Analysis of the Critical Success Factors that Affect the Implementation of Local Agenda 21 in Thailand

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Abstract

Led by local governments and driven by the participation of local people, Local Agenda 21 (LA 21) has been implemented in Thailand to lay the foundation for sustainable management of natural and environmental resources. Unfortunately, after over a decade, only 2.39% of the local governments nationwide have taken the effort seriously. This article aimed to analyze the critical success factors that affect the implementation of LA 21 in Thailand using quantitative research. A questionnaire, developed according to the Stufflebeam's CIPP model, was applied to systematically collect the data on the implementation of LA 21from every local government in Thailand that has implemented LA 21 to some degree (100%). The results were statistically analyzed by stepwise multiple regression. Three critical success factors in implementing LA 21 successfully in Thailand were found; namely the (1) number of private sectors joining the LA 21 operation team (NumPrivate), (2) implementation budget (ImpBudget) and (3) level of multilateral participation in implementation (ParImp). The relationship among the three factors fitted the equation , with a prediction reliability of 60.70 . The level of multilateral participation in implementation is the most critical factor in successfully implementing LA 21 in Thailand.

Keywords: Local Agenda 21; Local Authority; Success Factor; Sustainable Development; Participation

1. Introduction

Local Agenda 21 (LA 21) is a policy tool under Agenda 21 that originated from the Earth Summit in Rio de Janeiro in 1992. The concept of LA 21 is focused on a sustainable development plan at the local level led by local authorities and driven by the participation of local people as a pathway towards sustainable development. Subsequently, LA 21 has been implemented in other countries. The International Council for Local Environmental Initiatives (ICLEI) introduced LA 21 in 1991 (Pattenden, 1995; Raapana, 2006), and the early implementations were in the mid-1990s. For example, in 1993 the concept was implemented in Sweden, Japan, Peru and the UK, and in 1994 in European Union and South Africa, and then in India in 1995. By 1996, 1,800 local governments in 64 countries worldwide had implemented LA 21 to some degree (Pattenden, 1995; United Nations Department of Economic and Social Affairs, 2012; Norland, BjØrnæs & Coenen, 2003; Barrett & Usui, 2002; Garcia-Sanchez & Prado-Lorenzo, 2008; Roberts & Diederichs, 2002; Smardon, 2008).

In 1997, the United Nations held a special conference to monitor the progress of LA 21 implementation, where it was found to have the potential to promote sustainable development. In the same year, many other countries started implementing the concept, including Australia, America and Turkey (Pattenden, 1995; Smardon, 2008; Cotter & Hannan, 1999; Herguner, 2012), while Malaysia implemented it in 2000. In 2001, at a meeting aimed to monitor the progress of LA 21 implementations, it was reported that 6,400 local governments in 133 countries were using LA 21, revealing an increasing trend in implementing LA 21. In Southeast Asia, apart from Malaysia, the Philippines introduced LA 21 in 1996, but failed to push it forward into practice due to the lack of structural support at a local level. Malaysia also encountered a delay in the implementation of LA 21 and failed to expand LA 21 implementation nationwide (The Australian Research Institute for Environment and Sustainability, 2009; Osman, Rashid & Ahmad, 2008; Ismail, 2014; Herguner, 2015; Regional Environment Office 15, 2008). However, the lesson of implementing LA 21 in the Union of Baltic Cities clearly demonstrated that it required planning to survey the conditions of the respective country and to learn from the experiences of other countries (Joas & Gronholm, 2001). In other words, it is important to plan the concept and working process that best suit the specific conditions of the country LA 21 is to be implemented in, for its

successful implementation as a tool for effective environmental management and sustainable development.

