

## A Study for Destination of Solid Wastes from Vessels

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*Abstract:* Everyday humans around the globe perform a series of activities that, in addition to the final product concerned, results in a significant number of solid waste, commonly called "junk." These solid wastes not treated to an appropriate final destination will be fatefully converted into pollutants causing a variety of environmental, economic and social problems. Particularly, the Brazilian legislation, in accordance with international treaties, adopted as one of the methods to prevent the realization of the potential damage of the waste generated on board the ship's obligation to deliver its solid waste to the administration of the local port. However, managing solid waste is still a challenge for Brazilian ports as most of them lack the means to make the classification, collection, treatment and final disposal of waste generated. It is therefore extremely necessary to invest in measures to manage the negative effects and prevent the realization of their potential environmental damage as well as combating illegal practices, such as smuggling and trafficking drugs. Though this can not involve undue delay to ships making use of their facilities.

*Keywords:* Solid waste management; Scanning; Tracking; Monitoring; Oceanic pollution.

### 1 Introduction

Everyday humans around the globe perform a series of activities that, in addition to the final product concerned, results in a significant number of solid waste, commonly called "junk." These solid wastes not treated to an appropriate final destination will be fatefully converted into pollutants causing a variety of environmental, economic and social problems.

The NBR 10004:2004 ABNT-Brazilian Association of injured ligament defines solid waste as:

*"Waste in solid and semi-solid, that result from activities from industrial, domestic, hospital, commercial, agricultural, service and cleaning. Included in this definition from the sludge treatment systems water, waste generated in equipment and facilities for pollution control, and certain liquids whose characteristics make it impossible to launch the public sewer or water bodies, or to require that solutions technically and economically viable given the best available technology"* [1].

Still, according to Monteiro *et al* (2001), "solid waste or simply" garbage "is any solid material or semi-solid undesirable and needs to be removed

because it was considered useless by those who ruled in any container intended for this act" [2].

Thus, because of the enormity nature of its impact, the final disposal of solid waste is the subject of local and global interest.

Port areas are potentially highly polluting environments, because, not only its facilities generated a great environmental impact but the activities developed produce a large amount of solid waste, which are potentially harmful to environment and humans.

According Flausino (2005), *"by pollution, means acts of dirty, corrupt and defile, making it unhealthy. By pollutants, any form of matter or energy intensity, and quantity, concentration, time or characteristics at odds with the established levels, or that may render the environment unsuitable, offensive or harmful to health; inconvenience to the public welfare, injurious materials, fauna, flora, detrimental to the safety, health, property and the enjoyment of normal activities of any community in general* [3]. "

It is therefore of paramount importance for the common good that the different types of waste generated in the port area and by vessels are managed properly.

Solid waste should be segregated and have the final destination identified by law as a way to prevent

the spread of diseases, and protect the health of the population and environment.

For Gomes: *"The ports are links in supply chains that integrate transport flows of goods between different regions, generating influences that extend beyond their locations. (...) The port environmental management have great importance to limit the amount of waste that pollute the environment. And the quality of environmental management programs consist of operational and administrative practices is of great importance to environmental protection, health and safety of workers, users and the community."* [4]

Accordingly, the waste generated on land or aboard ships require special care in relation to environment. Ali points out, quoted by Philomena and Quintana (2007) [5] that the types of waste generated by ships mainly relating to: domestic waste (food scraps, plastics, cans, bottles, crockery, paper, cardboard and scrap ward); trash maintenance (tow and oily rags, pieces of debris, soot, packaging material, ash and heat-resistant, rust and paint waste) and waste associated with the operational load (props and anchors for the cargo, and canvas covers loading and lashing belts load, among others).

The Brazilian legislation, in accordance with international treaties, adopted as one of the methods to prevent the realization of the potential damage of the waste generated on board the ship's obligation to deliver it's solid waste to the administration of the local port. However, managing solid waste is still a challenge for Brazilian ports as most of them lack the means to make the classification, collection, treatment and final disposal of waste generated.

It is therefore extremely necessary to invest in measures to manage the negative effects and prevent the realization of their potential environmental damage as well as combating illegal practices, such as smuggling and trafficking drugs. Though this can not involve undue delay to ships making use of their facilities.

