Local public policy-formulating process with participation for natural resource and environmental management

Jariyaporn Masawat[1, a)] and Saowalak Roongtawanreongsri[2, b]

[1]*Program in Management of Natural Resources and Environment, Faculty of Science Technology and Agriculture, Yala Rajabhat University, Thailand.*

[2] *Faculty of Environmental Management, Prince of Songkla University, Thailand*

[a)] *Corresponding author: jariyaporn.ma@yru.ac.th*

[b)] *saowalak.ro@psu.ac.th*

Abstract. An ideal local public policy formulation for natural resources and environmental management should allow stakeholders' engagement and participation. This research is thus aimed to propose a model of the public policy process that involves real stakeholders' participation based on the current problems encountered, focusing particularly on the public policy of natural resources and the local environment. The methodology used analyzing, comparing, discriminating, categorizing, and sorting the content from the document and related research reviews to synthesize a model for implementing public policy processes through public participation. Results showed that the steps of the local policy process for natural and environmental management by public participation consist of four steps: (1) stakeholder identification; (2) determining and prioritizing problems; (3) determining policy goals and objectives and (4) determining and evaluating policy options. In addition, to successfully implement the policy to solve such problems, the local government organizations must allocate resources such as budget, personnel, materials or equipment to assist the people in implementation. They should also solicit academic knowledge from local educational institutes to participate in the process. The limitation of this research is that it has not yet presented a public policy evaluation process afterwards. Therefore, future research should focus on how to fully engage stakeholders in this evaluation process.

Key Word: public policy-making processes management of natural resources and the environment participation

1. INTRODUCTION

Typical public policy formulation is often directly top-down by the government sector without stakeholders' participation in the policy-making process, although these people are often affected afterwards by the policies. This process contradicts the definition of public policy, which is the decision of a state or a governmental organization or a social sector in choosing to or not to carry out activities organized within the framework that are consistent with the reality and needs of the people through defining rules and procedures for solving, alleviating, and preventing problems that arise, as well as improving the quality of life of people within the society [1] [2] [3] Thus, people should have opportunities to participate in deciding which activities to take that will genuinely benefit the development of one's quality of life.

Public policy formulation generally consists of three steps: defining and prioritizing problems, setting goals and objectives, and defining and evaluating alternatives [4] However, some studies argued that each of the three steps presents several problems or limitations. For instance, in the defining process, [5] mentioned people's low participation as they could engage only through electing political representatives. If the concerned problems are unpopular, do not match the political campaign, or do not benefit a group of influential people, such issues may either be eliminated or not resolved [6]. In the prioritizing process, there was no problem prioritization occurring in society [7] because the state structure was set to benefit certain groups. Society's conventional practice yields toward fixing problems rather than preventing them because it influences people to vote for them in the next election [8]. Furthermore, when setting goals and objectives, the two were defined

broadly, ambiguously, and vaguely, thus causing problems when implementing policies [9]. The most problematic one is that when the policies were formulated and evaluated, they involved people in only providing information, not decision-making. Moreover, since the policy alternatives are also top-down, they were often pre-determined, broad, quite limited and did not respond to the local context without considering other choices that may be able to solve the problem better [10] . In addition, as mentioned earlier, the state structure often benefits politicians and influential groups such as business people [11]. Therefore, when implementing the policy, they often face resistance from people and relevant practitioners, leading to unsuccessful implementation and other failure outcomes.

The local public policy formulation on resource and environmental management is no different from other public policy processes. Since the central policies are usually set to be broad for local practitioners to adapt and transform [12], most local bureaucracies lack the capacity to engage participation from various stakeholders. Hence, many policies that have been implemented are not successful as expected in solving local problems or regional development, causing a loss of time, human and other resources, and budget. In fact, many local public policies were opposed by multiple local groups, and some public policies failed to effectively resolve problems for local communities [13]. For instance, the Enhancement and Conservation of National Environmental Quality Act (No. 2) B.E. 2561 (2018) require local governments to reduce or control waste generation. Specifically, the waste amount per population should be less than 1.0 kg, the waste utilization rate should be higher than 15%, and the residual waste amount does not exceed 10% of the total waste. However, many municipalities failed to achieve the desired outcomes as most local administrative organizations do not have standardized waste management practices. Thus the practices varied according to each municipality's capacity, understanding, skills, and available resources. Therefore, the policy outcomes were unlikely to be achieved [14].

