



STAKEHOLDER ENGAGEMENT AND ANALYSIS FOR WATER GOVERNANCE OF SONGKHLA LAKE BASIN, THAILAND

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Environmental issues are best handled with the participation of all concerned citizens, at all relevant levels'

(Principle 10 in the Rio Declaration on Environment and Development, 1992)

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Lists of Abbreviations and Acronyms

AMG Adaptive Management and Governance

AWMG Adaptive Water Management and Governance

DWR Department of Water Resources

DGW Department of Groundwater Resources

DEDP Department of Energy Development and Promotion

DPC Department of Pollution Control

EGAT Electricity Generating Authority of Thailand

EU-WFD European Union Water Framework Directives

GWP Global Water Partnership

ILBM Integrated Lake Basin Management
IRBM Integrated River Basin Management

IWRM Integrated Water Resources Management

ILEC International Lake Environment Committee

IISD International Institute for Sustainable Development

IDGEC Institutional dimensions of global environmental change

LA Lignite Authority

MEA Metropolitan Electricity Authority

MTF Management and Transition Framework

MEA Millennium Ecosystem Assessment

MRLDC Mountain-River-Lake Development Commission

MNRE Ministry of Natural Resources and the Environment

MOAC Ministry of Agriculture and Cooperatives

MOI Ministry of Interior

NEEA North-East Electricity Authority
NEA National Energy Administration

NWRC National Water Resource Committee

ONREPP Office of Natural Resources and Environmental Policy and Planning

OECD Organization for Economic Co-operation and Development

PEA Provincial Electricity Authority

PAO Provincial Administrative Organizations

PCBs Polychlorinated Biphenyls

PWA Provincial Waterworks Authority

RBC River Basin Committees
RBO River Basin Organization

RID Royal Irrigation Department

RCSE-SU Research Center for Sustainability and Environment, Shiga University

SENCLE Social Economic Natural Complex Lake Ecosystems

SLBC Songkhla Lake Basin Committee

SLBDC Songkhla Lake Basin Development Committee

SLB Songkhla Lake Basin

TAO Tambon Administrative Organizations

USAID United State Aid Development Programme

UNESCO United Nations Education, Scientific and Cultural Organization

UNDP United Nations Development Programme

UN-Water United Nations Water

UNEP United Nations Environment Programme

USEPA United State Environmental Protection Agency

WUO Water User Organizations

WWDR World Water Development Report

WWAP World Water Assessment Programme

WCD World Commission on Dams

YEA Yanhee Electricity Authority

EXECUTIVE SUMMARY

Stakeholders' engagement and analysis field surveys were undertaken in 2000 households located in the three provinces of Songkhla, Nakhon Sri Thammarat and Phattalung, which make up the Songkhla Lake Basin, between the periods of April to June 2014 by a team of six field research assistants. The study was designed to administer a three-in-one questionnaire tool comprising of: stakeholders' livelihood survey, stakeholder perception survey and stakeholder resource governance survey on a minimum of 10 people in each Tambon of these three provinces. The interview for each respondent lasted for a period of half to one hour. The target population was stakeholders in the three provinces of the Lake Basin, i.e. the individuals, households, groups, communities, traditional institutions, non-governmental organizations (local, national and international) with interests in the lake basin, occupational associations (farmers, fishery, rubber, aquaculture, etc), cooperative associations, tourists and families living in the study area.

The high point of this study was the ability to gather information about the major challenges facing Songkhla Lake Basin in Songkhla province based on the perception of the stakeholders. It also brought-out the issues that are dear to the hearts of the stakeholders from the impact of the current state of the lake on their livelihoods. The study highlighted the real and perceived conflict issues within the stakeholders in each Tambon (depending on each of their livelihood activities) in the Lake Basin and how they were impacted by each other's activities. It also brought out conflict issues between the Provinces and the Tambons depending on the dominant livelihood activities in that Tambon. For instance, the residents of Kho-yo are of the opinion that the noise from the home-stay is a major public health issue in the community. The fishing community of Khu Tao feels that the home-stay at Kho-yo have more polluting effect than wastewater from the shrimp farms in Songkhla Lake, which in turn affects their livelihood negatively. They also perceived that it is difficult to regulate the home-stay activities because of their influence and status in the community.

The results also showed that majority of the stakeholders were not aware of the SLB Development Master Plan and their priority actions were quite different from the one of the SLB Master Plan. Stakeholders did not really consider all the recommended actions as being essential for the sustainability of the Lake. Now, their perception may not be right, but that is how they see it. It was also observed during the study that there were very limited number of NGOs'/CBOs' working on

issues related to the SLB as compared to issues of improvement in the economic well-being of the community members; e.g. Cooperative Societies, especially on issues of loans and saving, than on environmental related issues like conservation of natural resources. The study also observed a very low level of relationship between the communities based organizations with relevant government agencies or institutions with responsibilities for the protection and conservation of Songkhla Lake. Therefore, we suggest more deliberate policies and programmes geared towards adequate integration of these community organizations for the improvement of the Lake Basin. The government officials, being the important actors in dissemination of laws or other information in the communities, should help to build the capacity of the communities for actions on the protection of the Lake.

The respondents believe that the implementation of the SLB Master Plan should be done from the Tambon Administrative Organizations (TAOs) as they are the closest level of government to the people. They also deplore the fact that there is no particular government agency saddled with the responsibility for the protection, management and governance of the Songkhla Lake. In conclusion, a number of recommendations were made for the sustainability of Songkhla Lake Basin.

CHAPTER ONE

INTRODUCTION

1.1 Background

All is not well with Songkhla Lake, the largest lagoon with three ecosystems of fresh water, brackish water and saline water, and the largest lake in Thailand. This is because the past few decades have evidenced overexploitation of the rich natural resources and serious environmental pollution resulting from human and industrial activities. This has resulted in deterioration of the valuable natural resource base of the Lake at a rate never seen before in history; causing depletion of biodiversity, devastation of life supporting systems, deterioration of water quality, depletion of fishery resource, shortage of fresh water in dry seasons, plus social conflicts in water and other resource uses (Ratanachai and Sutiwipakorn 2006).

Several efforts to rescue the Lake have not produced the desired result because many of such plans and programmes were done without the active participation, involvement and engagement of the people whose daily life revolve around this resource. Some of these plans include:

- I. The 1984 in-depth master plan was prepared and was never implemented
- II. The 1999, an Environmental Management Project for Songkhla Lake Basin (EmSong)
- III. The 2011 review and amendment to the Development Master Plan of the Songkhla Lake Basin (2013-2016)

We argue that the success of these plans and programmes and any other such endeavour will depend more on well articulated stakeholders' participation and engagement strategies and programmes, which put the people and their communities in the driving seat. This is because without proper uptake and ownership by all stakeholders of the recommendations of these development plans and programmes, (designed for the improvement of the quality of the resources and environment of the Lake), they will not work and our Lake may not survive the next decade as it is.