## **2 Historical development of key standards relating to solid waste imposed by Brazil's Government in their territory**

The main international convention on the prevention of marine pollution by ships, completed in 1973, as amended by the Protocol of 1978 and subsequent amendments, ratified by Brazil, is the International Convention for the Prevention of Pollution from

Ships - MARPOL 73/78 [6], which requires the provision of facilities and services suitable for reception by the national ports of solid waste generated by ships. The type and size of facilities depend on the needs of ships visiting the port. Thus, the definition of a strategy for waste management depends on studies that raises datas, and evaluate the specific needs of each port.

Annex V - Regulations for the Prevention of Pollution by Garbage from Ships – of Marpol 73/78, establishes parameters to be followed when describing the rules for the prevention of pollution by garbage from ships in the oceans. In his body, he conceives "junk" as all types of food waste, household waste and operating data, except fresh fish and parts thereof, generated during normal operation of the ship and liable to be disposed continuously or periodically except those substances that are defined or listed in other Annexes of this Convention, and, among other predictions, where, for example, in his Rule 3, section 1, b, ii, dumping at sea to 12 (twelve) miles from the coast of food wastes which have been a grinding process, except for plastic items, including, among others, cables, fishing nets of synthetic material, paper, rags, glass, metal, bottles, tableware and packaging materials.

Following the evolution over time of the Brazilian legislation on solid waste, there is the Resolution No. 005 of August 05<sup>th</sup> of 1993 of the National Council on the Environment – CONAMA [7], applied to solid waste generated in ports, airports, rail and bus terminals and establishments providing health services, which in its Article 5, includes a classification to identify the different types of solid waste and establishes the compulsory submission of a Plan of Solid Waste Management - PGRS to be submitted for approval bodies.

The Constitution of the Federative Republic of Brazil, 1988 [8], in his art.225, explains the character of the collective right for an environment ecologically balanced, and raises the environment defense to the status of constitutional principle. Strengthening the internalization of the principles of environment protection, Federal Law No. 9.966 of 28 April 2000 [9], provides for the prevention, control and monitoring of pollution caused by dumping oil and other noxious or hazardous substances in waters under Brazilian jurisdiction. This rule provides that the infra-organized port, the port facility and platform, and their support facilities, as laid down by Marpol 73/78, must have facilities for receiving and processing of various types of waste and combating pollution, in compliance with standards and criteria established by the environmental authority. It also prohibits the discharge of any type of plastics,

including synthetic ropes, synthetic fishing nets and plastic bags in the waters under national jurisdiction.

Similarly, Resolution RDC No. 217 of November 21 of 2001[10], by the National Health Surveillance Agency - ANVISA establishes the Technical Regulations to apply to vessels operating cargo transportation and / or travelers at ports. The establishment of a protocol to conduct the administration of the Port of Sanitary Control aimed at promoting epidemiological surveillance and vector control these areas and means of transport that use them. Thus, the Resolution includes in its standards the question of the solid waste.

Besides the need to store the waste available in the area under the jurisdiction of the Port Administration of Sanitary Control in accordance with the standards defined in terms of class, material, dimensions, welding and closing arrangements set out in the Basic Standards Regulatory Brazilian Association of Standards - NBR / ABNT, Resolution RDC No. 217/2001 also determines, in its art. 80, need the Port Administration's Sanitary Control Plan have Solid Waste Management for waste originating from vessels and the area under its jurisdiction, in accordance with the relevant resolutions of the National Council on the Environment - CONAMA, and other requirements of these Regulations's own standard lists, so as to harmonize with this Resolution CONAMA Resolutions.

Finally, with regard to Resolution RDC No. 217/2001, as explained in his art.81, to prevent harm to public health and the environment is for the Administration of the Port Sanitary Control the responsibility of the integrated management of waste solids originated in the vessels of the area under its jurisdiction, to be treated in accordance with the Plan of Waste Management approved in advance by the health authority and the Authority of the Environment, even when there is a need for change.

The NBR 10004/2004 also provides for the classification of solid waste and the potential risks to the environment and public health, or as hazardous or non-hazardous, acting as a tool to assist the proper management by their decision, and not as a determination about the feasibility or otherwise of the use of waste.

