

# REEF

AN ENVIRONMENT CLUB  
OF

**SHRI RAMDEOBABA COLLEGE OF ENGINEERING  
AND MANAGEMENT**

**ANNUAL REPORT 2012-13**



**ENGINEERS WITH A MISSION: TOWARDS A  
SUSTAINABLE ENVIRONMENT**



Reporting period – 25<sup>th</sup> January 2012 to 30<sup>th</sup> April 2013

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## Report Credits

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**Cover Photo:** Taken by REEF in Tadoba-Andhari Tiger Reserve

## PRELUDE



Sustainability of environment has become an issue that the world has been trying to deal with for long. However, it all started with the industrial revolution. With it came the development of technology and its extensive use. What followed from there was a long struggle between development and conservation where technology was blamed for destroying the environment. Therefore, it was only appropriate to start a process of environmental awareness among the young technocrats who would be responsible for developing the future technologies that would be sustainable and eco-friendly. Thus, ‘engineers with a mission of sustainable development’ became the motto with which REEF (Ramdeobaba college Engineers for Environment Forum) was created **on 25<sup>th</sup> January 2012**. RCOEM was one among the few colleges in the Central Indian region to initiate such as activity.

Environmental conservation has found its way into value education at the college level. Thus, it has now become imperative that educational institutions play an important role in grooming students to be environmentally friendly. This responsibility is higher for technical colleges. Thus, REEF is a step by RCOEM to contribute constructively to its social responsibilities.

REEF annual report documents various activities undertaken by REEF to conserve environment and the future course of action that would be taken to continue this effort.

Dr. V.S. Deshpande  
PRINCIPAL

## OBJECTIVES OF REEF

REEF has the following short and long-term objectives:

1. To create awareness and take up various activities for the conservation of various aspects of the environment.
2. To establish active association with various organizations working for environmental conservation.
3. To take up various activities for underprivileged children and in the process initiate and ingrain the value of environmental conservation.
4. To encourage the development and execution of ideas on role of technology for protection of environment.

## GREEN AMBASSADORS (REEF Members)



REEF is hosted by Department of Humanities

Mentor faculty and founder

: Dr. Deepshikha Mehra  
(Asst. Prof, Dept. of Humanities)

Green Ambassadors

(current core members 2012-13)

: Vatsalya Mathur (8th Sem, EC)  
Hamza Shakir (8th Sem, EC),

Karishma Manwani (8<sup>th</sup> sem, EP),  
Abhijit Dey (6th Sem, IT),  
Srijan Gandhi (6th Sem, Civil),  
Komal Saraf (4th Sem, CSE),  
Sneha Gupta (4th Sem, IT),  
Juhi Garg (4th Sem, EC)  
Pratik Gupta (4th Sem, EN)

**Green Ambassadors (general members)**  
2012-13

: There are 11 general members

**Green Ambassadors (REEF Alumni)**

:Sarang Puri (IND, 2012), Pranjall Chaturvedi (CIV, 2012), Vinay Chawla (IT, 2012), and Apoorv Munshi (IT, 2012)

## REEF Installation



**Lighting the traditional lamp – Dr. Kothe, Prof. Jeevaji, Dr. Asudani and Dr. Mehra**



**Prof. Jeevaji welcoming Dr. Kothe with a tulsi sapling**

The core body of REEF was installed on 18<sup>th</sup> September 2012. The guest of honour was Dr. Sudhanshu Kothe, a Plastic Surgeon by profession and an Ornithologist by passion. The event was inaugurated by Dr. Kothe by not only lighting the traditional lamp but also planting a neem tree, while Prof. Q.H. Jeevaji presided over the function. The event began by Dr. (Ms.) Deepshikha Mehra speaking about how REEF was found and the objectives with which REEF works. Dr. V. H. Asudani, HOD, Humanities encouraged the students to take up steps to conserve the environment. Prof. Jeevaji in his Presidential address asked the students to adopt the value of conserving the environment in their day-to-day living. He encouraged them to take steps to reduce their carbon footprint by reducing the consumption of petrol. Dr. Kothe and Prof. Jeevaji felicitated the Green Ambassadors of REEF with badges. This was followed by a presentation on REEF activities by Green Ambassadors, Abhijit Dey and Vatsalya Mathur. Green Ambassador, Hamza Shakir proposed the Vote of Thanks.

