

Integrated of Environmental Management Cooperation in Local Governments, Nonthaburi Province

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Abstract: The objectives of this research were to study environmental pollution problems in the local administrative organizations area in Nonthaburi Province. The capacity of environmental pollution management of local government organizations in Nonthaburi Province and Models and methods for effective management of environmental pollution problems through cooperation of local administrative organizations in Nonthaburi Province. There was a mixed research during quantitative research by distributing questionnaires to people living in Nonthaburi Province and qualitative research with in-depth interviews, focus group and community forum with key informants which are Executives of government agencies related to the environment in Nonthaburi Province, Executive and Director of the Office of Environment, 46 local government organizations in Nonthaburi Province and environmental pollution observation in Nonthaburi Province. The quantitative data analysis using descriptive statistics, amount, percentage, mean, standard deviation and qualitative data analysis using interpretations and conclusions. The research found that environmental problems in Nonthaburi Province were at a high level ($\bar{x} = 3.59$, $SD = 0.916$). The environmental management capability of local government organizations is at a high level ($\bar{x} = 3.45$, $SD = 0.859$) and cooperation in environmental management of local government organizations in Nonthaburi Province (cooperative) ($\bar{x} = 3.41$, $SD = 0.906$). Models and methods for effective management of environmental pollution problems with the integration of local administrative organizations in Nonthaburi Province are: creation a network of cooperation in the Union Local Government Organizations, collaborate from the community level, department level and at the network

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level to integrate and work together the establishment of a central law on environmental management as a system and the law is enforced clearly and effectively. Local government organizations should have policy formulation in the same direction. Preparation of a memorandum of agreement and establishing a center

for cooperation between local government organizations to define rules and frameworks for building cooperation that all parts are mutually accepted and there are measures in place to strengthen local administrative organizations through public participation in environmental management.

INTRODUCTION

Decentralization law and other laws related has set the authority to manage the environment of the local administrative organization, has assigned the local government to have the powers and duties to manage natural resources and the environment in their own governing area. The use of the authority of such local organizations is a total use of power that may affect the implementation of environmental pollution management with different results. It depends on the capacity of each local government organization that is important. However, if environmental pollution problems arise and spread widely and cover many local government organizations, such as garbage problems, sewage problems in rivers and canals and other environmental pollution which does not contain any provisions relating to cooperation in solving environmental pollution problems in this particular way. This causes various forms of non-juristic relationships to arise, including cooperation to solve problems, different people and conflicts which various relationship styles. These occur as a result of environmental problems that occur in areas where many administrative organizations overlap. How can the integrated environmental pollution management among other governments be effective? It is interesting to find answers from this study.

Nonthaburi Province is a province that has a lot of environmental pollution problems. Because of the nature of a large city that extends from Bangkok, cause many environmental pollution problems especially the problem of garbage, the problem of wastewater in various rivers and canals and air pollution caused by the increasing number of cars, construction and industrial plants. Solving environmental pollution problems in Nonthaburi Province is the duty of the relevant departments and 46 local government organizations, with a population of 1,246,295 people (not counting the latent population) with a waste volume of 593,125 tons and a dust content of PM 2.5 that exceeds the standard. In the past, solving environmental pollution problems in administrative areas had different characteristics. This makes the problem that covers many areas and is too difficult for a single organization to solve is not solved. If local government organizations and related agencies in Nonthaburi cooperate to prevent and solve such problems will make the environmental pollution problem of Nonthaburi Province to be solved concretely. Therefore, in this research, the question of the research is how is the environmental pollution problem in

Nonthaburi Province? Is there a severe level that is harmful to health? What is the capacity for environmental pollution management of local government organizations in Nonthaburi Province? Is it enough to manage pollution? Is there a relationship model that arises as a result of environmental pollution problems of local government organizations in Nonthaburi Province? What should be the model and method for effective integrated environmental pollution management of local administrative organizations in Nonthaburi Province?