In Thailand, pilot implementations of LA 21 started in 1999 at two large municipalities (Trang City and Nakhon Ratchasima City) under the charge of the National Environment Board. However, the serious implementation of LA 21 only started in 2004, some 5 years after the pilot implementation. In addition, only 188 (2.39%) of the 7,852 local governments in 53 provinces have implemented LA 21 to some extent (Department of Environmental Quality Promotion (DEQP), 2017). Thus, the effort to bring LA 21 into practice in these 12 years was relatively slow, and so far has failed to encourage the other 7,667 local governments to embrace the principle. In the meantime, the DEQP, as the main agency in charge of LA 21 implementation, is still holding on to its intention and policy according to the agenda of the Rio + 20 Earth Summit in 2012. To clarify, the DEQP insists on pushing LA 21 implementation to cover every local government in Thailand and using it as an effective tool for natural resource and environmental management under local governments. Therefore, this research aimed to analyze the critical success factors that affect the successful implementation of LA 21 in Thailand. It is expected to result in a valuable contribution because there has not been any systematic research on this scope, and this is the first research after 12 years of LA 21 implementation. The findings from this research can be used to improve LA 21 implementation in the future and to be applied to other local governments. The critical success factors from this research can be used to design the principles and method of successful implementing LA 21 without wasting time on trial and error, and it could become an example of success and inspiration for other local governments to embrace LA 21. With this prospect, Thailand would be able to drive LA 21 to a more extensive level and with faster progress, as it was originally intended.

2. Methods

2.1 Research methodology

The approach taken in this study was a quantitative research with a questionnaire developed from the CIPP model of Daniel L. Stufflebeam as the tool for data collection. The CIPP model is a widely accepted and used tool for activity evaluation. The principle of this model is to improve, rather than to prove, and it can be applied to an on-going activity in order

to find the right implementation method in the next phase in a timely manner (Stufflebeam, Madaus & Kellaghan, 2002). The structure of this questionnaire aimed to collect data on LA 21 implementation and consisted of the four attributes of Context, Input, Process and Product.

The samples in this research included all of the 96 local governments implementing LA 21 in Thailand (100%). The questionnaire was distributed to representatives of the working group members of local governments from May–June 2013, and this was the first time in Thailand that data to monitor LA 21 implementation had been collected.

In order to obtain the critical success factors affecting LA 21 implementation in Thailand, the data was then subjected to stepwise multiple regression analysis.

2.2 Data collection tool: Questionnaire

The questionnaire used in this research was divided into three sections as follows:

Section 1 was about the geographic, economic and social characteristics of the local area. The purpose of this part was for local governments to understand the local context. This section collected data on the conditions of the community, environmental problems and severity level of the local environmental problems.

Section 2 concerned data about LA 21 implementation and was divided into three attributes as follows:

Context: This was meant for a better understanding of the context in implementing LA 21, such as the demand for and expectations of LA 21 implementation, and the agreement between LA 21 implementation and the social context and policies of local authorities..

Input: This aimed to give a better understanding of the input in LA 21 implementation, such as the number and elements of working groups, budget, and the money outside of the budget, sufficiency of materials and tools, and the number of qualified consultants.

Process: This aimed to give a better understanding of the process of LA 21 implementation, such as multilateral participation in planning,

implementation and monitoring.

For all three attributes, the questions were determined as independent variables related to LA 21 implementation in that particular attribute (Context, Input or Process).

Section 3 involved the results of LA 21 implementation according to the four stages (see at Table 2), such as having an LA 21 action plan, the results of the pilot implementation of the LA 21 plan, having a body of knowledge to transfer to the local level, the results of establishing the learning centers and the implementation of the learning centers. These questions were determined as dependent variables of the LA 21 implementation.

The questionnaire was first tested for objective and content validity by experts in the working group of LA 21 in Thailand, and analyzed for auto-correlation using Durbin-Watson (DW) statistics. The analysis results showed a DW value of 1.962, meaning that there was no auto-correlation, and thus the questionnaire results can be used for stepwise multiple regression analysis.

2.3 Variables

The variables in this research were determined according to the CIPP model, and were divided into independent and dependent variables as follows.

Independent variables (X) included all 54 independent variables relating to LA 21 implementation, and were further subdivided into the three groups of Context, Input and Process.