## ACTIVITIES UNDERTAKEN BY REEF

Year 2012-13 was taken up by 'REEF' as the *sensitization year*. This year, members of 'REEF' explored and understood various aspects of environment, challenges faced in environmental conservation, and steps being taken up by various organizations for environmental conservation. They also actively took part in various environmental conservation activities.

### ENVIRONMENT AWARENESS CREATION

Various activities undertaken by REEF for environmental awareness as well as for enhancing their own awareness:

- a. **Tiger Conservation:** Members of REEF were given an initial training by TRACT on 5<sup>th</sup> Feb 2012. TRACT is a tiger conservation NGO, working in Tadoba-Andhari Tiger Reserve for the past 20 years. REEF members have offered their voluntary services to TRACT in tiger conservation.
- b. **Performance of play on environment:** The Green Ambassadors of REEF performed a play in an inter-collegiate drama competition on the environment conservation at Hislop College on 4<sup>th</sup> August 2012, organized by the theater group 'Stagecraft'. The play called "Abhi Ya Nahi" highlighted the urgency in environmental conservation on issues like bird conservation, tiger conservation, and pollution and steps that can be taken. This was the first time that three clubs of the college, i.e. **REEF, Music club, and Drama Club** got together to perform this play. The play which was initiated by REEF was appreciated by the judges.



REEFians presenting the play 'Abhi Ya nahi' on environmental conservation

- c. REEF members visited **Sampoorn Bamboo Kendra (SBK) at Lavada village** in Chikaldhara in the month of April 2012 in order to understand the successful use of bamboo as a building material and use of traditional methods to treat bamboo for strength as a building material. The case study of Sampoorn Bamboo Kendra was documented by REEF in the form of an article and was published in the RCOEM college magazine, ARCEON12.



REEF's Green Ambassadors with Mr. Sunil Deshpande of SBK

- d. **Workshop on Man-Animal conflict:** Green Ambassadors of REEF attended a workshop on “Man-animal conflict – Challenges Ahead”, organized by Society for Wildlife Conservation, Education and Research (Wild-CER) at Veterinary College, Nagpur on 4<sup>th</sup> November 2012. The workshop was attended by officials of NGOs, Forest Department and experts on wildlife.
- e. **No-light hour in girls’ hostel:** No light hour was observed at the RCOEM girls’ hostel on 13<sup>th</sup> October 2012. Students participated enthusiastically along with the warden, Prof. Padma Adane, Resident Warden - Prof. Poonam Chauhan and REEF Mentor Faculty - Dr. Deepshikha Mehra. The hostel lights were switched off and girls lit candles to mark the hour.



Before the No-Light hour



During the No-Light Hour

- f. **Guest lecture by environmentalist Dr. Sudhanshu Kothe:** A speech by Dr. Sudhanshu Kothe was conducted by REEF on 18<sup>th</sup> September 2012. He spoke on the linkages between bird conservation and technology. The lecture was attended by students, staff members and various environmentalists.



Dr. Kothe speaking on bird conservation and use of technology

g. **Green March:** A green march was conducted by REEF (Ramdeobaba College Engineers for Environment Forum) on Friday, 9<sup>th</sup> of November 2012. The march was flagged off by the senior green ambassadors of REEF from the RCOEM College Campus (Ramdeobaba College of Engineering and Management) at 9am. The March that covered over 4 kms had more than 150 students of RCEOM as participants. The main aim of the march was to draw attention of the society towards various pressures that environment is facing from the human race. The March was also covered by the local media.







h. **Messages on environment from students:** A large flex was put up in the canteen as well as in the girls' hostel, where the students were asked to write down their views about the environmental problems and their possible solutions. The response from the students was very good.



Messages on environment by students in the canteen



Girls writing their messages on environment in the Girls' Hostel

**i. Awareness on water conservation:** An awareness drive was carried at the high water usage areas, like the canteen, IT Complex washroom, water coolers in various buildings. Posters and stickers were put up near the water sources to act as reminders. Group discussions were held with students to make them aware about water wastage.