On August 06<sup>th</sup> of 2008 started to be apply the RDC Resolution No. 56 [11] which deals with the Technical Rules of Practice on Sanitary Solid Waste Management in the areas of Ports, Airports, Border Crossings and bonded, which repealed the RDC No 342/02 [12] and Articles 31, 32, 34, 35, 36, 80, 81, 82, 83, 84, 85 and 86 of the RDC No. 217/01.

Pursuant to Resolution RDC No. 56/08, Sanitary Practices are all the necessary procedures to ensure

the sanitary quality of a product or service and whose efficacy and effectiveness should be evaluated by inspection and / or research. They should cover all stages of planning the physical, material and human resources training, and constitute a set of procedures designed, implemented and deployed, from a scientific, technical and regulatory frameworks, in order to meet the provisions of risk minimization by waste generation and provide a secure routing waste efficiently, and to protect workers, preserve public health, natural resources and the environment.

Since the solid waste is now renowned as in solid waste and semi solid waste originating activity: industrial, domestic, hospital, commercial, agricultural, services and sweeping, including sludge from systems of water treatment, waste generated in equipment and facilities, pollution control and certain liquids whose characteristics make it infeasible its launch in public sewers or water bodies, excluding of such a definition human excreta. The types of solid waste is classified in its Art.7.

Any generating unit of solid waste, or business managers and their agents, tenants, lessees of ports and the companies that provide services related to the stages of solid waste management must implement the Sanitary Practices in Solid Waste Management. Accordingly, the solid waste management is the process to plan, initiate, implement and evaluate health measures with regard to solid waste, covering its generation, segregation, storage, collection, transportation, treatment and final disposal in order to protect public health and the environment. The Plan of Waste Management is the document that identifies and describes the actions relating to solid waste management, member of the environmental licensing process.

In addition, the Sanitary Practices in Solid Waste Management are subject to review, revision and correction, at the discretion of the health authority, when the epidemiological international or domestic, demand the adoption of additional health measures, and when there is a need to implement public health measures related to the sanitary control of the steps that make up the Solid Waste Management.

RDC Resolution No. 56/08, repealed the Articles of RDC No. 217/01 which dealt explicitly with compatible set of forecasts by ANVISA with forecasts CONAMA, instead extends the previous norm, and states that in Sanitary Practice Management Solid Waste to include the steps of solid waste management must be consistent with the standards set by city and state agencies, federal rules and existing provisions in the Technical Regulation approved in its annex.

Finally, even under the above resolution, the Port of sanitary control the strategic point of view epidemiological and geographical, which contains the sanitary control in the country, namely the organized port, the water transport terminal, the terminal for exclusive use, the terminal Retroportuário, the bonded terminal and cargo terminal.

## 2.1 Categories CONAMA and ANVISA for Solid Waste

CONAMA Resolution No. 005/1993 classifies the waste into four distinct groups. The group A covers the solid waste that due to the presence of biological agents is a potential risk to public health and the environment. Among others, belong in this group: blood and blood products; animals used in experimentation and any materials that have come in contact with them; excretions, secretions and body fluids, culture media, tissue, organs, fetuses and anatomical parts, filters aspirated gas contaminated area, the waste arising from the isolation area, food remains in isolation, waste of clinical laboratories, waste from outpatient units, sanitary waste unit and hospital ward and dead animals on board transportation by this Resolution. It also includes, but not exhaustively, the cutting or piercing objects capable of causing punctures or cuts, such as razors, scalpels, needles, scalpels and broken glass from establishments that provide health services.

The group B is composed of solid waste which chemical presents a potential risk to public health and the environment. Examples are chemotherapy drugs and products contaminated thereby; pharmaceutical waste (medicines expired, contaminated, prohibited or non-use), and other products deemed dangerous, as ranked by NBR 10004 of ABNT (toxic, corrosive, flammable and reactive).

The group C includes radioactive waste such as radioactive materials or contaminated with radionuclides, from clinical laboratories services, nuclear medicine and radiotherapy, according to Resolution of the National Nuclear Energy - CNEN - NE 6.05, on the Management of Tailings Radioactive in radioactive facilities. The group D, is composed by exclusion of waste is common, that is, all the others who do not fit the groups described above.

