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## **The Project Feasibility Study of Solid Waste Transfer Station of Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong of Thailand**

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Pluakdaeng Sub-district Administrative Organization, Pluakdaeng district, Rayong had problems with solid waste due to the increasing population and a very passive population. There were solid waste problems increased as amount of solid waste in the area is about 48-50 tons/day by disposing of private land with a landfill disposal. Pluakdaeng Sub-district Administrative Organization was still experiencing a problem, cost issues, system performance issues and lack of knowledgeable personnel. This problem, if not resolved in a timely manner. This will be intensify the problem. Therefore, in the case of the area of responsibility of Pluakdaeng Sub-district Administrative Organization, Pluak Daeng district, Rayong province, the waste disposal site is far from the source of waste. A waste dump truck was established in the area to effectively remove waste from the area to the disposal facility. The purpose of this study was to study the project feasibility of solid waste transfer station of Pluakdaeng Sub-district Administrative Organization, Pluakdaeng district, Rayong province. The data were collected from primary data by actual recording and secondary data from documents for analysis the feasibility of area and solid waste state in area, technical, economics and management of solid waste transfer station. The finding revealed that there were the feasibility and appropriate in area and solid waste state in area, technical, economics and management of solid waste transfer station.

**Keywords:** The Project Feasibility Study, Solid waste Transfer Station, Pluakdaeng Subdistrict Administrative Organization

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## **Introduction**

At present, the problem of solid waste is becoming a national agenda that must be resolved urgently because solid waste is a food source and a breeding ground for insect pests such as insects, flies, mosquitoes, mice, etc., it can cause bad odors and cause nuisance. Disposable waste is spreading in the wind and scattered into the area, causing the area to be dirty, lacking in beauty, as well as the disgust of the sighting and residents in the vicinity. In addition solid waste has an impact on the environment causing contamination of the ground, water and air, making the country less organized. In addition, solid waste has an impact on the environment, causing contamination of the ground, water and air, making the country less organized and less prone to the public health impact. Resolving problems of solid waste should be implemented to prevent and correct the consequences (Sakadaoy, 2010).

The situation of solid waste and hazardous waste management in 2016 is estimated around 27.04 million tonnes nationwide, an increase of about 190,000 tonnes from 2015. Solid waste is generated in Bangkok 4.20 million tons and in 76 provinces 22.84 million tons. The five most polluted provinces are Bangkok province, Chonburi province, Nakhon Ratchasima province, Samut Prakan province and Khon Kaen province. Currently, one Thai man produces garbage at an average of 1.14 kilograms per person per day.

At present, 7,777 local government organizations around the country have 4,545 disposable disposal facilities, which 13.6 million tonnes were disposed of at the correct disposal facility of 9.59 million tonnes or 36 % and disposed of at the disposal facility correctly 11.69 million tonnes or 43 % and the separation was used with only 5.76 million tonnes or 21 %.

In the future, the Pollution Control Department will carry out the national waste management master plan for the year 2016-2021 to drive the waste and hazardous waste management of the country to be implemented by all sectors; reduction at the source, sorting waste and hazardous waste community enhances hair removal and elimination capacity, provide a place to collect and dispose of hazardous waste community, set up a product recovery system at the end of its useful life, create responsibility and awareness of all sectors; releasing relevant regulations for accelerate the enactment of the Consumer Product Management Act Coordinated with the Ministry of Industry and the Ministry of Public Health overseeing industrial plants, hospitals and hospitals to eliminate and treat hazardous industrial waste and solid waste (Environnet News, 2017).

Solid waste and waste management for local governance organizations is a guideline and a step in the operation to comply with the guidelines for solid

waste management and sanitary sewage. It focuses on the analysis of problems of collection, transport and transportation of waste, waste and solid waste disposal and fee collection. This will lead to effective waste management. (HongThong, 2010) This focus of the waste disposal center in the case of a garbage-generating area or community where waste disposal facilities are located more than 15 km from the city limits, a waste dump station should be provided as a place to dispose of garbage from the garbage truck in the area by using the station's shuttle bus, it transports waste to a waste disposal facility, the cost of transporting garbage out of the waste area is lower than in the case of using garbage trucks in the garbage disposal area (Kiatmanaroch, 2002).

Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong province has a total area of 71.22 square kilometers or 44,508.75 rai. There are 6 villages in Pluakdaeng subdistrict, including Moo 1, Ban Pluak daeng, Moo 2, Ban Chakmalai, Moo 3, Ban Ra-Werng, Moo 4, Ban Wangtapin, Moo 5, Ban Wang Ket and Moo 6, Ban Thap Tong. There are several industrial estates resulting in approximately 85,000 latent population, resulting in increased population density. (Pluakdaeng Subdistrict Administrative Organization, 2559). Pluakdaeng Subdistrict Administrative Organization has problems with waste. This is due to an increase in the rate of garbage production. In addition to the waste collection service, the waste collection service will cover 71.2 square kilometers. The amount of solid waste in the area of about 48-50 tons / day by the disposal of private land with a landfill disposal the cost of removal 481.50 baht / ton. The waste disposal facility is located at Tambon Yang Yang, Pluakdaeng district, Rayong, which is about 15 kilometers from the office. The total area is 11 rai. The Cost issues of performance issues and the shortage of skilled personnel, this problem, if not resolved in a timely manner. This will make the problem worse.

Therefore, in the case of the area of responsibility of Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong province, the waste disposal site is far from the source of waste. There should be a solid waste transfer station in the area, to effectively remove waste from the area to the disposal site. If there is a construction site for waste disposal in the Pluakdaeng subdistrict administrative area, the problem can be resolved. It also increases the efficiency of waste disposal. To reduce the storage distance of garbage trucks. The waste can be reused to properly dispose of sanitation. It also improves the efficiency of the garbage collection system.

Objective: To study the feasibility of the solid waste transfer station project. Of Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong province.

## **Materials and methods**

In this study, the feasibility analysis of the area and the situation of solid waste in the area, technical feasibility of solid waste transfer station, feasibility of economics and feasibility of managing waste dump stations from the project using primary data and qualitative research, the study documents the concepts and theories involved, analyzes the feasibility of the solid waste transfer station project. The method is as follows.

1) Study model: A study of the potential due to the project's need for proper education especially the possibility of space and the situation in the garbage in the area, technical feasibility of solid waste transfer station Of the Pluakdaeng Subdistrict Administrative Organization, it is also possible to carry waste from the solid waste disposal station to the disposal of a complete waste disposal center in Rayong. The total distance is about 80 kilometers and private pond of Clean City Co., Ltd. The distance is 64 km., Possibility of economics and the possibility of managing solid waste transfer station. A study of performance and the value of the project to investment and the benefits of the project. This study using primary data, is a qualitative study, focusing on the feasibility study of the project for efficient waste management.

2) The tools used to collect data: The tools used to study the feasibility of the project. The study was based on the concept and related theories to provide information to analyze the feasibility of the area and the situation in the garbage in the area, technical feasibility of solid waste transfer station, feasibility of economics and feasibility of managing solid waste transfer station to be useful for the project.

3) Data collection: The feasibility study of this project is to collect data from the actual situation by recording and primary data analysis of information from documents, books, media, and other documents related to waste solid waste disposal project.

4) Data Analysis: The information was analyzed by the study of the concept and related theories on the solid waste transfer station project Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong province, was analyzed in descriptive form. The results of the data analysis on the relevant issues such as feasibility study area and the situation in the garbage in the area, technical feasibility study of solid waste transfer station, feasibility study of economics, feasibility study of solid waste transfer station management and summarize and report.

5) Summary of results and reports: From the study of information from the concept and related theories to summarize and write a complete report on the feasibility study of the project. The study of textbooks and documents

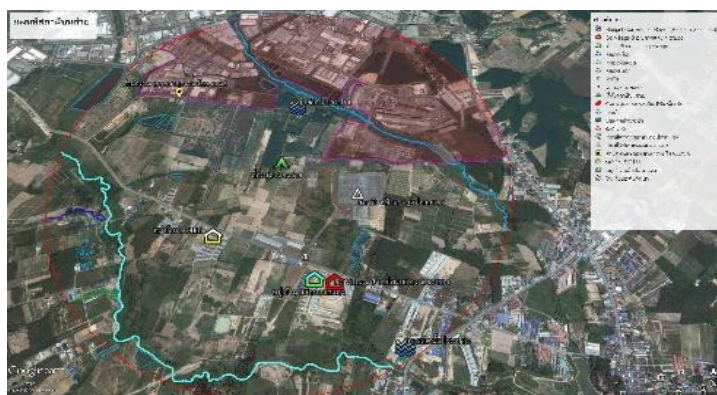
related to the project to contribute to the writing. The report was prepared as a guideline for the project.