- j. Quiz and group discussion on environmental issues:** A Quiz and a group discussion were organized for First Year students on 18<sup>th</sup> October 2012 and 19<sup>th</sup> October 2012. The topic was Indian wildlife. The main aim of this activity was to make students aware of Indian wildlife and the problems related to it.
- k. Debate conducted on topic ‘nuclear power vs. fossil fuels’:** a debate was organized by REEF in association with Eclipse, the literary club of Electronics and Communication department on 25<sup>th</sup> October 2012. The main motive was to get a view of what students think about the energy resources and its crisis.
- l. Awareness to reduce food wastage in college:** The awareness drive included:
1. Talking to students in Girls’ and Boys’ hostel mess
  2. Putting up posters
  3. Discussion with students in the canteen
- m. Interview of Dr. Bahar Bhaviskar, wildlife conservationist:** A question and answer session was carried out with Dr. Bahar Bhaviskar in order to create awareness among REEF members regarding environment and wildlife and the man-animal conflict.
- n. E-waste awareness initiative:** Awareness drive on e-waste and its harmful effects was conducted in various classes of EN, EC, EDT, EP and First Year. Students were motivated to reuse e-waste. Stickers, used as reminders, were placed strategically on different practical kits, computers in various laboratories of the college. Also, electronic waste of the college was retrieved from the store house, dismantled, and issued to students for their future projects. Notices were put up for the same in all the allied branches.
- o. Participation in TGCC:** REEF members participated in Techfest Green Campus Challenge organized by IIT Bombay, held from August 2012 to January 2013. REEF represented the college in the competition and secured 22<sup>nd</sup> position out of 110 colleges that had participated.

### ENVIRONMENTAL CONSERVATIONS ACTIVITIES

- a. Biodiversity Register:** REEF started the process of making a Biodiversity Register of the College on 3<sup>rd</sup> March 2012. As part of the Register, REEF members took up various bird species identification field trips on campus. The tree identification and counting process

started in October 2012. REEF was helped in this by Mr. Kadu, Retired Round Officer of the Forest Department, Nagpur Division and Retired Division Forest Officer Mr. Chandani. REEF team has identified the following and noted in the register:

- b. 72 bird species on campus,
- c. 825 trees amounting to 24 species
- d. All trees have been numbered with paint



**Tree counting, identifying and numbering in progress**



**Mr. Chandani, Retd. DFO, explaining the use of technology to measure tree height and girth**

- b. **Fruit trees plantation:** Additionally, REEF planted 11 new plants at various locations in the campus. The new plants included a variety of tree species which didn't exist on campus



**Tree plantation by REEF members**

- c. **Animal Rescue:** REEF members along with students of RCOEM rescued three-striped, four baby squirrels from University Ground at Subedar layout. These Squirrels were buried under the construction material. They were taken to Wild-CER (an NGO). The post-operative medication and caring was done by REEF students. Once the squirrels had recuperated, they were taken back to the University Ground where the babies were released successfully. The release of the squirrels was documented on camera.



Post-operative care of the rescued squirrel babies at Wild-CER



Rehabilitation of the squirrel babies – parent carrying the baby back to the tree

**d. Association/ties with NGOs and conservation group:** REEF members have set up links with two environment conservation bodies. It first established a link with Bird Katta in February 2012, which is a group of professionals who are into bird conservation. In October 2012, REEF linked itself with Wild-CER. This NGO is working in Wildlife conservation, education and research. Through this link REEF members volunteer in animal rescue and care. They have not only rescued birds and animals and handed them over to Wild-CER for care but have regularly attended as volunteers in the post-operative caring of a various rescued birds that are brought to Wild-CER.

**e. Bird Conservation:**

**a. Bird inventory/identification fieldwork:** REEF members regularly participate in bird-identification field trips to understand the types of birds at various bird hot-spots in Nagpur and the threat to their habitat. In one year, 32 field trips have been undertaken in and around Nagpur by REEF. Out of the total bird species identified in and around Nagpur by experts, REEF members have seen and identified 206 species that accounts for 61 percent of the total specie count. **Lessons learnt:** In each of the trips the Green Ambassadors not only learnt more about the various bird species, but also the threat that they face from humans. For example, REEFians came across various traps laid for birds. There were instances when farm owners had laid nets to protect their crop, and thus killing birds in the bargain.