On the other hand, ANVISA Resolution-RDC n<sup>o</sup> 56/08 classifies the waste into five groups. Belongs to group A solid waste that due to the presence of biological agents considered with characteristics of virulence, pathogenicity or concentration, showing actual or potential risk to public health and environment. Examples are the solid waste generated

by: solo or animals on board means of transport providing clinical, with signs and symptoms consistent with diseases, death of people or animals that occurred on board means of transport, when triggered by suspected communicable disease or confirmed, health services and feed on board means of transport or sickbay, cleaning and disinfection of toilets on board, including waste collected during these procedures (diaper, toilet paper, absorbent, etc.); cleaning and disinfection of surfaces exposed to fluids, secretions and excretions organic human and animal - including objects that have come in contact with them when they can not undergo the process of high-level disinfection, and not exhaustively, in means of transport coming from areas affected by diseases or other diseases of public health concern that can be served by solid waste.

When discarded, the solid waste covered by the group will also be considered potentially hazardous cargo when it is suspected of contamination by biological waste generated by the services of medical and dental, for barbers, salons vaccine and similar establishments, which have contact with blood or secretions, blood and blood products, media, tissues, organs, fetuses and anatomical parts, filters and gas aspirated from the contaminated area. Also included in Group A, solid waste group classified as D in this resolution that came into contact with waste described above.

Group B comprise the solid waste that contain chemicals that may pose a risk to public health or the environment, ie, waste from the area of switching, industrial, maintenance, fuel depots, training areas of fire, and hormone products antimicrobial products, cytostatic, anticancer, immunosuppressant, digitalis, immunomodulators, antiretrovirals, when discarded by health services, pharmacies, drugstores and drug distributors or seized, and waste and pharmaceutical medicines controlled by a Ministry of Health - MS 344 / 98 and its updates; waste disinfectant, disinfectants, disinfestants, laboratory reagents, waste containing heavy metals, including containers contaminated with these; effluent image processors (developers and fixers); sewage from automated equipment used in medical tests; others considered dangerous, as ranked by the ABNT NBR 10.004 (toxic, corrosive, flammable and reactive), and although the example, chemotherapy drugs and products contaminated thereby; pharmaceutical waste (medicines expired, contaminated, prohibited or non-used).

Group C provides the framework for radioactive waste, including material derived from laboratory research and teaching in health and clinical laboratories, and those generated from nuclear

medicine services and radiation therapy containing radionuclides in excess of the limits of elimination. Within the group D waste are not presenting any risk biological, chemical or radioactive to the health or environment, may be treated as household waste. As an illustration: the role of sanitary, diapers and sanitary pads, not classified as Group A, leftover food, unless you have another prediction by other agencies; waste from administrative areas, waste-cleaning, flowers, prunings and gardens, and waste from other groups after suffering treatment.

Finally, the group E consists of scarification or sharps such as razor blades, needles, scalpels, glass ampoules, burs, endodontic files, diamond burs, scalpel blades, lancets, micropipettes, slides and coverslips; spatulas; all broken glassware in the laboratory (pipettes, blood collection tubes and petri dishes) and the like.

### 2.1.1 Managing Solid Waste

CONAMA Resolution No. 005/93 establishes that the waste must be packaged in adequacy with the standards set by the Brazilian Association of Technical Standards (ABNT) and other statutory requirements. In the case of solid waste that Resolution classified as belonging to group A (potential risk to health and environment), they should be packed in plastic bags marked with the symbol for infectious substances. In case the waste will be spiked or sharp they must first be transported in a rigid, waterproof and sealed, also identified by the symbol for infectious substances.

Resolution RDC No. 56/08, ANVISA, in his chapter VIII, the general and transitional provisions, states that ports that has no plans for Solid Waste Management - PGRS must comply with the Sanitary Practices in Solid Waste Management specified in the Resolution, as well as the PGRS approved before this resolution, which must also fit the same.