Table 1: Independent variables related to the LA 21 implementation

Independent variable	Details of variable
Context (14)	*Level of agreement with the:* demand of local governments (AgrDemand) policy of local governments (AgrPol) policy of the superior organization of local government (AgrPolSup) local problems (AgrProblem) *Level of:* increased workload in case of implementing (IncWork) expectation of solution to environmental problems in the area (ExpEnv) expectation of solution to social and economic problem (ExpSocEco) expectation as the mechanism to draw public participation (ExpPar) human resource sufficiency (HumanSuf) budget sufficiency (BudgetSuf) public participation sufficiency (ParSuf) local government leadership commitment (LeadCommit) tool sufficiency (ToolSuf) environmental problems that need solution (EnvProb)

Input (23)	*The number of:* main responsible persons (NumPerson) assistants (NumAssist) multilateral parties as a working group (NumMulti) private parties as a working group (NumPrivate) non-government organizations as a working group (NumNGO) other government agencies as a working group (NumOthGov) team members from other organizations (NumOthOrg) all working group members (NumWG) experts from local governments (NumExpLocal) experts from DEQP (NumExpDEQP) all the experts (NumAllExp) trained working group members (NumTrainWG) training programs provided to working group members (NumTrain-Prog) Level of agreement between training content and application (Agr-Cont) Amount of money used in the first stage (MonUsedS1) Amount of money used in the second stage (MonUsedS2) Amount of money used in the third stage (MonUsedS3) Amount of money used in the fourth stage (MonUseS4) Amount of money used for other activities (MonUsedOth) Total amount of money used (TotalMoney) The implementation of the budget (ImpBudget) Amount of money outside of the budget (MonOutBudget) Amount of money from other sources (MonfromOth).

Process variables (17)	*The level of:* transparency of establishing the working group (TransWG) transparency of supervision (TransSup) internal integration (InInteg) integration with other agencies (IntegAgen) incentives for working group (IncenWG) clarity of LA 21 Plan (LA21Plan) LA 21 implementation (LA21Imp) monitoring (LevMon) improvement from evaluation result (LevImp) feedback from coordination of DEQP (FdBkDEQP) feedback from coordination with REQO (FdBkREQO) feedback from coordination with PONE (FdBkPONE) general public participation in planning (ParPlan) multilateral participation in implementation (ParImp) general public participation in receiving the benefits (ParBen) general public participation in monitoring (ParMon) participation created with the general public (CreatPar).

Dependent variables (Y) included the level of success of LA 21 implementation (Product). The dependent variables were determined based on the brainstorming of all parties relevant to LA 21 implementation, such as representatives from the Ministry of Natural Resources and Environment (MNRE), both at the policy-making and operational level, and representatives from local governments implementing LA 21. Dependent variables were largely based on the four stages of LA 21 implementation, and were divided into the three levels of Output, Outcome and Impact.

Table 2: Variables sorted by the success of LA 21 at each stage of implementation

LA 21 implementation stage	Success indicators of LA 21 implementation		
	Output	Outcome	Impact
Stage 1: LA 21 implementation planning	There is a complete LA 21 plan and agreement with local context and gaining multilateral participation in the local area	Multilateral parties in the area understand and can help each other make the community development plan	Multilateral parties in the area can apply the planning process for LA 21 implementation to other projects.
Stage 2: Pilot implementation	The pilot implementation is successful and gathers multilateral participation in the local area.	Multilateral parties in the area can turn the plan into action and implement the pilot project successfully.	Multilateral parties in the area can turn plans for other projects into practice and achieve the goal successfully.
Stage 3: Lesson conclusion and improvement	The implementation lesson can be concluded. There is knowledge ready to be transferred. Multilateral participation is achieved.	Multilateral parties in the area understand the conclusion of the implementation lesson and can transfer the knowledge to others.	Multilateral parties in the area can design the body of knowledge available in the area
Stage 4: Network expansion and knowledge transfer	Multilateral parties in the area are ready to transfer knowledge as a learning center and this effort comes from multilateral participation.	Multilateral parties in the area understand the process of knowledge transfer as a learning center and can apply to other issues and develop a working implementation network.	Multilateral parties in the area work on public issues and relate the mission with external networks to create sustainable communities.