MATERIALS AND METHODS

Objective: To study environmental pollution problems in the area of local government organizations in Nonthaburi Province. To study the capacity of environmental pollution management of local government organizations in Nonthaburi Province. To create a model and an integrated approach to environmental pollution management in cooperation with local administrative organizations in Nonthaburi Province that are effective.

This form of research to develop people and society to have a sense of responsibility for the environment. It is a combination of quantitative research by distributing 400 public questionnaires and qualitative research with in-depth interviews, focus group and the setting up of the forum is the executives and personnel involved in the environmental performance of the local administrative organizations in Nonthaburi Province, 46 places.

Research tools: A questionnaire for distributing people in 46 local administrative organizations in Nonthaburi Province. In-depth interview form (Key informants) with the following main questions:

- What is the condition of environmental pollution problems in the area of the local government organization of Nonthaburi Province?
- What is the capacity for environmental pollution management of local government organizations in Nonthaburi Province?
- How is the relationship model arising from the environmental pollution problem of the local administrative organizations in Nonthaburi Province?
- How to effectively manage the problem of integrated environmental pollution with the cooperation of local government organizations in Nonthaburi Province?

Focus group with key informants on the issue of models and methods for effective management of environmental pollution problems with the cooperation of local administrative organizations in Nonthaburi Province that are effective. Non-participatory observation form environmental pollution problems in the area of the local government organization of Nonthaburi Province.

Tool quality inspection: Examination of the tools used in this research Will use the verification method, namely, using the method of checking the content validity by having 3 experts or experts to check. Improve and edit questions with data collection. To check the validity, to test the reliability of the try out questionnaire with people who are not a sample of 30 people. The scores obtained from try out were analyzed for the confidence test using Cronbach's alpha coefficient = 0.912.

Data analysis: Quantitative data analysis is the data obtained from the questionnaire distribution using the program to analyze with descriptive statistics such as number, percentage, mean and standard deviation. The inferential statistic is the Pearson's correlation coefficient.

Qualitative data analysis obtained from the data collection is secondary data is from various documents related and primary data is from in-depth interviews with key informants and interviews with inductive interpretation and logical analysis and then using descriptive, the results of the analysis of such data.

RESULTS

The overall environmental problems of Nonthaburi Province were at a high level ($\bar{x} = 3.59$, $SD = 0.916$), followed by the ability to manage the environment of local administrative organizations ($\bar{x} = 3.45$, $SD = 0.859$) and the last one is the cooperation in environmental management of local government organizations in Nonthaburi Province (cooperative) ($\bar{x} = 3.41$, $SD = 0.906$).

The cooperation between the local administrative organizations in Nonthaburi Province in the management of waste pollution (X10) was positively correlated with the environmental pollution in Nonthaburi Province caused by factories/enterprises (Y12) (0.102*) with statistical significance at 0.05 level.

Condition and environmental management in Nonthaburi Province

Garbage problem: The amount of waste is increasing rapidly as the population increases because Nonthaburi Province is growing in every aspect, whether it is agriculture investment trade industry tourism from the expansion of various sectors and the economic and social

growth of Nonthaburi Province has increased population, including an increase in the latent population and the foreign population due to various developments both industry and tourism. Therefore, the amount of waste is increasing rapidly with the population.

Laws on garbage collection: The law has authorized the local government authority to manage solid waste. In which the solid waste collection may be carried out entirely by itself, from the collection, transportation or disposal of solid waste. It depends on the local government that it deems appropriate how to proceed but if the locality does not wish to operate on their own may be jointly with government agencies or other local governments under a mutual agreement.

Smuggling garbage and burning people's waste. There are smuggled trash in public areas, smuggling garbage from outside the area to dump garbage in the area. The behavior of discarding leftovers without sorting and not to be recycled.

The garbage collection point is insufficient, there is a long distance garbage, which affects the bad smell, the road raises the separation area, increase the volume, the problem of insufficient garbage collection to meet the needs of the people, causing residual waste, do not separate each type of waste.