Thus, for proper management of solid waste, the said Resolution provides that solid waste classified as members of the category called group A should be segregated to ensure the protection of health and environment. These wastes must be packed in a milky white color, waterproof material resistant to breakage and leakage of waste contained within. Identification of residues of group A must be affixed to the bags in the car collectors, containers and packaging in the collecting vehicle, within easy viewing, indelibly, using symbols, colors and phrases for infectious substances, according to the specifications of technical standards, to identify this group of waste. These solid wastes may not be discharged in

environment naïve that ensures that the characteristics of hazardous waste; the preservation of natural resources and the fulfillment of environmental quality standards and public health. Solid waste of this group can not be recycled, reused or recycled. After appropriate treatment, these solid wastes shall be considered for purposes of final disposal as waste from group D.

However, the segregation of solid waste classified as belonging to "Group B" should be carried out according to their characteristics, for reducing the volume of waste to be treated and disposed of, ensuring the protection of health and environment. Such waste must go through the process of reuse, recovery, recycling or appropriate treatment. When the impossibility of reuse, waste should be placed in locations determined by environmental agencies, with Certificate of Approval for Disposal of Industrial Waste - Cadre (or equivalent), and for the hazardous waste landfill at the discretion of the competent environmental agency.

Solid waste classified as "Group C" must be managed according to the criteria and requirements established by the Commission Nacional de Energia Nuclear - CNEN to radioactive waste, while waste of "Group D" should be segregated according to their features to facilitate recycling, reuse, reduction and disposal, ensuring the protection of health and environment. It can easily be reused or recycled, except when there is otherwise in other bodies, and do not require treatment prior to disposal final.

Solid waste of this group may not be discharged in environment naïve to improve the characterization and disposal of the hazardous features; the preservation of natural resources and meeting the standards of environmental quality and public health. This waste can not be recycled, reused or recycled, and after treatment will be considered a waste of group D, for final disposal.

Just as the segregation of groups of solid waste collection and removal of solid waste transportation must be carried out in compliance with the procedures for solid waste management provisions of Resolution RDC No. 56/08. Also, to be allowed to withdraw waste of vessels, ports control toilet shall have procedures for the collection, transportation, treatment and final disposal, in accordance with that resolution.

The collection and transportation account for the withdrawal and routing of solid waste to a place of storage, processing or disposal. Implementing the appropriate treatment and final disposal of solid waste, as required by regulations and laws in force in Brazil, ensure the promotion of the common good by protecting the health and environment, as it

minimizes the potential harmful effects of solid resources. These activities, however, can be performed by collecting mixed waste or waste collection, implying different impacts on the community.

Zakon (2007) [13] clarifies that the IBGE for both waste disposal in landfills, as sending stations for sorting, recycling, composting and incineration, are suitable for destinations of the trash. While the improper disposal refers to the release of raw garbage dumps in the open air, wetlands, local non-fixed and other destinations.

In this context, the landfill is one of the places where they are for the solid waste of various human activities and is a suitable final destination in that it consists of a treatment based on clinical sanitary techniques in order to avoid the negative aspects of the provision end of the garbage, as the proliferation of vectors of disease transmission, exhalation of odors, contamination of groundwater, among others. To that end, BRAZIL & SANTOS, 2004 [14], defined as local landfill: "(...) Based sanitary techniques (soil sealing, compaction and daily coverage of the cells of garbage collection and gas treatment, collection and treatment of manure) and other technical and operational procedures responsible for avoiding the negative aspects of final disposal of waste, or proliferation of rats and flies, exhale the smell, contamination of groundwater emergence of diseases and disorders of the visual bleak for a site with tons of garbage heap."

However, despite the advantages, the area used for deployment of landfills have limited life and, due to the increased amount of waste generated as well as the increasing availability of areas for implementation of the landfill into compliance with legislation in effect is a method whose applicability, by its very nature, is limitada. Portanto associate the system of landfill waste collection to waste and recycling, helps prolong the life of the landfill and cooperates with the protection and preservation of the environment. Thus, manage solid waste, rather than choose one particular method, it can mean the combination or association of possibilities, where according to local needs and interests and, ultimately, always in the world.

### **3 Issues pertaining to Solid Waste in Brazilian Ports**

The solid waste produced or disposed in port areas are a threat to health and environment. Waste from means of transport, are remnants of food or loads, has

the potential to cause damage to biological, chemical or radioactive. Similarly, activities related to the operation and maintenance of port terminals are large generators of waste generation and, as ranked by the ABNT NBR 10.004, dangerous.