2.4 Data analysis

Data was subjected to stepwise multiple regression analysis. The success in implementing LA 21 was set to be dependent on the factors related to LA 21 implementation. The linear stepwise multiple regression model is as shown in Eq. (1); *,(1)*

where the dependent variable Y is the level of success in implementing LA 21, are the regression coefficients,are the 54 independent variables contributing to the success in implementing LA 21 and is the sampling error.

3. Results and Discussion

3.1 Overview of LA 21 implementation in Thailand

Thailand started the pilot implementation of LA 21 in 1999, but serious action towards implementation did not start until 2004. The DEQP, under the MNRE, is the main agency in charge, with Regional Environmental Offices and Provincial Resources and Environmental Offices acting as support units in coordinating and consultation. The implementation of LA 21 has been in the form of a project to promote multilateral participation for sustainable development, and then in 2016 the project name was changed to LA 21 with the same working principles.

The "pathway to sustainability" to implement LA was divided into the four stages of (i) LA 21 implementation planning, (ii) pilot implementation, (iii) lesson conclusion and improvement, and (iv) network expansion and knowledge transfer. For Stage 1, there has been an effort to combine it into the same process as the rolling plan that local governments need to do according to Thai law (Ministry of Interior, 2005; Office of the Council of State, 1999).

The LA 21 implementation model is dependent on the willingness of local governments, who need to allocate the budget and drive the implementation in their own area, with the local development plan as the mechanism. The DEPQ functions to provide support, in terms of knowledge, budget and strengthening for local governments and LA 21 networks (DEQP, 2014). In other words, the budget will not be directly allocated from central government for LA 21 implementation, but it is the responsibility of local governments to do so. Furthermore, DEPQ is not the agency that directly supervises local governments and there are no representatives from superior agencies in the LA 21 working group to supervise local governments. This makes it almost impossible to order local governments to embrace LA 21 into practice. The condition implies that with this model of LA 21 implementation, the burden falls on local governments, and there is no incentive to encourage them to bring LA 21 into practice. In addition, before the start of LA 21 implementation, there was no national campaign,

meaning no actions had been taken at the central government level. With this limitation, there is a shortage of support from the central government, no strategy for LA 21 implementation in the long term, and no application of lessons from other countries as the guideline. As a result, a huge number of local governments are still not implementing LA 21, and the effort cannot be spread out throughout the country. This phenomenon is consistent with the first stage of LA 21 implementation in Finland, which encountered a slothful progress due to the lack of support and actions from the central government (Garcia-Sanchez & Prado-Lorenzo, 2008). On the other hand, the highly successful model that Sweden used garnered very good support from central government and international cooperation (Jorby, 2002), and it is the model that many countries used as an example to follow.

3.2 Implementation of LA 21 by local governments

According to the survey data from 96 out of 7,852 local governments (1.22%) implementing LA 21 in 2013, sub-district administrative organization accounted for 21%, sub-district municipality 62%, town municipality 13%, city municipality 3% and provincial administrative organization 1%. The data implied that most local governments implementing LA 21 are of a small to medium size, such as sub-district municipalities and sub-district administrative organizations, which together account for 83%, and these communities are rather rural. This is consistent with LA 21 implementation in the State of Victoria, Australia, one of the pioneers of LA 21, highlighting that multilateral participation in a large city is very rare (Mercer & Jotkowits, 2000), and is consistent with almost every urban city. This makes local governments in larger cities in Thailand not interested in pushing LA 21 into practice.

