

SBSI 2022 FINAL PROJECT REPORT



**School of Biological Sciences and Biotechnology
Masters program in Zoology
Goa University
Taleigao Plateau, 403206 Goa**

Submitted by

PRIYANKA NAIK (Team Leader)

ANURAJ GAONKAR

SONA GAONKAR

AISHWARYA NENE

Under the guidance of

**Dr. Shanti Dessai
Assistant Professor**

**Ms. Gandhita Kundaikar
Assistant Professor**

**Dr. Shamshad Shaikh
Assistant Professor**

**Dr.Nitin Sawant (SBSI Co-ordinator)
Assistant Professor**

**School of Biological Sciences and Biotechnology
Masters program in Zoology
Goa University
2021-2022**

ACKNOWLEDGEMENT

The efficacious approach towards this internship required a lot of guidance and assistance from many people and we are extremely privileged to have got their support for proceeding with our internship.

We are sincerely thankful to the UBA SBSI Director Professor Jyoti Pawar, SBSI Nodal Officer Dr. Pranav Naik and Dr Nitin Sawant, SBSI coordinator for their timely guidance, encouragement and support.

We wish to express our sincere gratitude to our internship mentors Dr Shanti N. Dessai, Ms. Gandhita Kundaikar and Dr Shamshad Shaikh. Their keen interest and their overwhelming attitude to mentor us for this internship have been greatly responsible for the completion and accomplishment of our tasks.

We are sincerely thankful and fortunate enough to the people of Sanquelim, Honda, Valpoi and to all of our participants who took part in various activities organised by us. Their constant cooperation could make our internship possible.





Last, but not the least, we would like to thank our parents who have been our constant source of motivation and support throughout the entire length of our internship programme.

QUOTE ON SWACHHATA

Throughout this internship we have worked to ignite a feeling that 'Cleanliness is next to Godliness' among the people of Sanquelim, Honda and Valpoi.

DECLARATION

We hereby declare that this report has been authored and submitted by Anuraj Gaonkar, Sona Gaonkar, Priyanka Naik and Aishwarya Nene as a record of bonifide work under the guidance of Ms.Gandhita Kundaikar, Assistant Professor, Department of Zoology. We further declare that the contents of this report are original and are reporting the 100 hours of work carried out by us during the internship.

University seat number	PR number	Name of the student	Signature
21P044010	201805626	Anuraj Gaonkar	
21P044011	201805582	Sona Gaonkar	
21P044025	201805449	Priyanka Naik	
21P044027	201805447	Aishwarya Nene	

School of Biological Sciences and Biotechnology
Masters program in Zoology
Goa University
2021-2022

Place: Taleigao Plateau, Goa

Date: 31 May 2022

CERTIFICATE

This is to certify that the following SBSI 2022 Interns -

1. Anuraj Gaonkar (Seat no:21P044010 PR no:201805626)
2. Sona Gaonkar (Seat no: 21P044011 PR no:201805582)
3. Priyanka Naik (Seat no: 21P044025 PR no:201805449)
4. Aishwarya Nene (Seat no: 21P044027 PR no:201805447)

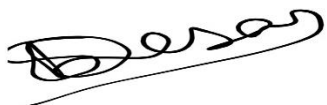
have satisfactorily completed 100 hours of activities related to Swachhata.

During this internship period, it was noticed that the interns acquired and enhanced the following skills -

1. Carrying out and exhibiting competitions and various other activities such as biodiversity walk and webinar.
2. Interacting with students and people of various age groups during our course of internship helped to teach in every mean that we could and learn back even more.
3. Communicating with locals to come together to bring about a good cause such as setting up of artificial water source for animals.
4. Creating Google forms and analysing them, developing brochures and organising webinars.
5. Report writing and presentation skills.
6. Team work and management skills.

This report is being submitted to SBSI 2022 University Nodal Officer, in partial fulfilment for the completion of the SBSI Course during the academic year 2021-2022.

Dr. Shanti Dessai



Dr. Shamshad Shaikh



Ms. Gandhita Kundaikar



Names and signatures of SBSI Mentors



Dr. Nitin Sawant

Programme director of Zoology
School of Biological Sciences and
Biotechnology (SBSB)
SBSI Co-ordinator

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Chapter 1- Theme: Education Outreach

	Activity	Work hours	No. of participants	Place
1.1	Setting up artificial water source for animals in a housing society	10	31	Honda
1.2	‘Aamche kulgar’ Documentary	8	Was shared through online platforms	Sonal, Valpoi
1.3	Poster making on ‘Science in everyday life’	5	9	Online mode
1.4	Biodiversity walk at Tamdi Surla	10	18	Tamdi Surla
1.5	Seed bank creation and awareness	10	6	Honda and Valpoi
1.6	Development of host plant of butterflies poster	10	Was shared through online platforms, displayed on campus	Dhamshe, Valpoi
		53		

Chapter 2- Theme: Waste Management

	Activity	Work hours	No. of participants	Place
2.1	Setting up compost pit	15	6	Honda
2.2	Cleanliness drive	8	8	Harvalem, Sanquelim
2.3	Survey on waste management	8	57	(Online via Google forms)
2.4	Best out of waste competition	5	7	Online mode
		36		

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Chapter 3- Theme: Sanitation and Hygiene

	Activity	Work hours	No. of participants	Place
3.1	Survey on menstrual health and hygiene	8	56	(Online via Google forms)
3.2	Webinar on menstrual myths and facts by Ms.Priti Parab (Founder of Bleed Happily)	8	33	Online mode
3.3	Online Fancy dress competition theme 'Personal hygiene'	1	1	Online mode
		17		

Chapter 4- Webinar attended

	Activity	Work hours	No. of participants	Place
4.1	State level webinar on Awareness on waste management organised by SBSI unit of P.E.S's R.S.N College of Arts and Science , farmagudi Ponda Goa	01	1	Online mode
		01		

Distribution of 100 hours of work under the chosen themes:

Sr. no	Themes	Work hours
1.	Educational Outreach	53
2.	Waste Management	36
3.	Sanitation and Hygiene	17
4.	(Webinar attended)	01
		107*