For the reasons mentioned above, this research aims to investigate, develop, and present a local public policy formulation model for natural resource and environmental management in which people and stakeholders can genuinely participate. The research outcome will distinctly present a model of the process of formulation of local public policy that is participative.

2. METHODOLOGY

The research analyzed documents, research, and case studies to determine the proposed participatory local public policy formulation model. First, researchers compiled, sorted, categorized, compared, differentiated, analyzed, and synthesized the relevant literature. Second, each public policy process' success factors, problems and operational constraints were identified. Last, using the information obtained, the public policy formulation process that would eliminate the limitations and enhance local participation in each step was developed.

3. RESULT

Most public policy formulation processes consist of three main steps: 1) defining and prioritizing issues, 2) setting goals and objectives, and 3) determining policy alternatives. We found that each step still lacks details and practical guidelines. We, therefore, present a new public policy formulation process consisting of four steps: 1) identifying actual key stakeholders, 2) determining and prioritizing problems, 3) setting goals and objectives, and 4) determining policy alternatives. The process comes with the details of how to proceed in each step more clearly as follows.

Step 1: Stakeholder identification

The main problem with selecting stakeholder representatives is that the representatives are often a group of influential people and not the actual people who face or involve with the problem [7]. Selecting false stakeholders may disrupt the policy outcome because it does not respond to the real issues in the local context. A good deal of work tried to propose methods to overcome false representative selection, such as chain sample selection, interview, a focus group questionnaire, and the Delphi method [15][16]. (However, there is still a gap to fill for clear details and procedures, particularly when it comes to formulating local public policy; these methods are often not used.

Here, a more systematic true stakeholders selection process with better criteria to reduce bias is proposed. Generally, the conventional practice of selecting people to be representatives simply identifies stakeholders from certain groups and selects the leaders or representatives from each group without actually considering who is directly involved in the issues being considered. For this reason, we have developed a systematic process to provide a more straightforward guideline to seek and select more appropriate stakeholders. The three-step process is presented below.

1.1) Determination of stakeholder groups

This step involves recognizing and defining various principal stakeholder groups. For example, in Thailand, stakeholders usually fall into one of these groups: local community people, NGOs, government agencies, academic, media, business, political, and religious groups.

1.2) Determination of population boundaries of each stakeholder group

This step determines who and how many people are within each stakeholder group to ensure no one is left out of the consideration. This determination can be done using a variety of study methods, such as studying documents such as meeting reports, local news or research relevant to the area, field visits, participating in community activities, and informal interviews on the use and benefit of the study area. Make a complete list of those involved, whether benefiting or being affected by the tentative policy.

1.3) Selection of stakeholder representatives

Conventionally, the selection of a representative simply picks leaders of the stakeholder groups without specific criteria for consideration. This simple selection is the main weakness of participation-related work. Therefore, a more systematic method should be used to solve this problem. [17] Masawat et al. (2017) have proposed this method in full detail. In short, the steps involve using a stakeholder selection form based on four criteria: interests, effects, participation and importance and influence levels. This form is then used to collect data from sampled stakeholders of each group to identify those whose total scores are higher than 50% to be selected to participate in the policy process.

Step 2: Determining and prioritizing problems

Commonly, defining problems is the role of those responsible for formulating public policy by collecting information, suggestions or claims from both official and unofficial sources, such as political groups, academic groups, and public groups [7]. This data collection step may not yield accurate information or situation if the informants are not true representatives of the stakeholder groups. As a result, most of the issues brought into the political agenda do not reflect the real problems of the community. Furthermore, a lack of prioritization exacerbates the policy process problems as the most serious issues may not be addressed. Therefore, we propose a two-step action model to promote a more appropriate policy formulation that can legitimately address the problems.

2.1) Problem determination

Some research on the policy formulation process collected the data and summarized the problems from a reflection in the community forum, such as the research by Supachai Suebpong (2010)[18], Supaporn Namwong (2010)[19], and Supawadee Brahmaputra (2011)[20]. However, most participants in the forum relied on the community leaders to present the problems in the area, meaning that actual stakeholders may not have the opportunities to speak up. Some used the Nominal Group Process [21]. The participators often selected the problem based on personal interests instead of focusing on the public benefits.

