

# **Clean Ocean through Garbage Record Database**

---

**Team: Oughtopia**

# CONTENTS

---

## **01. Marine Litter**

**:Problem Analysis**

## **02. IMO and Marine Litter**

**:IMO & implementation**

## **03. What can be done?**

**:Solution**

# 01

---

## Marine Litter: Problem Analysis

1. Destruction of marine ecology
2. Problem Analysis
3. Past and Present of Marine Garbage Management
4. Efforts for Integrated Garbage Management
5. Past and Present of Marine Garbage



**54%** of the  
120 marine mammal species on the  
threatened  
list have been observed entangled or  
ingesting plastic



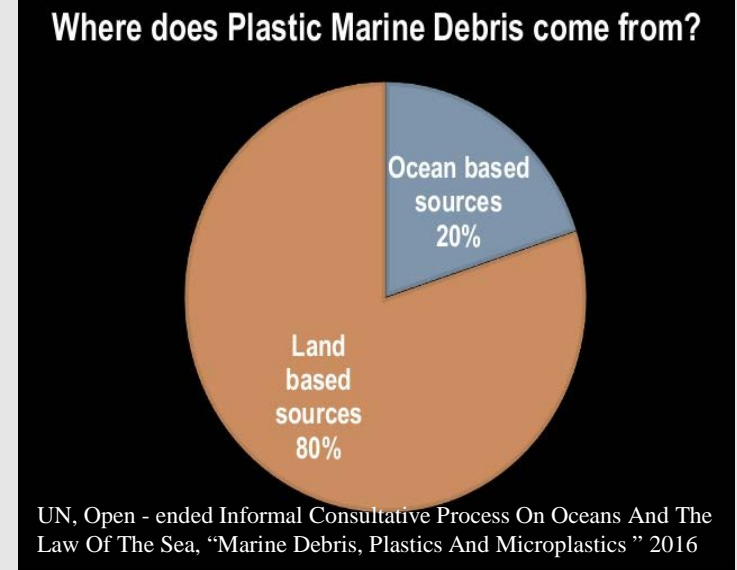
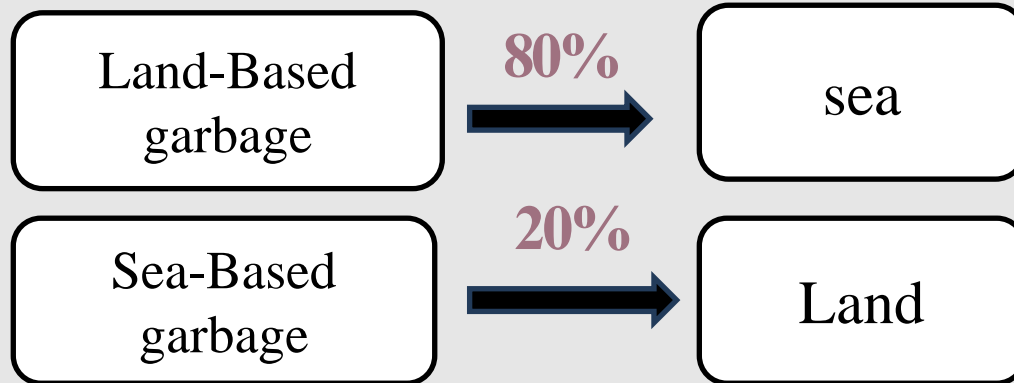
Floating toxic microplastics are  
ingested by marine life, which in  
turn is **consumed** by **people.**



**339,875**  
beverage cans  
are found in the ocean

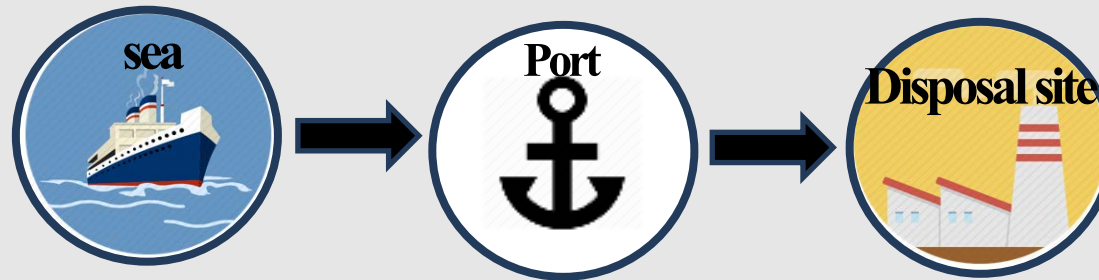
**73.9** Million pounds of plastic  
are spread throughout the world's  
gyres



