

BE A SCIENTIST FOR A DAY: A CITIZEN SCIENCE PROJECT FOR BIODIVERSITY SURVEYS AT BNHS NATURE RESERVE



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PRESENTATION LAYOUT

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1. **Introduction:** Overview of Citizen Science
2. **Methods:** About Be a Scientist for a Day Programme
3. **Results:** Profile of Citizen Scientists and Data collected by them
4. **Discussion:** Learning of Citizen Scientists and their contribution to science
5. **Conclusion:** Future Plans

OVERVIEW

- What is Citizen Science?
- Why is Citizen Science Important?
- Study area
- Introduction to Be A Scientist for A Day

What Is Citizen Science Programme?

- Involving citizens in scientific studies
- Oldest Citizen Science Activity: Audubon Society's Christmas Bird Count since Christmas of 1900
- In India the first Citizen Science Programme was started by National Centre for Biological Sciences in 2007; MigrantWatch & SeasonWatch



Why Citizen Science?

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- ❑ Scientific community- aloof from society
- ❑ Lack of awareness about field science
- ❑ Gaping hole in scientific data
- ❑ Locals can be an important source for scientific data collection
- ❑ Large amounts of data is collected in shortest time.



Study Area

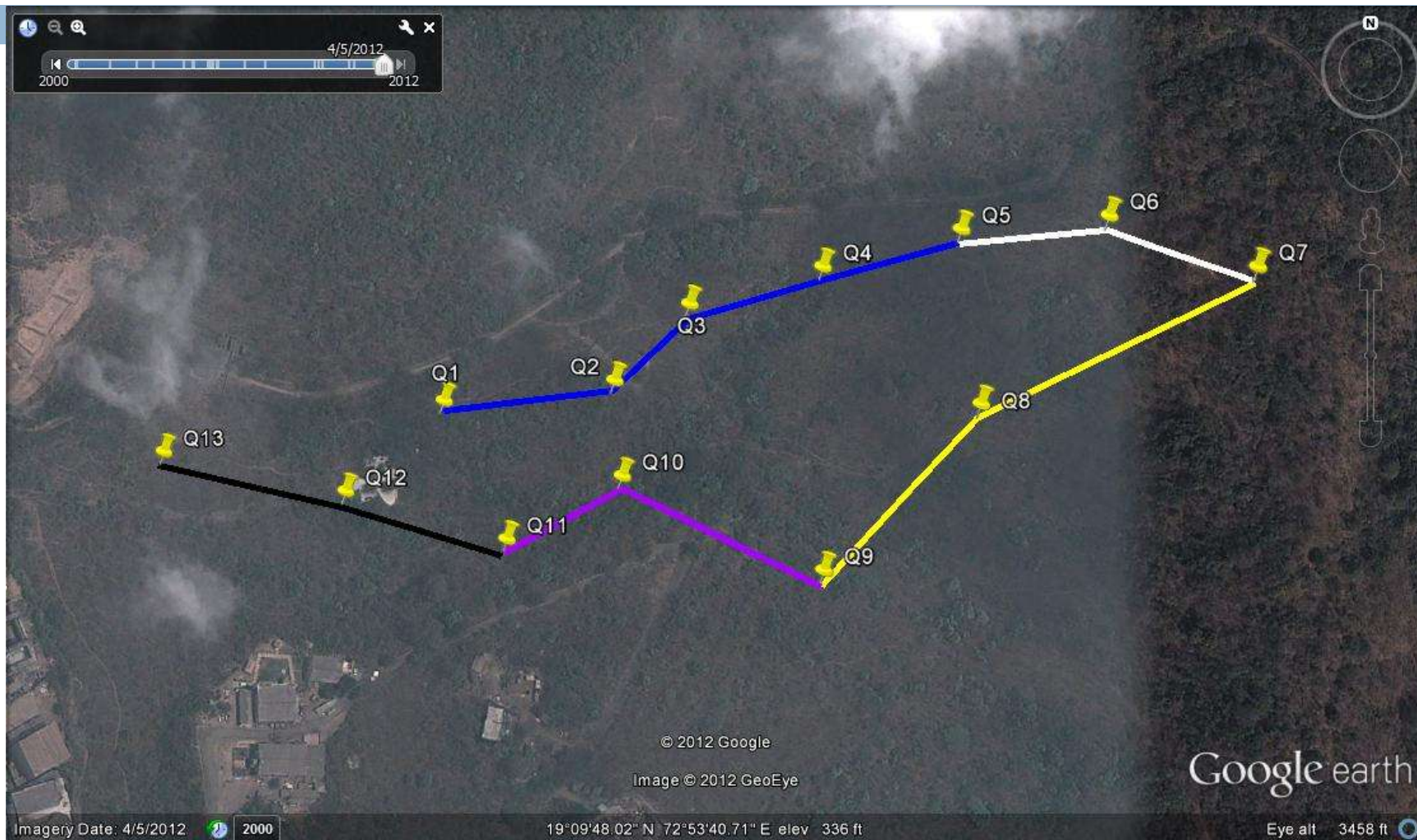
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- **Name:** BNHS Nature Reserve (BNR)
- **Area:** 33 acres
- **Location:** Sandwiched between Sanjay Gandhi National Park (SGNP) & Filmcity, Mumbai.
- **Type of Forest:** Semi Moist Deciduous



