Goa University School of Earth, Ocean and Atmospheric Sciences

Date: 15th September 2021

Note

Sub: International coastal clean-up – NCCR, Ministry of Earth Sciences, GOI Initiative. Ref: Enclosed communication received from NCCR, NIOT campus, Chennai

- Placed in the file communication received from Dr. Pravakar Mishra, Scientist F & Group Head, Marine Litter & Microplastic Program, NCCR, Chennai, Government of India informing about conduct of Nationwide coastal clean-up campaign to be conducted on 18th September 2021 or on a suitable day.
- 2. In view of the communication and guidelines received, it is proposed to conduct beach clean-up drive at Bambolim beach with the involvement of the coastal stakeholders, faculty, students & supporting staff of SEOAS on 24th September 2021 from 10 am to 12 noon. A certificate will be issued to all the participating students signed by co-ordinator and Dean, SEOAS.
- 3. The financial assistance for the conduct of the proposed beach clean-up drive is Rs 60,000/- to meet various expenses as listed in the enclosed letter. However, the NCCR Chennai has clarified that there is no provision to give advance and the spent amount will be reimbursed after submitting the vouchers, bills, data and a short report on the action.
- 4. The above program will be co-ordinated by Dr. Sangeeta Naik, Assistant Professor, SEOAS.
- 5. In view of the above, it is requested that an approval to conduct the beach Clean-up drive may kindly be accorded and an advance of Rs. 60,000/- may be released to Dr. Sangeeta Naik, in order to meet the expenditure and conduct the program successfully.

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Dr. Sangeeta Naik Asst. Prof.

Registrar

Vice Chancellor

Do not write outside this box

NCCR SCHOOL OF EARTH, OCEAN & ATMOSPHERIC SCIENCES, GOA UNIVERSITY

CERTIFICATE OF PARTICIPATIO

This is to certify that Mr/Ms/Dr.______ participated in the International Coastal Cleanup Day Program School of Earth, Ocean & Atmospheric Sciences (SEOAS), Goa Unive collaboration with National Centre for Coastal Research (NCCR), on 24-09-2021 at Miramar Beach, Goa.

Date : 24-09-2021 Place : Goa University Dr. Sangeeta Naik Organizer, SEOAS Prof. C. U. River Cer Dean, SEOAS

NCCR SCHOOL OF EARTH, OCEAN & REMOSPHERIC SCIENCES, GOR UNIVERSITY

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This is to certify that Mr/Ms/Dr. participated in the International Coastal Cleanup Day Program organized by School of Earth, Ocean & Atmospheric Sciences (SEOAS), Goa University, Goa in collaboration with National Centre for Coastal Research (NCCR), Chennai held on 24-09-2021 at Miramar Beach, Goa.

Date : 24-09-2021 Place : Goa University Dr. Sangeeta Naik Organizer, SEOAS Prof. C. U. Rivonker Dean, SEOAS

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Date : 24-09-2021 Place : Goa University Dr. Sangeeta Naik Organizer, SEOAS Prof. C. U. Rivonker Dean, SEOAS

International Coastal Cleanup (ICC) Day 2021 Miramar Beach, Goa



24th September 2021

Coordinator: Dr. Sangeeta M. Naik Assistant Professor School of Earth, Ocean and Atmospheric Sciences Goa University, Goa

National Centre for Coastal Research Ministry of Earth Sciences

ICC Day 2021 Questionnaire

Date: 24th September 2021 Time: 2:00 pm

i.	Name of the coordinator	Dr. Sangeeta Naik	
		+91 9765579699	
		sangeeta.naik@unigoa.ac.in	
ii.	Name of the Beach and state belonging to	Miramar Beach, Goa	
iii.	The beach is belonging to	Urban beaches: $[]$	
iv.	Name of the Institute	Goa University, Goa	
v.	Coordinates	Lat.: 15° 28' 34.43" Long.: 73° 48' 27.95"	
vi.	Area of beach cleaned	Length (meter) : 500 Width (meter): 80	
vii.	Beach type	Sandy	
viii.	Beach Ends with	Vegetation	
ix.	Are there any food/ drink / or any other shops on the beach	No	
х.	Is there are a harbour/fishing jetty close to the beach	No	
xi.	Is there a river/creek close to the beach	Yes, Mandovi river/estuary	
xii.	Is there a fishing village close to the beach	Yes	
xiii.	How often is the beach cleaned	Not cleaned	
xiv.	The method used for cleaning	Manual	
XV.	Authority responsible for cleaning	Corporation of the City of Panjim (CCP)	

Miramar beach cleanup report

Goa is a state on the west coast of India along the Arabian Sea with a coastline of 105 km. It is one of the most preferred tourist destinations in the country. Most of the recreational and leisure activities in Goa occur close to the beaches. This has a direct impact on the health and cleanliness of the beach. In addition, the major section of the population is settled near the coastal areas which influence the health of the beaches directly or indirectly. Miramar beach is situated around 3km from Panjim which is the capital city of Goa and near the mouth of the Mandovi estuary. It is highly influenced by anthropogenic activities as it is a region of densely populated areas with a lot of cultural events happening throughout the year. This beach has a prominent sand dune belt and is capped by the beach vegetation.

An International Coastal Cleanup (ICC) day program was organized by the School of Earth, Ocean and Atmospheric Sciences (SEOAS), Goa University (GU) at Miramar beach, Goa on 24th September 2021. This event was funded by National Centre for Coastal Research (NCCR), Ministry of Earth Sciences (MoES), Chennai. This initiative was part of the Ocean Conservancy, Washington and Swachh Sagar campaign, India. It was the first time NCCR had collaborated with GU for such a cleanup activity. A total of 107 participants including students and staff of SEOAS, GU had registered and participated in this program (Fig. 1).