Regarding the environmental issues implemented under LA 21, the top two issues were waste and wastewater management. When asked about future environmental projects, the informants responses revealed that it would still be waste and wastewater management as the top two issues, which were way ahead of green areas as the third issue. This is because the issues of waste, wastewater and conservation are the issues that most communities are dealing with. Also, the shortage of an environmental database at the local level means there is a lack of data to support the implementation of LA 21 in other dimensions. This trend is consistent with other developing countries, such as in Brazil, Ecuador and Uganda,

where brown issues are highlighted, especially waste management, sanitation and conservation (Pattenden, 1995). However, LA 21 implementation in Sweden also started with waste management in the early stage during 1995–1996, but then in 2002 the scope expanded beyond waste management. The issue of an environmental database was based on the lesson in South Africa, that it is very essential (ICLEI - Local Governments for Sustainability, 1995). Likewise, the implementation of LA 21 in Australia stated that there should be an environmental database before starting LA 21 implementation, because it is important for working with multilateral parties (Mercer & Jotkowits, 2000).

3.3 Critical success factors affecting LA 21 implementation in Thailand

Based on the estimate of dependent variables, which is the level of success of LA 21 implementation (percentage of success) from all the 54 independent variables in the three groups of Context, Input and Process, the critical success factors affecting LA 21 implementation included the two Inputs of (i) the number of private working groups (PrivateWG) and (ii) the percentage of the budget that was allocated (Budget); plus the Process factor of (i) the level of multilateral participation in the implementation (ParMulImplement), as shown in Table 3.

Table 3: Results of the stepwise multiple regression analysis

Variable	Beta	t	Sig.
AgrDemand	0.088[c]	0.837	0.408
AgrPol	0.076[c]	0.700	0.488
AgrPolSup	0.099[c]	0.947	0.349
AgrProblem	0.011[c]	0.099	0.922
IncWork	0.142[c]	1.409	0.167
ExpEnv	0.038[c]	0.347	0.730
ExpSocEco	0.111[c]	1.048	0.301
ExpPar	-0.054[c]	-0.513	0.611
HumanSuf	0.002[c]	0.020	0.984
BudgetSuf	0.043[c]	0.416	0.680
ParSuf	0.007[c]	0.068	0.946
LeadCommit	0.070[c]	0.683	0.499

Variable	Beta	t	Sig.
ToolSuf	0.092[c]	0.908	0.370
EnvProb	0.023[c]	0.221	0.826
NumPerson	0.108[c]	1.063	0.294
NumAssist	0.069[c]	0.654	0.517
NumMulti	0.094[c]	0.936	0.355
NumPrivate	0.057[c]	2.503	0.016**
NumNGO	0.004[c]	0.029	0.977
NumOthGov	0.051[c]	0.502	0.619
NumOthOrg	0.018[c]	0.170	0.866
NumWG	0.137[c]	1.336	0.189
NumExpLocal	-0.072[c]	-0.612	0.544
NumExpDEQP	-0.129[c]	-1.159	0.254
NumAllExp	-0.125[c]	-1.032	0.308
NumTrainWG	0.147[c]	1.486	0.145
NumTrainProg	0.099[c]	0.930	0.358
AgrCont	0.123[c]	1.147	0.258
MonUsedS1	0.199[c]	2.003	0.052
MonUsedS2	0.035[c]	0.344	0.733
MonUsedS3	0.166[c]	1.690	0.099
MonUsedS4	0.131[c]	1.317	0.195
MonUsedOth	0.198[c]	1.980	0.055
TotalMoney	0.164[c]	1.661	0.105
ImpBudget	0.008c	3.586	0.001***
MonOutBudget	0.133[c]	1.197	0.238
MonfromOth	-0.112[c]	-0.814	0.421
TransWG	-0.015[c]	-0.136	0.892
TransSup	-0.035[c]	-0.323	0.749
InInteg	-0.057[c]	-0.542	0.591
IntegAgen	-0.033[c]	-0.310	0.758
IncenWG	0.092[c]	0.846	0.403
LA21Plan	0.026[c]	0.230	0.819
LA21Imp	0.166[c]	1.478	0.147

Variable	Beta	t	Sig.
levMon	0.139[c]	1.229	0.227
levImp	0.039[c]	0.359	0.722
FdBkDEQP	-0.027[c]	-0.257	0.798
FdBkREQO	-0.027[c]	-0.265	0.792
FdBkPONE	-0.004[c]	-0.038	0.970
ParPlan	-0.031[c]	-0.235	0.815
ParImp	0.388[c]	6.619	0.000***
ParBen	0.189[c]	1.311	0.198
ParMon	0.150[c]	0.891	0.378
CreatPar	0.157[c]	1.230	0.226

