

FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

Presented by the FIG Working Week 2019,
April 22-26, 2019 in Hanoi, Vietnam

"Geospatial Information for a Smarter Life
and Environmental Resilience"



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Field survey Experiences from Research on “Quantifying flows of plastic and other debris from land-land based sources to the ocean ” in Vietnam

Nguyen Thi Thu Trang,
CSIRO team (Britta Denise Hardesty, TJ Lawson et al)

*And colleagues, volunteers from Centre for Supporting
Green Development – GreenHub (VNGO under VUSTA)*

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Introduction

- “The life started from ocean to land,” one converse process from land to ocean: plastic pollution;
- The first experience in Vietnam to join the world’s largest marine pollution survey
- CSIRO in Australia found that the marine debris is mostly disposed locally and come through three mechanisms; the tourist on the beach, stormwater and coastal run-off in surrounding area, and the transportation from marine system (Willis et al., 2017).
- **Vietnam lack of data and situation on plastic pollution (MONRE, 2018)**
- CSIRO – the Network of Pacific Asia OSEAN on marine litter-Vietnam – GreenHub as hub for international cooperation

Global plastic pollution survey

OCEANS AND ATMOSPHERE
WWW.CSIRO.AU

“
This new global project will provide the most accurate baseline of plastic leakage to date, from land to the marine environment

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Vietnam – 4th countries ranked by mass of mismanaged plastic waste (Jenna R. Jambeck 2015)

ICC survey and applying Citizen Science in Clean-ups



CSIRO survey: **Science approach**

Objective's in Vietnam:

- With statistical models to produce maps that highlight the plumes of plastic emerging from urban centres and nearby areas. The results from research will then estimate the amount of plastic from the plumes that is lost to the open ocean or redeposited back to land
- Capacity Building for Vietnam be able to improve their analytical skills in terms of measuring, analysing, and mapping plastic pollution.

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Research Design for Vietnam (CSIRO; inputs from GreenHub)

Preparation: Training in Korean for GreenHub team 2017;
Recruitment: Volunteers as Data collectors; Tools, equipments
Letter from governments to support the

Partners Engagement:
IUCN; WWF; Government-VASI;
2 University, Research Institute-
IMER

Training

Testing methods
in Field

Field Surveys

Findings and
Sharing,
Advocate

First Year-----Second Year

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Actual survey sites

Coastal: 24 sites

Inland: 26 sites

River: 29 sites

79 sites



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Data collections

- By item and material type
- Whole and fragment
- Count
- Size



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Information and Training Course (1)

- Recruitment volunteers as data collectors: a month announcement in advance; 2 interviews; 250 applicants; Selection 30 for training;
- On 2nd - 4th May 2018, GreenHub has organized a training course to equip them with the overviews of plastic pollution and the methodology to conduct marine debris survey.
- One session for partners engagement: IUCN, WWF, Hanoi Nature Resource and Environments, government VASI to share information
- Training in Hanoi and organized by English



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Information and Training Course (2)

Lesson Learn:

- Volunteers from various schools, backgrounds => commitment from volunteers/universities
- Select of leaders of volunteers; active participation by observations from CSIRO and GreenHub
- Field survey plan with groups leader during training;
- Effectively supports from experts and coordinators (CSIRO and GreenHub)
- Integrate Environmental Education for youths, not just data collectors
- Visual training materials



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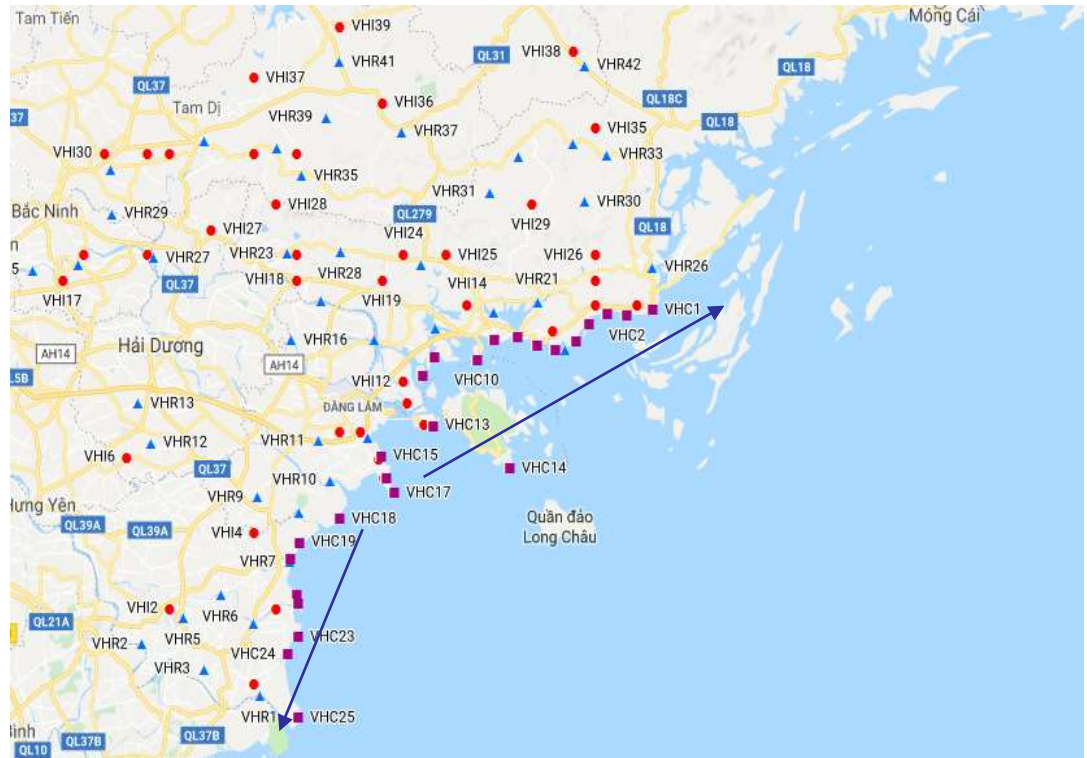
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Field Surveys: Inland – Coastal and River