## Results

Feasibility study of solid waste transfer station project of Pluakdaeng Subdistrict Administrative Organization, Pluakdaeng district, Rayong province, was able to summarize the results in four areas and the situation in the garbage in the area, technical feasibility of solid waste Transfer station, feasibility of economics and the feasibility of managing solid waste transfer station. Each section can be summarized as follows.

### *Feasibility of space and the situation of solid waste in the area*

This is a study of the suitability of the area and the amount of waste in the project can discuss the issue as follows; 1) feasibility of project area the project area of the solid waste transfer station has a total area of 7 rai. The criteria for selection design of community solid waste transfer station. The use of space in the community solid waste transfer station using the appropriate scale. For areas with an average of 50-100 tons of waste per day, the appropriate size for the establishment of loading stations is not less than 5 rai. Therefore, the area used for the study is suitable for the criteria.



**Figure 1.** Project area

2) Feasibility of project site location: The location of the solid waste transfer station project is a spacious area. The cassava cultivation is surrounded by farmland and orchard. Not adjacent to any conservation zone. Pluak Daeng

district is in the land reform. There are no forests left and farmers have converted the forest into living space agricultural area and industrial estates.



**Figure 2.** Surrounding the project area.

3) Feasibility of solid waste situation in the area: From the study of the amount of solid waste in Pluakdaeng subdistrict, it was found that the amount of waste in the area of 6 villages responsible for the amount of waste that can be collected about 48-50 tons per day. Forecast of future solid waste it depends on many factors which varies in each locality by predicting the amount of waste in the future of Pluakdaeng considered by information. From the record of the amount of solid waste of the J&C Service Group Company and assumptions the rate of solid waste is related to the economic growth in the area and to the population living in the area with the latent population coming to live or professionally it is estimated that 28,218 people are employed business owners both to stay and go back. This population is another factor that will result in an increase in the current waste. It will increase the rate of solid waste 17-20% each year. The type of solid waste in Pluakdaeng area was the highest. General waste, which is a difficult to digest and not worth recycling, such as bags, snacks, plastic bags, followed by garbage that can decompose the food and vegetable waste remaining from eating and cooking.



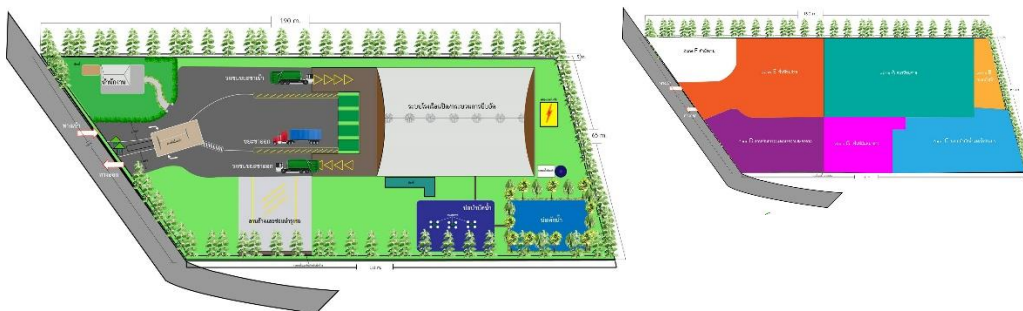
**Figure 3.** General wast in Pluakdaeng.

### ***Technical feasibility of solid waste transfer station***

Feasibility the technical aspects of the solid waste transfer station are as follows;

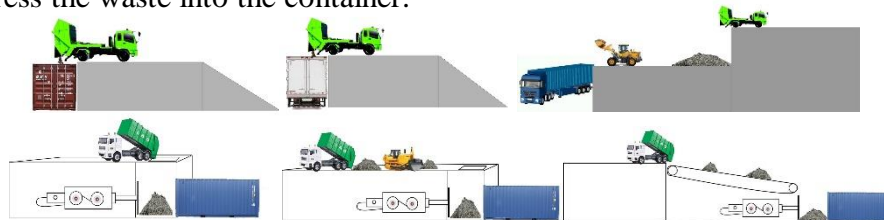
1) Feasibility of type of solid waste transfer station; From the analysis of 3 types of loading stations, it was found that the direct transfer station was suitable for waste management of the Pluakdaeng Subdistrict Administrative Organization. The solid waste collected from the hauling cart will be discharged directly to the waste dump truck or into the waste dumpster before the waste is disposed of in the transport vehicle.