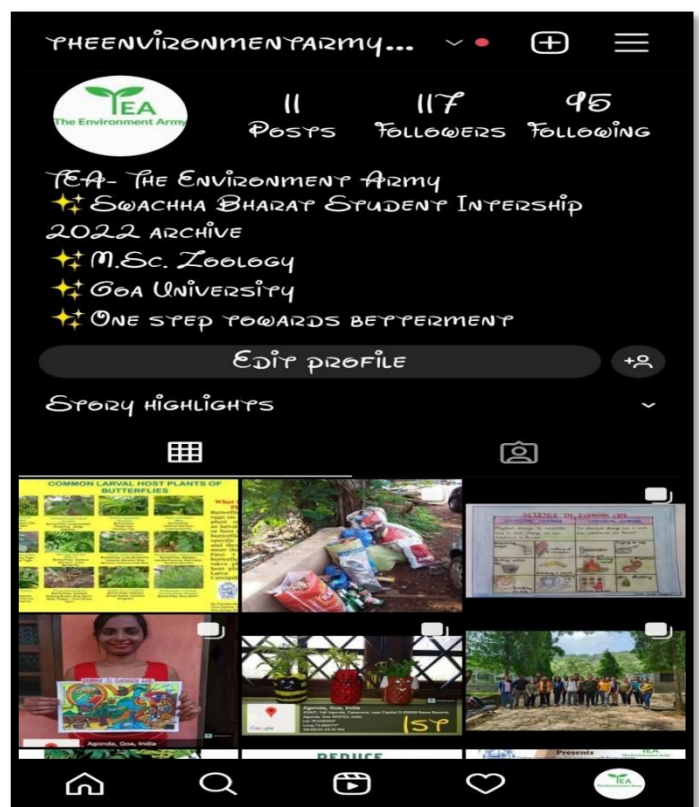
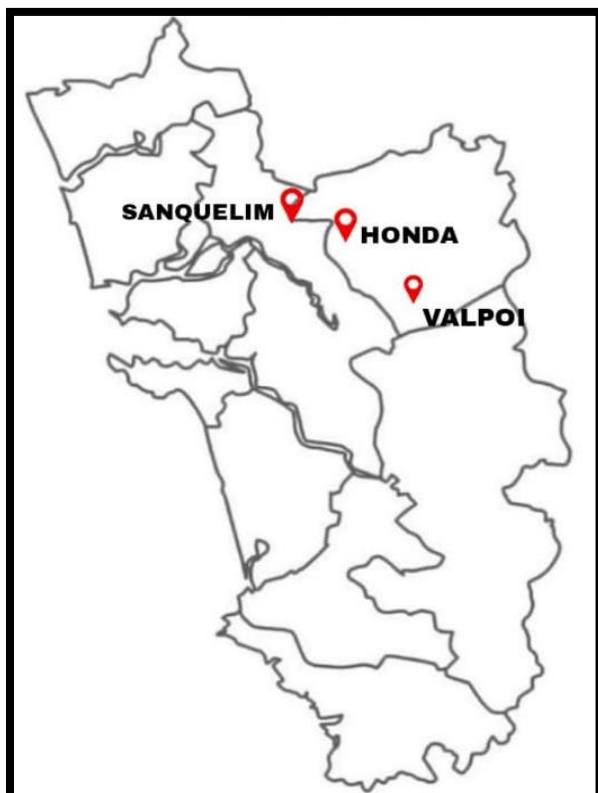
** For 100 work hours allotted, 100+ hours of work was been carried out.*



We call our team as **TEA- The Environment Army**. The Environment Army perused their work with three themes namely; **Education Outreach, Waste Management and Sanitation and Hygiene** with an holistic approach exhibiting work at Valpoi (rural area), Honda (town) and in Sanquelim (city) and so as via online medium through social media platforms with the touch of zoological science. It was an effort planned to bring about a social and individual behavioural change in the community towards an aware and sustainable living.

Our details for contact:-

- sbsi.theenvironmentarmy@gmail.com
- Find us on Instagram at **theenvironmentarmy2022**



CHAPTER 1.

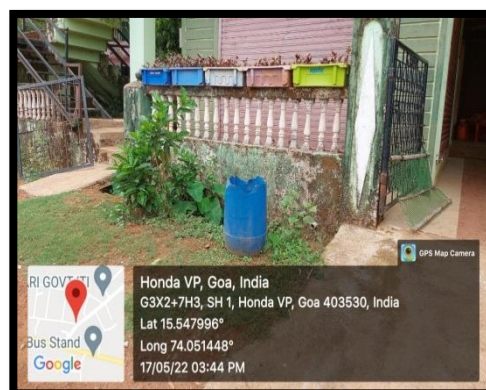
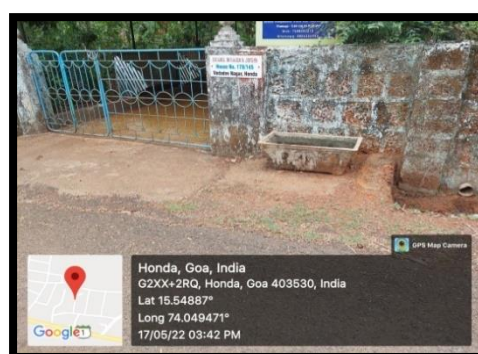
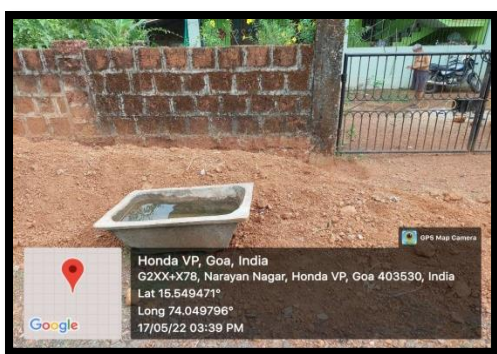
Education Outreach

1.1 Setting up artificial water source for animals in a housing society

Members of The Environment Army interacted with 31 households in Vadadev Nagar, a housing society in Honda Sattari Goa to initiate setting up a water filled vessel outside their residence. This artificial water source was set upto in order to meet the thirst of stray dogs and other stray animals, cattle livestock and so for the birds during the excruciating summer time.

Following are some of the pictures of the artificial set up of the water source in the above-mentioned housing society.

Educating Villagers at Vadadev Nagar, Honda to Setup Artificial Water Source for Animals on 17.05.2022



1.2 'Aamche kulgar' Documentary

A documentary was made on the theme 'Amche kulagar' on a cultivated farm of Mr. Anil G. Nene, resident of Sonal, Valpoi Sattari. We spoke to him and gathered the information about different management practices that he has to undertake to take care of his farm, ensure its growth and obtain good yield from the plants cultivated in his farm which includes arecanuts, coconuts, peppers, jackfruits, banana trees etc. The video recordings of his interview are uploaded on the Instagram handle of our team.

Following are some pictures captured at his farm.



1.3 Poster making on ‘Science in everyday life’

The Environment Army organised poster making competition on the theme ‘Science in everyday life’ to exhibit the very simple understanding of the participants on the topic and display it through their handmade posters.

A total of 9 participants participated in this competition. They were asked to make the handmade posters and send the geotagged pictures of the same to the provided email id of The Environment Army. The prizes were assessed on account of efforts engaged, following is the list of winners-

For the age group - 18+ yrs.

1. Debbie Fernandes, Agonda-Goa.

2. Neha Gaonkar, Shirigao-Goa

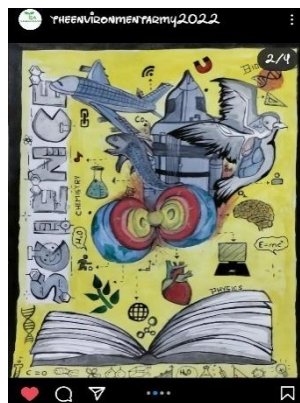
3. Kartik Sawant, Sanquelim-Goa

For the age group- below 18yrs

1. Hrishi Dayekar, Corlim – Goa.

2. Ravija Gaude, Surla-Goa.

3. Kriyansh Kakodkar, Cacora -Goa.



1.4 Biodiversity walk at Tambdi Surla

In next 100 years, every beloved animal character in every child's book is predicted to go extinct. No matter what we are fighting for, if we don't work together to save the environment it won't matter at least as so we are equally going to get extinct. With more trees getting cut down and more faunas are getting pushed towards extinction. We at The Environment Army believe that it is of keen importance to acknowledge, understand and learn about our ecosystem.

The Environment Army organised a biodiversity walk on 28th May 2022 at Tambdi Surla, Sattari Goa on the occasion of International Day for Biological Diversity which is observed on 22nd May of every year.

Mr. Aamir Hussain Jakati, an active environmentalist and an educator was present as the resource person and a total of 18 active Nature enthusiasts participated in the Biodiversity walk.

Great hornbill, *Buceros bicornis* and Hump nosed pit viper, *Hypnale hypnale* stood as the highlights of this nature trail. Clear cut checklist of all the faunas are enlisted below.