- 25 volunteers,
- 2 experts from CSIRO scientists
- 4 coordinators from GreenHub officers,

- 79 sites in land, river and coastal areas in 5 provinces and cities Hai Phong, Quang Ninh, Hai Duong, Bac Ninh and Thai Binh
- One day testing in field methods
- 2 groups: Hai Phong – Quang Ninh, plus; Hai Phong – Thai Binh and Nam Ninh
- 16 days of field surveys (total of 2 groups)



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Inland Survey

26 sites;
100-150 km from Hai Phong



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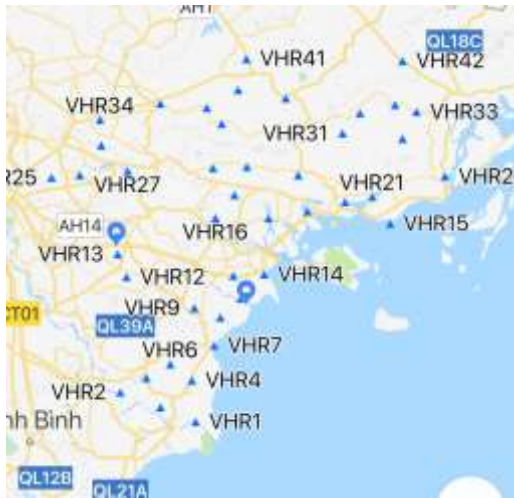
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River Survey

29 sites:

Red Rivers and its branches: Tra Ly Thai Binh; rivers Cua Dien Ho Thai Binh; Nam Dinh; Da Bach – Hai Phong; Hai Duong; Cửa Lục Quảng Ninh; Hoanh Bo-Ba Che Quang Ninh



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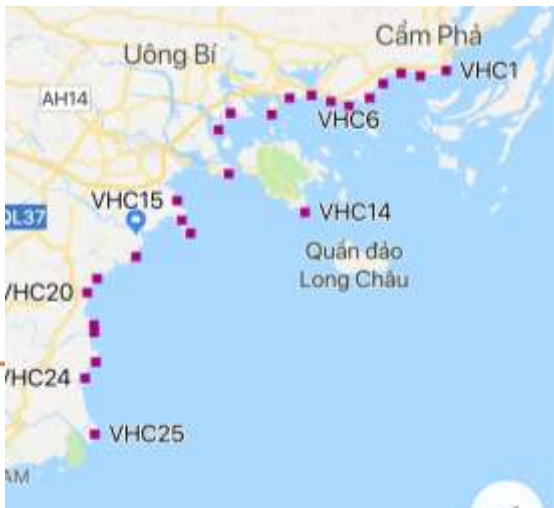
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Coastal Survey

- 24 sites - 200-240 km
- From coastal shoreline of Quang Ninh to Thai Binh
- Including: Beach gradient; Substrate color; Backshore types; Shore Exposure



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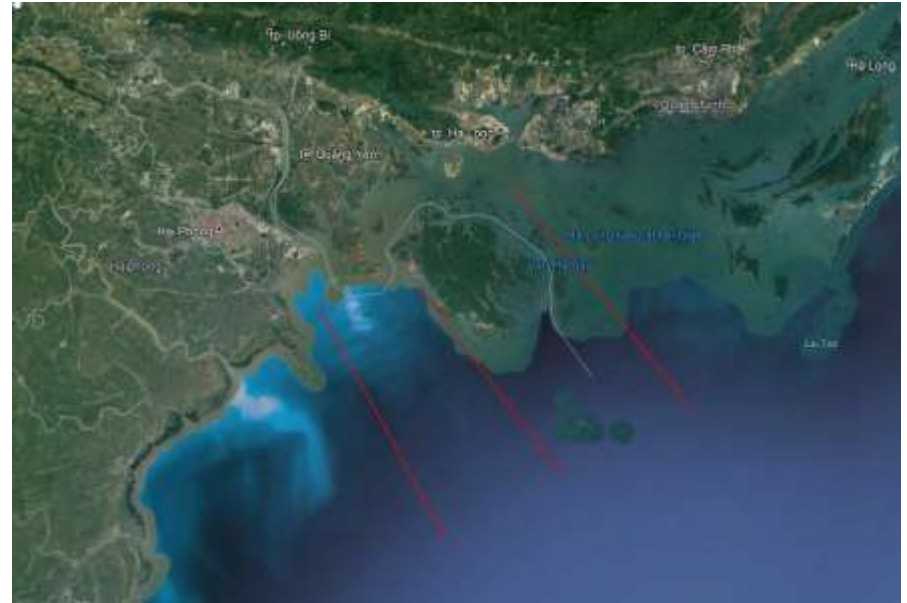
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At-Sea: Trawl Survey