Solution: Consciousness and encourage people to participate in the management of solid waste in the law relating to garbage collection such as the duty of separating household waste, reducing the amount of solid waste, campaign to dispose of garbage by establishing separate garbage bins in the community.

A central law on solid waste management should be enacted as a system and local administrative organizations must participate in formulating guidelines for the implementation and the law is enforced clearly and effectively and set clear measures and penalties for those who violate the law.

Create a model of waste collection management in Nonthaburi Province from source to destination collection, to delay state work and people learn together and operate in the same direction. Negotiation There was a discussion with the committee, Community/Community Leader in the matter of waste separation (It's a closed community).

Public relations on hazardous waste disposal and schedule a time to collect garbage as a model from under the house. It is a campaign to participate in waste management and make the announcement of the current regulations Garbage collection outside office hours (keep/carry/sell). Organize training on waste separation Temple/School/Community. Creating participation in waste separation.

Wastewater problems: The behavior of people in the community who do not comply with applicable government laws, due to the expansion of the increasing community. In addition, Nonthaburi is both a tourist, commercial and industrial city.

There is a construction of a building with an improper sewerage system. Because at present, in Nonthaburi, there is a large number of community expansions. The area has been filled in for building construction. The water that used to flow into the natural canal cannot flow normally. Therefore, causing flooding and there is no proper arrangement of the wastewater system, lack of strict controls thus causing the construction to be unorganized.

Agricultural wastewater farmers the use of chemicals in today's cultivation. Farmers use more chemicals such as fertilizers and pesticides. Some of which are difficult to decompose and may be left behind in vegetables and fruits. Cause danger to consumers and some may be scattered on the ground. When it rains, rainwater washes them down rivers and canals, causing deadly marine life. Industrial wastewater Industrial plants release wastewater into canals and establishments. Different types of industrial wastewater drain production that requires almost all types of water which will cause all waste water.

People growth in the community The density of the community increases, pouring garbage into the canal in the restaurant area, pouring organic waste into the canal. The wastewater treatment system is insufficient and inefficient.

Solution: Strict enforcement of laws such as legislative measures, the Act Catch/adjust/each locality adopted a grease trap. There is an ordinance in place to work.

Promote and support people and community representatives to participate in preventing and solving problems in the area, such as organizing training and educating the people thoroughly and comprehensively, building a community network to monitor wastewater/water quality. Controlling the problem of waste water from various sources, to control the waste water to meet the standards.

Allowing the community to use organic agriculture (making EM pineapple juice) more, increasing the knowledge of the people. Entrepreneurs/restaurants must have grease traps everywhere, set up a simple grease trap. Where do you go to find a wastewater discharge point? find the cause in the factory

Campaign for agencies and organizations to treat and eliminate toxins before they are released into water sources. Systematic management build a multi-sector cooperation network. Allocated villages do not use wastewater treatment systems before releasing them into public canals. Participation/collaboration from government agencies, the private sector and the public sector

Air pollution problem: Odor generated by entrepreneurs dealing with food, paint or businesses related to producing unpleasant odors such as factories/rubber products, occupation of a food vendor. Most of them are not properly managed and hygienic. It will cause a foul smell to disturb others. Smell from pets caused by the owner's irresponsibility not cleaned regularly resulting in a foul smell that disturbs others or bringing pets to defecate in public sharing it with others creates a huge odor pollution.

Smell from rotten water As a result of dumping garbage in the wrong place or the discharge of sewage into the river Including overfeeding the fish until it accumulates, causing the fish food to spoil and smell bad, kill the fish that live in the river until causing spoilage of water in the river. Traffic jam problems, toxic fumes from the exhaust pipe. Because Nonthaburi Province is a tourist attraction, commercial and industrial. There are many reasons that cause smoke which is air pollution.

Burn agricultural materials. Burning establishments burning rice cobs (Especially Sai Noi municipality has burned rice cobs). Construction of buildings, condos or housing estates. Lack of air quality monitoring point or air quality meter which is only 2 points which are Bang Kruai District and Sukhothai Thammathirat University in Pak Kret District area. Garbage incineration (traditional wasteland community).