Checklist of butterflies observed during the biodiversity walk

Sr. no	Common name	Scientific name
1.	Tamil yeoman	<i>Cirrochroa thais</i>
2.	Blue mormon	<i>Papilio polymnestor</i>
3.	Malabar tree nymph (Goa's state butterfly; Near Threaten according to IUCN checklist)	<i>Idea malabarica</i>
4.	Blue bottle	<i>Graphium sarpedon</i>
5.	Common grass yellow	<i>Eurema hecabe</i>
6.	Red spotted duke Schedule II WPA 1972	<i>Dophla evelina</i>
7.	Angled pierrot	<i>Caleta caleta</i>
8.	Common jay	<i>Graphium doson</i>
9.	Chocolate pansy	<i>Junonia iphita</i>
10.	Malabar Ravan	<i>Papilio dravidarum</i>

11.	Rustic	<i>Manduca rustica</i>
12.	Common crow	<i>Euploea core</i>
13.	Common castor	<i>Ariadne merione</i>

Reptilian checklist of the biodiversity walk

Sr. no	Common name	Scientific name
1.	Checkered killback <i>Schedule IV WPA 1972</i>	<i>Xenochrophis piscator</i>
2.	Hump nosed pit viper <i>Schedule IV WPA 1972</i>	<i>Hypnale hypnale</i>

Checklist of birds observed during the biodiversity walk

Sr. no	Common name	Scientific name
1.	Organge minivets <i>Schedule IV WPA 1972</i>	<i>Pericrocotus flammeus</i>
2.	Golden orioles <i>Schedule IV WPA 1972</i>	<i>Oriolus oriolus</i>
3.	Great Indian hornbill <i>Schedule I (Part III) WPA 1972</i>	<i>Buceros bicornis</i>

Matti (Goa's
state tree)

*Terminalia
eliptica/
Terminalia
tomentosum*

Great hornbill

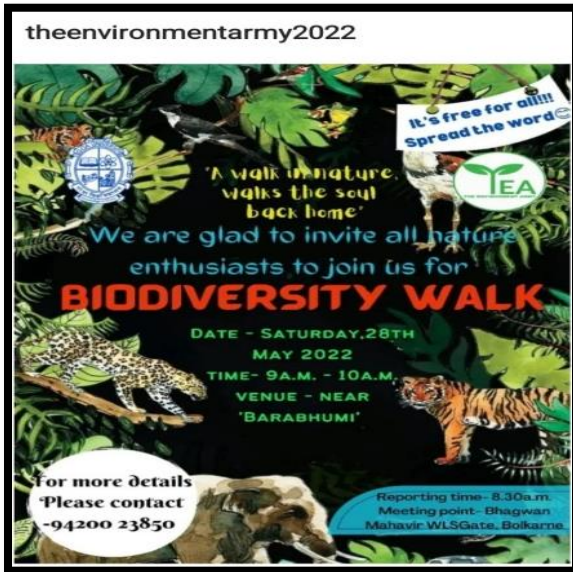
Buceros bicornis



Hump-nosed pit viper

Hypnale hypnale





1.5 Seed bank creation and dispersal

During summer many of the tropical indigenous flora bear fruits. Seeds of Mango *Mangifera indica* were collected and a seed bank was prepared. Following which plantation and awareness was carried out among children who volunteered at Honda. The same was carried at Valpoi with Jackfruit *Artocarpus heterophyllus* seeds.

Our aim was to harbour tropical indigenous flora at favourable habitat along with small inquisitive hands of local children.



Mango *Mangifera indica* seed
plantation and awareness at
Honda



Jackfruit *Artocarpus*
heterophyllus seed plantation
and awareness at Valpoi



Mango *Mangifera indica* seed
bank creation

1.6 Development of host plants of butterflies poster

Butterflies belong to the Order Lepidoptera and go through metamorphosis: Egg, Larva (caterpillar), Pupa (chrysalis) and Adult (imago).

About 25,000 species of butterflies are been listed throughout the world and about 1,500 species are found in India. About 100+ species of butterflies call Goa as home.

The Wildlife protection Act, 1972 has 6 schedules with each listing various species of flora and fauna of conservation importance. Butterflies too find their place in the Schedule I, II and IV. Of the Goan species 5 are listed in Schedule I, 4 are listed in Schedule II and 1 in Schedule IV. The Malabar Tree nymph *Idea malabrica* was been officially declared as the State butterfly of Goa. It is been evaluated as near threaten by IUCN.

Butterflies are of great ecological significance, the most important being pollination. Vital link in food chain; they constitute a significant percentage of food for spiders, reptiles & birds. Indicator of a healthy environment too.

We at The Environment army understand the ecological value of these tiny jewels and in order to protect them it is very important to study and conserve their host plants. Host plants are the plants specific to each butterfly species which harbour three of the life stages of butterfly namely; Egg, Larva (caterpillar) and Pupa (chrysalis).

The poster was inaugurated in the hands of Dr Nitin Sawant SBSI Coordinator and teacher incharge of Department Of Zoology on 6th June. The poster is put on a wall in the zoology lab of Goa University and another copy was presented to the Zoology department of Government College of Arts, Science and Commerce Sanquelim Goa . It was also shared via social media platforms.



HOST PLANTS OF BUTTERFLIES POSTER

1. At Govt. College of Art, Science and Commerce , Sanquelim Goa



2. At Zoology department of Goa University.



CHAPTER 2.

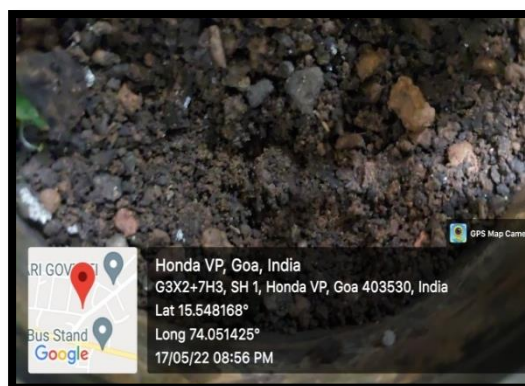
Waste Management

2.1 Setting up compost pits

Setting up compost pit commences with separating dry waste and wet waste. A pit was dug and since it was out in nature the aeration and moisture content was looked after on its own. The pit was maintained in such a way as to prevent it from direct sunlight. All organic kitchen waste (bones, fish sales and spines, egg shells excluded) which served as source of nitrogen was added everyday to the pit along with dry leaves which served for source of carbon in the ratio of 1:3. 1:3 ratio has been working fine to bring about the decomposition and as well as to avoid stinking smell. A solution of Curd with water or jiggery with water was added to speed up the process of microb action once a week. The initial base layer was ready within 45 days.

The process is still going on.

Setting up Compost Pit in Honda Village for Kitchen Waste 6-17 May 2022



2.2 Cleanliness drive

A cleanliness drive was organized at Harvalem waterfall area in Sanquelim on 5th June 2022 on the occasion of World Environment Day. This area is famous due to the presence of a beautiful waterfall and a Shiva temple. It is visited by many locals and tourists every year and mostly during the monsoon season.

However, it is littered by garbage by the same visitors and some locals. Hence, we found it necessary to conduct a cleanliness drive at this place, with the intention that at least people residing nearby will get inspired to not litter.

A total of 8 people volunteered for this drive. It began at 8.45am in the morning. The waste disposed in the open included plastic bottles, food cups, packets, wrappers, paper wastes, glass bottles, metallic soft drink cans, sanitary pads and diapers wrapped in plastic etc. All of these were collected in separate bags and the place was cleaned. Following are the pictures captured during the cleanliness drive.

Cleanliness Drive at Harvalem





2.3 Survey on waste management

Objectives-

1. To understand the facilities provided by the Government for waste management.
2. To understand different waste disposal practices.
3. To understand effects of improper waste disposal on public health.

An online survey questionnaire was formulated and circulated among the people of Goa.

Among the people who responded, a quarter of them are residents of Municipality and a quarter and half are residents of village panchayat.

For the waste collection facility provided by the government in the locality, majority of the people responded that daily collection of garbage takes place in their area. Slightly less than majority said that collection takes place once in 15 days. About a quarter of people responded that no waste collection facility is provided and half a quarter people said once in a week waste collection is done.