Area behind boys' hostel, RCOEM campus being surveyed by REEF members



Bird identification in buffer area of Tadoba-Andhari Tiger Reserve



Discussion with experts - REEF members in discussion with Dr. Tarique Sani and Mr. Rohit Chakraborty over bird identification



Bird traps at Ambazahri backwaters being destroyed by REEF members

**b. Bird Rescue:** So far REEF members have rescued ten birds. In most of the cases REEFians have handed over the birds to Wild-CER for care. Among these, 3 baby House Swifts were rescued from the girls' hostel by green ambassador Komal Saraf. The baby Swifts were then brought to Dr. Deepshikha Mehra's cabin and were fed there. The Swifts were tended and cared by the REEFians. Similarly, on a call from one of the college students Green Ambassador Sahil Dalvi rescued a Coppersmith Barbet. Attempts were made to put the bird back in its nest, but it rejected it. Both these species could not be rehabilitated as they did not survive despite good care.



First baby House Swift rescued



Attempts to rehabilitate the Coppersmith Barbet – REEFians trying to put it back in its nest after treatment from Vet

**c. Bird House:** REEF members set up another bird house on campus which is essential for bird conservation as during the winters (which is the breeding season), birds tend to create nests in buildings and lamp posts. This makes the nests unsafe. REEF's Green Ambassadors have built two bird houses. Their effort in building it has been right from making its blue print, to getting the wood cut, painting it and assembling it. The process of building the bird house tested their engineering skills. The bird houses were installed on campus in September and October 2012.



Green Ambassadors building the bird house at the Carpentry Shop



2<sup>nd</sup> bird house being installed - IT parking, RCOEM

d. **Bird Feeder:** a Bird Feeder was constructed and installed on campus by REEF members in order to cater to the food needs of birds. This has been installed on a tree in staff two-wheeler parking as this area is frequented by birds.

e. **Bird Baths**



A Laughing Dove at the Bird Bath installed by REEF on campus in summer 2012



New Bird Baths being installed by REEF on campus in summer 2013

REEF successfully set up four bird baths on the College campus in the summer months in 2012 and 5 in the summer months of 2013 in order to cater to water needs of the birds around the campus. These were donated by Mr. Sanjay Surajbhan Gupta, an industrialist

from Nagpur. The bird baths are regularly monitored by the REEF members and are helped by the gardening staff of RCOEM.

- f. **Bird Race:** REEF students for the first time took part in a Bird Race organized in the month of December 2012 in which various bird enthusiasts and conservationists took part. The Bird Race as sponsored by HDFC involved various teams to go to various bird hotpots and identify the maximum number of bird species.
- g. **Vulture conservation project in Pench National Park:** REEF team along with Wild-CER members visited Pench National Park on 10<sup>th</sup> of March 2013. They were given knowledge about vulture conservation as vultures are critically endangered species. REEF members got first-hand information to various plans of action undertaken like habit monitoring, nesting and off-springs of vultures and their breeding zones. Two new species of vultures seen were Red headed Vulture and Black backed Vulture.



Dr. Bahar Baviskar of Wild-CER explaining the vulture conservation project



Forest Department staff of Pench Tiger Reserve giving inputs on the project to REEFians

- h. **Implementation of vermi-compost:** The task of creating/implementing vermin-compost was conducted at Raj Bhavan (Governor House), Nagpur. Raj Bhavan is a 120 acre area less than a kilometre away from RCEOM campus. This task was undertaken at Raj Bhavan only due to the expertise that could be provided to the REEF members in implementing Vermi-compost. The REEF team first learnt to create vermin-compost from Raj Bhavan team and then created their own. The procedure that was followed had four main stages.



- I. **Field/Educational trip to Tadoba- Andhari Tiger Reserve (TATR):** REEF team visited TATR for a field trip from 28<sup>th</sup> Feb to 2<sup>nd</sup> March 2013. Along with various wild animals, bird

watching was done extensively by REEFians. As a result a large number of bird species were spotted. The total species seen were 112.