To facilitate identification and permit the safe handling of solid phases of collection, transportation and storage, the packaging must be according to their qualitative characteristics quantities enrolled in Resolution RDC No. 56/08. So that, in Brazil non-hazardous waste from ships should be for landfill and hazardous wastes must necessarily be directed to security deposits and through the incineration process.

Between days 05 and 09 fevereiro 2007 held in Rio de Janeiro o.com result of group discussions, has become the present document, approved in plenary, content managers to subsidize the planning and implementation of policies related to subject matter.

According to a consolidated document written by the National Health Surveillance Agency - ANVISA and the National Transportation Agency - ANTAQ concerning the content of the Technical Seminar on Solid Waste [15], held between 05 and 09 February 2007, under the organization of such bodies Some risk factors are critical of the management of waste from Brazilian ports: an insufficient number of companies that collect the material, lack of generating agents, lack of use of Personal Protective Equipment - PPE sizing collectors inappropriate, improper packaging of waste, lack of intermediate storage areas and lack of adequate appropriate final destination for special waste.

ANVISA and ANTAQ also in the aforementioned instrument, proposing a plan to facilitate the sanitary control in Brazilian ports, which are dealt with issues such as disjointed actions and legislation of the authorities involved, the failure / unavailability of financial and human resources to promote training, unfamiliarity with the port community of the actions of bodies, lack of financial and human resources for operation of sanitary control, the difficulty of integration between agencies and municipalities in port area available for disposal of waste .

Accordingly, the Board of Ports and Coasts of the Navy of Brazil proposes some solutions to provide greater agility and security during the removal of garbage from vessels such as, delivery of notice of the waste to be discharged, the collection of a mandatory fee to cover the costs of reception facilities and waste disposal in ports before the ships leave port.

## 4 Model for the scanning of solid vessels

The proper handling of solid waste must consider the laws and regulations relevant to the subject in each country. In Brazil, non-hazardous waste from ships should be for landfill, as hazardous waste must be sent for security deposits and, in most cases, must go through an incineration process.

The landfill is a facility engineering without conformities or safety hazards, groundwater and public health. Each landfill should have on their licensing, and systems which enable the provision of solid waste belonging to group A, according to CONAMA Resolution No. 005/1993 of solid waste that presents a potential risk to public health and the environment.

According to the statement by Klaus Ihssen, employed by a Norwegian shipping, released by the magazine CNT current transport – 005 [16], the removal of waste consisting of wood, paper and plastic in most Brazilian ports can cause a big problem, since the national authority, by not accepting authorize the collection, it can be left configured as smuggling. The implementation of the ISPS CODE contributed to the rigidity in the treatment and disposal of waste, which may be evidenced by the substantial improvement observed in this sector in the Port of Santos.

Thus, the solution presented for the problem worked out, ie for the separation of solid waste, and rejection of smuggling and even drug trafficking, is a scan of the waste removed from the ship. Today there is technology scanning of moving objects that performs the sorting according to material type and color.

This technology is a system that allows a fast and safe sorting of recyclable materials. Valves to blow air fraction and identify desired materials, colors and shapes, the remaining fraction falls on a conveyor belt that will classificado. A resolution and accuracy of the system vary with the number of scanning points adopted in the process of identifying the objeto. Mediante this technology, you can sort up to 10 (ten) tons per hour, with purities of 90 (ninety) 98% (ninety-eight percent).



Figure 1: The way of wastes. [18]

### 4.1 Proposed model

The model for control of solid waste from vessels is intended to integrate different technologies and allow thereby responsible for the process to know more precisely the parameters of the events that take place so that access to information and data that will allow the manager solid waste act more efficiently and effectively. In the current state of the art technologies viable for application to the sector are: scanning, electronic seals and tracking. The use of integrated modular system for the control of solid waste is the fundamental principle, as clarified Dias et al, 2008 [17], to optimize the opportunities arising from the implementation of the system, so that the proposal is to remove solid waste from ships, scan them and make the final destination according to the classification obtained by the scanning process.