We thus suggest not only involving all stakeholders to participate in the problem determination but also educating about the problems or significance of the relevant information. The steps include the following.

1) Providing basic knowledge and information about the situation and problems of the study area. It is best if academics or experts can partake in this step.

2) Identifying problems using a brainstorming method with all stakeholders. This part should be done by groups of similar stakeholders. They should try to include as many problems as possible. After all problems are considered, only the top three to five most urgent or essential concerns should be selected. The number of the chosen problems depends on the purpose and capacity of each situation.

3) Incorporating all identified problems from each separate stakeholder to be considered in the following steps.

2.2) Problem prioritization

Literature found the problem prioritization mostly in public health work, for instance, the prioritization technique of the Department of Health Administration, Mahidol University, the Stanhope and Lancaster Method and the 5D Method [22], the Hanlon Method [23], the prioritizing problems techniques by WHO/PAHOCENDES [24], nominal group process method [21]. Some community development works employed the Alvarez method [25] and Analytic Hierarchy Process [26]. There are only a few methods for prioritizing problems in natural resource management. One study, in particular, used a survey [27], whereas the Action Priority Matrix [28] method was used in time management tasks.

Therefore, we propose a method for prioritizing problems as follows.

1) Educating stakeholders on the prioritization problems process and significance with various examples. This step provides a guideline for participants to prioritize problems correctly and not use personal feelings.

2) Problem rating using the Hanlon Method lets each stakeholder group exchange ideas and ultimately prioritize the problems from all chosen problems. The rating must be based on detailed consideration and criteria for selecting problems to get unbiased decision-making results. The Hanlon Method has four components: the size of the problem, the severity of the problem, problem solution difficulties and the availability of measures to solve problems [23].

a) The size of the problem. This criterion is based on the impact of each problem's physical, biological, utilization, and quality of life. Five rating scores can be used: 1- Very Low, 2- Low, 3- Moderate, 4- High, and 5- Very High (Table 1).

Table 1. Examples of Rating Considerations for the Size of the Problem

The size of the problem (A)	Problem		
	A	**B**	**C**
1. Environmental impact			
1.1 Physical			
(1) Soil			
(1.1) soil erosion			
(1.2) sedimentation			
(2) Water			
(2.1) water source			
(2.2) amount of water			
(2.3) water quality			
(2.4) water flow rate			
(3) Air			
(3.1) climate (precipitation, prevalence and temperature)			
(3.2) air quality			
1.2 Biological			
(1) Animal/plant			

The size of the problem (A)	Problem		
	A	B	C
(1.1) plant ecosystems and animal			
(1.2) land animals, aquatic animals and birds			
(1.3) type, quantity and distribution of plants and animals			
(1.4) habitat of plants and animals			
(1.5) animal migration			
(2) Rare creatures			
(2.1) type			
(2.2) quantity			
(2.3) ratio			
(3) Special ecological area			
(3.1) watershed area, 1-2			
2. Impact on Utilization Value			
2.1 Drinking water/ Water use			
(1) water source			
(2) water quantity			
(3) water quality			
(4) adequacy			
2.2 Flood control/ Drainage			
(1) control system			
(2) efficiency (drains well or not)			
2.3 Agriculture			
(1) agricultural development			
(2) aquaculture (raising fish in cages or fish ponds)			
(3) irrigation and reforestation			
2.4 Recreation			
(1) use of recreational areas			
(2) recreation area			
(3) green area			
2.5 Land Use			
(1) land use condition			
(2) specific area assignment			
3. Impact on quality of life			
3.1 Socio-economic			

The size of the problem (A)	Problem		
	A	B	C
(1) career			
(2) Income			
(3) settlement			
(4) educations			
(5) people's attitudes towards problems			
3.2 Public health			
anxiety/fear on the subject of home security and having a good environment			
3.3 History			
local history			
3.4 Culture			
(1) way of life			
(2) faith			
(3) tradition			
3.5 aesthetics			
(1) The value of the beauty of a tourist attraction			
(2) natural landmark			
(3) natural resources that should be preserved			

b) The severity of the problem. The severetiy of the problem is considered from the level of impacts on property, health, occupation, environment, and infrastructure damages. Five rating scores can be used: 1- Mild or No Damage, 2- Slightly Damaged, 3- Moderately Damaged, 4- Severe Damaged, and 5- Most Severe Damaged (Table 2).