Dependent varible: Y (Percentage of success of LA 21 implementation)

Remark: *** and ** statistically significant at the level, respectively,

The fact that multilateral participation in LA 21 implementation is indicated by the analysis as a critical factor in LA 21 implementation is consistent with that in many European countries, the Union of Baltic Cities, Canada, Turkey and South Africa. In these countries, it was found that different levels of multilateral participation resulted in a different process of LA 21 implementation, where multilateral participation contributes to a faster LA 21 implementation progress (Pattenden, 1995; Garcia-Sanchez & Prado-Lorenzo, 2008; Herguner, 2012; Joas & Gronholm, 2001; Jorby, 2002). Also in Sweden, which is the model for LA 21 implementation in many countries, it was reported that the critical factor was to create multilateral participation even before the actual implementation of LA21 and to determine the new stakeholders, such as the Young People's Council as the representative of the new generation for a larger and longer term future participation. In addition, before a local government takes any action regarding LA 21, it should first find a way to attract people to participate in it for a successful implementation (Jorby, 2002). However, the conclusion of the lesson of LA 21 in European countries suggested that public hearings could be a way to attract higher multilateral participation (Garcia-Sanchez & Prado-Lorenzo, 2008). In Turkey, for instance, the first stage of LA 21 implementation emphasized public relations and information about LA 21 projects in each city as a channel for creating multilateral participation in the following stages. The outcome in Turkey clearly demonstrated that

successful LA 21 implementation was due to the strong cooperation and participation of all relevant parties. In contrast, the cities that encountered many obstacles were found to have limited multilateral participation. Also, a greater level of participation should be called upon from the youth and women groups, who otherwise have limited rights to voice their opinions (Herguner, 2012). In South Africa, it was learned that to prevent the delay in LA 21 implementation, it was important to constantly create multilateral participation (ICLEI - Local Governments for Sustainability, 1995).

Apart from multilateral participation, the number of private working groups is another critical factor. The finding reflects that local governments alone are not enough for successful LA 21 implementation, but it requires the involvement of private working groups as well. This finding is consistent with the LA 21 implementation in Japan and the United Kingdom (Raapana, 2006), and also from the lesson in Malaysia where there was no private working group participation (Kaur, 2009) and the failure of LA 21 implementation was reported to be due to the ineffectiveness of local governments in creating participation with other sectors (Osman, Rashid & Ahmad, 2008).

The countries implementing LA 21 are very different in terms of their demographic, social and economic contexts, either in Europe or Asia, or in a cluster of countries, such as wealthier or developing countries. Despite their differences, it is still important to have participation from all the relevant parties in local communities (Garcia-Sanchez & Prado-Lorenzo, 2008). Whether failure or success is obtained depends on the participation of local people and the level of participation depends on the cooperation among government agencies to provide what is necessary (Kessler, 1994), such as national campaigns on LA 21 and the establishment of a multisectoral partnership of all the relevant parties.

The budget allocation was also found to be a critical factor in LA 21 implementation in many countries, especially in wealthier countries, such as European countries, the United Kingdom, Australia and Japan, and in developing countries, such as Malaysia and South Africa. In these countries, it was reported that the allocated budget is an important factor that affects the success of LA 21 implementation (Pattenden, 1995; Garcia-Sanchez & Prado-Lorenzo, 2008; Osman, Rashid & Ahmad, 2008; ICLEI - Local Governments for Sustainability, 1995; Kessler, 1994; Kaur, 2009;

Mercer & Jotkowits, 2000). Wealthier countries plan the budget in particular to serve LA 21 implementation. For example, Japan set the budget for LA 21 as high as US $149 million and achieved great success (Pattenden, 1995). In addition, the report on LA 21 implementation in Australia and South Africa revealed that a limited budget is an obstacle for LA 21 implementation (ICLEI - Local Governments for Sustainability, 1995; Kessler, 1994; Kaur, 2009; Mercer & Jotkowits, 2000). This clearly explains that the budget allocated by central government for LA 21 specifically makes local government understand the clear trajectory and policy on LA 21 that they have to to support the central government.