2) Feasibility of design of solid waste transfer station; The area can be divided into the following areas. (1) The waste dump site is composed of machinery for compressing the house system, garbage collection system and transportation system of the loading and unloading truck. All transport starts from inbound and outbound. (2) the location of the electricity transmission system of the total area of the project. The electrical system of the machine, electrical therapy office electricity lighting system and other lighting systems (3) space used for wastewater treatment activities it consists of wastewater treatment ponds, water ponds and water supply systems, the pipeline system to the treatment pond and the system to send water to the pond installed water treatment and standard water treatment system. (4) Areas for maintenance and cleaning of garbage trucks includes parking lot, pressure pump and basic maintenance equipment. The park is divided into trailer park and car park. (5) loading area weighing scales trash trainer and hydraulic lifting (6) office space consists of office and bathroom used in the management of all waste dump trucks and (7) recreation areas includes a landscaped garden or exercise machine or a fitness machine, an activity patio and a bathroom. The design of solid waste transfer station for the appropriateness of the area for Pluakdaeng Subdistrict Administrative Organization.



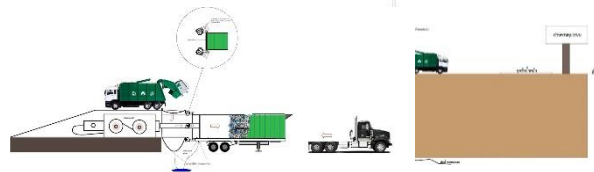
**Figure 4.** Project Design

3) Feasibility of unloading the solid waste transfer station; How to remove the waste, there are two types of transportation and loading and unloading using waste compactors loading without compaction, the pattern of several loading and unloading methods. (1) use containers for solid waste (2) use containers for garbage and (3) use waste to dispose of waste into pits or shelters. Then use the tractor to push the waste into the truck loading and unloading of waste. There is a way to introduce waste into the compressor as follows. (1) dumping garbage from the truck to the top of the waste compressor. (2) pour garbage from the truck onto the ground and use the tractor to push garbage. (3) automatically use the conveyor belt on the compressor and (4) install the compressor in the waste bins. The pickup truck pours the waste directly into the hole or pours it onto the floor and then the tractor pushes the waste into the hole. When the waste is full of holes, the hydraulic press will compress the waste into the container.



**Figure 5.** Disposal of Solid Waste in the Station

4) Feasibility of compressed garbage system; The analysis of compressed garbage transfer station are 2 types of compression systems landscape and the vertical compression syste, horizontal compression system handles large quantities of waste for transport to the disposal center. Compression strength of high strength can produce the highest amount of compressed waste at a cost-effective price. The system compresses the garbage into the door in the composting room. The lumps are then pushed into the trailer for transport. After the trailer full Garbage is still being composted while the new trailer comes in, which saves time. Vertical Compression System Designed to handle compression waste to be disposed of save time and money.



**Figure 6.** Solid waste disposal system.



5) Feasibility of solid waste management system; Appropriateness of the waste management system within the waste disposal station, there should be equipment for the waste management system this follow; (1) waste compressors the compressor should be used as a hydraulic system with a capacity of not less than 300 bat meters per hour working, not less than 2.5 cubic meters per cycle. (2) waste trucks it is recommended to use a 15-24 or 15-24 tonne solid waste container, which is suitable for use with solid waste trucks and hydraulic traction vehicles. (3) truck scales should use truck scales of not less than 50 tons. (4) sludge pumps and sewage pumps. The submersible pump should be used as a submersible pump. (5) aerator with equipment should be used as a type of electric motor pressure air. (6) pump type use a pump with a gasoline engine size of less than 6 hp. The cost of investment in the solid waste management system is estimated at 21,273,750 Baht. The budget of the solid waste management system is considered appropriate to the amount of solid waste of the Pluakdaeng Subdistrict Administrative Organization. The system of machinery and equipment for operation within the loading and unloading station is suitable for the amount of solid waste of the Pluakdaeng Subdistrict Administrative Organization.