Table 2. Examples of Rating Consideration for the Severity of the Problem.

Score level	Level of impacts (B)	Description
1. Property damage		
1	None	The property was not damaged at all.
2	Slightly	Slightly damaged property.
3	Moderate	Moderate property damage and can continue.
4	Severe	The property was severely damaged, and some operations had to be ceased.
5	Most severe	The property was severely damaged, and all operations had to be ceased.
2. Health damage		
1	None	No injuries.

Score level	Level of impacts (B)	Description
2	Slightly	Minor injuries. First aid is required at the basic level.
3	Moderate	An injury that requires medical treatment.
4	Severe	Severe injury or illness.
5	Most severe	Disability or death.
3. Occupational damage		
1	None	Not affecting income.
2	Slightly	Affecting slightly on income and can be controlled.
3	Moderate	Affecting income moderately and can be recovered over a period of time.
4	Severe	Affecting income severely, and an extra career is needed.
5	Most severe	Affecting income most severely to the level that must change career.
4. Environmental damage		
1	None	No damage.
2	Slightly	Slight environmental impact and can be controlled or modified.
3	Moderate	Moderate environmental impact and can be solved in a short time.
4	Severe	Severe environmental impact which takes probably about one year to fix.
5	Most severe	Most severe environmental impact which takes no less than a year to fix.
5. Infrastructure damage		
1	None	No damage.
2	Slightly	Minor damage and can be controlled or easily repaired.
3	Moderate	Moderate impact and can be solved in a short time.
4	Severe	Severe impact and takes about six months to fix.
5	Most severe	Most severe impact and takes no less than six months to fix.

Source: Modified from the Department of Industrial Works (2015)

c) *Problems solution difficulties.* The difficulty level is shown in Table 3. Five rating scores can be used: 1- Very Low, 2- Low, 3- Moderate, 4- High, and 5- Very High

Table 3. Problems solution difficulties

Difficulty in solving the problem (C)	score level				
1. There is a possibility to solve or address the problems, such as public education on the problems or engaging people in solving problems.					
2. Problems can be solved using academic knowledge or local wisdom.					
3. There is a possibility of allocating a sufficient budget to resolve the issue.					

Difficulty in solving the problem (C)	score level				
4. Adequate personnel can be assigned or allocated to resolve problems.					
5. Local people can practically solve the problem.					
6. There is enough time to resolve the issue.					
7. Local organizations can solve the problems.					

d) *Availability of problem solutions*. Consider the PEARL criteria (see Table 4) with two levels: Yes - 2 points and No - 1 point.

Table 4. Availability of problem solutions

Problem-solving projects or activities (D)	score level	
	Yes = 2	No = 1
1. Propriety: problem-solving is based on ethical and moral correctness.		
2. Economic feasibility: problem-solving will benefit the economy.		
3. Acceptability: solving this problem will bring about people's acceptance.		
4. Resource availability: resources are available to solve problems such as budgets and personnel.		
5. Legality: the solution to this problem is legal.		

Source: Modified from Siwaporn Ungwatana and Pornphan Sapphaiboonkit (2012) [29]

2.3) Calculating scores and ranking the problems

Each stakeholder is to give the score to each criterion, and then the following equation is used to calculate the score for each problem. The problems are ranked accordingly from the highest scores. Then problems are selected from the top highest to continue with the next step of setting goals and objectives.

$$\frac{[(A+B) \times C] \times D}{3} \quad (1)$$

Where: A = the size of the problem, B = the severity of the problem, C = problem solution difficulties and

D = PEARL. (PEARL= (propriety, economic feasibility, acceptability, resource availability, legality)

Step 3: Determining policy goals and objectives

The critical drawback in setting policy goals and objectives is that they are often broad, vague, and unclear, resulting in unsuccessful policy implementation. The literature review found that few policy processes did not provide clear methods for setting goals and objectives. For example, Udomdej Wanbowon (2010) [30], Supawadee Brahmaputra (2011)[20], and Naidansuren (2012) [31]set goals by reviewing relevant research relevant to the problems in the health of the elderly, and Pomeroy et al. (2008) [32] set goals for short and

long-term outcomes. We adopted the popular SMART concept to apply in setting goals and objectives [33] to create more systematic steps consisting of:

S (Specific) must be clear, know what we want;

M (Measurable) can be measured if the goals and objectives that have been set are in progress or not;

A (Achievable) can be accomplished by knowing how to achieve that goal or objective;

R (Realistic) can be achieved the goals that have been set; and

T (Time) determining the exact and clear time.