Map Of Study Area

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LEGEND:

- Karvi Trail
- Salim Ali Trail
- Leopard Trail
- Stream Trail
- Temple Trail

Be A Scientist for A Day

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- ❑ Launched on 26 January 2011
- ❑ Biodiversity Survey of BNHS Nature Reserve
- ❑ Monthly surveys
- ❑ 5 Survey themes: Plants, Birds, Insects, Herpetofauna, Birds and moth studies



Field Surveys

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Surveys conducted by experts

Participants learn:

- Research orientation- Slide illustrated talk
- Identification
- Survey techniques- Hands on field work
- Use of gadgets like GPS, Thermohyrometer
- Use of field guides
- Data entry



METHODOLOGY

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- Field survey techniques
- Materials and Equipment
- Announcement, Publicity and Registration of Programme
- Conduct survey
- Data analysis
- Feedback



Field Survey Techniques

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- Monthly Surveys
- Five existing nature trails used as transect
- Set up 15 m X 15 m quadrants at every 100 m distance
- 13 quadrants on 33 acres
 - ▣ For Flora and Insects study: Quadrants
 - ▣ For Birds: Point-Transect
 - ▣ For Herpeto fauna- Direct Point-Transect
 - ▣ Nocturnal insects- Light traps.



Equipment And Resources

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- Compass
- Ropes
- Measuring tape
- Paint and ribbons
- GPS unit- Garmin E-Trex
- Thermo-hygrometer
- Field Guides
- Data sheets



Programme Publicity

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- Monthly announcement
- Publicity:
 - Press release
 - Online groups, Facebook, Twitter, Orkut
 - Radio
 - BNHS membership circular
 - BNHS website
- Registration form for prior registration



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RESULTS

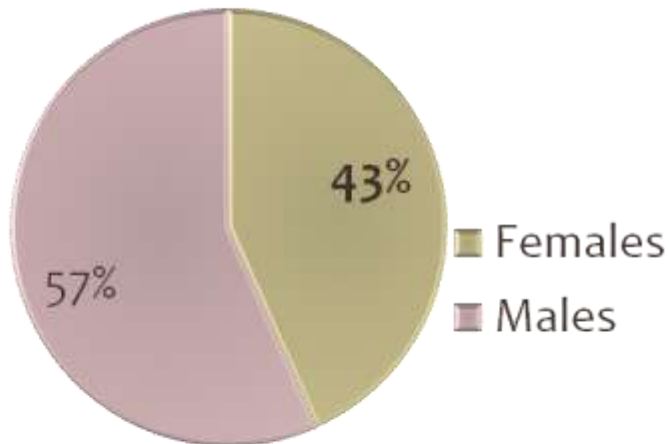
- ❑ Who were the Citizen Scientists?
- ❑ How they contributed to science?
- ❑ How they benefitted from science?