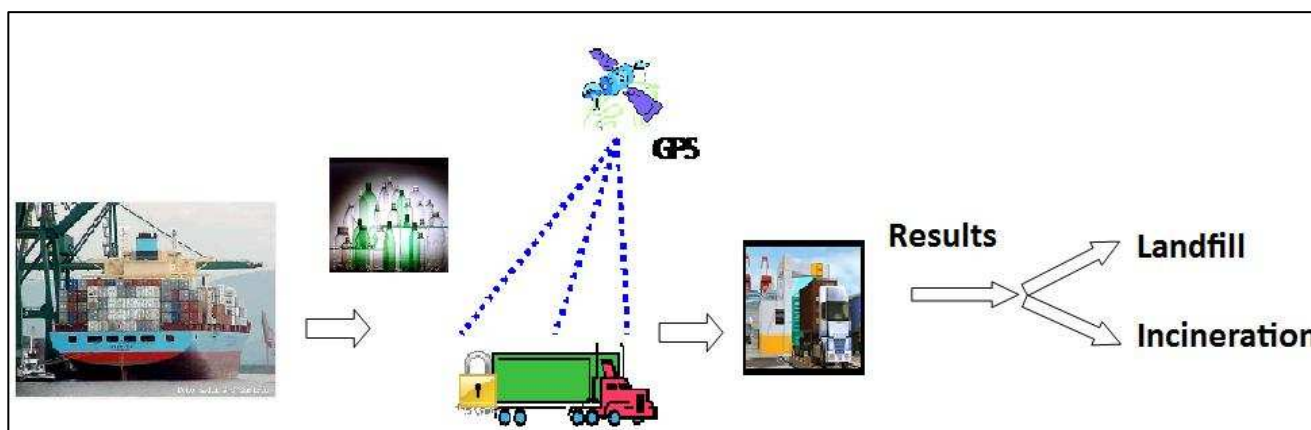


Figure 2: Identification and final destination. [19]

Thus, the first solid waste from ships should be removed and placed in a container truck or trunk. Then, an electronic seal must be installed to ensure that the waste will not be tampered with along the way, from its point of departure to the point where it is scanned. On site scanning of the integrity of the seal is checked, and scanned the contents of the trunk or truck container. The scanner classifies solid waste and, as limited by the screening criteria previously communicated to the system, the content is forwarded to the final destination due to that group of specific solid waste, ie to landfill or incineration. Proper disposal of waste, according to the legislation, should be controlled and supervised by the competent bodies responsible for protecting the environment, public health and sanitary surveillance.

## 5 Conclusion

Solid waste in Brazil are often considered only on the condition of medical waste, since its origin is unknown, a situation that can have serious consequences for the country.

It is therefore crucial that the country create the procedures for collecting solid waste from ships and boats, which can provide not only affect the environmental issue, but also the health issue, if, for example, waste carry some epidemic area of interest.

Foreign ships dock at the ports of Brazil, by law, as a safety measure, they must have among other things supporting documentation of where their waste was disposed of the last time, however, there is adequate oversight, because the vast majority of ports National is not equipped or prepared to receive garbage from ships and give a suitable final destination, in keeping with the preventive security normatively dictated.

The service is performed by qualified company, hired by the port represented by the figure of the Port Authority, however, the costs are not the port, but the company responsible for the ship. While the majority of European countries without the approval of the supervising agent vessel is not released and applies fines and penalties if not complied with the standards for the industry, in Brazil only a few ports have asked companies to collect garbage, resulting in violation of the rules of conduct laid down and, worse, the disposal of solid waste at sea of Brazil, without penalty for the offense.

Measures to prevent, reduce and control pollution of the marine environment therefore should not act in a palliative, transferring, directly or indirectly, damage or risks from one area to another or transform one type of pollution into another low-profile at the time of its adoption. Measures should be instruments of real control of potentially polluting elements, for only thus will serve its purpose, giving efficiency standards that justify them.

Finally, despite the MARPOL 73/78 and the Federal Law No. 9.966/00 require the provision of reception facilities for solid waste coming from the craft does not mean that the responsibility of the parties is close to the mere provision of facilities for receive waste from ships, there is also the responsibility to ensure the proper treatment and disposal of such waste with other wastes generated on land. Also reflects the need for a proper management of solid waste, parallel to the awareness of representatives of state bodies of environment the need for joint action, integrated and coordinated with that of Ports, Airports and Borders.

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[19] Figure 2. Source: From author and:  
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