The following steps can help stakeholders set goals and objectives more appropriately.

3.1) Building knowledge and understanding of SMART with practice

Before allowing stakeholders to set goals and objectives, the concept of SMART should be explained along with examples of successful case studies. Then, assess their understanding of setting goals and objectives using a simulated case to expose stakeholders to practice setting goals and objectives with the SMART model.

3.2) Setting policy goals and objectives

Once the stakeholders understand and can correctly set the objectives according to the SMART concept, each stakeholder group sets goals and objectives with SMART methods to address each problem identified in Step 2. Any appropriate brainstorming techniques can be used.

3.3) Finalizing goals and objectives

The goals and objectives of all stakeholder groups were then presented and re-examined with all participants for clarity and common understanding before finalizing the issues obtained for further steps.

Step 4: Determining and evaluating policy alternatives

Determination of policy alternatives in public policy-making processes generally considers existing options and reworks them as alternatives without considering the real appropriate options. Decision-makers tend to consider options from their normal decision-making process and lack public participation. In the past, there have been various methods for determining public policy alternatives; for example, health research uses a community forum approach [20], brainstorming, and public hearing. Then, the people representative, i.e., the municipality council members, will bring these policy alternatives into the council's process to screen and consider. However, the screening process does not mention the criteria used for consideration. Besides, even though there is a community forum, most participants are community leaders who are not actual stakeholders. Therefore, the proposed alternatives may not directly be able to deal with the problem.

We thus suggested a more concrete approach to determine and evaluate policy alternatives.

4.1) Building an understanding of determining policy alternatives

Unlike conventional practice that involves stakeholders from leaders in each area, true stakeholders may not always be familiar with the public policy process. The educational process or providing enough knowledge and understanding of the process and its significance would enhance the success rate in choosing the right policy choices. This step can be carried out by planning to explain the importance and methods of determining alternatives along with case studies.

4.2) Identifying policy alternatives

Policy alternatives should be determined for each goal and objective. Any appropriate brainstorming techniques can be used to achieve the outcome of this process.

4.3) Determining policy alternative assessment criteria

Some criteria must be established to select the appropriate policy alternatives so that stakeholders will not use only emotion or be based on personal interest only. Criteria to be considered should include effectiveness, equity, public acceptance, impact, feasibility, legality, and cost (see Table 5). Also, the degree of seriousness

in each criterion should be determined, but it is left up to the stakeholders to brainstorm and decide to suit the problems' context.

4.4) Evaluating policy options

1) Sufficient data, information or evidence should be collected to help stakeholders evaluate each policy alternative according to each criterion. The scope, meaning and score description, and data sources must be defined to aid the data collection process (see Table 5, for example). Relevant organizations or representatives from stakeholders can be assigned to collect the data.

2) All stakeholder groups then brainstorm to give scores to the policy alternatives based on the data, information or evidence.

3) The highest-rated alternative should be selected and integrated into the political process of enacting public policy.

Table 5 Examples of evaluating criteria guidelines

Criteria	Definition	Scoring	Information Source
1. Effectiveness	The alternative uses a suitable operating process which will lead to problem-solving.	high = 3, moderate=2, low = 1	1. expert interview 2. document review
2. Equality	The alternative creates advantages for all stakeholder groups.	All group stakeholders = 3 Some groups of stakeholders = 2 Only a specific group = 1	1. expert interview 2. document review 3. Stakeholder interview
3. Acceptance of stakeholder	The alternative gives rise to being accepted by all stakeholder groups and supports the actual implementation in the policy area.	low = 1 (acceptant fewer than half) moderate = 2 (half-accepted) high = 3 (acceptant than half)	1. expert interview 2. organizing stakeholder meetings
4. Feasibility			
4.1 Political	The alternative is realistically accepted by local politicians and gains a better chance of being supported.	high = 3 moderate =2 low = 1	politician or executive interview
4.2 Administrative	The alternative will receive support regarding the budget, personnel, equipment and policy guidelines.		
4.3 Implementative	The alternative is practical (low level of complexity and easy to implement).		