The way it stands now everybody takes from the Lake without minding its sustainability. The only thing that the Lake receives in return is waste and wastewater. Activities of the municipalities, cities, communities, industries and agriculture (from the three provinces of Phattalung, Songkhla and Nakhon Si Thammarat) generate waste and wastewater that ends up in the lake.



Fig 1.1: Community wastewater drains to the Lake Source: Peter Cookey



Fig 1.2: Feacal Pollution at Kko-yo Home Stay Source: Peter Cookey



Fig 1.3: Toilet discharge into the Lake Source: Peter Cookey



Fig 1.4: Wastewater canal at Boyang drains to the Lake Source: Peter Cookey

Ramsar Convention (2004) recognized community involvement and participation in the management of natural resources as a condition of their sustainable use. Public participation of the different stakeholders in the decision making process (be it active involvement or passive involvement) introduces a range of ideas, experiences and expertise that motivate the development of alternative solutions. Therefore, public participation and active stakeholders involvement is essential for managing lakes and their basins for sustainable use (ILEC 2005).



Fig 1.5: Direct Defecation into the Lake Source: Peter Cookey



Fig 1.6: Contested Space in Songkhla Lake Source: Peter Cookey

Lakes can only be environmentally stable as long as its basin or catchment area maintains ecologically sound conditions, therefore, it can be said that the physicochemical and ecological attributes of the lake systems depend largely upon the natural environment, human population and the activity in the catchment area (Kira and Sazanami 1991). In the same vein, we can no longer pretend that we can manage lakes and their basins without the real input of the people whose daily lives revolves around the resource. To these people, the lake is not just a body of water, but their life and their very essence of living. It defines who they are and what they will become in the future. We cannot sustainably manage lakes and their basins without active public participation and stakeholder involvement.

They are any group of people who share a common interest or stake in a particular issue or system. They can also be described as the people who: will be potentially affected by the management of the lakes or wetlands; will be involved by one way or another in the implementation of management activities; and/or who are likely to support or oppose the research or development project or the policy at stake. While, participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them. Luyet, et al. (2012) observed that the purpose of stakeholder participation is to enhance the quality of the project, which could be defined in different ways depending on the project context, and they concluded by saying that project quality mainly includes social learning and adequate technical solutions, possible through the support and cooperation of all involved parties and the resulting input of knowledge.

On the other hand, an engagement is an umbrella term that covers the full range of an organization's efforts to understand and involve stakeholders in its activities and decisions. Engagement can help organisations meet tactical and strategic needs ranging from gathering information and spotting trends that may impact their activities, to improving transparency and building the trust of the individuals or groups whose support is critical to an organization's long-term success, to sparking the innovation and organizational change needed to meet new challenges and opportunities (Krick, et al. 2005).

Over the years stakeholders participation has evolved from the period of awareness of the 80s', the attentive era of the 90s', and now the engagement era of the 21st century. Unfortunately, many experts in the field of development, especially in the government agencies, still practice awareness participation strategies. This is one of the greatest hindrance to up-take of solutions by the communities when it comes to natural resource management where they are the main stakeholders. However, this is an era of engagement and partnership and that is why there are many models for

partnerships; (Private Sector Partnership (PSP) and Public Private Partnership (PPP) and commanagement and community-based management strategies developed to put the people who have a stake at the centre of fulfilling their developmental needs.

Table 1.1: Three Eras of Stakeholder Engagement

MID 1980s	EARLY 1990s	EARLY 2000s
The Awareness Era	The Attentive Era	The Engagement Era
Environmental	• Environmental, social	Increasingly complex envi- ronmental, social, economic
• Local	Global	Global
High-impact, high-visibility industries	Less visible industries	Multi-stakeholder partnerships

Source: Krick, et al. 2005.

Stakeholder participation and engagement is a complex and delicate process. It usually involves balancing between meeting the expectation of the people and finding compromise solutions for the often conflicting interests, needs and aspirations of different stakeholders with different levels of decision making power. These generally require investing human and financial resources, facilitation skills, and time (Van Ingen 2010). EU (2003) defined stakeholders as any individuals, groups of people, institutions (government or non-governmental) organizations or companies that may have a relationship with the project/programme or other interventions at stake. They may – directly or indirectly, positively or negatively – affect or be affected by the process and/or the outcomes. Usually, different sub-groups, have to be considered because within a certain group, interests may differ. In addition, there are a number of clear principles for successful participation; some include:

I. A fair, equal, and transparent process that promotes equity, learning, trust and respect among stakeholders and the administration (Reed, 2008; Webler et al., 2001; Moote et al., 1997),

- II. The integration of local and scientific knowledge (Reed, 2008; Tippett et al., 2007),
- III. The establishment of rules in advance (Sabatier et al., 2005; Renn et al., 1995),
- IV.An early involvement of stakeholders (Leach et al., 2002; Leach and Pelkey, 2001),
- V. The integration of all stakeholders (Smith Korfmacher, 2001; Duram and Brown, 1999),
- VI. The presence of experienced moderators (Reed, 2008; Leach et al., 2002; Griffin, 1999), and
- VII. Adequate resources, including time (Leach and Pelkey, 2001; Keeney et al., 2000)

The applied definition of stakeholders participation provides a valid reflection of the government's understanding of a civil society and is of importance for the assessment of stakeholder participation. Arnstein (1969) used the metaphor of a ladder to describe eight different development stages making up three major groups of stakeholder participation. Arnstein's ladder of participative development provides us with a useful instrument to compare in any given case how far stakeholders participation has reached.

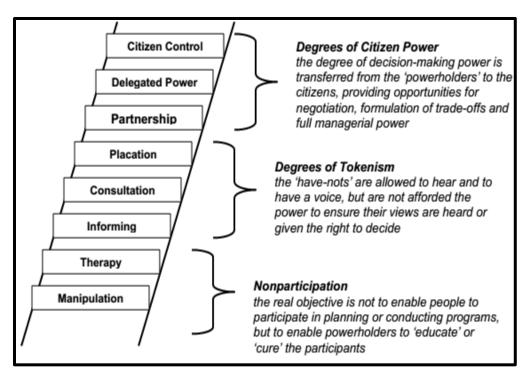


Figure 1.7: A ladder of citizen participation

Source: Arnstein, 1969

In most cases what people call stakeholder participation and involvement is just a system of dishing out information to the people after decisions on the matter have already been taken, which Arnstein (1969) described as 'tokenism' based on clever manipulation of the people by the initiators of the programmes or projects. The failure of so many so called stakeholders participation programmes is simply based on the fact that from the beginning the initiators never had any intention of involving the people, but merely consulted their allies. This is most probably why plans and strategies for the management of lakes and their basins are developed without any reasonable input from the 'real' people. The ordinary people whose daily livelihoods and recreational activities revolve around the very resource. Note that while these initiators work in their well-furnished offices and eventually retire after 30 or 35 years of service with pensions, the office of the people and their entire life revolve around the resource – lake. They never retire; they live and die with it. We cannot merely consult them and think that we are engaging and involving them in the management and governance of the Lake resource.

