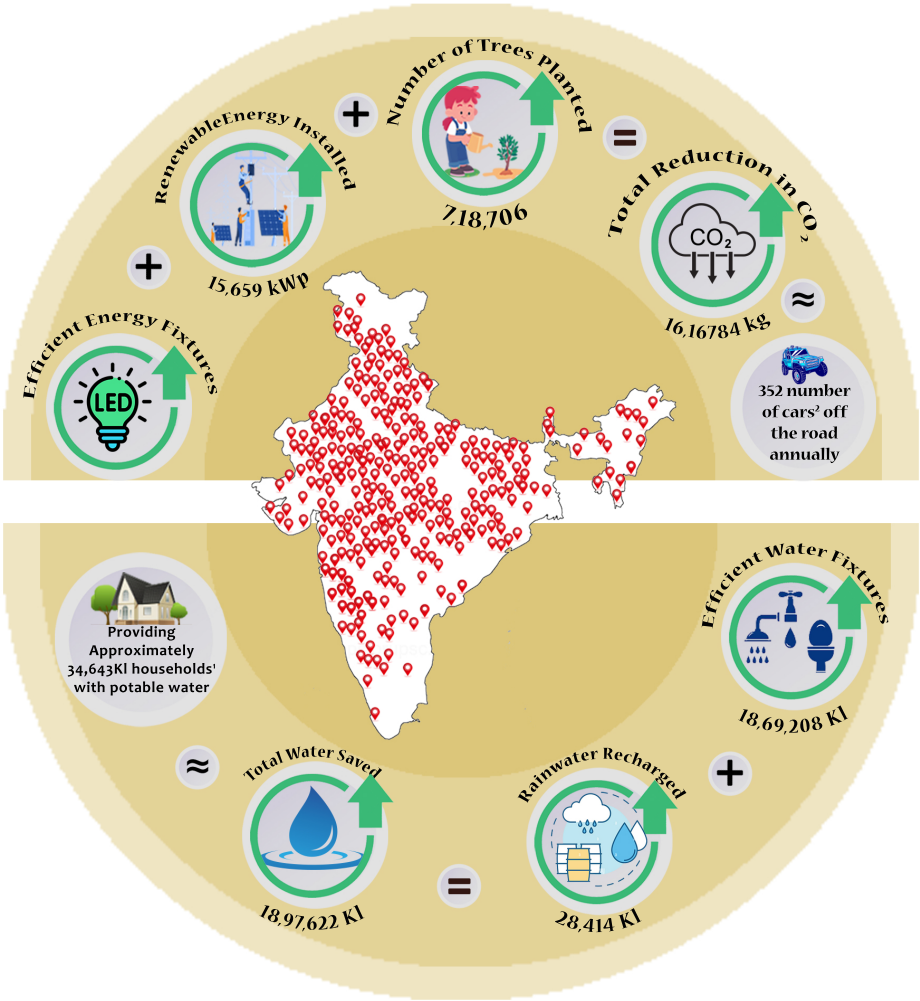
125 kWp
Total Capacity of Renewable Energy Installed

258 Kl
Rainwater Recharge

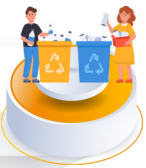
148 Tons
CO_2eq Reduced

1,936
Trees Planted

SUMMARY



65,129 Tons
Waste diverted from landfill



27,142 Tons
Organic waste treated on site

[1]Family of 4
[2]Light Motorised Vehicles

GRIHA Council
Core 1B, 3rd Floor
India Habitat Centre,
Lodhi Road,
New Delhi-110003
Tel: (+91 11) 46444500/24339606-08
info@grihaindia.org www.grihaindia.org