Approximately equal number of people said that they are satisfied and they are not satisfied with the waste collection facility.

More than three forth Quantity of the people segregate their waste into dry and wet waste. A small quantity does not segregate their waste separately.

For the question how do people discard the plastic waste, majority and slightly less then quarter and a half said that they give it to the government. Less than a quarter responded that they burn it. Half of a quarter give plastic waste to plastic recycler and a very minute quantity dispose it in open or water body.

Three forth Quantity people practice composting of wet waste and the rest do not do composting of wet waste.

Around equal quantity of people have littered places within their area and others do not have littered places. Majority people also responded that they do not have a water body polluted by waste disposal however more then quarter said that they do have a polluted water body because of waste disposal.

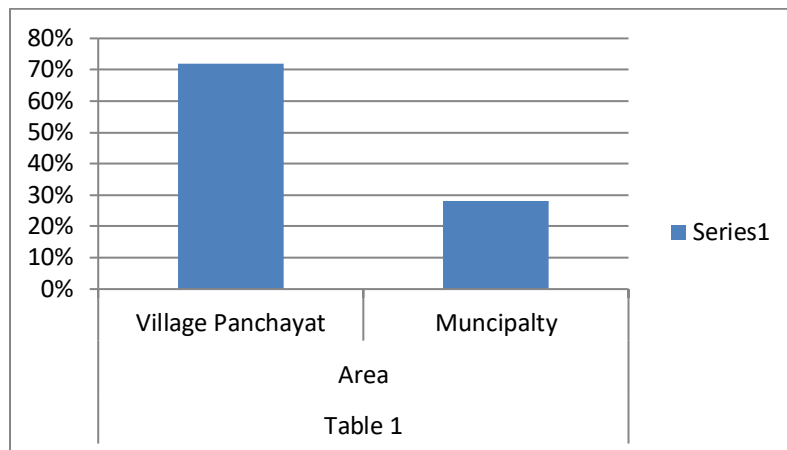
Minority of people responded that they have someone suffered from disease due to polluted water body and open air garbage disposal , about a quarter of them were not aware about such situation in their area and majority responded of people denied of any such incidence due to waste disposal in their area.

For the question on topic of concern regarding waste management in their area, majority people answered various impacts on environment is the topic of concern followed by a section of people saying littering of area is topic of concern.

Less then quarter opinionated that effects on human and animal health is concerning topic while a small minority gave various other reasons.

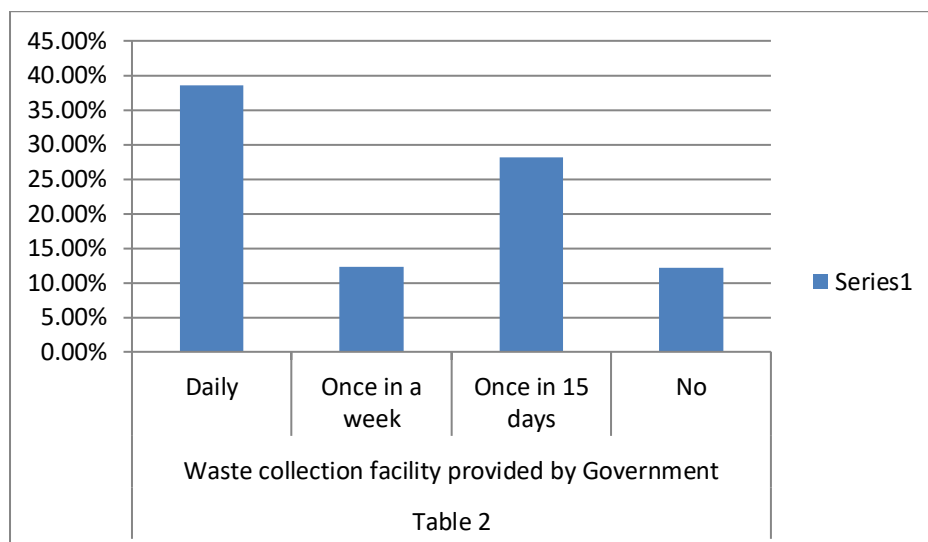
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Table 1	
Area	
Village Panchayat	Municipalty
72%	28%



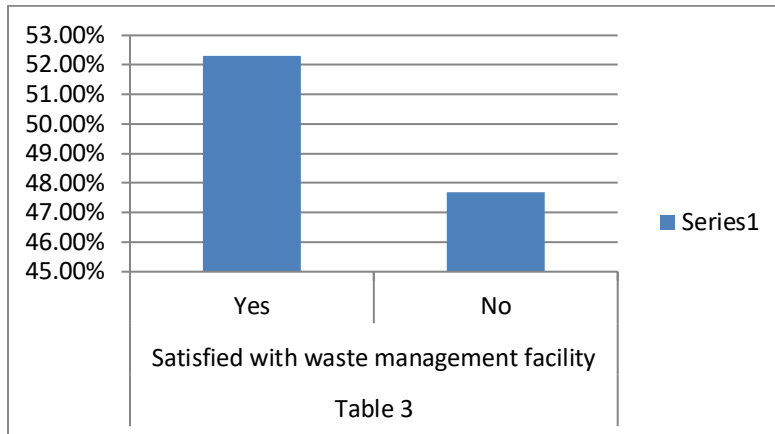
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Table 2			
Waste collection facility provided by Government			
Daily	Once in a week	Once in 15 days	No
38.60%	12.30%	28.10%	12.10%



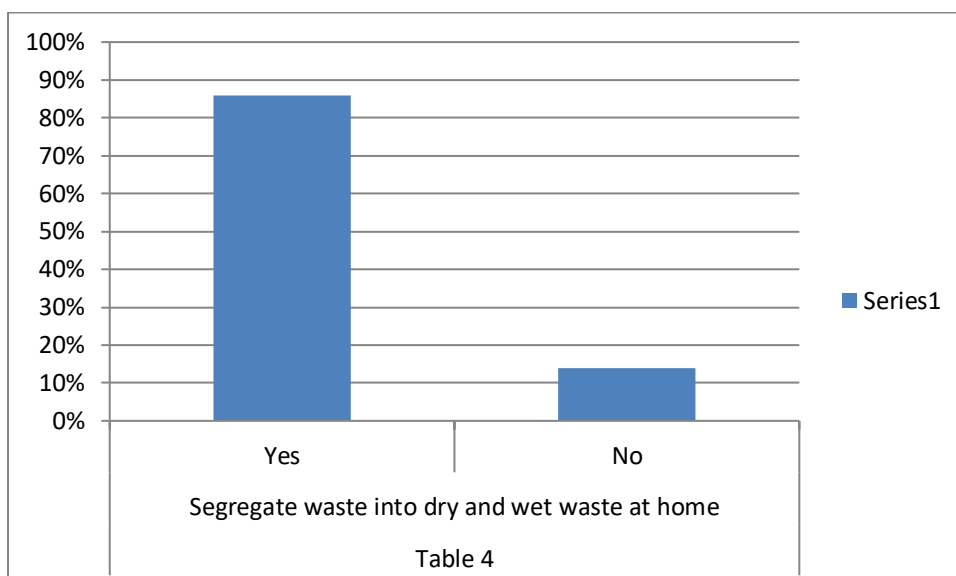
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Table 3	
Satisfied with waste management facility	
Yes	No
52.30%	47.70%



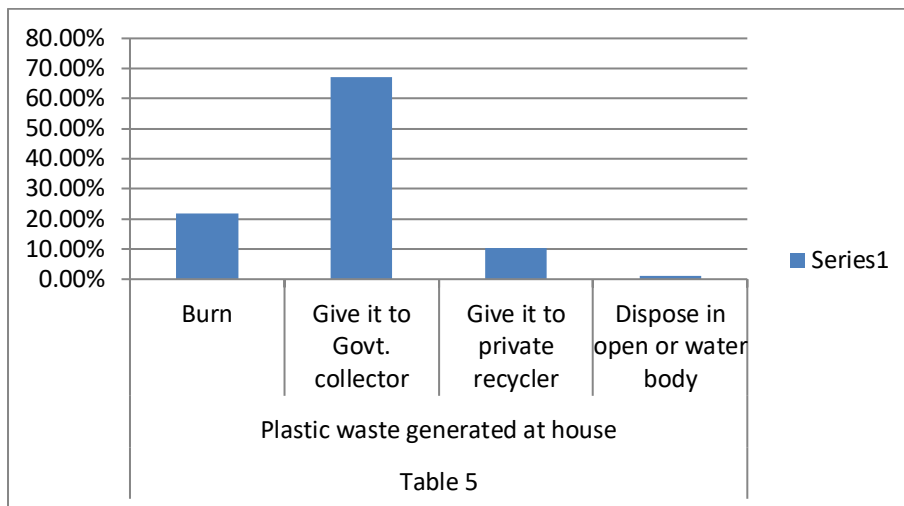
4.

