



नवीन एवं नवीकरणीय ऊर्जा मंत्रालय MINISTRY OF NEW AND RENEWABLE ENERGY



## MINDFUL IMPRESSIONS

Targeting 2070 Workforce - A GRIHA Publication









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**Developed by:** 

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### 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, nonadministrative 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.

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## 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.

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

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



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  $CO_2$ eq 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.



## TOTAL RATED SCHOOLS IN JAMMU & KASHMIR: 10

Kargil ———

Leh \_\_\_\_\_

TOTAL RATED SCHOOLS IN LADAKH: 02

total students **5,817** 

TOTAL NON-TEACHING STAFF **246** 



**70,146** Kl Water Reduction Achieved



#### 1,039<sub>Tons</sub> Organic Waste Treated

2,598 Tons Waste Diverted from Landfill



## 175 kWp

Total Capacity of Renewable Energy Installed





#### 562 Kl Rainwater Recharge







10,229

**Trees Planted** 

29 Planted

## total rated schools in uttarakhand: 13

TOTAL TEACHING STAFF **350**  TOTAL NON-TEACHING STAFF 192

**TOTAL STUDENTS** 

5,851

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<sub>2</sub> CO<sub>2</sub>eq Reduced



40,047 Trees Planted

	—— Lahaul and Spiti	
	Kullı	1
Chamba ————		
Kangra ————		
Hamirpur———		
Una ———		
Bilaspur		
Solan ————	Kinr Solan	naur
Mandi	Sirmau	r







### PUNJAB & CHANDIGARH



**TOTAL TEACHING STAFF TOTAL STUDENTS TOTAL NON-TEACHING STAFF** 8,123 461 314 **96,098** кі Water Reduction Achieved 3,559<sub>Tons</sub> Waste Diverted from Landfill 1,424 Tons **Organic Waste** Treated 191 kWp **Total Capacity of Renewable Energy** Installed **483** кі Rainwater Recharge  $245_{\text{Tons}}$ CO<sub>2</sub>eq Reduced 32,170 **Trees Planted** 15

#### HARYANA



TOTAL STUDENTS **7,483** 

TOTAL TEACHING STAFF 408 TOTAL NON-TEACHING STAFF 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



PLAN



493 KI Rainwater Harvested





40,452 Trees Planted



#### **1,70,521** Кl 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 KI Rainwater Recharge

 $\underset{CO_2 eq \text{ Reduced}}{\textbf{3,037}} Tons$ 

## 41,322

**Trees Planted** 



TOTAL STUDENTS 12,284

TOTAL NON-TEACHING STAFF 458

**1,44,331** Kl Water Reduction Achieved

> 5,346 Tons Waste Diverted from Landfill







135 kWp

Total Capacity of Renewable Energy Installed





1,593 кі Rainwater Recharge

169 Tons CO, eq Reduced



25,881 Trees Planted

21



## total rated schools in jharkhand: 20

TOTAL STUDENTS 9,772

TOTAL TEACHING STAFF 643

TOTAL NON-TEACHING STAFF 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



23



1,364 Kl Rainwater Recharge







**Trees Planted** 

### WEST BENGAL & MEGHLAYA



## total rated school in west bengal: 02

TOTAL RATED SCHOOL IN MEGHLAYA: 01

West Jaintia Hills TOTAL STUDENTS **1,553** 

**18,154** кl Water Reduction Achieved

**TOTAL TEACHING STAFF** 

82





TOTAL NON-TEACHING STAFF

**46** 



269 Tons Organic Waste Treated

214 kWp

Total Capacity of Renewable Energy Installed



25









3,146

**Trees Planted** 



**TOTAL TEACHING STAFF TOTAL STUDENTS TOTAL NON-TEACHING STAFF** 79 51 2,248 24,948 Kl Water Reduction Achieved 924 Tons Waste Diverted from Landfill 370 Tons **Organic Waste** Treated **Renewable Energy has** not been installed 561 KI Rainwater Recharge No Carbon has been reduced 6,375 **Trees Planted** 27







362 Tons Organic Waste Treated 905 Tons Waste Diverted from Landfill



53 kWp Total Capacity of Renewable Energy Installed



29



247 к Rainwater Recharge

54 Tons CO<sub>2</sub>eq Reduced

6,325 Trees Planted

### ARUNACHAL PRADESH & ASSAM



#### TOTAL RATED SCHOOLS IN ARUNACHAL PRADESH: 05

## total rated school in assam: 01

Dima Hasao

**TOTAL TEACHING STAFF TOTAL STUDENTS TOTAL NON-TEACHING STAFF** 164 2,978 107 35,089<sub>Kl</sub> Water Reduction Achieved 1,300 Tons Waste Diverted from Landfill 520 Tons **Organic Waste** Treated **09** kWp **Total Capacity of Renewable Energy** Installed 2143 кі Rainwater Recharge 40 Tons **CO**, eq Reduced 3,472 **Trees Planted** 

31





vachhata



TOTAL STUDENTS **9,598** 

TOTAL TEACHING STAFF 489 TOTAL NON-TEACHING STAFF 359



**33,328** Kl Water Reduction Achieved







494 Tons Organic Waste Treated

**1,143** kWp Total Capacity of Renewable Energy Installed





**1,001** KI Rainwater Harvested

471 Tons ( CO2 CO<sub>2</sub>eq Reduced





**Trees Planted** 

#### **CHATTISGARH**



## total rate<mark>d schoo</mark>ls in chat</mark>tisgarh: 18



 TOTAL STUDENTS
 TOTAL TEACHING STAFF
 TOTAL NON-TEACHING STAFF

 6,639
 353
 244

 78,148 Ki

 Water Reduction
 Achieved



#### 1,158 Tons Organic Waste Treated

2,894 Tons Waste Diverted from Landfill



432 kWp Total Capacity of Renewable Energy





## **1,404**кі

Rainwater Recharge



Installed







TOTAL STUDENTS **8,173** 

TOTAL TEACHING STAFF 427 TOTAL NON-TEACHING STAFF



**1,34,794** Kl Water Reduction Achieved

> 3,157 Tons Waste Diverted from Landfill



1,365 kWp Total Capacity of

**Renewable** Energy

Installed





**1,815** кі Rainwater Recharge

1,997 Tons Organic Waste

Treated







**Trees Planted** 

TOTAL STUDENTS 7,575

TOTAL TEACHING STAFF 423

TOTAL NON-TEACHING STAFF 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** KI Rainwater Harvested

**3,883** Tons CO<sub>2</sub> eq Reduced







TOTAL TEACHING STAFF **TOTAL STUDENTS TOTAL NON-TEACHING STAFF** 7,483 408 335 62,618 KI Water Reduction Achieved 928 Tons Waste Diverted from Landfill 371 Tons **Organic Waste** Treated 703 kWp **Total Capacity of Renewable Energy** Installed **276** кі Rainwater Recharge **1,032** Tons CO<sub>2</sub>eq Reduced CO2

43



5,774 Trees Planted

#### **KARNATAKA**



### TOTAL RATED SCHOOL IN KARNATAKA: 20



TOTAL STUDENTS **8,072** 

TOTAL TEACHING STAFF 413 TOTAL NON-TEACHING STAFF

408



#### **1,03,407**<sub>Kl</sub> Water Reduction Achieved

**3,848** Tons Waste Diverted from Landfill



1,539 Tons Organic Waste Treated





668 Kl Rainwater Recharge









TOTAL STUDENTS **2,044** 

TOTAL TEACHING STAFF 121





**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

















<sup>1</sup>Family of 4 <sup>2</sup>Light Motorised Vehicles

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