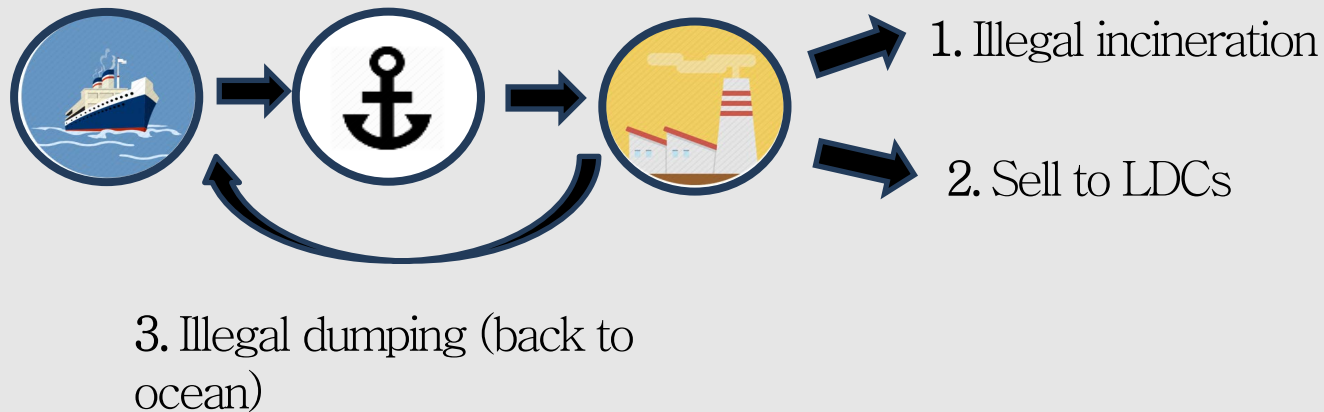


→ **Structural analysis of the problem**  
**: Multiple Sources of Marine Litter**

### 1. Garbage treatment status(Sea-Created)



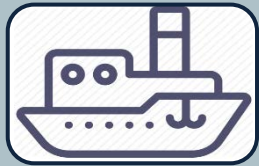
### 2. Problem (vicious circle)



# Marine 1–3 Past and Present of Marine Garbage Management

## past

- Marine debris viewed in isolation from broader garbage management system



**Vessel Garbage Management**

Seperation



**Land Garbage Management**

## present

- Integration of vessel garbage management and land-generated garbage management
- In pursuit of “Integrated Garbage Management”



**Vessel Garbage Management**

Sharing



**Land Garbage Management**

**“Integrated Garbage Management”**

### **1) National Level**

: Efforts to incorporate vessel garbage management into land-based garbage management system

(eg. US: EPA – Integrated Solid Waste Management System)

---

### **2) Trans-national Level**

: Collaboration and cooperation among International Organizations

(eg. Ex. Global Partnership on Waste Management (GPWM), Global Partnership on Marine Litter (GPML), Asia Waste Management Outlook(AWMO))

---



## Barriers to efficient and effective integrated garbage management: **"Lack of Information Sharing"**

“Unfortunately, **no modern global estimates are available for ship-generated waste.**  
In 1975, the US National Research Council produced a global estimate for ship-generated waste...Although these estimates are 40 years old,...they are the only way to gauge the relative significance of the contribution from mismanaged waste from ships...”  
(UNEP and GRID-Arendal, 2016. Marine Litter Vital Graphics.)

“vessels are mobile and may call at different ports, which has the effect of making **garbage disposal demands more unpredictable and ad hoc** than they are on land.”  
(US National Research Council.)