Participant's Profile

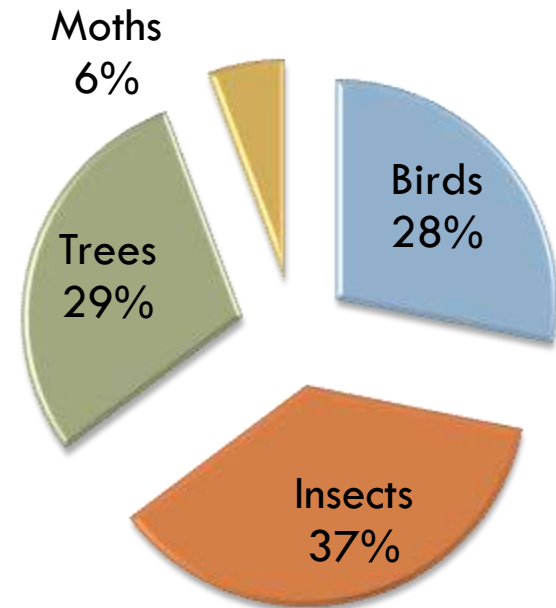
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- 271 participants till June 2012
- 150 individuals and 121 school and college students

Gender wise profile of participants

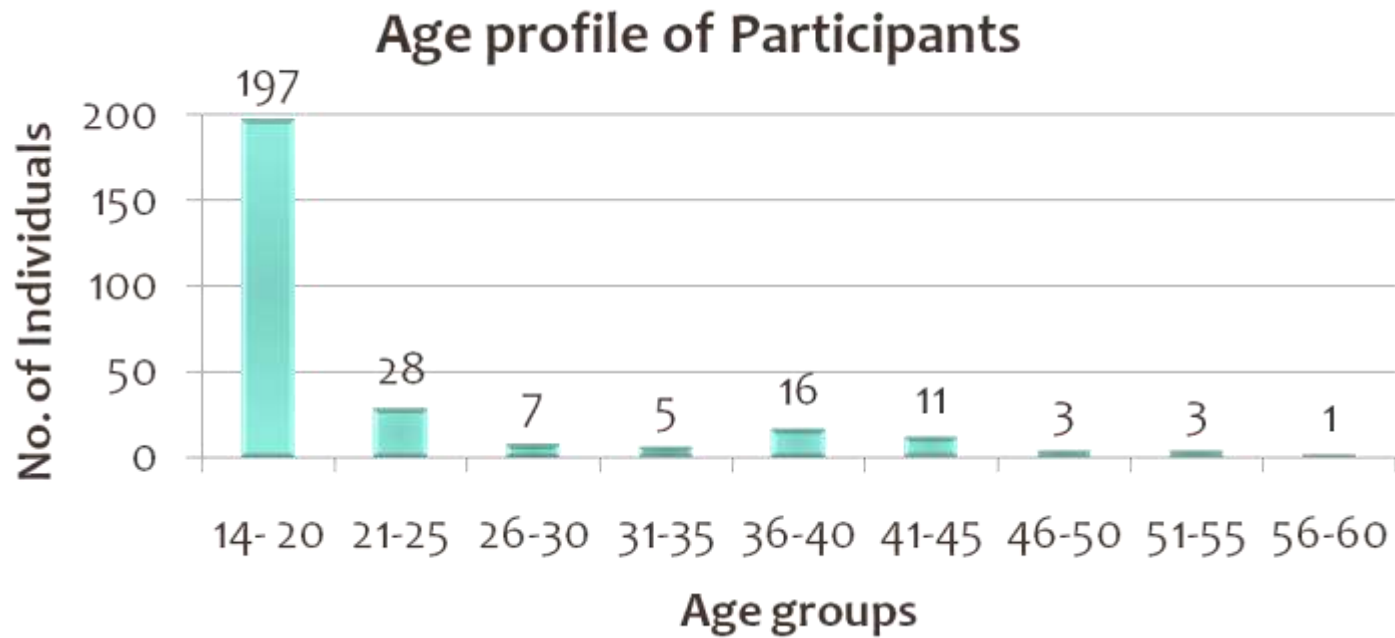


Theme Preferences



Participant's Profile

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Data Collection on Plants

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□

- 27 Trees, 9 Shrubs, 26 Herbs and 10 Climbers species
- Most dominant species
 - ▣ Tree - *Lannea coromandalica*
 - ▣ Shrub- *Carvia callosa*
 - ▣ Herb- *Curcuma pseudomontana*
 - ▣ Climber- *Cocculus hirsutus*