6) Feasibility of transportation of solid waste; a nalysis of waste transportation from the transfer station to the private ponds of Clean City Co., Ltd. and the integrated waste disposal center Rayong. Transportation to the trailer or garbage truck will be appropriate to the area of the Pluakdaeng Subdistrict Administrative Organization have studied trucks, 300 horsepower can carry 15 tons, 344 horsepower can carry 25 tons and 300 ton and hydraulic truck can carry 40 tons. The estimated consumption of diesel and NGV fuel of the three vehicles used to transport waste to the waste disposal facility is found that, trucks 300 horsepower with the lowest fuel consumption, followed by trucks 344 hp and trucks 300 hp. This is because trucks with more capacity can be transported. Large amount of waste it can save on transportation costs. The trucks are designed for road rides to suit the conditions of the transportation routes. Including the characteristics of the van and the overall size of the car is appropriate to the route used in roaming in the area.



**Figure 7.** Hydraulic Forklift Truck

***Economic Feasibility Study on the value of investment, budget, operating expenses to make decisions for investment.***

1) The economic feasibility of waste disposal station; budget waste management system in waste disposal station project of Pluakdaeng Subdistrict, Pluakdaeng District, Rayong province, garbage truck, truck scales, sludge pump with waste pump equipment, air-filled equipment and the pumps were cleaned for a total of 17,019,000 Baht, the service charge is 25% of the equipment price of 4,254,750 Baht including the investment cost in the solid waste management system, totaling about 21,273,750 Baht to install waste management system. At the solid waste transfer station of the solid waste transfer station and the budget for waste transportation technology from the station to the waste disposal facility based on the study of the suitability of the waste transport technology from the station, it was found that the 300-horsepower 10-wheel hydraulic truck was the most appropriate. The budget is 20,000,000 Baht, the maintenance cost is 25% of the investment cost is 2,500,000 Baht by increasing the amount of waste in Pluakdaeng subdistrict expected to increase in number, resulting in more garbage collection, transportation from the loading station is also increasing. So the potential of a 300-horsepower hydraulic forklift truck that can carry up to 40 tonnes per trip is worth more than any other car.

2) The economic feasibility of the project land and buildings; The study found that the investment budget in terms of fixed assets, which will consist have land, buildings, furnishings. Installation and main equipment the budget for construction is about 45,652,000 Baht. It is a fixed asset that must be depreciated by the deterioration of buildings, not equal depending on the price of the building. It had to spend about 452,000 Baht, By analyzing the investment in the type of construction, the garbage disposal station will adhere to the appropriateness of the size and nature of the area of the project, which is

one of the factors determining the budget for the construction of the waste disposal station.

3) Economic feasibility of project management; The budget for the waste management project it is divided into 2 phases: personnel cost estimation for project construction and personnel cost estimation. The budget for project management in the project construction personnel is 2,525,000 Baht. The budget for the operation of waste disposal station is 5,616,000 Baht per year. Economic assessment project management as for the operation of the solid waste transfer station, there are other factors that affect the budget. There are already existing personnel in the Pluakdaeng subdistrict administrative organization who can operate in the loading station, the number of personnel required to hire new.

4) Economic feasibility in case of project and without project; The study of the cost of using garbage trucks with and without the project classified by type of vehicle used for garbage collection by increasing the amount of waste each year, the number of garbage trucks is determined. Found that, project cost of fuel for the collection of 50-90 tons of waste is about 6,930-10,584 Baht per day, 90-140 tonnes, about 10,584-16,128 Baht per day, and the cost of transporting waste fuel by hydraulic traction. The waste disposal area is divided into 2 areas, Clean City cost about 384-768 Baht per day and Rayong Waste Disposal Center costs about 480-960 Baht per day. In case of without project when the amount of waste is increased to 90-100 tons, the cost of fuel for the collection of 50-90 tons of waste is about 19,800-35,640 Baht per day and 90-140 tonnes of about 35,640-51,480 Baht per day. It can be seen that the cost of fuel storage in the case of the project is very economical. No project it can also reduce the transportation of garbage and shorten the distance in the storage area.