## RESEARCH AND PUBLICATIONS

Along with awareness and conservation activities, REEF team also undertook research activities on environment and published some of its work. These included:

- REEF article ‘**Engineers With a Mission Towards A Sustainable Environment: The REEF Way**’ was published in the Hitavda in the Youth Zone, 30<sup>th</sup> October 2012
- REEF article ‘**Techfest’s Green Initiative: A Step Towards Creating Green Campuses**’, was published in the Hitavda in the Youth Zone, 30<sup>th</sup> October 2012.
- REEF article ‘**Forest-Based Development: Bamboo Shows The Way**’ was published in the college magazine – Arceon12
- **Practical solution for ozone layer depletion:** Research was done on the causes of ozone layer depletion and possible solution to prevent ozone layer depletion.
- **Recent issues in climate change on global scale:** Causes of climate change, effects of climate change and recent issues of climate change was studied and report was prepared.
- **Analysis of a biogas plant:** A bio gas plant by Go Vigyan Anusandhan Kendra Deolapar in Nagpur District was studied to understand the successful usage of bio-gas as an alternative source of energy.
- **Analysis of electricity bill of RCOEM:** Based on a study and an analysis of electricity bills of RCOEM of 11 months, various measures were suggested to reduce the expenditure.
- **Harmful effect of food ripening chemicals on environment:** A case study of a farm (30 kms from Nagpur) was taken to see the use of chemicals to grow vegetables and the outcome of such use. The farm visit was made on 15<sup>th</sup> October 2012 and 19<sup>th</sup> October 2012 to see the beginning and the end point of the process.
- **Green jobs in departments of RCOEM:** Various branches of engineering can contribute towards developing and implementing green technologies through various jobs that can eco-friendly and would contribute to sustainable development of the environment. The green jobs that can be done by engineers from difference branches were studied and listed and were put on the notice boards of the respective branches to make students aware.



- **Endangered and extinct species in found India:** A report was prepared listing the extinct and endangered species of India.
- **Action plan for improving local biodiversity:** An action plan was prepared to suggested improving the tree and bird species diversity, water bodies, and creating awareness about need for conserving various elements of the environment
- **Advantages and disadvantages of CNG based vehicles:** A case study was done by REEF examining the advantages and disadvantages of CNG as a fuel.
- **Interesting energy conservation campaigns:** Interesting and useful energy conservation campaigns were studied and their scope of implementation at college level was analysed.
- **Nagpur city disposal system; Nagpur Municipal Corporation:** A case study was done to understand the disposal system in Nagpur city. The study was carried out with the help of Nagpur Municipal Corporation.
- **Nagpur city's recycling facility:** The waste received from all over Nagpur city is stored at the Bhandewadi Dumping Yard. M/s Hanjer Biotech Services had been assigned the work of storage, treatment, and disposal of the same. The site was visited by REEF members.
- **Plan to make RCOEM campus zero waste:** REEF focused on the implementation of the solid waste management techniques for achieving zero waste campus.
- **Comparison between a food products prepared using solar based device and normal energy resources:** REEF carried out an experiment in which a packet of noodles was cooked in a solar cooker. Analysis of initial price, recurring cost, cooking time and taste found that using solar energy is more effective than LPG.

## COMMUNITY SERVICE

REEF members started imparting free education to underprivileged kids at Balgram, Nagpur from April 2012. Kids varying from 4<sup>th</sup> to 10<sup>th</sup> grade live in this residential facility. This is an activity that the REEF's Green Ambassadors undertake by finding time from their busy academic activities.



REEFians contributing to knowledge building

## DESIGNING OF REEF LOGO



REEF Green Ambassadors designed the above logo of the club based on the objectives of the club. This logo with an olive green background, light green leaf, blue drop of water, and name of the club includes all the elements of the environment, thus symbolizing what the club strives for.

## FUTURE COURSE OF ACTION

- To focus on waste-management and undertake activities to conserve urban environment.
- To organize different guest lectures on environmental issues in order to increase public awareness.
- To continue with bird conservation activities – more field trips on bird identification and habitat conservation, install more bird feeders, bird baths and bird houses.
- Take up tree plantation (in and around campus) in order to enhance local biodiversity.
- Continue the association and forge new ties with local organizations involved in environmental conservation.
- To participate in various competition organized on environment
- To continue volunteering for activities undertaken by the Forest Department like Tiger census, Wildlife census, Census of the Great Indian Bustard and Egyptian Vultures, etc.
- To carry on community service by working with the underprivileged students.
- To initiate activities with differently-abled children.