Fig. 1: Initial gathering before starting the cleanup drive at Miramar beach.

A presurvey conducted before the main program revealed that the main entry point, near the Miramar circle, to the Miramar beach is maintained regularly by the Corporation of the city of Panaji (CCP). However, a section of the same beach (approximately 1 km away from the Miramar beach circle) opposite Goa Science Centre & Planetarium was not maintained. Therefore, it was chosen for this cleanliness drive. A section of the beach was demarcated into two zones: Zone 1 and Zone 2 for the cleanup activity and the length and breadth of the beach was measured (Fig. 2).



Fig. 2: Location of coastal cleanup drive, Miramar beach (Image Courtesy: Google Earth)

On the day of the cleanliness drive, all the participants left the GU campus and gathered at the Miramar beach at around 2:00 pm. After reaching this point, all the participants were provided with face masks, gloves, T-shirts, sanitiser and were informed about the COVID and first-aid safety measures. The cleanup drive was inaugurated at 3:00 pm by Dr. Aftab A.S. Can, Assistant Professor, SEOAS who briefed the gathering about the initiative and the significance of such drives (Fig. 3 and 4). Next, the participants were divided into groups and the marine litter collection began (Fig. 5 and 6). It is clearly evident in the pictures that this section of Miramar beach was not regularly maintained by CCP.



Fig. 3: Inauguration of the Miramar beach cleanup program.



Fig. 4: Briefing the participants regarding the cleanup drive.



Fig. 5: Marine litter collection from the Miramar beach.



Fig. 6: Marine litter collection from the Miramar beach.

Simultaneously, the waste collected was brought to a common segregation point. The details of the number of items and weight of each component are given in Table 1. The marine litter collected comprised majorly of plastic (59%) and glass (14%). The other waste which was collected included foam plastic, metals, rubber, medical waste, papers, clothes, wood and coconut shells (Fig. 7, 8, 9).

Category	Description	Number of items	Weight (kg)
Plastic	Plastic bottle	450	53
	Plastic cups	180	6
	Food containers (box)	240	18
	Plastic rope	120	28
	Fishing net	15	68
	Plastic bags	550	262
	Mix plastic	250	14
Glass	Liquor glass bottle	230	60
	Medicine glass bottle	60	15
	Light bulbs	80	15
	Other glass items	50	20
Foam plastics	Foam (Thermocol)	150	5
Metal	Tin cans & others	60	3
Paper	Cardboard boxes & others	125	7
Clothes	Face mask	120	2
	Other clothes	180	56
Wood	Wood (others)	80	54
Rubber	Footwear	120	18
Others	Medical waste (Diapers & sanitary	350	41
	pads)		
	Coconut shells	200	23
Total	1	4170	768

 Table 1: ICC Day 2021 datasheet

Total area = Length * width = $500m * 80m = 40,000 m^2$

Total number of litter items collected = 4170

Total weight of litter items collected = 768 kg



Fig. 7: Types of marine litter collected from the Miramar beach cleanup program.



Fig 8: Types of plastic collected from the Miramar beach cleanup program.



Fig 9: Types of glass collected from the Miramar beach cleanup program.



Fig 10: Segregation of the marine litter collected at Miramar beach.



Fig. 11: Types of marine litter collected at Miramar beach.



Fig. 12: Total marine litter collected and loaded for disposal.



Fig. 13: Condition of the beach, before and after the cleanup drive.

Each segregated marine litter type was weighed and filled in bags (Fig. 10, 11). A total of 768 kg of marine litter (both biodegradable and non-biodegradable) was collected and sent for disposal (Fig. 12). The difference after cleanup is clearly visible in Fig. 13 which shows the significance of such cleanup drives. In the end, an awareness campaign was initiated by Prof. C.U. Rivonker, Dean, SEOAS, GU. The locals and tourists who had gathered on the beach were made aware of the impact of waste menace to the marine ecosystem and its implications on human beings (Fig. 14). The students and staff of SEOAS, GU participated in this cleanup drive enthusiastically and made it a grand success.



Fig. 14: Awareness campaign organized after the cleanup.



Fig. 15: Faculties of SEOAS at the cleanup drive.

Acknowledgement

I express my gratitude to Dr. M.V. Ramana Murthy, Director, NCCR for making this initiative of beach cleaning activity with Goa University. Special thanks to NCCR and MoES for funding this cleanup activity. I also thank Dr. Pravakar Mishra for giving SEOAS, GU the responsibility and opportunity to conduct this event. I thank Dr. Aftab A.S. Can who helped in choosing the cleanup site and presurvey visit. My humble thanks to Mr. Mahesh Mayekar, Dr. Mahesh Nasnodkar and Dr. Varada S. Damare for their support in the execution of the plan. A special thanks to Mr. Shailesh Kamat and the Estate division of GU for helping with most of the consumables for this event and arranging vehicles for this event. Thanks to Dr. Chanda for heading the segregation team. My thanks and appreciation to Ruta for designing the logo of T-shirts and to Ayman for being the lead photographer of the event, both students of Marine Microbiology. Thanks to all the faculties and students and office staff of SEOAS who have participated in this cleanup activity and made it a grand success. My heartfelt gratitude to Dr. H.B. Menon, VC, GU and Dr. C.U. Rivonker, Dean, SEOAS for continuous encouragement in taking up this activity.

Media Coverage

1) https://epaper.heraldgoa.in/viewpage.php?edition=oHeraldo&edid=OHERALDO_GO A&date=2021-10-08&pn=1 (OHearaldo, Page 10)



2) https://www.youtube.com/watch?v=7hSUmf5kSig



Dr. Sangeeta M. Naik Assistant Professor School of Earth, Ocean and Atmospheric Sciences Goa University, Goa