# 02

---

## IMO and marine litter

1. Responsibility of IMO
2. IMO's current implementation

**IMO Mission:** Marine Environment Protection

Ocean



Land

**Method:** MARPOL

## MARPOL Annex V

### <Garbage Record Book>

- Recorded **offline**
- Retained and checked only by ships and ports
- Information cannot reach other institutions

#### "RECORD OF GARBAGE DISCHARGES"

##### PART I

For all garbage other than cargo residues as defined in regulation 1.2 (Definitions)

(All ships)

Ship's name	Distinctive number or letters	IMO number
-------------	-------------------------------	------------

##### Garbage categories

A-Plastics	B-Food waste	C-Domestic wastes	D-Cooking oil	
E-Incinerator ashes	F-Operational wastes	G-Animal carcasses	H-Fishing gear	I-E-waste


Discharges under MARPOL Annex V regulations 4 (Discharge of garbage outside special areas), 5 (Special requirements for discharge of garbage from fixed or floating platforms) or 6 (Discharge of garbage within special areas) or chapter 5 of part II-A of the Polar Code

Date/ Time	Position of the ship (latitude/longitude) or port if discharged ashore or name of ship if discharged to another ship	Category	Estimated amount discharged		Estimated amount incinerated (m <sup>3</sup> )	Remarks: (e.g. start/stop time and position of incineration; general remarks)	Certification/ Signature
			Into sea (m <sup>3</sup> )	To reception facilities or to another ship (m <sup>3</sup> )			
/							
:							

## MARPOL Annex V

### <Reporting on Inadequate Port Reception Facility>

Coverage not appropriate to gain holistic view of garbage off-loading for Integrated Garbage Management because only ships that encounter inadequacies report to the system

 <b>INTERNATIONAL MARITIME ORGANIZATION</b> <b>GISIS: Port Reception Facilities</b>			
3. Inadequacy of Facilities			
3.1 Type and amount of waste for which the port reception facility was inadequate and nature of problems encountered			
Type of waste/residues	Amount for discharge (m <sup>3</sup> )	Amount <u>NOT</u> accepted (m <sup>3</sup> )	Problems encountered Indicate the problems encountered
A. Plastics	7.2	7.2	A - No facility available
B. Food wastes	0.12	0.12	A - No facility available
C. Domestic wastes	2.2	2.2	A - No facility available
D. Cooking oil	0.055	0.055	A - No facility available
E. Incinerator ashes	0.08	0.08	A - No facility available
F. Operational wastes			
G. Animal carcasses			
H. Fishing gear			
I. E-waste			
J. Cargo residues (non-HME)			
K. Cargo residues (HME)			

→ **Evaluation: Current system is inappropriate to fulfill the purpose of MARPOL Annex V**

# 03

---

What can be  
done?

1. 2-Phase Solution
2. Expected Outcome
3. Amendments

### Step 1. E-Garbage Record Book

#### **Electronic Garbage Record Book**

→For convenience and accuracy of information

- 1) Automatic Entry of location using GPS
- 2) Role Based Access Control
- 3) Audit Logging

### Step 2. Database

- **Garbage Record Book Database**  
Establishment on GISIS
- Access not open to the public  
(Access only given to institutions)

### Phase 1. E-Garbage Record Book

- Transparency and accuracy of information entry
- Convenience for ship managers
- Enable centralized data gathering
- Uniform management

### Phase 2. Database

- <National level> conduct integrated garbage management
- <Regional level> Incentives for ports to construct adequate reception facilities
- <International level> Coordination and collaboration amongst international organizations
- <International level> Further usage for Member Audit Scheme



## Amendments to MARPOL Annex V

- Amendments to MARPOL Annex V. “Regulation 9. Placards, garbage management plans and garbage record-keeping.”
- (3). Every ship of 400 tons gross tonnage and above and every ship which is certified to carry 15 persons or more engaged in voyages to ports or offshore terminals under the jurisdiction of other Parties to the Convention and every fixed and floating platform engaged in exploration and exploitation of the sea-bed, shall be provided with **an Electronic Garbage Record Book**. The Electronic Garbage Record Book, ~~whether as a part of the ship’s official logbook or otherwise~~, shall be in the form specified in the *appendix to this Annex*;