Criteria	Definition	Scoring	Information Source
5. Impact			
5.1 Environmental	The alternative affects the environment in terms of appropriate management (conservation and restoration).	high = 3 moderate =2 low = 1	1. expert interview 2. document review
5.2 Economic	The alternative appropriately affects the economy (reducing expenses) of stakeholders.		
5.3 Social	The alternative appropriately affects a society (quality of life, accommodation safety, job, etc.).		
6. Cost	Cost of running the activities.	Low cost = 3, moderate = 2, High cost = 1	1. expert interview 2. Case study 3. document review
7. Law	There are laws and policies to enable the policies. (Law enforcement and supervision are provided. Records of regulations and policies are found.)	Yes = 1, No = 0	1. expert interview 2. document review

4. DISCUSSION

The proposed participatory public policy process consists of four steps: stakeholder identification, problem determination and prioritization, goal setting, and policy alternative evaluation. We will discuss each step henceforth.

Stakeholder identification. Previous works of [34], put effort into searching and selecting stakeholders but do not mention how many and how to identify the real stakeholders within each group. Saowakon Sudsawas (2004)[35] and Smith (2003) [36] suggested that acquiring stakeholders who are genuinely affected or benefited without bias is critical for receiving unbiased information, understanding the problems and continuing problem-solving correctly. Otherwise, real stakeholders may not be included in the policy-making process, resulting in policy not responding to the actual need. However, Tangchareonsatien (2003) [37]noted that stakeholder identification requires a deep analysis of the stakeholders' behavior, interest, condition, influence, power and relationships. This complex process may be the reason that hinders most participation processes and thus allow only to include the leaders or influential representatives rather than the ones who are either negatively or positively affected.

Determining and prioritizing problems. The proposed steps in this research involve educating the stakeholders. This part has an advantage consistent with Silapon Buasai (2005)[38], who stated that self-learning about what the community has would create pride, confidence, and courage to speak up about the community's needs to outsiders. In addition, Thaipakdee and Pornpratansombat (2007) [39] suggested that by learning about the community problems, the local community can determine the development path that will benefit the community's long-term sustainability. However, be cautious to ensure that the key informants are not only knowledgeable but also not biased, such as academics who have been working on that issue continuously. Not many studies added this step except Ravnborg and Guerrero (1997) [40], who also provided information about the study area for participants to use in defining problems.

In terms of prioritizing problems, the researchers proposed the Hanlon Method for prioritizing problems because it entails detailed consideration with a simple analytical method. A clear scoring criterion for each component aids participants' independent consideration. Phalakan (2014) [22] stated that it is also suitable for prioritizing issues at the policy level, ensures fair issues and reduces potential bias. As a result, everyone can agree, accept, trust, and limit prejudice and conflicts that may arise.

Determining policy goals and objectives. Since public policy formulation is concerned with the political process, policy goals and objectives are often broadly defined and ambiguous, creating difficulties when implementing the policy and no continuity [9]. This point was backed up by research such as Sureerat Bojarat (2013)[41], and Kerr (1976)[42]. Adopting the SMART approach would lead to specific, measurable, practicable, reasonable, and time-management goals. Richardson (2007) [43] confirmed that the SMART method helps to set goals that are not too broad, not ambiguous, validated and have a definite operating guideline. Clear goals and objectives are critical to a successful operation.

Determining and evaluating policy options. We proposed steps for determining options that allow all stakeholder groups to play a role in selecting policy alternatives to solve the problems. The benefit of these steps is in line with Piyapong Busabong (2009) [44] and Supachai Yavaprakhon (2009) [45] in that the determination of alternatives allows people to comment on the possibility of other options in problem-solving. The adopted alternatives thus have a greater chance to succeed in solving problems.

