

MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT, VIETNAM  
VIETNAM INSTITUTE OF SEAS AND ISLANDS



# RESULTS OF THE TNA STUDY AND CHALLENGES OF MICROPLASTIC ANALYSIS IN VIETNAM

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Plastic use increase from **3.8 kg/capita** in 1990 (MONRE 2020) to **54 kg/capita** in 2018 (NSOE - MONRE, 2021).

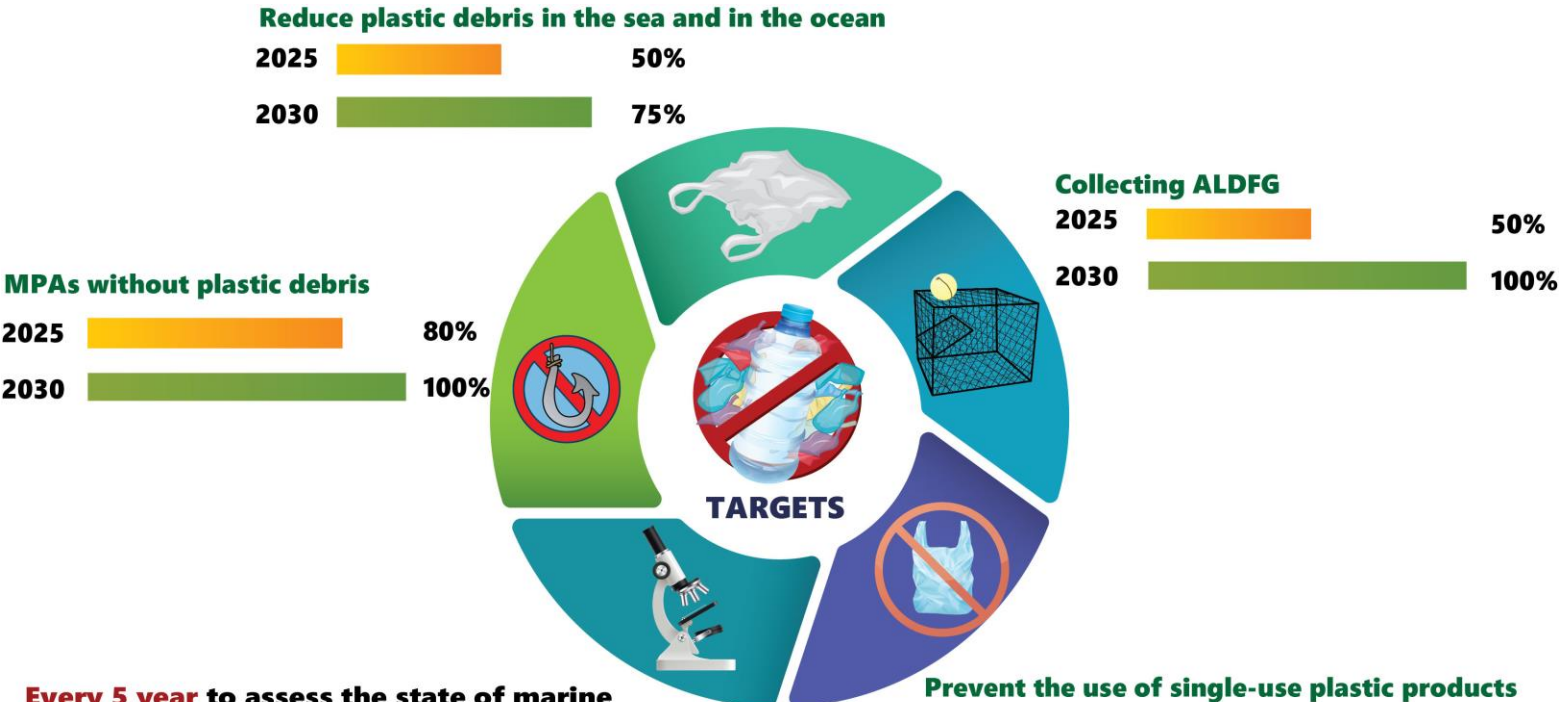
Only about **15%** of the country's plastic waste is recycled, and more than half the equivalent of **3.6 MT/year** is mismanaged (NSOE - MONRE, 2021)

Weaknesses in solid waste management have led to Vietnam being **one of the main contributors** to plastic waste ending up in oceans (Jambeck et al., 2015).