Table 4	
Segregate waste into dry and wet waste at home	
Yes	No
86%	14%



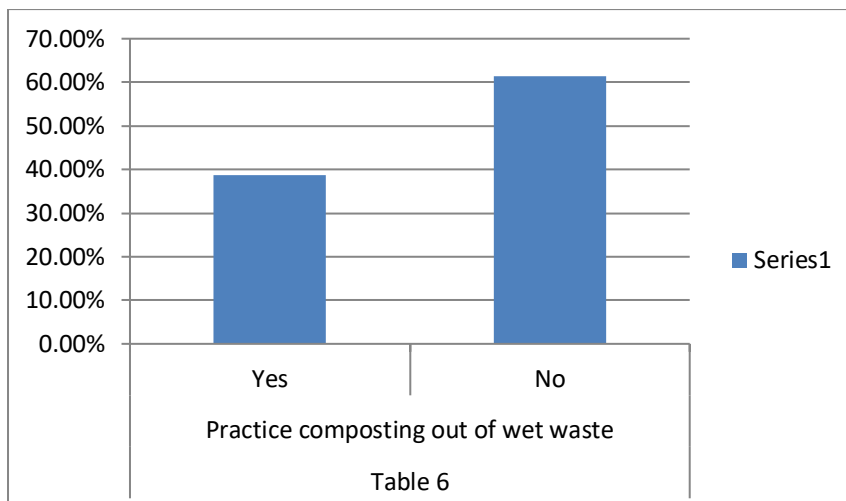
5.

Table 5			
Plastic waste generated at house			
Burn	Give it to Govt. collector	Give it to private recycler	Dispose in open or water body
21.80%	67%	10.50%	1.20%



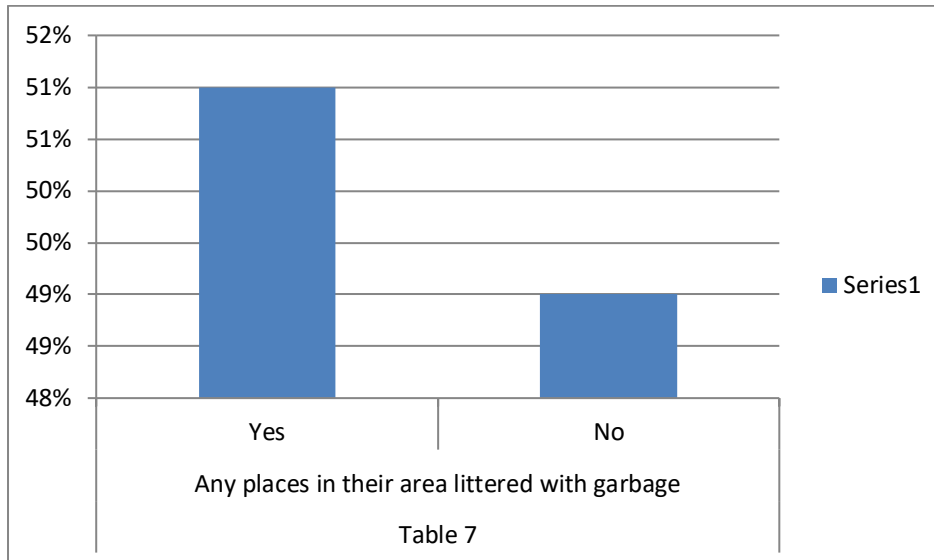
6.

Table 6	
Practice composting out of wet waste	
Yes	No
38.60%	61.40%



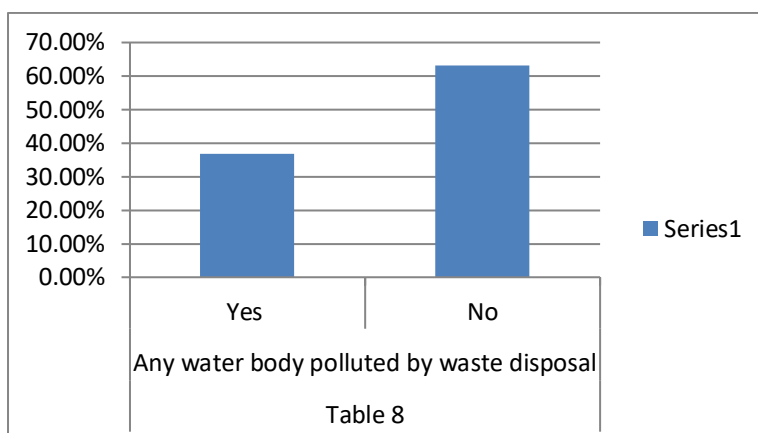
7.

Table 7	
Any places in their area littered with garbage	
Yes	No
51%	49%



8.

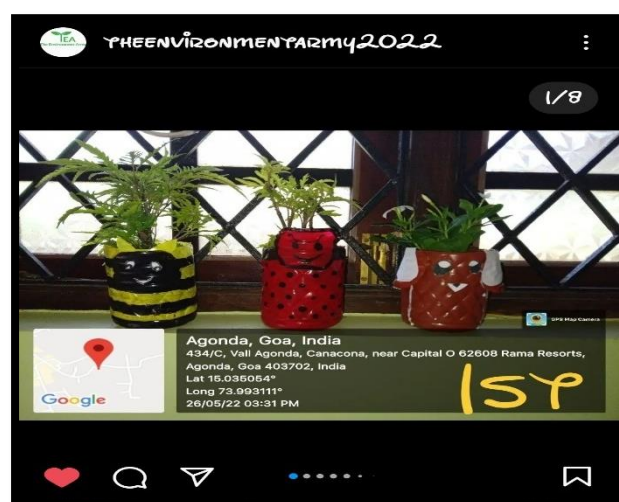
Table 8	
Any water body polluted by waste disposal	
Yes	No
36.80%	63.20%



2.4 Best out of waste competition

In today's world recycling has a very important place. Hence utilizing the best from unwanted things has become a necessity of every human's life. Taking this concept into consideration, the team had organised an online Best out of waste competition wherein participants were asked to carve plastic bottles into animal faced or shaped planters. Little hands and imaginative minds combined in a creative burst of energy during this competition held on 26 May 2022. It was focused on bringing an understanding among the responders about preserving the environment by reusing and recycling waste material as well as to provoke idea of plantation in an animal faced/shaped planters. Total of 7 participants reverted with their creative items. Following are the top 3 winners –

1. Debbie Fernandes, Agonda-Goa
2. Shital Kumar, Cudnem-Goa.
3. Akansha Kushwaha, Usgao – Goa.



CHAPTER 3.