However, ICLEI indicated that critical success factors affecting LA 21 implementation come from the participation of all the relevant parties as well as the participation of political leaders and municipal staff, with resources from local governments (municipalities), information communication, and alignment of LA 21 at policy level (ICLEI - Local Governments for Sustainability, 1995; Pattenden, 1995; Joas & Gronholm, 2001). The success stories from Sweden and other European countries pointed out that success requires the initial support and campaign run by the central government, autonomy empowerment to local government and promotion of cross-national alliance in order to share and adapt knowledge for their respective contexts. In addition, the local barriers to success in LA 21 implementation include the shortage of a process to create participation of and decisions by the public and stakeholders due to traditional organizational structures (Pattenden, 1995).

The critical success factors affecting LA 21 in Thailand found in the regression analysis were from the Inputs and Process only, but no Context factors. This means that context of LA 21 is consistent with that of the local governments, while the Inputs and Process are the structural factors involving the design and element of implementation. As such, LA 21 implementation requires a redesigned structure that will lead to success in future implementations.

3.4 Recommended LA 21 implementation model for the next stage of LA 21 implementation in Thailand

The model of LA 21 implementation needs to be revised for the next stage on the following actions:

Urgent term (within 6 months): Revising the actions that directly contribute to critical success factors

DEQP should take an urgent action to attract participation from the public and private working groups by launching stronger and broader national campaigns, as well as participation of new stakeholders, such as youth groups, women's groups and local wisdom groups.

DEQP should encourage local governments to improve the LA 21 working group, with more private working groups to join the team. It should, for example, design a structure that accommodates members from private working groups and function as the coordinator between local governments and private working groups.

DEQP should urgently try to make local governments understand about allocating a sufficient budget for the four steps mentioned above, so that the implementation goes according to the objectives.

Medium term (within 1–2 y): Restructuring the LA 21implementation at an operational level to support the increase of critical success factors

DEQP needs to improve the following four implementation steps: (i) establish a deep understanding about LA 21 implementation in the local area, (ii) establish a participatory environmental database (State of Environment: SoE), (iii) make a participatory LA 21 implementation plan and (iv) achieve implementation and evaluate the participatory LA 21 implementation plan.

DEQP should improve the mechanism or method to attract participation, especially from the public and private working groups

DEQP should examine the financial system at the local government level as the guideline for allocating the budget for LA 21 to local governments.

Long term (not more than 3 y): Restructuring implementation at the policy level to increase the critical success factors

It is important to focus on restructuring the overall picture of implementation, not just on a given project, but it must be a lasting process.

Therefore, it requires actions at the central government level to revise the policy and strategy to push forward LA 21 in the long term. Also, a committee should be established at the central government level as the mechanism for implementation, with the leader or representative of the government as the representative of the working group, with other representatives from the Bureau of the Budget and the Ministry of Finance to advise local governments directly on budget planning. There should also be representatives from the Ministry of Interior to supervise local governments and advise them on creating multilateral participation. Representatives from the MNRE, the direct supervisor of DEQP, should function as the secretary.

4. Conclusion

There are three critical success factors that affect the likely success of LA 21 implementation in Thailand; namely (i) the number of private groups in the working group (NumPrivate), (ii) the implementation budget allocated (ImpBudget) and (iii) the level of multilateral participation (ParImp). The estimate of the three factors in the relationship equation is given by ,with a predictability of 60.7% , and with Parlmp as the most critical factor, followed by NumPrivate and ImpBudget.

Acknowledgement

This research article is part of the research project titled “The implementation report of the project promoting multilateralism in a sustainable community”, Department of Environmental Quality Promotion, Ministry of Natural and Environment, Thailand.

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