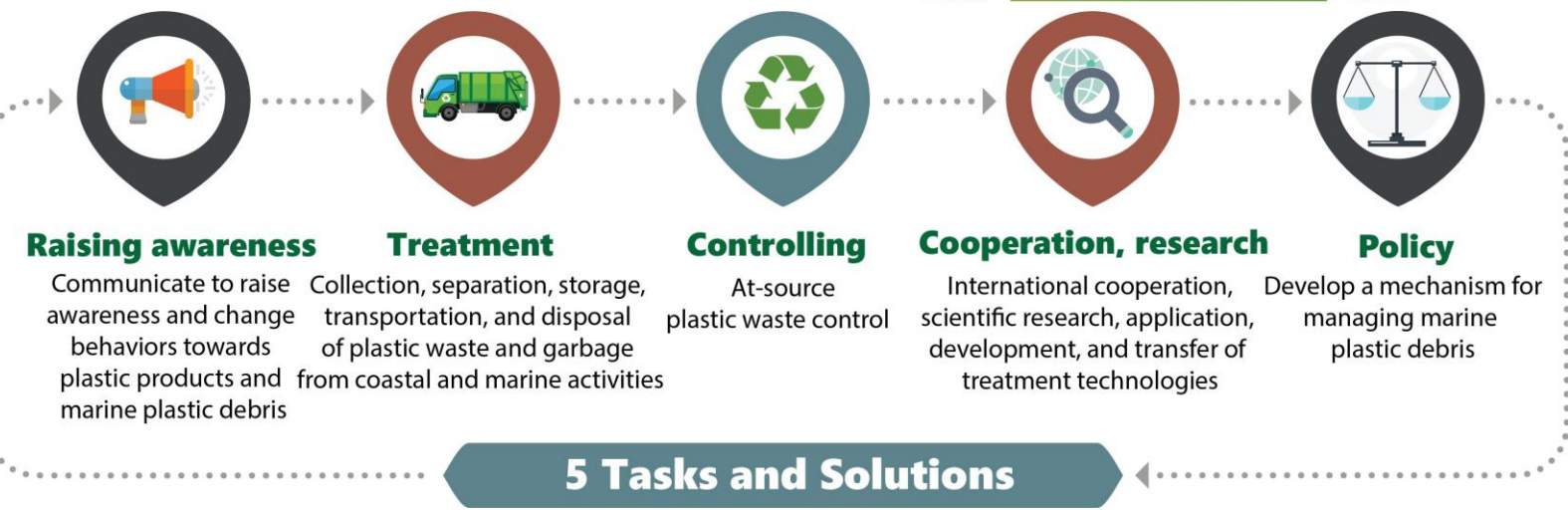
## PLASTICS POLLUTION IN VIETNAM



# MANAGEMENT OF MARINE PLASTIC DEBRIS IN VIETNAM



Every 5 year to assess the state of marine plastic debris in 11 main river basins and 12 insular districts



**Scientific evidence**

Need to standardize the methods and protocols used for conducting microplastic assessment in the environment, recommendations on standardization and future TNA

# METHODOLOGY



**IGES**  
Institute for Global  
Environmental Strategies

**CCET**  
IGES Centre Collaborating with  
UNEP on Environmental Technologies



Institut de Recherche  
pour le Développement  
FRANCE

French National Research Institute for Sustainable Development



1

December, 2021



## DESIGN THE SURVEY

68 questions in seven sections were devised to gather information of organization information, protocols used for collecting and analyzing microplastics

2

February to May, 2022



## DATA COLLECTION

Online survey was sent directly to the colleagues in relevant organizations of our professional network via email