Sanitation and Hygiene

3.1 Survey on menstrual health and hygiene

Objectives:

1. To find out about the status of menstrual health of the women belonging to different age groups.
2. To know about the hygienic menstrual practices among them.
3. To know which is the most preferred product used and why by the women during menstruation.

An online survey was conducted among the women regarding their menstrual health and hygienic practices.

Among the women who responded to the survey, a majority of them belonged to the age group of 20-30 years.

It can be seen from the survey results that a majority of women were lessened about menstruation at young age at their homes.

The survey showed that half of the women got their menarche (first period) at the age between 11-13 years.

Not a single woman responded to the survey who has already experienced menopause.

The survey shows that regular synthetic pads are the most preferred and used product by a majority of women during menstruation. Many other women use other products such as organic sanitary pads and clothes. Very few of the women prefer tampons and menstrual cups during menstruation.

Those who responded saying they use regular synthetic pads, more than half of them use 3-4 pads on an average per day.

About half of the women who use sanitary pads dispose them by burning them. Many other women give those used pads to the government waste collectors along with the regular waste.

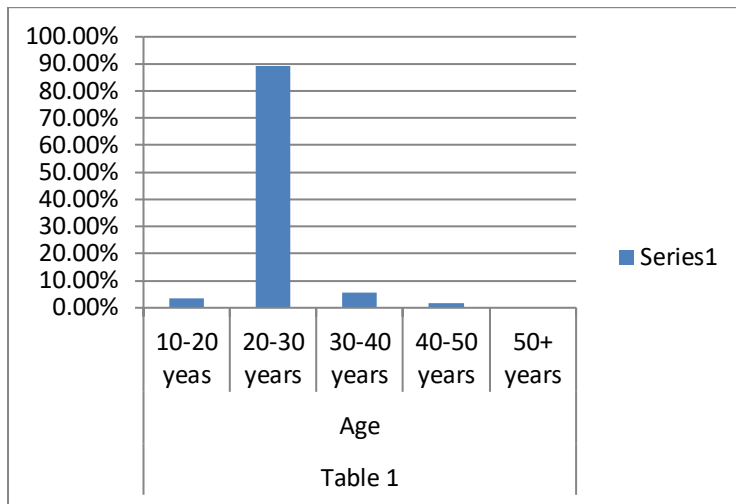
Exactly half of the women who use pads change it after 6-8 hours of use. Whereas almost half of them change it within 6 hours of use.

A majority of women said that they are afraid to use the tampons and menstrual cups when they were asked about the reason for not using these products.

The survey showed that a majority of women experience some or the other sort of pain during their periods.

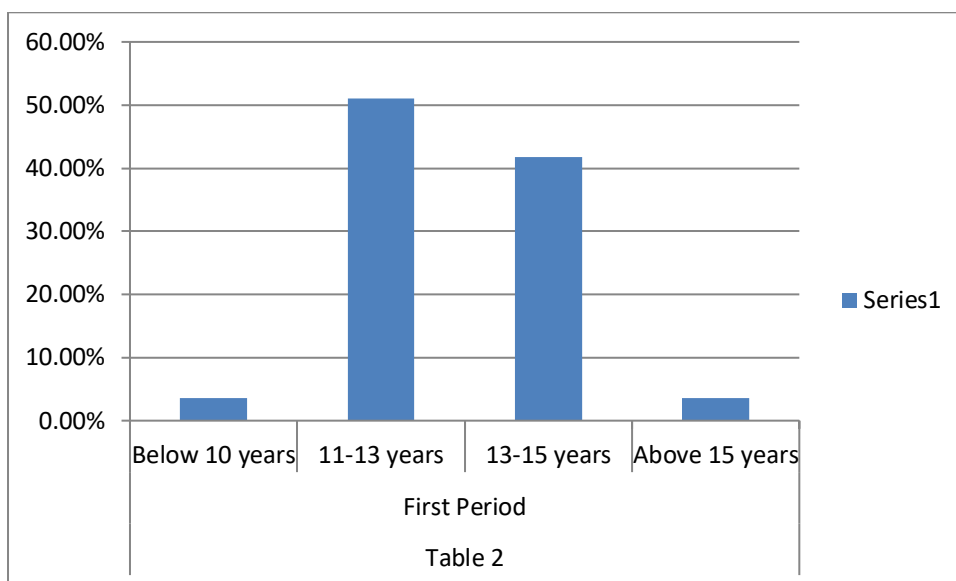
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Table 1				
Age				
10-20 yeas	20-30 years	30-40 years	40-50 years	50+ years
3.60%	89.10%	5.60%	1.80%	



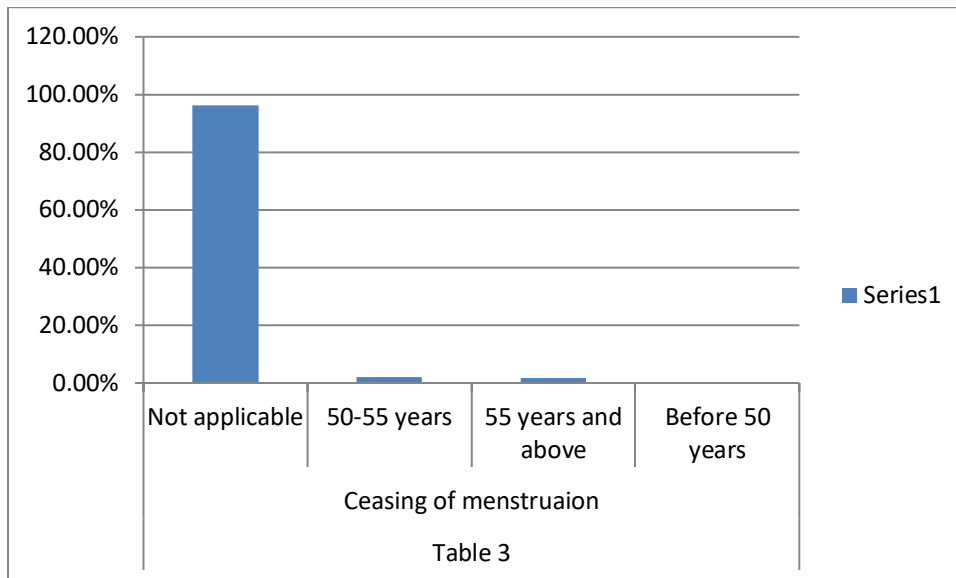
2.

Table 2			
First Period			
Below 10 years	11-13 years	13-15 years	Above 15 years
3.60%	51.10%	41.80%	3.60%



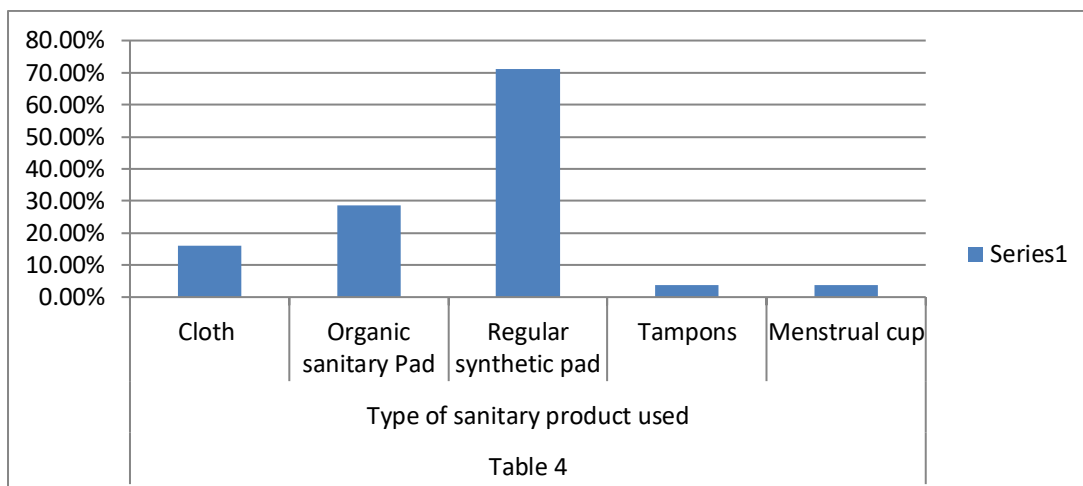
3.