Solution: Promote the use of public transport to reduce vehicle use and reduce road pollution. Strict enforcement of the law to determine the driving of vehicles to reduce the use of vehicles. Asking for cooperation with the people and taking them seriously. Restaurants must have an odor treatment system. Campaign to reduce agricultural burning to reduce dust and smoke. SAO/Municipal inspected since the construction was completed until the factory opened. By notifying the operation results to the Department of Factory in the relevant part (Report of the Department of Industry) and establishing a joint resolution committee. Amend the law by giving the authority of the local authority to control. Construction or set up a work package to solve problems. Campaign and publicize to make everyone understand the dangers arising from air pollution.

Noise pollution: Pet noises such as pets making noise, smuggling of animals in a building where no pets are allowed animal farming for business without permission from the supervisory authority. Sound-related businesses such as furniture stores, lumber mills, etc.

The entrepreneur uses the wrong type of building, for example, using a commercial building to operate an entertainment business or a pub that causes noise to others at night.

Solution: There should be local ordinances on keeping pets such as limiting the number of pets. Determine the

form of raising pets in condos that can be raised but must be kept in a closed system. Control of law enforcement The law deals with noise and vibration pollution. It is one of the tools that government agencies use to promote and maintain environmental quality in regards to noise and vibration. It is also a guideline for controlling and preventing noise pollution problems and vibration from various sources in order to maintain the quality of the environment and control the noise and vibration that may be harmful to public health.

There should be an officer to inspect or a special agency to control noise pollution. Regularly survey and inspect the various sound sources. to monitor and control noise pollution. Set a working period to avoid loud noise to annoy others such as entertainment venues, lumber factories and other industrial plants, etc.

Take legal measures by detecting motorcyclists who have modified their engines with excessive noise. Campaign and publicize the public about the dangers of noise pollution and work together to prevent noise pollution. Promote engine customization to reduce noise and noise pollution. Investigate and encourage industrial factory owners, find a way to reduce the noise from the mechanical operation.

Eye pollution:

- Illuminated billboards or billboards that follow electric poles
- Electrical cables, internet cables
- Garbage on the side of the road caused by a person's negligence

Solution: Change methods or approaches to advertising, such as online advertising, advertising by voice announcement, advertising by broadcasting via radio waves. Ask for cooperation from entrepreneurs in the labeling of various advertisements. If it is already attached, it should keep its own advertising banners. Set up a place to place the notice board or specifying the point where the billboard can be attached. Models and methods for effective management of environmental pollution problems with integrated cooperation of local government organizations in Nonthaburi Province.

Create a network of cooperation in the manner of local government organizations by joining together with local government organizations to manage the environment by creating an organization of learning and working together. Each local government organization has limitations in terms of budget and scope of environmental management powers. Therefore need to coordinate from the community level department level and at the network level to integrate and work together

The enactment of a central law on environmental management as a system and the local government organization must participate in formulating guidelines for

its implementation and the law is enforced clearly and effectively. Executives of local administrative organizations should set policies in the same direction. In order for the operation of the Operations Department to achieve its objectives. Preparation of a memorandum of agreement and establishing a center for cooperation between local government organizations, to determine the rules and rules of cooperation that are mutually accepted by all parties. There are measures in place to strengthen local administrative organizations through the participation of people in environmental management.

DISCUSSION

From research objectives to study environmental pollution people's consciousness and environmental behavior. The potential of environmental management and management of organizations, personnel and communities in Nonthaburi Province. The results of the research revealed that the environmental pollution problem in Nonthaburi Province. Overall, it's at a high level with the problem of residual waste. The problem of air pollution (dust) and the problem of wastewater in the canals is the most consistent with Kasem^[1] who said that most of the waste comes from the community. Community waste is the waste generated from a community/city or village. This type of waste structure contains up to 50% of organic matter/food waste. The rest are usually plastic, metal, aluminium, steel, fiber, etc., respectively, although there are quite a lot of food waste and organic matter. There was still quite a large amount of toxic contamination as well. The average waste generation of people in Bangkok is about 0.85 kg per person per day. While Phetchaburi province is about 1.20 kg per person per day. Chiang Mai about 1.4 kg per person per day and Uttaradit about 0.7 kg per person per day. In other words, it is the amount of community waste depends on the amount of people living and activities in that community.