Stakeholders' participation has been recognized in the Dublin-Rio principles, which state that water development and management should be based on a participatory approach, involving users, planners, policy makers at all levels (GWP, 2000, AfDB, 2008). This calls for a sharing and balance between stakeholders (both top down and bottom up) in their planning and management. According to Moriarty, et al., (2007), this principle implies a need for greater integration between water users and others who impact on water availability, and in its most radical form suggests entirely new water governance structures based at the basin (or aquifer) level and also reflects a strong belief in decentralization and participation, and enshrines the idea that decisions should be made at the lowest appropriate level.

In the third era of stakeholder engagement (Krick, et al., 2005), we are talking about partnership and governance because government cannot determine the future development of sectors in the society; but this is shaped through the interactions of many stakeholders with the government being one of them. Governance is ultimately concerned with creating the conditions for ordered rule and collective action (Stoker, 1998). Governance, understood as a mode of social coordination, is different from governing, which is an act, a purposeful effort to steer, guide, and control and manage (sectors or facets) society (Kooiman, 1993). Governance is how one gets to act, through various types of interactions, deliberations, negotiations, self-regulation or authoritative choices and the extent to which actors adhere

to collective decisions. It involves the level and scope of political allocation, the dominant orientation of State, and other institutions, and their interactions.

Moriarty et al.. (2007) observed that there is a growing perception that the governance of water resources and water services (and of many other things) functions more effectively within an open social structure, which enables broader participation by all stakeholders (such as the communities, civil societies, private enterprises and the media), networking to support and influence government. The GWP identified this trend against a background of a progression from command and control or hierarchical centralized state-managed systems, to more decentralized and participatory water governance systems. In these systems, formal authority is supported and supplemented by an increasing reliance on informal authority, for example, through genuine public-private coordination and cooperation. This can avoid governments becoming enmeshed in contradictory roles, for example, as both provider and regulator of services. An equally important challenge lies in ensuring that participation is genuinely representative, that key groups are not excluded and that the participatory process is actually allowed to impact on decisions.

The only proven strategy from movement of citizens that receive governance to the one that is organized and participate actively in the governance process is essentially through citizen involvement. Management plans or programmes will be difficult to fund and implement without the involvement of people who are directly or indirectly dependent on a lake basin's resources. Despite the obvious challenges of stakeholders engagement, the outcomes of best possible practices in stakeholders engagement clearly justify the necessary efforts. Successful stakeholders engagement not only helps to secure the lake basins, but also helps to bring about systemic change towards sustainability of the lakes and their basins (Krick, et al, 2005).

The EU Water Framework Directive (2000) states that in getting our waters clean, the role of citizens and citizen groups will be crucial. According to the Directives, there are two important reasons for public participation. The first is that the decisions on the most appropriate measures to achieve the objectives of a river basin (Lake basin-mine) management or wetland management plan will involve balancing the interests of various groups. It is, therefore, essential that the process is open to the scrutiny of those who will be affected. The second reason concerns the implementation. The greater the transparency in the establishment of objectives, measures, and standards, the greater

the care stakeholders will take to implement the plan in good faith, and the greater the power of citizens to influence the direction of environmental protection, whether through consultation or, if disagreement persists, through complaints procedures and court (Van Ingen, 2010).

There are numerous benefits including a greater acceptance of the rules for allocation of lake basins resources and support for the enforcement of necessary policies, legislations and regulations (ILEC, 2005). Other reasons according to the World Bank, (2005) include:

- I. There is a greater acceptance of rules for allocating Lake Basin resources if stakeholders are involved in their formation and implementation. Because stakeholders involvement from the beginning of the planning process, increases the greater acceptance of the policies and actions developed, and a greater willingness to form partnerships to work toward implementation. Increased local knowledge is brought into the decision making process, improving the likelihood that technically good decisions will be made while remaining sensitive to local cultural norms.
- II. There is a reduced cost of enforcing the rules if the stakeholders have been involved in formulating them since the communities are more willing to become involved in implementation activities.
- III. Public involvement can help get politicians interested in supporting Lake Basin management.
- IV. Public involvement can also contribute to the long term viability of lake management, partly because local populations do not change, unlike government staff, and partly because the experience of participation provided communities with the skills and confidence to tackle problems themselves.
- V. Community involvement can promote the broader inclusion of those groups that are excluded from decisions in many societies. These include Indigenous Peoples, women, and the poor, and rural groups.

Also, the power of community-level participation is evident when the outcomes of participation are clearly and directly linked to an improvement in the livelihoods of participating communities. People will definitely support interventions that will improve their livelihood security and people will not change their behaviour until they realize or experience the benefits (ILEC, 2005). It has also being proven that stakeholders who are involved in decision making show increased acceptance of rules, even when the rules do not favour their interests (Syme, et al, 1999). At Kenya's Lake Nakuru, during the Global Environmental Facility (GEF) projects, the biggest hindrance to undertaking catchment restoration activities was that many communities could not immediately identify the potential benefits of the activities.

The above case can well be applicable to Songkhla Lake because from the surface level it may seem that the communities located in the basin do not care about the deplorable state of the lake and are not supportive of several efforts by government to put the lake back on the part of sustainability. But, this is not true as the result of field work do show that the people are worried about the gradual death of their beloved SONGKHLA LAKE. If you think these people do not care about 'their lake', how then do you explain the light you see at the middle of the lake every night? You could just conclude that the fishermen and women use the light for fishing, but that is not the whole truth they also light the lamps for beautification of the Lake in the night. The Home Stay businesses are very worried about how to solve the sanitation challenge their businesses pose to the environment of the Lake. Even if their ideas lack any sound scientific reasoning, they are worried and looking for a way out of this sanitation challenge because their livelihood is tied to the sustainability of the Lake. Just imagine how much effort they will put into a plan or programme that seeks their input from cradle to maturity – the gains will be enormous.

One of the 'Six Pillars of Governance' of the Integrated Lake Basin Management (ILBM) deals on the issue of participation of stakeholders because the ILBM recognizes the need for an effective mechanism for participatory development of plans and programmes and their implementation. According to RCSE and ILEC, (2014), the comprehensive surveys of the state of the world's lakes conducted over the past decade resulted in the development of the six thematic domains of the Six Pillars of Governance of the Integrated Lake Basin Management (ILBM), i.e,

- I. Institutions to manage the lake and its basin for the benefit of all Lake Basin resource users;
- II. Policies to govern people's use of lake resources, and their impacts on lakes;
- III. Involvement of people to facilitate all aspects of Lake Basin management;
- IV. Technological possibilities and limitations that are often quite dictating in regard to long-term decisions;
- V. Knowledge and Information of traditional, as well as, modern scientific nature, forming the basis for informed decisions; and
- VI. Sustainable finances to support implementation of all of the above activities.