***Feasibility of managing solid waste transfer station contains the following issues***

1) the possibility of a form of organization and management of the solid waste transfer station has a Division of Public Health and Environment which is responsible for the management of waste and there's a technician who can help with maintenance, the number of personnel of Pluakdaeng Subdistrict Administrative Organization Operate sufficiently within the Solid waste transfer station. However, to save budget, management and management within the solid waste transfer station should have about 10-15 employees. The management and management system within the solid waste transfer station will be under the supervision of the Health and Environment Division and the

technicians, according to the structure of the administrative organization of Pluakdaeng.

2) Feasibility of management within waste disposal station; The operation is provided by staff during working hours, manual preparation and maintenance are provided, safety measures during the operation, monitoring measures are being prepared and management of non-solid waste and solid waste from solid waste disposal stations including waste, insect repellent, insect repellent and carrier to prevent disturbance, Hygiene and the unattractive condition. The amount of waste from various sources removed the amount and type of material removed or residue and surface water monitoring, surface water around the territory of waste disposal station. This may be affected by the contamination from the operation of the community solid waste dump station. The management of the station of solid waste disposal is appropriate for the administration of Pluakdaeng Subdistrict Administrative Organization.

3) Feasibility of processing solid waste transfer station is also possible to carry waste from the solid waste disposal station to the disposal of a complete waste disposal center in Rayong. The total distance is about 80 kilometers and private pond of Clean City Co., Ltd. The distance is 64 km. Generally, the garbage collector of the Pluak Daeng Subdistrict Administrative Organization is capable of collecting 10 tons of waste per vehicle, and one waste disposal van will have the capacity to store about 4 tons of waste per vehicle to transport garbage to the waste disposal facility of Ek Construction and Engineering Co., Ltd. is located at Mabprayon subdistrict, Pluakdaeng District, Rayong, which has a distance of about 15 kilometers. If there is a garbage dump station, it can increase the capacity of collecting and disposing of solid waste at least 5 times a day. The environmental and community waste is collected and transported.

4) Feasibility of environmental management is used to direct and control operations that may have an adverse effect on the environment by controlling the wastewater treatment system and the odor control system is estimated to have 79.65 cubic meters of wastewater per year or 79,720 liters per year. The appropriate wastewater treatment pond design for a 7-rai project area of approximately 80 cubic meters is sufficient to adequately address the total wastewater volume of the project. There are suitable wastewater treatment systems that can be divided into 2 ways: waste water treatment system, SBR wastewater treatment system and MBR wastewater treatment system. Reusable wastewater treatment system has been applied for wastewater treatment. It can be reused. The most appropriate odor control systems are bio-based odor control systems. Adsorbent activated carbon system. Deodorant or deodorant and Scrubbing the proper odor removal system consists of an odor spray

system. It is installed at the waste bins. It can eliminate the smell of solid waste before leaving the waste disposal station.

5) Feasibility of operational safety; There are regulations for safeguarding in the solid waste transfer station ,staffing in safety control, uniforms and equipment in operation, In order to properly cover the situation and security in the surrounding area. Pluakdaeng Subdistrict Administrative Organization has 195 volunteer firefighters and the public health and community health in the service area of Pluakdaeng hospital. There are 131 volunteers at Pluak Daeng Village, which are enough to ensure the safety of life and property.

6) Feasibility of corporate social responsibility; There are frameworks and guidelines for publishing corporate activities, schools in Pluakdaeng District may be supported by Ban Pluakdaeng School,. Orawin Witthaya School and Pluak Daeng School, Students are encouraged to sort out the waste before disposing of it to educate students about waste separation. It also adds value and make money for the school including the use of food waste to fermentation or even plastic bottles can be sold separately to suit the environment of the area, Pluakdaeng Subdistrict Administrative Organization.

7) Preventive measures and preliminary environmental impact; It can be divided into 3 phases: pre-construction phase, construction phase and operation phase of the solid waste disposal station. The project has been monitored in terms of air quality, water quality, solid waste management and sewage, occupational health and safety. This is a measure to prevent and correct the impact. It also plans to monitor the environmental quality suitable for solid waste transfer stations Of the Pluakdaeng Subdistrict Administrative Organization.