The proposed policy alternative evaluation provides opportunities for all stakeholder groups to present the evaluation criteria. Piyapong Busabong (2009) [44]and Mayuree Anumanratchathon (2009)[7] stated that various criteria could be selected and adjusted. Note that the criteria should be flexible and easily adapted to different contexts. Most studies presented that the policy alternatives are generally evaluated by politicians or policymakers (Naidansuren, 2012) [31]. Providing opportunities for stakeholders to define criteria and assess the alternatives by themselves enhances the possibility that problems will be solved consistent with the context of the area and reduce potential conflicts due to the policy choices that arise.

5. CONCLUTIONS AND RECOMMENDATIONS

We presented a model for local public policy formulation on resource and environment management with full public participation (Figure 1). Governmental agencies, NGOs, and development organizations can apply this model to other problems. Attention should be paid to understanding each step thoroughly and adapting to the intended situation.

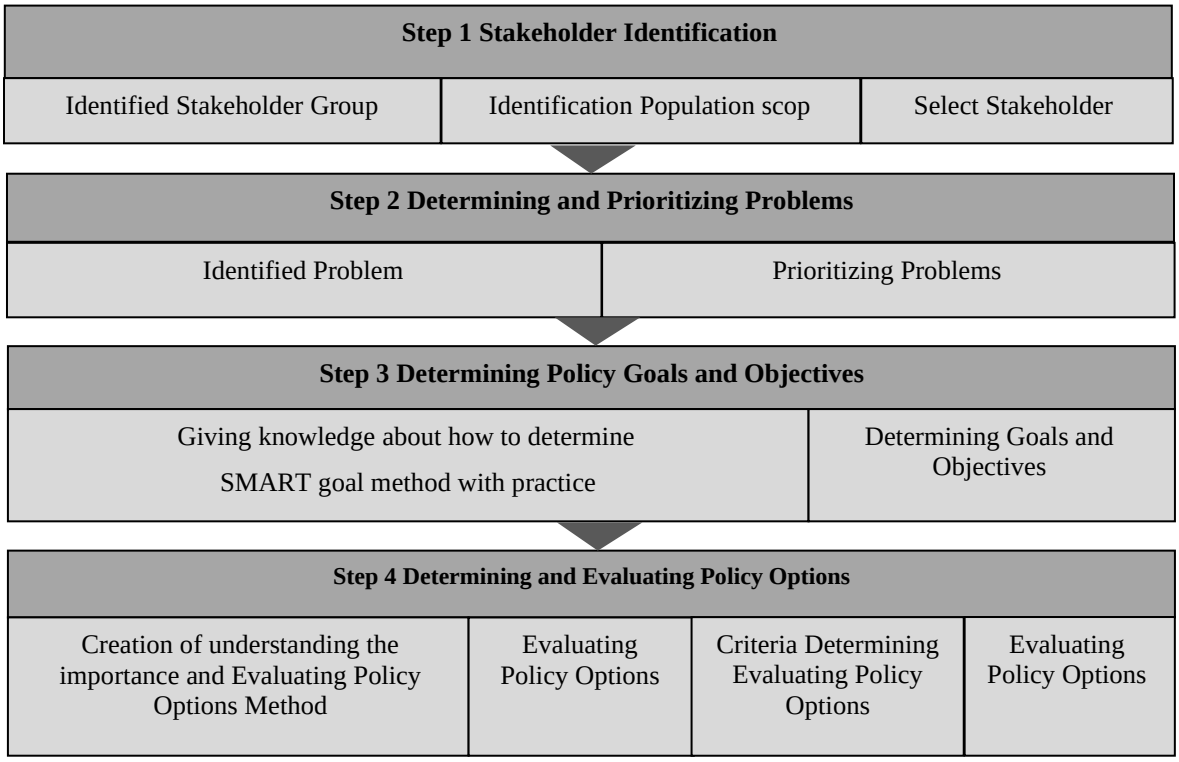

Figure 1. Local Public Policy Formulation with Full Participation Model

We recommended that local government organizations in the area support the public policies defined as participatory in solving the problem in terms of budget, personnel, materials, or equipment. Government agencies that play a role in the local resources and environmental management should support officials to assist the local community in collecting data to create local public policy. They should also take advantage of the academics in local educational institutions to join the process. This research, however, did not present the monitoring process of public policy after its implementation. Further study should be carried out to propose a model that will create participation, guiding steps, and evaluation criteria for the monitoring process in future research.

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