These six major strends are the essential governance ingredients that collectively form the management regime for an integrated approach in Lake Basin management -- we refer to them as the Six Pillars of Governance in ILBM.

Currently, in Songkhla Lake these pillars are not as beautiful as depicted in Figure 1.8 because of the current socio-ecological crisis facing the Lake. The governance pillars will look, something like Figure 1.9.

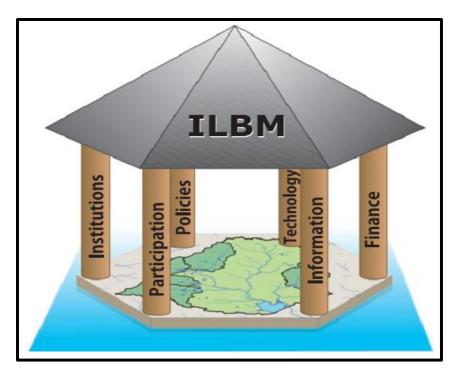


Figure 1.8: ILBM Governance Pillars RCSE and ILEC. 2014

The pillars of the ILBM in Songkhla Lake Basin must be strengthened and the entry points could be through the window of stakeholder participation and engagement, and then, integration, for sustainability, and their respective functions must complement each other in an integrated way across sectoral, institutional and professional boundaries. Fundamentally, the use of the Six Pillars of governance can address the necessary process of strengthening, and integrating the thematic governance issue domains (institutions; policies; participation; information; technology; finances).

Stakeholders in the SLB must play a key role in seeking to maintain and enhance the sustainability and resilience of natural resource systems. They must be engaged in three critical aspects of policy, plans and programmes development for the sustainability of the Lake. These three categories are:

- I. Issues relating directly to natural resource management,
- II. Issues relating to the structure of the resource system and its interaction with the broader society,
- III.Issues relating to research, information and monitoring aspects of resource management

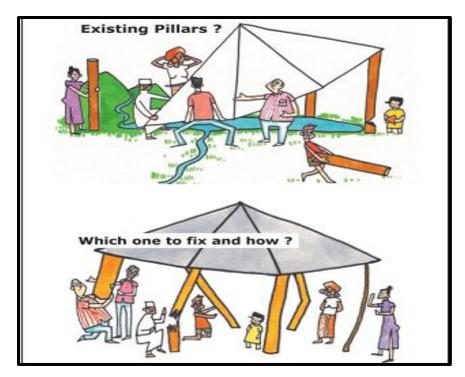


Figure 1.9: ILBM Platform can start rebuilding and improving the existing Governance Pillars Source: RCSE and ILEC, 2014

According to Charles, (2004), specifically, the topics to be addressed under these issues are as follows:

- Natural resource management: developing a management portfolio; applying the precautionary approach; and robust and adaptive management.
- b. Resource system structure and interactions: co-management and community-based management; planning for efficiency in natural resource systems; managing resource sector capacity; and diversifying livelihoods.
- Information and monitoring: developing and utilizing the knowledge base; and monitoring sustainability.
- d. Institutional arrangements: sustainable and resilient institutions; institutional effectiveness in achieving sustainability and resilience; and institutional choices.

The selection of appropriate sustainability policy directions could be done on a case-by-case basis, taking into account:

- (i) Society's objectives,
- (ii) Physical andor biological aspects of the resource,
- (iii) Human aspects such as tradition and experience,
- (iv) The level of uncertainty and complexity in the resource sector, and
- (v) The predicted consequences of the various instruments.

1.2 Objectives of the study

The objectives of the stakeholders' analysis shall include, but not limited to:

- I. To gather information on the socio-economic profile of the Basin's communities
- II. Assess the level of awareness of the communities about water resources management in general and the presence of any indigenous water management knowledge
- III. Assess the level of awareness of relevant water resources policies, laws and regulations

1.3 Expect outcomes

The expected outcomes shall include:

- A better understanding of the people's concerns leading to solutions more adapted to their needs
- II. An assessment of their knowledge about the lake basin system and the integration of this knowledge in to management options, leading to a better targeting of awareness and education activities
- III. Improved communication and coordination of actions and stronger relationship among stakeholders.

CHAPTER TWO

ISSUES AND SCOPE

2.1 Background of Songkhla Lake Basin

Songkhla Lake Basin (SLB) is a unique ecosystem covering three provinces in Southern Thailand, namely Phattalung (11 districts), Songkhla (12 districts) and Nakhon Si Thammarat (2 districts). It is made up of 12 sub-basins and covers approximately 8,729 sq.km; with three water ecosystems of fresh water, brackish water and saline water. It is the only natural lake (lagoon) in Thailand (ONEP 2011). The lake is bounded by Banthad Mountain, which lies in north-south direction, and to the south is Sangala Kiri Mountain. The higher grounds of the two mountains are covered with rainforests, constituting an upstream portion of the catchment area. In the north, south of the Basin parallel to the mountain are undulating plains alternating with low hills. In the east, is a large flat plain, mostly made up of paddy rice farms; while North of the lake is a large wetland called 'Phru Kuan Kreng' and in the east between the lake and the sea is a large flat plain. Also, Songkhla Lake consists of four parts namely; Thale Noi in the north, Upper Songkhla Lake, Middle Songkhla Lake and Lower Songkhla Lake.

This complex ecosystem is rich in biodiversity with multitude of flora and fauna species. They form a life supporting system, which provides sources of livelihood to more than 1.6 million population of the 25 districts located in three provinces that make up the lake basin according to 2004 census figure. The major economic activity in the Basin includes; rubber plantations, paddy rice farming, fruit tree orchard, fishery, aquaculture husbandry with a high attractive tourism potential.

However, the past decades have seen the over-exploitation of the Songkhla Lake Basin without regard to the negative consequences this pose to the environment. In an attempt to rescue the Lake, several development plans have been initiated by the Ministry of Science, Technology and Environment, Office of Environmental Policy and Planning of Thailand. The first plan was undertaken in 1984 when an in-depth master plan was prepared. However, the master plan was never implemented. In 1999, an Environmental Management Project for Songkhla Lake Basin

(EmSong) was undertaken, resulting in the development of Environmental Action Programmes for the Lake.