## **Discussion**

A study on the feasibility of the area and situation of waste in the area . It was found that the landfill site of the Pluakdaeng Subdistrict Administrative Organization Project, Pluakdaeng District, Rayong province was suitable and adequate for the construction of the waste landfill project. The surrounding area of the project area facilitates the construction and operation of the project also facilitates access to the project without affecting traffic and it is safe to drive and reduce losses from road accidents in the course of the project and the amount of waste that occurs in the area of responsibility. This is in line with the guidelines for setting up a solid waste transfer station of Kiatmanaroch, T. (2002: 6) Said selecting areas to be used as a location for the construction of a transfer station waste that 1) should be close to the community, with the amount of solid waste going on, or as close as possible to the point of origin, waste to

the extent that there is a provider of solid waste transfer station. 2) It should be close to the community where the amount of solid waste is generated, as close as possible to the center of the waste source, to the extent that the garbage dump service is available. 3) roaming in and out of traffic with ease, or any type of service. 4) In an area that is easy to connect to the main transport route or in an area that is easy to connect to secondary transport. 5) are appropriate to the area and do not destroy the environment or the scenery. 6) in non-objectionable areas of the public. 7) is the most appropriate point between the disposal site and the waste disposal area. 8) if possible, should be in areas where construction and operating costs are small compared to other areas. 9) there is enough space available to provide a place without having to mess with anyone. and 10) areas where public utilities are available. However, setting up a waste disposal station in the vicinity of the haulage service will save a lot of freight. It should be time to collect garbage to a few stations, but getting the right locations is difficult. Therefore, the choice of place requires a compromise with the requirements for the best results. The amount of solid waste that is likely to increase continuously and the composition of the waste is in the design of the waste transfer station. There are criteria or specifications. The waste disposal station, The Waste Management and Hazardous Substances Agency Pollution Control Department Ministry of Natural Resources and Environment (2014) the amount of space used for the construction of the solid waste dump station. If the amount of waste is less than 100 tons per day, the area is less than 5 rai. This is consistent with the establishment of the project. It has the capacity to transport 50-100 tons of waste per day and can store all sorts of waste to the disposal site without having to separate it into waste. And consistent with the research of Sirikul, L (1994) this study was conducted to determine the location of one community solid waste dump station in Nonthaburi municipality area. The first step of the study is to select areas that are suitable for initial use as stations. The nature of the area required is the price of land used for the construction of the loading and unloading station must be at a level not exceeding the procurement capacity of the municipality of Nonthaburi. The location of the waste transfer station must be flooded areas do not reach. The location of the loading and unloading station must stay away from residential areas of the people fairly with convenient transportation. The entrance must be large enough. It is easy to get in and out of the pickup truck and the waste truck to the disposal site. In addition, the location of the loading station must not obstruct the traffic or routing of the public. So the feasibility of space and the situation of waste in the area of the project is appropriate to set up a solid waste transfer station because the project has the potential to accommodate future waste.

The technical feasibility study of 6 waste transfer stations was found that the type of conveyor station suitable for waste management of the Pluakdaeng subdistrict administrative organization was the direct transfer station. It is designed to suit the size of the area and surrounding areas of the waste disposal station based on the study of appropriate disposal methods. There are 2 types of transportation, loading without waste compacting and loading using waste compactors. The choice of compressed garbage transfer station 2 is the compression system landscape and the vertical compression system. The solid waste management system within the station requires equipment for the solid waste management system, waste solid waste garbage truck, truck scales, sludge pumps and sewage pumps suitable and potential waste water pumps for future waste, and odor control by using activated carbon to absorb odors from waste incineration. It is in line with the research of Ridtichai and Sujaroen (2000) that the removal of dye from textile industry with activated carbon from crab shell. It was found that the application of activated carbon from crab shell to absorb color from it was found that removal of activated dye from activated shell was effective good waste disposal. The transportation of waste by way of trailers or garbage trucks will be appropriate to the area of the Pluakdaeng Subdistrict Administrative Organization. Truck 300-hp hydraulic forklift truck is best suited for low fuel consumption including the characteristics of the van and the overall size of the car is appropriate to the route used in the travel of the Pluakdaeng subdistrict administrative organization. This is consistent with the concept of the Keatmanaroch (2002) said that the design of the solid wtransfer station and the various mechanical equipment used should be based on uncomplicated technology. Easy to operate. It also saves costs and time to collect and transport the waste and in line with the guidelines for determining the suitability of the area, construction design and management of waste disposal stations (Pollution Control Department, 2017) says that the technology used to dispose of waste is varied and suitable for each type of vehicle for land transport by landfill, large trucks in general to use the truck full-trailer dump trailer or semi-trailer dump.