Table 3			
Ceasing of menstruaion			
Not applicable	50-55 years	55 years and above	Before 50 years
96.40%	2%	1.60%	



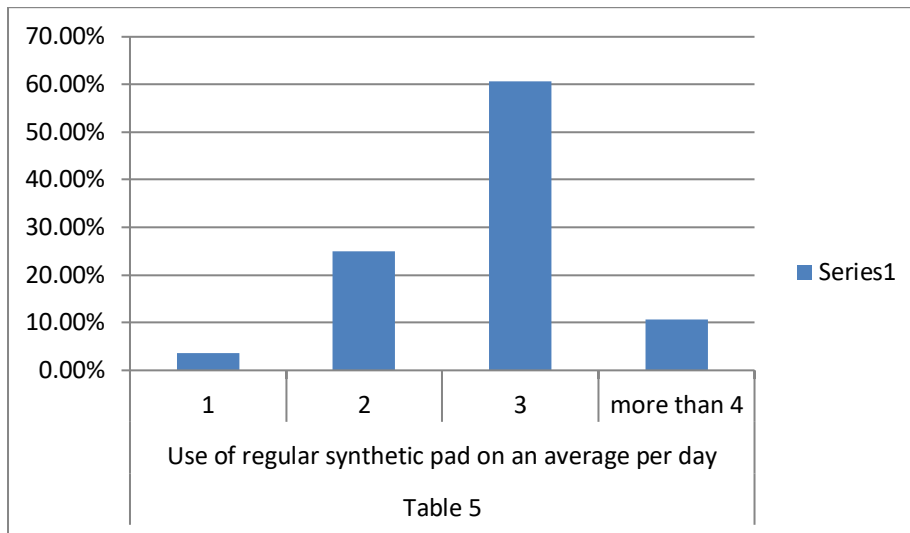
4.

Table 4				
Type of sanitary product used				
Cloth	Organic sanitary Pad	Regular synthetic pad	Tampons	Menstrual cup
16.10%	28.60%	71.10%	3.60%	3.60%



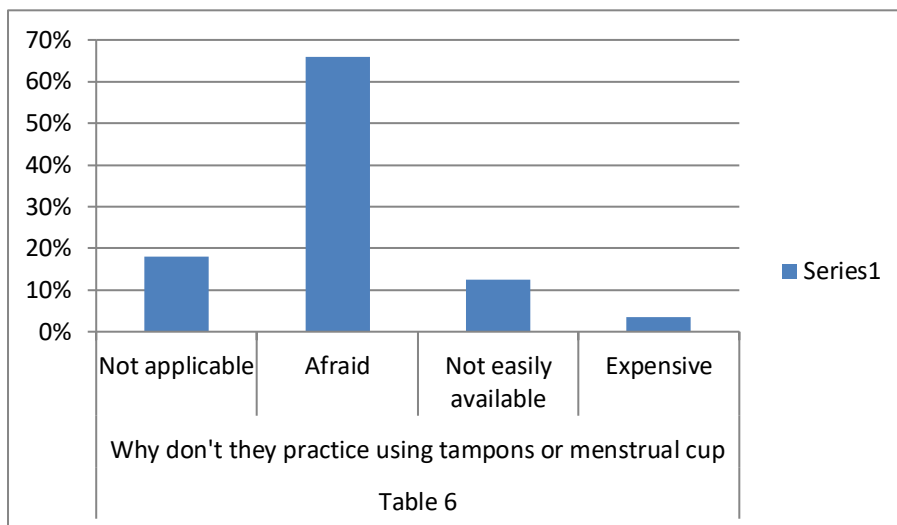
5.

Table 5			
Use of regular synthetic pad on an average per day			
1	2	3	more than 4
3.60%	25%	60.70%	10.70%



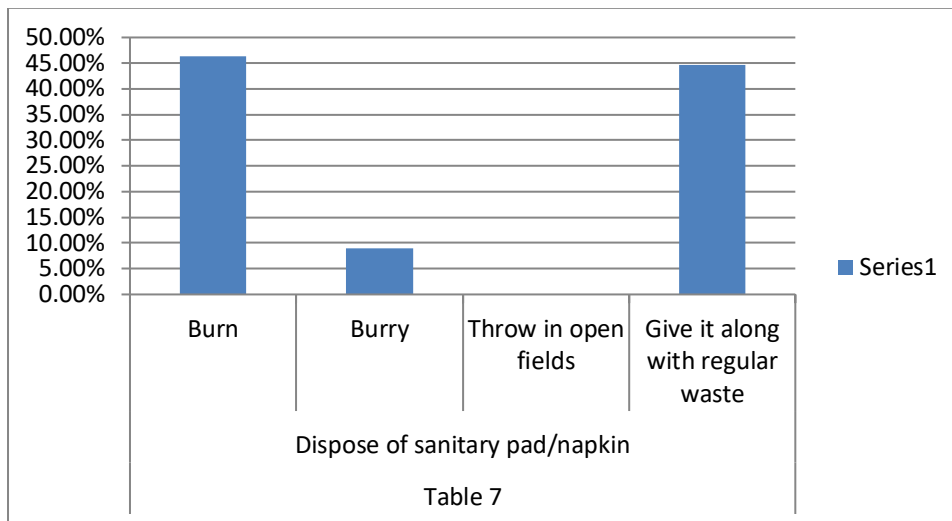
6.

Table 6			
Why don't they practice using tampons or menstrual cup			
Not applicable	Afraid	Not easily available	Expensive
18%	66%	12.50%	3.60%



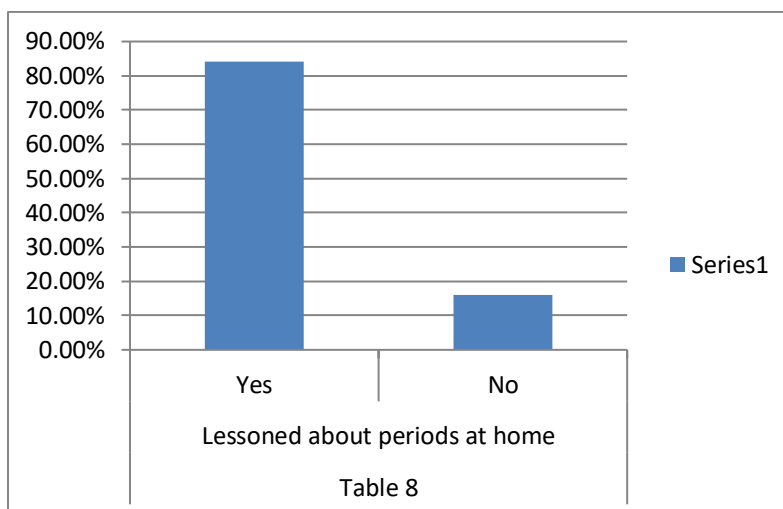
7.