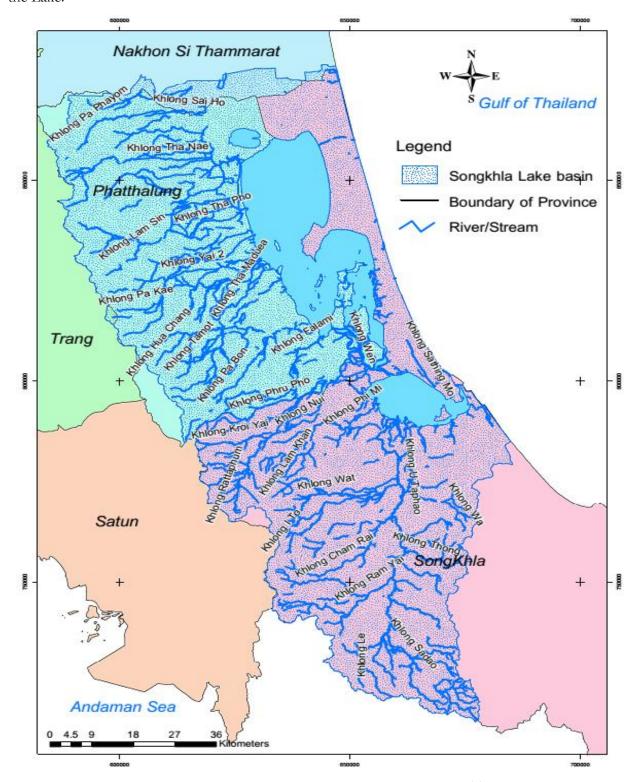


Figure 2.1: Shows the location of Songkhla Lake Basin in Thailand

In 2011, a review and amendment to the Development Master Plan of the Songkhla Lake Basin was also undertaken by the Faculty of Environmental Management, Prince of Songkhla University for the Office of Natural Resources and Environmental Policy and Planning of the Ministry of Natural Resources and Environment.

2.2 Land Use

Land use pattern in SLB has undergone significant changes during the past few decades, following socio-economic and demographic changes. According to ONEP (2013), majority of SLB land, 5,660 sq.km. (3,537,827 rais - approx. two-thirds of the Basin area) is used for agriculture, with 60% and 30% used for rubber plantations and paddy rice respectively. Second land use category is forest, which occupies 1,164 sq.km. (727,426 rais - 13.7% of the Basin area); most of which is the rainforest covering upstream area on the hillsides, the remaining areas are mangrove and swamp forests. Other land use categories are natural water body (1,060 sq.km. or 661,848 rais or 12.5% of the Basin area); residential area (224 sq.km. or 139,837 rais or 2.6% of the Basin area). The remaining are for miscellaneous purposes, such as industrial area, man-made water body, roads and undeveloped land.

Table 2.1: Land Use in Songkhla Lake Basin, Years 1993 and 2002

Land Use Capacity	Area		Change	
	19931/	$2002^{2/}$	(%)	
Residential area	120,224 (2.26)	139,837 (2.63)	16.3	
Agricultural land	2,982,508 (56.17)	3,537,827 (66.63)	18.6	
Paddy rice field	1,412,916 (26.61)	1,126,211 (21.26)	-20.3	
Abandoned rice field	*	83,340 (1.57)	*	
Rubber plantation	1,428,753 (26.91)	2,125,775 (40.04)	48.8	
Mixed orchard, oil palm, etc	120,373 (2.27)	161,273 (3.04)	34.0	
Shrimp farm	20,466 (0.390	31,341 (0.59)	53.1	
Forest land	974,376 (18.35)	727,426 (13.70)	-25.3	
Water body	*	668,668 (12.59)	*	
Natural	*	661,848 (12.47)	*	
Man-Made	*	6,820 (0.13)	*	
Others	*	245,485 (4.63)	*	
Total		**5,309,356 (100)		

Source: ONEP 2013

Note:

Unit: rais (Figures in parentheses indicate ratios to the Basin area in per cent)

* Some figures in Table 2 were deliberately omitted. They appeared as such in the referenced document, and no effort was made to either alter or modify the original information. Should we assume that the total Basin area and the area of water body remain unchanged, from 1993 to 2002, and that no abandoned rice field in 1993 (of which no data is available), the "Others" in 1993 would read 563,580 rais.

** In this study (Year 2004), the Basin area was resurveyed, and was found to be 8,729 sq.km. (ca. 5,455,600 rais). Part of the causes was due to construction of new roads which have turned out to be man-made boundaries of the Basin. However, to avoid confusion in comparing the ratio of each land use category to the total Basin area, the original figure of 8,495 sq.km., prior to 2004 survey was used to compute ratios as shown above.

2.3 Water Resources and Biodiversity

Songkhla Lake Basin is one of the 25 river basins in Thailand with a catchment area of 8,495km², average run of 4,896 cubic meter, storage capacity of 28 cubic meter and irrigation area of 905,550 rais. Also, the water requirement in the SLB is estimated to be for domestic consumption 56.45; tourism industry 37.50; ecological balance 312 and irrigation is 2,995.70 (WWAP, 2007). It is also the largest lagoon in Thailand and is located near the east coast of southern Thailand. It consists of four parts namely; a freshwater lake called Thale Noi in the north, Upper Songkhla Lake, Middle Songkhla Lake and the Lower Songkhla Lake, which connects to the Gulf of Thailand. Due to deterioration of various environmental conditions, several rare and vulnerable wildlife species are declining in number and may disappear, if no appropriate conservation measures are provided.

However, there is a serious water quality deterioration, which is affecting the productivity of the Lake. Pornpinatepong (2010) noted that changes are mainly due to human activities, such as water pollution from households and industries, and deforestation of the catchment area. The source of industrial water pollution originates mainly from rubber and food industries. The sources of agricultural pollution are from the shrimp farms, pig farms, crop farms and rubber plantations, which release wastewater with high contents of fertilizers, pesticides and other toxic compounds. The other sources of these contaminants are the human communities around the Lake.

Thailand State of Pollution Report (2010) indicates that Songkhla Lake water quality deteriorated due to relatively high BOD. The report went further to state that Bio-chemical Oxygen Demand, Total Coliform Bacteria, Feacal Coliform Bacteria and ammonia concentrations were high in areas around estuary of Samrong Canal, Muang District. The major heavy metal problems in the Lake were lead, nickel and chromium representing 12.8%, 3.3% and 2.6% of the total monitoring respectively. This Lake is one example of a tropical shallow lake facing critical water quality deterioration and loss of fish population (Chesoh and Lim, 2008).

There are reported cases of over-pumping of freshwater from the Lake for various uses, with an average of 58 million cubic meters of freshwater extracted per year from the lake for irrigation of the paddy rice farms, thus, allowing salinity to intrude during the dry season. Groundwater extraction from Hat Yai Basin alone is estimated at approximately 35 million cubic meters per year or approximately 96,000 cubic meters per day (Ratanachai and Sutiwipakorn, 2006).

There are also very unclear policy, legal and institutional frameworks governing the Basin area, which makes it difficult to effectively implement Basin management. Inadequate, and sometimes, conflicting legislation is a problem. Also, there are multiple agencies involved in Basin management, and none of them have clear responsibilities for the Basin's management and development.