(insert) Guidance for the use of electronic record books under MARPOL  
(PPR 4/16 12 October 2016)

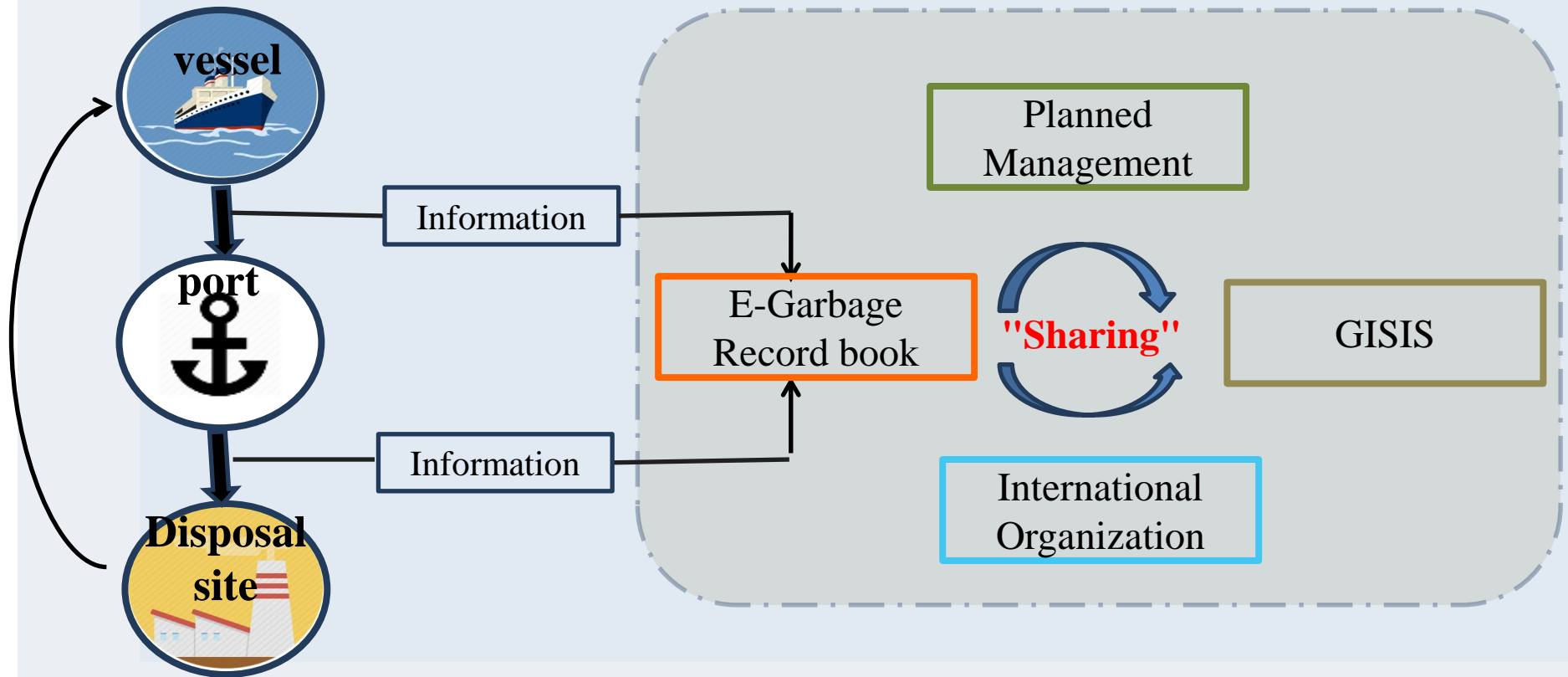
**Amendments to MARPOL Annex V**

- Amendments to MARPOL Annex V. “Regulation 9. Placards, garbage management plans and garbage record-keeping.”

- **(New sub-clause under Clause 3)**

(e) the Electronic Garbage Record Book shall be uploaded to its relevant category under GISIS, open to authorized institutions, such as but not limited to UNEP, FAO, and relevant affiliates.

## Result



Thank You