Table 7			
Dispose of sanitary pad/napkin			
Burn	Burrry	Throw in open fields	Give it along with regular waste
46.40%	8.90%		44.60%



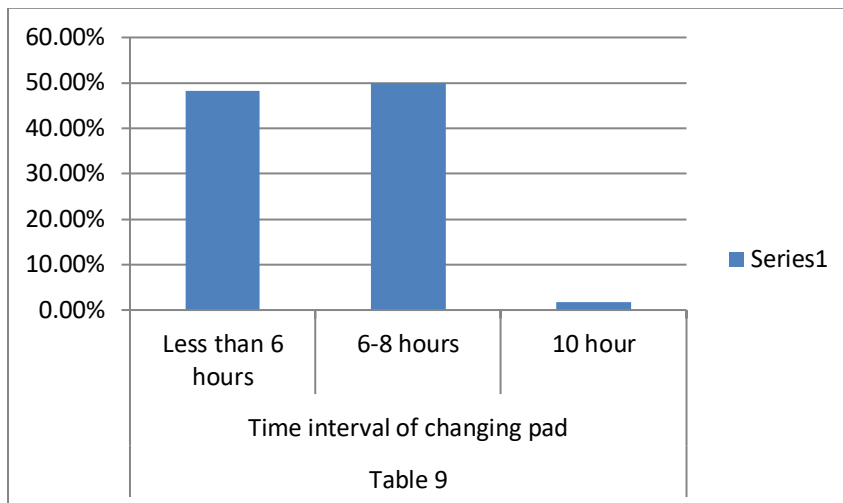
8.

Table 8	
Lessoned about periods at home	
Yes	No
84.10%	15.90%



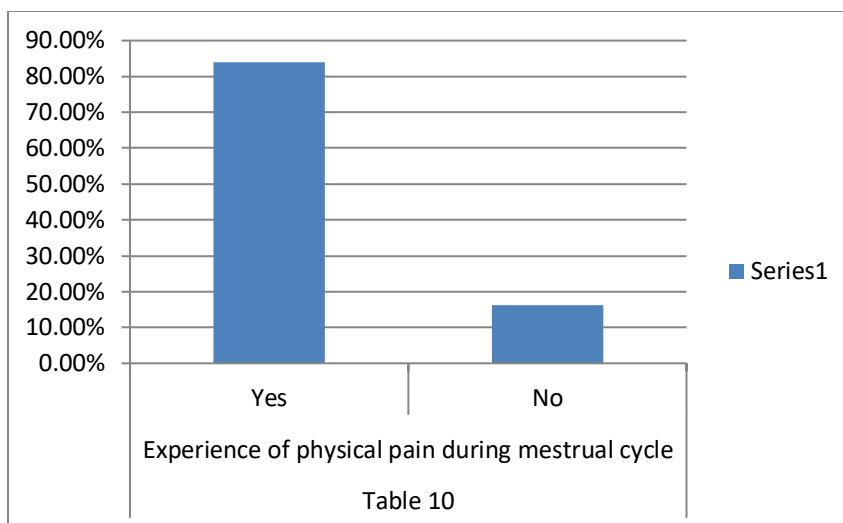
9.

Table 9		
Time interval of changing pad		
Less than 6 hours	6-8 hours	10 hour
48.20%	50%	1.80%



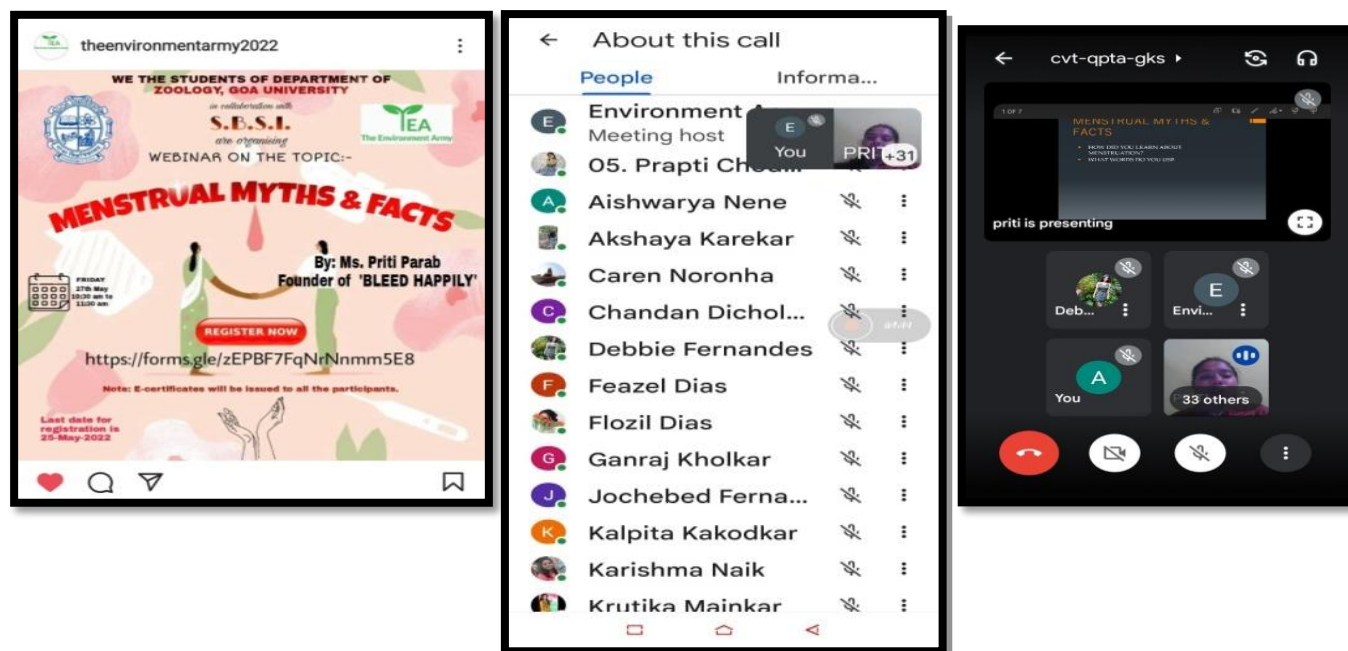
10.

Table 10	
Experience of physical pain during menstrual cycle	
Yes	No
83.90%	16.10%



3.2 Webinar on menstrual myths and facts by Ms. Priti Parab (Founder of Bleed Happily)

A webinar on education about the menstrual myths and facts was organised by the team on 27th May 2022 from 10.30 a.m. to 11.45 a.m., on the occasion of Menstrual Hygiene Day which is observed on 28th May every year. It was focused on enhancing the knowledge of young women regarding the menstrual management and at resolving various menstrual myths aided by actual facts. The speaker for the session was Ms. Priti Parab, who has done her post-graduation in Women's Studies and is the Founder of Bleed happily- initiated to normalise and create awareness about menstrual cycle, initiate campaigns to break stereotypes, reach out to rural women to educate them about same. The speaker shared some unnecessary restrictions laid on the women during menstruation like not allowed to enter kitchen or to have head bath first 3 days etc. and how they should stand against this stereotypical behaviour. The session resulted in lively discussions with participants raising questions, bringing their own experiences and sharing useful bits of information. More than 30 participants attended the session.



3.3 Online fancy dress competition on the theme 'Personal Hygiene'

It was organised with the intention to spread the importance of personal hygiene for healthy living among the people. They were asked to represent any of the sanitizing items such as toothbrush, toothpaste, soaps, handwash etc and give a message in a maximum 1-minute length video. Theme title was not well perceived by the audience – with only one participant for the competition. This participant named Flynn Vaz represented Lifebuoy soap, and was given special prize, appreciating his efforts.



CHAPTER 4.

Webinar attended

4.1 State level webinar on Awareness on waste management organised by SBSI unit of P.E.S's R.S.N College of Arts and Science , farmagudiPonda Goa

This one-hour webinar, which was held on 3rd March 2022, introduced us to the ill effects of dumping waste onto the land or in the water. The resource person for the session, Ms. DeekshaMahale – Swachh Bharat Mission Coordinator, shared with us what are the types of waste and real -world examples of proper ways to segregate and dispose it. She also added how we can make efficient use of social media for creating awareness about the same. She mentioned about the valuable contributions of various institutes all over the Goa towards waste disposal. The session was very interactive and knowledgeable.