2.4 Wetlands and Peat Swamp Forests

Wetlands and Peat Swamp forests play important functions in flood mitigation, shoreline stability protection, prevention, groundwater recharge, and so on, but there has been severe encroachments by surrounding settlements, as well as, by other socio-economic developmental activities. This has resulted in accelerated deterioration of the swamp. Other problems in the Kuan Khreng Peat Swamp Forest at present are illegal fishing practices, such as fish electrocution, drug dosing and land impoundment of fishes. Other problems are Kra chut cutting, wood scavenging, forest fires and land encroachments. ONEP (2013), in the SLB Master Plan, stated that the mangrove forest is one of the worst hit by the forces of deforestation. Information indicated that for over 35years (1961 – 1996), the mangrove forest in Songkhla Province has been halved; while that in Phattalung Province decreased tenfold. This has led to severe environmental impacts in the Lake. It can be extrapolated that the mangrove forests in the two Provinces would have further decreased from 1996 to date.

Over the years several approaches to manage and protect the forest resources have not produced the desired results. A study by Thailand Development Research Institute (TDRI) found that even the community forestry programmes were not effective in conserving natural forest resources because the communities do not engage in forest protection until so little forest remains that their livelihood is threatened and they also lack the power to enforce conservation practices.

2.5 Fishery Resources

Songhkla Lake is characterized by variation between fresh, brackish and seawater all in the same body giving the Lake highly diverse and rich ecosystems providing fishery resources all year round (Pornpinatepong 2010). According to the Encyclopedia of Southern Thailand Culture (2002), there were about 450 fish and 30 shrimp species in the Lake. The Lake also serves as an important nursery ground for many economically important species of fish, crabs and shrimps (Sookchareon 1965; Choonhapran, et al., 1996 and Mabuntham 2002).

Fishery resources in the Lake are not well managed, as evidenced by the increasing use of prohibited equipment, such as fyke nets, over-crowded standing traps, and the increasing use of illegal fishing methods such as electric shocks and fishing nets with smaller mesh sizes. The large and growing quantity of fishing equipment, especially the standing traps, is putting shrimps and other aquatic animals at risk of extinction. They create obstacles to fish movement in and around the Lake (Pornpinatepong 2010). Some studies have noted that there are no more spaces left for fishing traps and at 2003, more than 29,604 standing traps were counted in the Lake.

Table 2.2: Number of standing traps in SLB

Years	Number of standing traps	Number of fyke nets	Source of information
1983	900	NA	ONEP 2005
1995	5,250	603	Choonhapran et al. 1999
1997	8,500	NA	ONEP 2005
2003	29,604	2,074	ONEP 2005

Source: Pornpinatepong 2010

2.6 Waste and Wastewater Challenge

There are insufficient wastewater treatment facilities in the SLB. There are only two central wastewater treatment plants in the SLB located at Hat Yai City and Songkha City Municipalities. These facilities service only about 7 percent of the Basin population. The major problem of wastewater management in the area is the discharge of untreated wastewater of about 100,000 cubic meters per day with high BOD load of about 17,000 kg from domestic sources into the Lake. Industrial wastewater of about 3,000 kg BOD per day is also discharged into the Lake. Other sources of wastewater are from swine and shrimp farms, which contribute a total BOD of 1,200 kg per day, and shrimp farms alone generate between 13,600 and 19,000 kg BOD per day. The implication of this is nutrient enrichment in the Lake (Ratanachai and Sutiwipakorn, 2006).

There is also the challenge of improper solid waste management in the SLB. Solid waste in the SLB is typically disposed of by landfill. Sanitary land-fill is found only in large municipalities, such as Hat Yai and Songkhla. Solid wastes are disposed of by simple open dumping. All these contribute to the pollution problems in waterways and in the Songkhla Lake (Ratanachai and Sutiwipakorn, 2006).

2.7 Governance Research Gaps in Songkhla Lake Basin

Tippayawong et al. (2012) carried out an Information System Development for Research Management in the SLB. The project was designed to collect data, identify and categorize researches that had been carried out on Songkhla Lake Basin. Data were collected from government institutes, libraries, universities and the private sector. Using the results of these analysis, guidelines were designed for information systems. The study found out that a total of 1,284 researches had been carried out on Songkhla Lake Basin as of 2012.

The percentage distribution of the researching organization shows that about 71 percent of the researches were carried out by the Prince of Songkhla University; other academic institutions contributed 12.5 percent; organizations located within the SLB carried out 9 percent and others were 7.5 percent. (Figure 2.2).

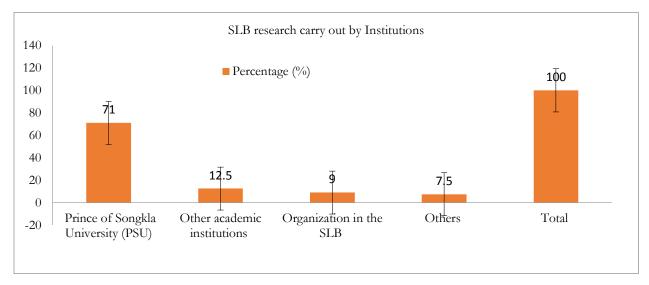


Figure 2.2: SLB research carried out by Institutions

Source: Tippayawong, et al. 2012

The other interesting thing about the findings of Tippayawong et al. (2012) is the fact that 66.4 percent of the SLB researches main focus were in the Songkhla province, 8.3 were based in Phattalung, 0.2 percent at Nakhon Si Thammarat; the author was unable to properly clarify the areas of focus of the remaining 25 percent (Figure 2.3).

From the same work, it was clearly seen that about 52.6 percent of the work was focused on livelihood or quality of life of the people in the SLB, 20.3 percent focused on resource utilization; 12.7 percent on biological resources and 14.4 percent on physical resources. Therefore, one can conclude that the main focus of these researches were on how to put the SLB into maximum use with little emphasis on the sustainability of the SLB (Figure 2.4). This work supports earlier submission in previous chapters that the main interest of the people is how they get sustainable yield from the SLB. Therefore, more emphasis is on physical output, with a tendency to neglect the underlying natural processes, health of the ecosystem and the integrity of the ecological interactions.