3

June to August, 2022

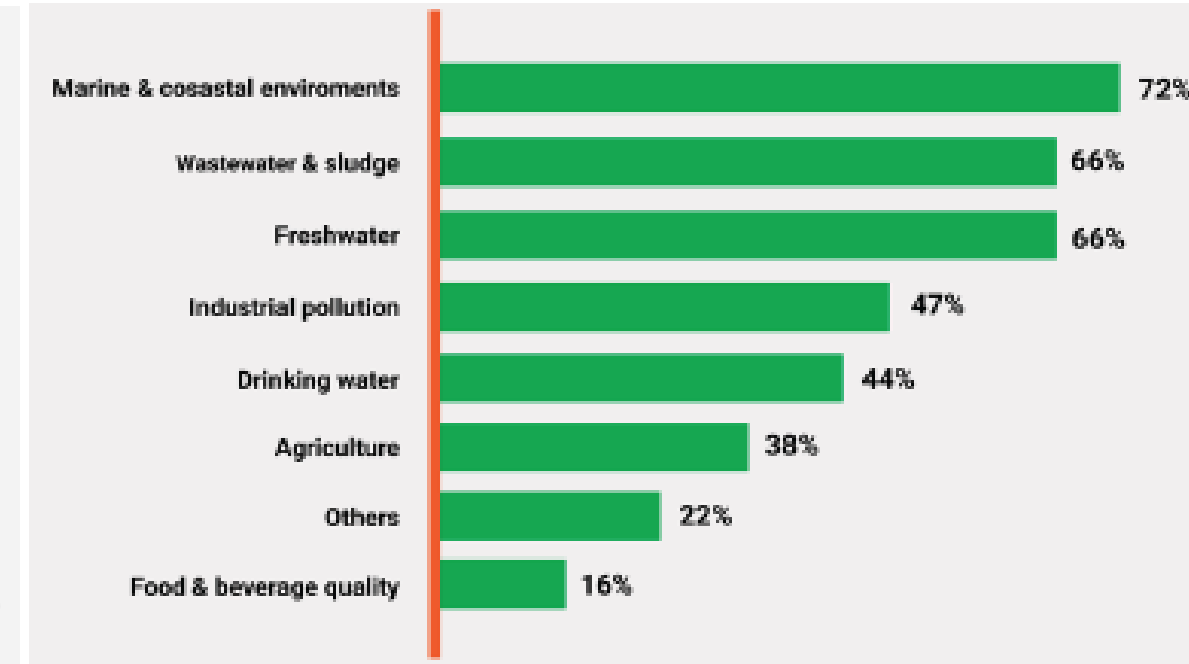
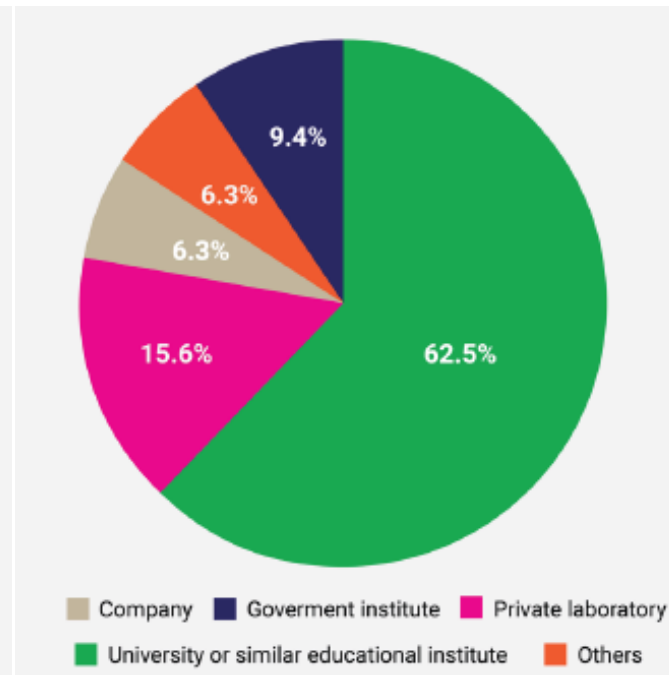
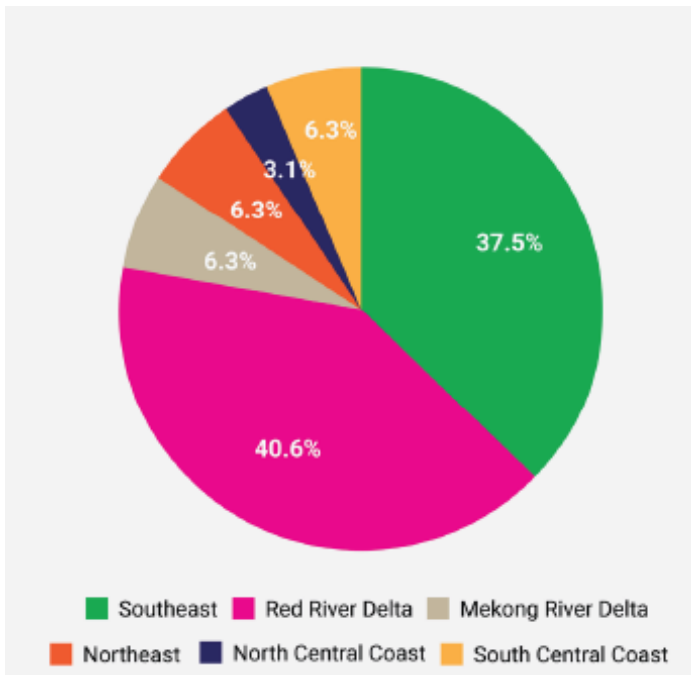