27 Tows/samples of seawater have been collected by using fishing boats and trawl at-sea near Cat Ba and Hai Phong (river mouth; at-sea)

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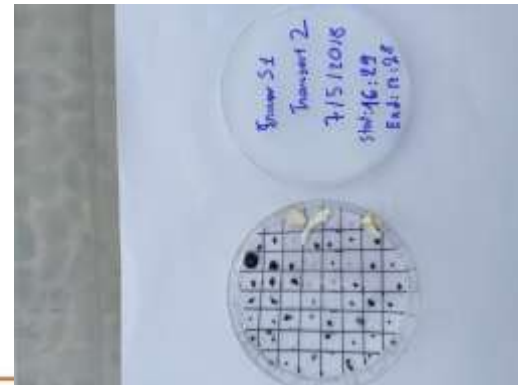




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After the course, 24 volunteers, along with CSIRO scientists and GreenHub officers, have conducted surveys in 79 sites in land, river and coastal areas in 5 provinces and cities Hai Phong, Quang Ninh, Hai Duong, Bac Ninh and Thai Binh.

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What do volunteers think about Global plastic pollution survey in Viet Nam 2018?

*"Through the trip, I learned a lot, met the extremely cute friends and had many special experiences. There were sites that are **very difficult to survey and we had to climb to the survey site, addition to there are very solitary sites.** Although scared I still determined to overcome myself because it is my responsibility, my work."*



2 volunteers from Da Lat city

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What do volunteers think about Global plastic pollution survey in Viet Nam 2018?

"I have left the exercises and deadlines to join this program, to go to the forest, to the sea, to experience many new lands. Every day we have eight hours of sitting on cars and traveling around. Every night we slept in a places and my luggage was a suitcase full of dirty and smelly clothes..."

*Thank everyone for giving me an unforgettable memory to mark my age of 19, for letting me learn **how to love people and love my career, in a different way**"*



A volunteer from University of Science and Technology of Ha Noi

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Out put in the first year

GreenHub and their partners

- GreenHub has been building capacity for methods of the survey; **The project designing robust sampling plans tailored for Vietnam.**
- Core groups in Vietnam to share information
- Dataset for the first year => **comprehensive dataset of plastic on land, along rivers, at the coastal interface, and in the ocean for major coastal cities**

For Vietnam

- **statistical models to produce maps that highlight the plumes of plastic emerging from urban centers and nearby areas.**
- **estimate the amount of plastic from the plumes that are lost to the open ocean or redeposited back to land**

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Experiences from Field Survey

- The first experience in Vietnam to join the world's largest marine pollution survey
- Coordination
- Quality assurance: Manage Data collector/volunteers

QUESTION:

If so it would also be useful to understand the constraints?

What areas/rivers have you assessed that need to be surveyed?

Is access to survey sites to set out transects a problem? How easy is it to arrange boats to undertake surface trawls?

Now that you have used it, is the CSIRO model the best surveying/assessment tool for you to use or does it need to be refined or modified?

- Technical support from CSIROs – guidance and monitoring for field survey in first year is very importance;
- Volunteers commitment and contingency plans for accessing locations; volunteers replacement;
- Flexible plan for traveling: large areas (200km) for sampling sites
- Correspondence for assessing selected sites/sensitive sites – Coastal shoreline is border of Vietnam;
- Engaging stakeholders to understand methods and findings for advocacy; IMER is applying the methods for their expanding survey in 2019
- Boat for trawls surface surveys: Fishery boat is suitable and their support;



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Data analysis & its implication for policies in Vietnam

- Monitoring and assessment are essential steps towards addressing specific questions about marine litter, plastic pollution; **CSIRO methods is scientific approach and comprehensive of prediction (inland; coastal, river & at sea) and sound knowledge of situation and inputs for management and policies in Vietnam (National Action Plan on Reducing Ocean Plastic Pollution – ongoing process)**
- Foundation for Monitoring should be set as an on-going long-term process based on a series of repeated measurements in Vietnam with standardized methods (CSIRO); requirements of capacity building for Vietnam partners;
- **Interpreting from science language to policy language as NGO roles**
- **Integrating data collection as tools for education of youth, young scientist**

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Thanks for your listening!



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