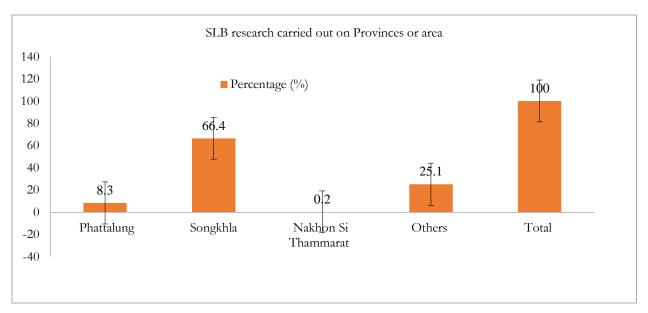


Figure 2.3: SLB research carried out on Provinces or areas Source: Tippayawong, et al. 2012

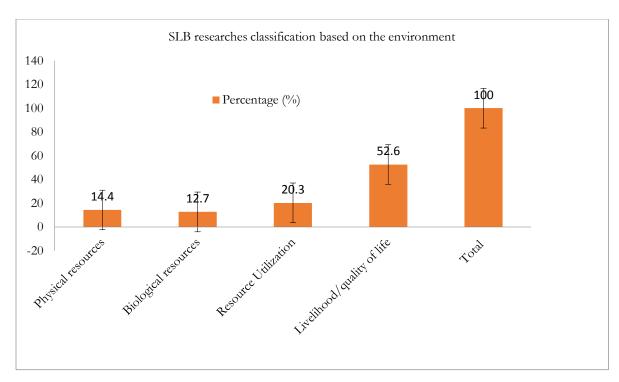


Figure 2.4: SLB researches classification based on the environment Source: Tippayawong, et al. 2012

Classifying the researches based on the thematic issues in environment showed that more of the researches were based on themes like health, human resources, marine and coastal resources, model development, science and technology, education, economy and society being 65.5 percent; pollution, waste and wastewater was 8.6 percent; 9.3 percent for wetland ecosystems; 7.6 percent for fishing; 5.4 percent for public participation and management and 3.3 percent for tourism sites and local wisdom. The big gap noticed in all these researches is that no work has been done on governance, policy and institutional issues in the SLB. Although, there are works on such themes like public participation and enhancement of the efficiency in SLB administration and management with emphasis on public participation; from these themes you will still find that there is so much focus on ensuring maximum use of the common pool resources of the SLB.

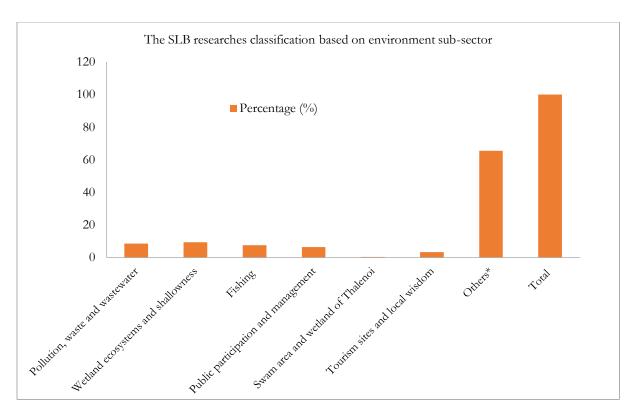


Figure 2.5: The SLB researches classification based on environment sub-sector Source: Tippayawong, et al. 2012

Note: *Others - Health, human resources, marine and coastal resources, model development, science and technology, education, economy and society.

This trend also changed when the research focused on the SLB Master Plan; which torchlighted on issues of rehabilitation, sustainable use, pollution prevention, restoration and conservation of arts and culture, as well as enhancement of efficiency in the administration and management and public participation. The change in focus could probably be due to the fact that the SLB Master Plan was able to highlight the current environmental and degradation crises currently confronting the SLB. Also, the focus of these researches did not change so much because majority of the work still focused on the concept of maximum use of the natural resources of the SLB (Figure 2.6).

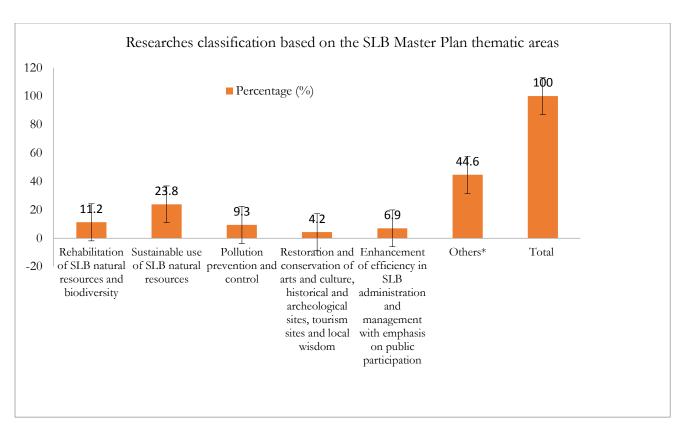


Figure 2.6: Researches classification based on the SLB Master Plan thematic areas Source: Tippayawong, et al. 2012

Note: *Others Health, human resources, marine and coastal resources, model development, science and technology, education, economy and society.

Looking at these researches from the integrated perspective for the three provinces of the SLB, about 49.4 percent of the work focused on resources and environment; 25.8 percent focused on education and human resource development; 12 percent dealt on socio-economic issues; 7.5 percent main focus was on security of life and property; 3 percent on arts, culture and tradition; and 2.3 percent focused on urban development and management issues (Figure 2.7).

There is also a big gap on water resources or natural resources governance and valuation of ecosystems functions and services of SLB.

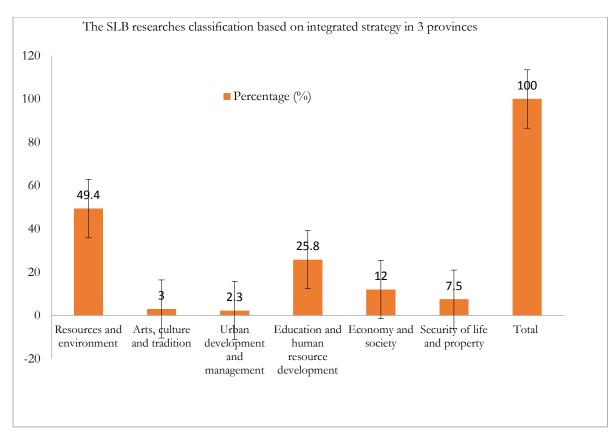


Figure 2.7: The SLB researches classification based on integrated strategy in 3 provinces Source: Tippayawong, et al. 2012

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the research method adopted for this study. This section also covers data collection approach of the study, which is basically a combination of participatory and non-participatory observations, key-informant and in-depth interviews, administration of questionnaires, reviews of policies, legislations and peer reviewed journal articles, as well as, presenting methods of data analysis to be adopted and field procedures.

3.2 Mixed Method Research

Since this study was an extensive and intensive one, a mix of quantitative and qualitative methods were adopted. The quantitative research method was used when something needed to be measured, while qualitative methods were used when a question needs to be described and investigated in some depth (Sourcebook on Socio-Economic Survey 2011). The mixed method or integrative research methodology is well known than the QUAN and QUAL traditions because it has emerged as a separate orientation during only the past 20 years (Teddie and Tashakkori 2009). Mixed method present an alternative to QUAN and QUAL traditions by advocating the use of whatever methodological tools are required to answer the research questions of the study.