A feasibility study on the management of the solid waste disposal station found that the project was appropriate for the form of administration of Pluakdaeng Subdistrict Administrative Organization managed of waste disposal station environmental management and safety in operation including the social responsibility of the waste disposal station and the measures to prevent and correct the initial environmental impact. In management of solid waste transfer stations, staff should be prepared. Prepare monitoring measures it also controls garbage, insect and carrier waste to prevent health problems including the recording of waste from various sources, transporting to the loading station

each day (Kiatmanaroch, 2002) This is consistent with the research of Boonyaroonnet (2007) studied the feasibility of establishing a waste disposal plant extracts, fermentation composting and landfill in Nakhon Pathom. It found that engineering, technology, separation, fermentation, fertilizer and landfill were appropriate for waste disposal in Nakhon Pathom province. It has the least impact on the environment. And the project management team has offered to control the construction together with the contractor the construction period is 2 years. After construction completed, some of the factory management of the factory and select more qualified people. It is also consistent with Thosuwannachinda, W (2015) recommendations solid waste management in Thailand proposed that the government should include laws related to waste management is the same in terms of processing. Environmental law it is classified as a category, reducing the amount of waste from the source, collecting, transporting and disposing of waste and hazardous waste. There is a direct responsibility for the unity of management, especially the local administration, which must be supported revenue and law enforcement, as well as promoting public participation in waste disposal. The results of the study were as follows: (1) to study the model of solid waste management in Mahasarakham province, The results of the study were as follows: (1) to study the model of solid waste management in Mahasarakham province; It should be a waste disposal project by setting up four transfer stations to reduce transportation distances and maximize waste management potential.

The economic feasibility study of the solid waste disposal project found that it was a project that would help reduce waste management costs, reduce the amount of residue of waste in the area of Pluakdaeng Subdistrict Administrative Organization, Pluak Daeng District, Rayong province. The project has an investment that aims to consider economic welfare. This is not the case, financial costs are converted into economic values based on the valuation of construction and technology within the waste disposal station. Pluakdaeng Subdisris Administrative Organization, Pluakdaeng District, Rayong province, is considered a good investment for long-term investment. An economical analysis is used to determine whether a project or process is appropriate. The goal of the project analysis is to analyze that. This will lead to a final conclusion on the investment choices using investment analysis techniques will ensure that investment in the investment program will help create value for the organization. (Tiammeke, Ch., 2013) This is in line with Wilisorn's research. Chin Prayasathien (2010) investigated the feasibility of a waste sorting plant in San Sai District, Sawang Dao District, Chanthaburi province. Financial return analysis has a net present value equal to 218,969,826.81 Baht, the internal rate of return is 52.50%. The return to cost



ratio is 1.73. The profitability index is 5.81 and the payback period is 1.15 years. The RDF can also be extracted for RDF production. Future electricity. Chaijitdawan and Wiwattanadej (2012) had studied the model of community waste management. Koh Samui, Surat Thani The waste management model has been developed by using community solid waste to produce RDF. The RDF with the biogas from the community waste. If evaluated by the amount of waste, 168 tons per day. Future expansion, it is proposed to build a power plant with a capacity of 3.0 megawatts, with a cost of about 310 million Baht. The power supply for the Provincial Electricity Authority is 1.4 megawatts. The project will have a net present value of approximately 32 million Baht. Cost to benefit ratio is 1.37. The internal rate of return is 17% and the payback period is approximately 6 years. In addition to economic value, they also receive a return on energy security as well as the quality of life and environment in the community and consistent with the strategy. WangSrinapawong (2013) Studied on financial feasibility and economics of community solid waste power plant. Case study: Bangkok, It found that the incineration of solid waste 500 tons per day and the burning of 850 tons per day, when the electricity wholesale rate and the average wholesale Ft per unit decreased and constant operating costs increased. The present value of the project (NPV) is positive. The project's internal rate of return (IRR) is higher than the discount rate. With the ratio of cost (BCR) in all cases is not less than 1 times, indicating that the project is suitable for investment.

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