The cause of environmental problems is environmental pollution in Nonthaburi Province caused by a lack of human consciousness and lack of knowledge and understanding of the people the most. Therefore, participation from all sectors is important and needs to be taken. This is in line with many scholars who have discussed the principles of participatory democracy in environmental management. This is one approach in which Leach^[2] presented a framework for assessing the democratic advantages of participatory public administration in seven dimensions: inclusion, representativeness and participation in public administration, unity, transparency, listening to opinions compliance with the law and reinforcement. This study shows that the nature of certain engagement varies and it shows that some key stakeholders are not included in the

cooperation. However, the representation is balanced, national and state advocacy groups are not likely to engage in locally-local partnerships and government agencies are the backbone for outside perspectives. As for opinions, it was at a very high level. As can be seen from the prevalence of education and fact-finding strategies including respect for the discussion of the participants about half of the coalitions have adopted new policies. Another group of scholars, Verheij *et al.*^[3] sees the participation in environmental destruction surveillance as a successful approach in areas where a number of people still lack public consciousness. The study found that each area will have its own management plan with the community and the district council working together to plan, efforts to have participatory management include enclosing coral for recovery, actions and monitoring observations. In this review, a team of observers will monitor the corals. which is the villagers, with county officials advising. Be an investigative observer on the impact of management interventions. It turns out that after using the technique of planning management in their own way, fish catches using dynamite have significantly decreased and the coastal waters were restored to their original state. Cooper *et al.*^[4] also see that working together to manage the environment must take the interests of the people as the center. They discovered that public management with participation. It is a concept that is widely defined, make a detailed theoretical explanation and putting it into practice for research is difficult. In this article, the researcher uses the definition of public management through public cooperation. focusing on using the people as the center and the potential to join the people. The results showed that collaborative or participating strategies. Both decision-making and action are essential for participatory public management with the people as the center of success. Such participatory public management represents a form of management that extends to "A process that is directed and implemented in a multi-organizational structure to solve irreversible problems", a people-centered collaborative public administration. Emphasizes the role of the public in participatory management processes which sometimes overlooks the importance of the people. To achieve the aforementioned results, public participation is likely to mean "People are involved in decision making and taking action within the framework of interests. institutions and networks to create the identity of the people and co-operate in the process of public management." Another scholar, Lubell^[5], sees that environmental management in the way of real participation. Must be a stakeholder at the grassroots level so it can affect success.

People in Nonthaburi Province In urban areas, there is a need and cooperation in managing environmental problems. Due to the direct impact of environmental

problems, consistent with Ostrom^[6], a comparative study of communities, Ostrom found that community groups that have had success in collecting and organizing the behavior control system of people in the community. It is featured in the basic elements that are similar as follows:

- There is a clear and precise territories for each community
- Appropriate use of rules and regulations for the needs and conditions of each community
- Those affected by any of the community rules can play a role in revising them
- The government accepts and gives rights and freedoms to members of the community in the matter of amending the rules of the community themselves
- There is a system to control the behavior of the members that the members of the community themselves take care of
- There is a system for punishing members that are lightly based on their crimes
- There is a conflict resolution mechanism that can be accessed by members of the community
- If this collective resource is large There will be an organization comprising multi-tiered affairs to take care of the utilization, provision of care enforcing the rules Conflict Resolution and Governance

CONCLUSION

One of the essential waste management practices is waste segregation and recycling. To reduce the amount of waste and to motivate people according to economic principles In keeping with Smith^[7], economic principles need to be applied in this collaborative environmental management to be successful.

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