## DATA ANALYSIS AND VALIDATION

Data were compiled and analyzed using Microsoft Excel  
During the data analysis, the respondents were contacted for any information that was omitted or insufficient, for clarification

# RESULTS ANALYSIS AND DISCUSSIONS

## I. Organization background

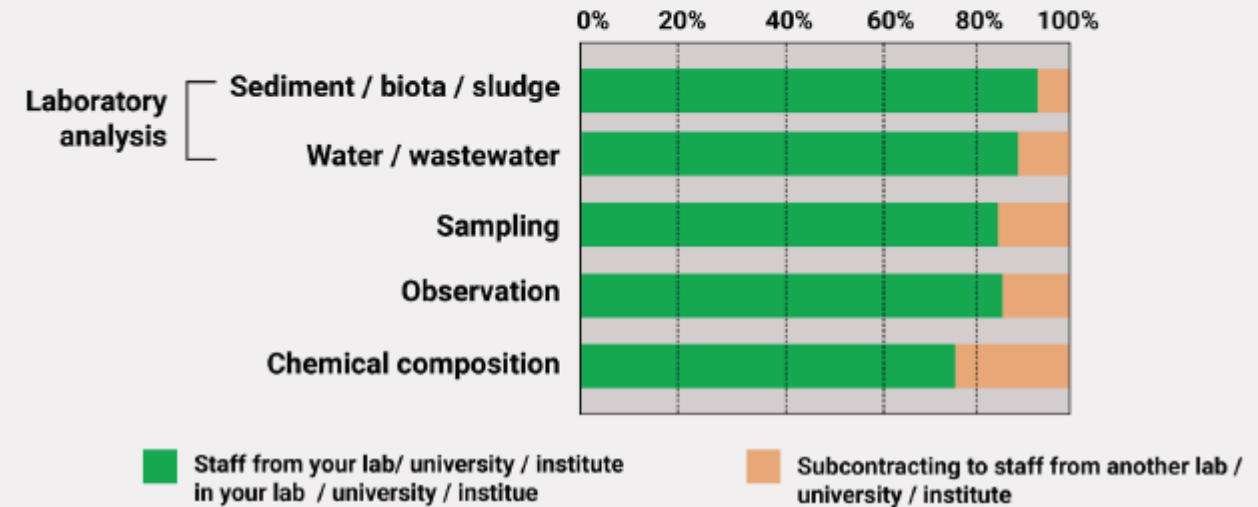
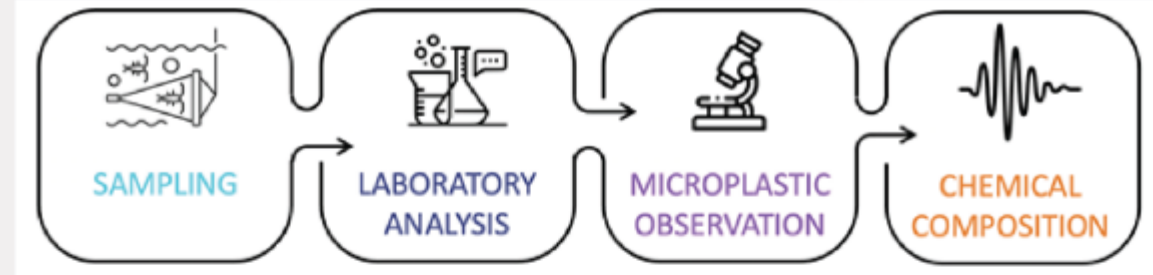


- Organizations responded in all the regions with most distributed in the Red River Delta, and the Southeast, followed by the Mekong River Delta, Northeast and South-central coast
- The respondent/organizations focused mainly on marine and coastal environments, freshwater, wastewater and sludge