Carvia callosa



Curcuma pseudomontana

Data Collection on Insects

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- 200 species belonging to 15 Orders
- Dominant order was Hymenoptera
- Lepidoptera showed most species diversity
- 46 species of butterflies



Data Collection on Moths

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- Common moth *Asota* sp. belonging to family Erebidae.
- Infestation by mangrove moths (*Hyblea* sp.) during the month of September.
- Over 200 species of moths.



Data Collection on Reptiles & Amphibians

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- 11 species of reptiles and five amphibians.
- Among the reptiles the Geckos were dominate,
- The snakes were sighted rarely during the survey.
- Common Indian Toad was the dominant amphibian.



Data Collection on Birds

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- 2317 individuals of 53 species belonging to 29 families
- Dominant family Corvidae with 849 individuals of two species.



Racket tailed drongo



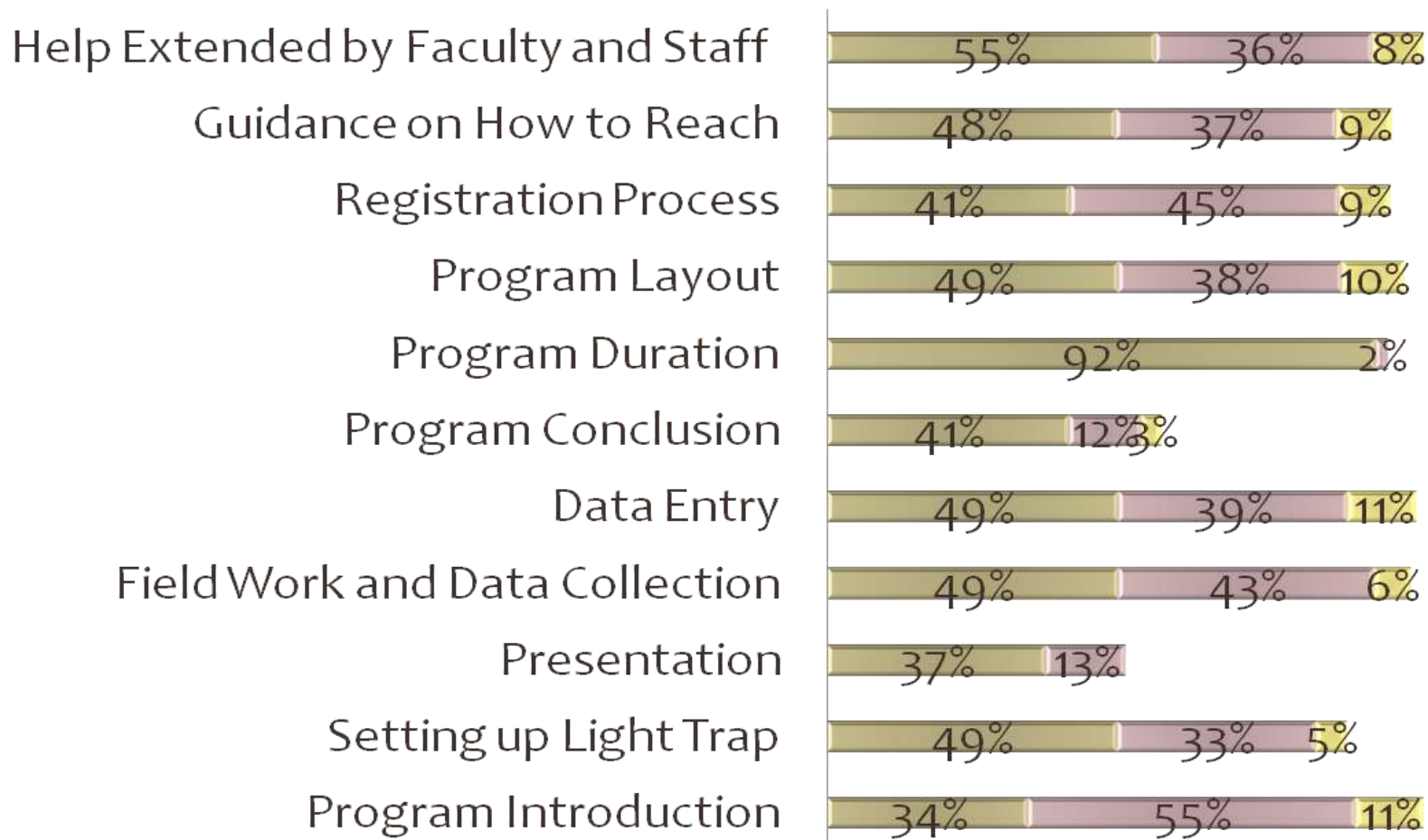
House Crow



Steppe Eagle

Participants' Feedback

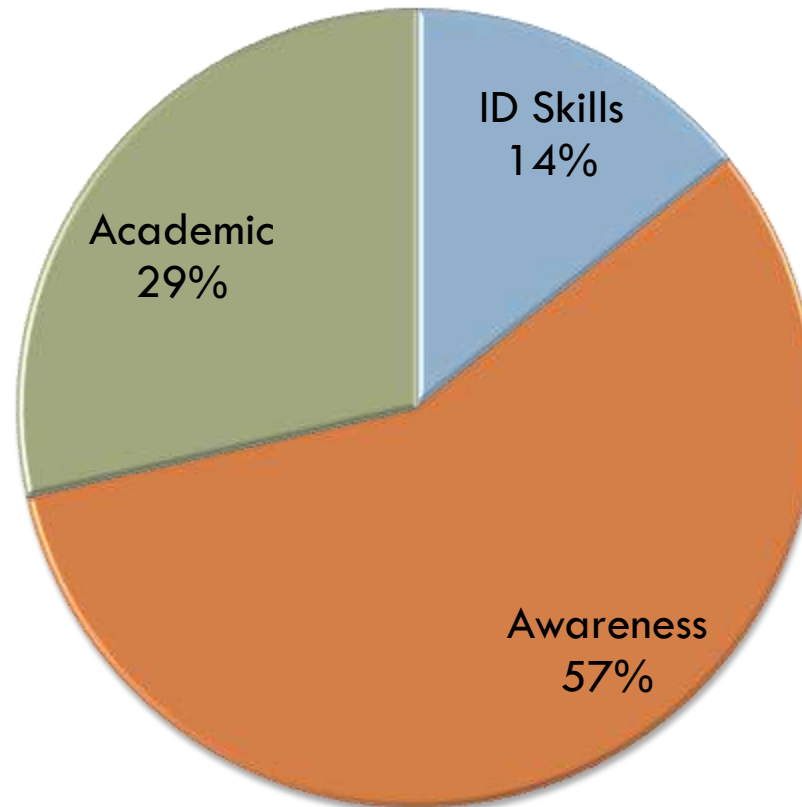
Very Effective
 Effective
 Somewhat Effective



Benefits to the Participants

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Benefits to the Participants



DISCUSSION

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Participants

- Youth were attracted to the module with a sizable chunk (225 individuals) being between 14-25 years
- The students benefit by learning the research methodologies through hands on training
- The BNHS benefits through completion of Biodiversity study of BNR.
- The community benefits through having army of citizens undertaking scientific presentation.

Data Interpretation

- The dominance of *Carvia callosa* and *Curcuma pseudomontana* could be attributed to the undulating terrain of the BNR
- The infestation by *Hyblea* sps. needs to be further investigated
- Dominance of Crow population along the periphery could be attributed to proximity to Shooting locations

CONCLUSION

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- The “Be A Scientist for A Day” programme has been well received by audiences
- The programme succeeded in infusing interest among amateurs for field research
- The uniqueness of the programme could be one reason it was covered repeatedly in print media including cover stories.
- Contributes to Aichi Target 1.

FUTURE PLANS

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- Make “Be A scientist for A Day” a regular feature of BNHS- CEC programmes
- Apply for grant, so that the module can be subsidized.
- Publish a scientific paper
- Increase the purview of the study to include more sites.

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Our Experts

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Our Participants

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THANK YOU

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