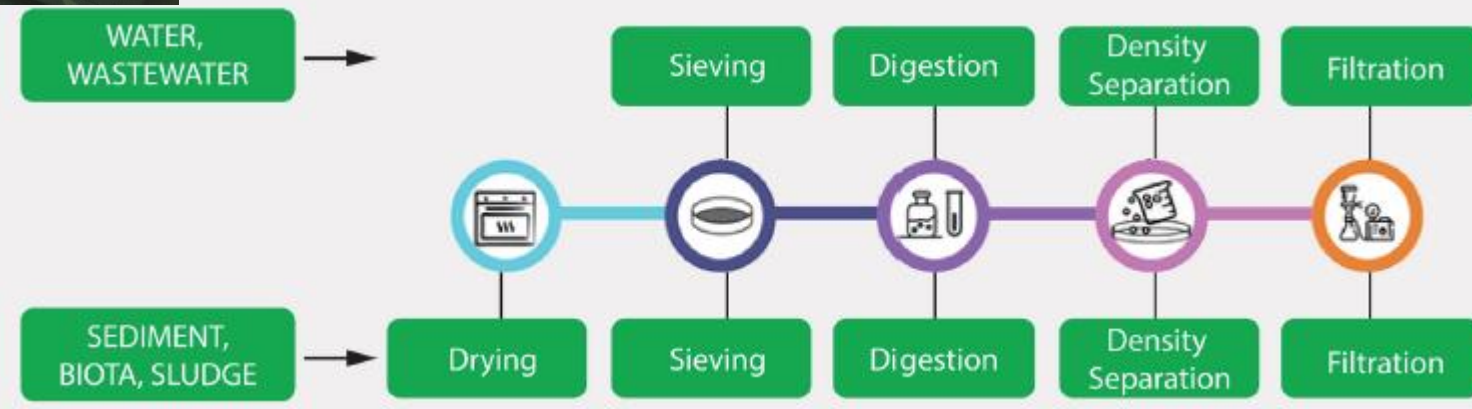


# RESULTS ANALYSIS AND DISCUSSIONS

## II. Performance of microplastic research

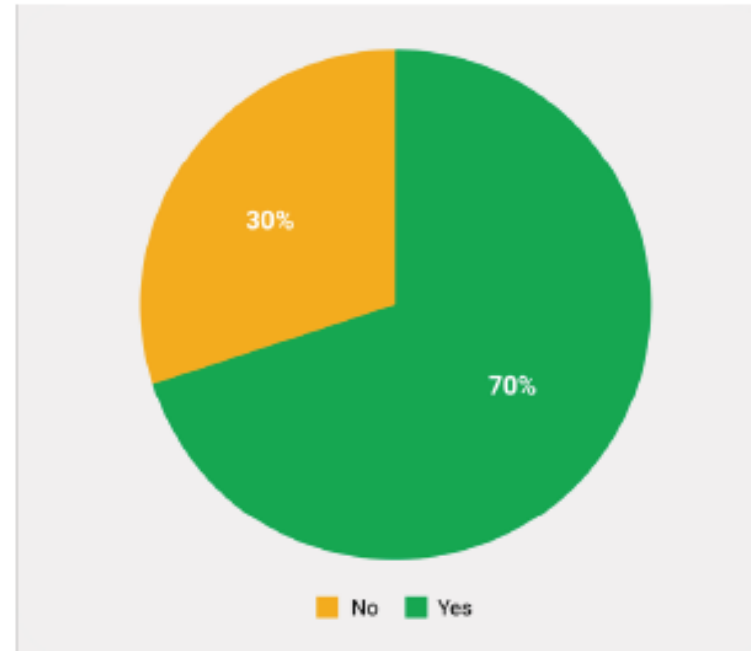
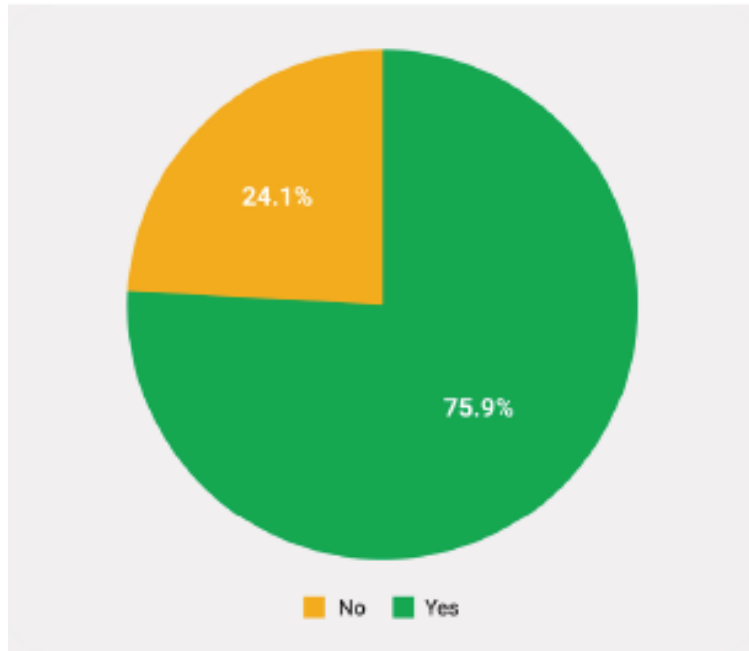


- The survey results demonstrate a level of inconsistency in the analysis of microplastics across all compartments in all aspects of research in microplastics, i.e., sampling, fundamental laboratory steps, microplastic observation, and test of chemical composition of microplastics



# RESULTS ANALYSIS AND DISCUSSIONS

## III. Capacity of organizations in microplastic research

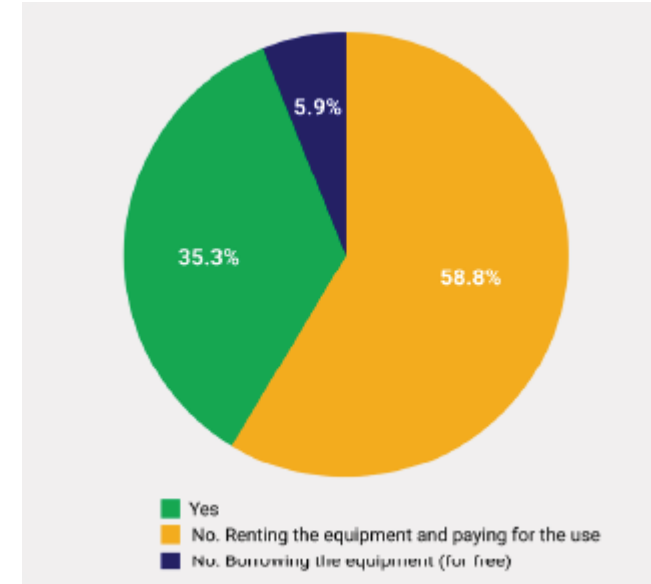


- There were 65% of the organizations carrying out microplastic research, mostly come from leading universities and institutes in Vietnam
- The rates for publishing/not publishing peer-reviewed international papers were 24%/76%. The rates for national papers were 30%/70%. This low publishing rate demonstrates that most organizations lacked the capacity in microplastic research

# RESULTS ANALYSIS AND DISCUSSIONS

## IV. Training and facility need

- Among 15 answers, only 35% of the organizations owned the equipment for testing the microplastic polymer types.
- The remaining organizations rented or borrowed equipment.
- Most of the organizations that could analyze the polymer types of microplastics were found in large cities of Vietnam, such as Ha Noi, HCMC, and Da Nang city.
- Preparing the facilities and human resources needed to strengthen the capacity of Vietnam's organizations to conduct research in microplastics is an important task







## Challenges of microplastic analysis in Vietnam

- The methods used in microplastic analysis in Vietnam are not standardized and different organizations use different protocols in their sampling, laboratory analysis, microplastic observation, and chemical composition tests.
- Microplastic research mainly takes place in leading universities and institutes in large cities such as Ha Noi, Ho Chi Minh, and Da Nang city.
- The capacity for publishing research results in international and national journals by these organizations was comparatively low.
- The unavailability of necessary equipment is another constrain that needs to be addressed.

# CONCLUSIONS AND RECOMMENDATIONS

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## Recommendations for capacity building

- Standardizing the full set of protocols for sampling and analyzing microplastics in the different compartments.
- Provision of support funding and laboratory equipment for universities and institutes in the regions that lack strong research groups, such as the Mekong River Delta, the northeast, northcentral coast, and south-central coast.



## Training program

- Organizing training programs to strengthen the ability of staff from various laboratories in these universities and institutes to be able to conduct the required research and publish the scientific:
  1. Fundamentals of the plastic and microplastic pollution issue
  2. Microplastic sampling and analysis including i) lessons on worldwide and Vietnamese protocols with emphasis on the strengths and weaknesses of each protocol and ii) field and laboratory practice on microplastic sampling and analysis
  3. Determination of the polymer types of microplastics: theory and practice
  4. Writing for scientific publication



An underwater scene featuring a large sea turtle swimming towards the viewer in the center. In the background, two divers are visible, one slightly above and to the right of the turtle, and another further back and to the right. The water is clear blue, and the seabed is covered in diverse coral reefs and marine plants. The text "THANK YOU FOR YOUR ATTENTION" is overlaid in a semi-transparent white banner across the middle of the image.

**THANK YOU FOR YOUR ATTENTION**