Mixed method (MM) has been defined as a type of research design in which QUAN and QUAL approaches are used in types of questions, research methods, data collection and analysis procedures, and/or inferences (Tashakkori and Teddie 2003a). It can also be defined as a research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or programme of inquiry (Tashakkori and Creswell 2007b). This data analysis involves the integration of statistical and thematic data analytic techniques, plus other strategies unique to mixed method. In properly conducted mixed method research, the investigators go back and forth seamlessly between statistical and thematic analysis (Onwuegbuzie and Teddie 2003). The integrative nature of mixed method will ensure the in-depth understanding of the research focus.

3.3 Research Sampling Method

Simple random sampling is the simplest form of probability sampling, and forms the building block for many of the other sampling designs. Every possible subset of size n from a population of size N has the same probability of being selected as the sample. In particular, this means that every unit in the population has the same probability (= n/N) of being in the sample, every pair of units has the same probability of being in the sample, and so forth (de Leeuw et al. 2008). A simple random sample is one in which each unit (e.g. persons, cases) in the accessible population has an equal chance of being included in the sample, and the probability of a unit being selected is not affected by the selection of other units from the accessible population (Teddlie and Tashakkori 2009). It was not feasible to sample the whole population due to limitation of time and budget. The unit of sample size was the household. Simple random sample size technique was chosen to determine total number of the population of interest. By applying Equation (I), sample size (n) of the respondents was calculated.

$$n = N/1 + Ne^2$$
 - Equation

Where

n = Sample size

N = Total of population

e= the acceptance of probability of error (equal to 95% or 0.05)

So, in Songkhla Lake Basin with 1.9 million people, thus the sample size:

$$n = 1,900,000/1+1,700,000 (0.10)^2 \pm 2000$$

Therefore, the sample size of 2000 households in the study area was adopted.

3.4 Data Collection Process

3.4.1 Field survey

Field surveys were undertaken to cover the three provinces, 25 districts (amphoe) and 200 subdistricts (tambons) that make up the Basin. Standard questionnaires and interview outlines were developed for interviews of the relevant stakeholders and public and private organizations. The questionnaires were developed to guide the interviewers in the field and to gather relevant and uniform information from all the stakeholders in the Basin. There were three major types of surveys that were carried out in this work and they are: socio-economic (livelihood assessment), resource governance and stakeholder perception surveys.

The target population are the stakeholders in three provinces of the Lake Basin (Songkhla, Phattalung and Nakhon Si Thammarat), the individuals, households, groups, communities, traditional institutions, non-governmental organizations (local, national and international) with interests in the Lake Basin, occupational associations (farmers, fishery, rubber, aquaculture etc), cooperative associations, tourists, families, etc, living in the study area as well as, those not within the geographical scope of the study area.

About 2000 households were interviewed in the 200 Tambons of Songkhla Lake Basin distributed in the three provinces of Songkhla, Nakhon Si Thammarat and Phattalung between the period of April to June 2014 by a team of six field research assistants. The study was designed to administer a three-in-one questionnaire tool comprising of: stakeholders livelihood survey, stakeholder perception survey and stakeholder resource governace survey on a minimum of 10 people (one from each household) in each Tambon of the three provinces (Songkhla, Nakhon Si Thammarat and Phattalung) that make up the Songkhla Lake Basin. The interview for each respondent lasted for a period of half to one hour. Generally, the participating individuals and families were very open to the research.

Table 3.1: Stakeholders Survey Tool distributions

Province		
Nakhon Si	8 Tambons x 10 questionnaires	80 questionnaires administered on 80
Thammarat		households
Phattalung	66 Tambons x 10 questionnaires	660 questionnaires administered on 660 households
Songkhla	126 Tambons x 10 questionnaires	1260 questionnaires administered on 1260 households
Total	2,000 questionnaires administered on 2,000 households	

3.4.1.1 Stakeholders Livelihoods Survey

Livelihood Survey is a method within the Sustainable Livelihood Approach for understanding the resources available to individuals, households and communities, as well as, the constraints on and opportunities for using these resources for development. It places people and their priorities at the centre of development. Its intention is to empower the disadvantaged to build on their potential, support their access to assets and develop an enabling policy and institutional environment. The available levels and utilisation of the five sets of assets are influenced by the external political, institutional and legal environment. Together, people's assets and the external environment influence people's strategies in pursuit of outcomes that meet their livelihood objectives. Socioeconomic surveys (the key informat interview) were conducted with stakeholders in the three Provinces with the aim to measure the socio-economic structure of the communities and their livelihood support systems (Sourcebook on Socio-Economic Survey (2011).

3.4.1.2 Stakeholder Perception Survey

Effective stakeholder participation cannot be ensured without a clear understanding of the way the stakeholders view (i.e. their perception) the relevant and salient issues connected to management actions. Perception is the organization, identification, and interpretation of sensory information in order to represent and understand the environment (Schacter 2011). This survey was designed to determine the perception of the stakeholders on the development plan of the SLB (2011-2016). According to Gibson (1966 and 1987), without perception actions would be unguided, and without actions, perception would serve no purpose. This implies that actions taken without cognizance of the perceptions of the relevant stakeholders' would produce no meaningful results. Therefore, actions and perceptions must go hand-in-hand.

3.4.1.3 Stakeholder Resource Governace Survey

Governance is about the process by which public policy decisions are made and implemented. It is the result of interactions, relationships and networks between the different sectors (government, public sector, private sector and the civil society) and involves decisions, negotiations and different power relations between stakeholders to determine who gets what, when and how (UNDP 2008). This survey was designed as a diagnostic assessment for determination of the problem and scope of governance in the SLB. Assessment survey in general can be an important tool for systemizing information and data on a local governance issue in particular, or on the quality of local governance in general. Furthermore, assessment provides a foundation for evidence-based policy making and can empower reformers within the systems.

Table 3.2: Provinces, Districts and Sub-Basins of Songkhla Lake Basin for stakeholders survey

S/No	Provinces - 3	Districts (Amphoe - 25)	Sub- Districts (Tambon - 200)	Population – 1.7m	Sub-Basin - 12
1	Nakhon Si	Hua Sai	4	68,863	Klong Pa Payom
	Thammarat	Cha-uat	4	84,227	,
		Sub-Total	8	153,090	
2	Phattalung	Si Banphot	3	16,465	Klong Pa Payom
		Pa Bon	5	43,981	Klong Thanae
		Mueang Phatthalung	14	114,361	Klong Nathom Klong Tachiad
		Bang Kaeo	3	25,628	Klong Pa Bom
		Pa Phayom	4	32,280	Klong Phru Poh
		Srinagarindra	4	25,412	
		Kong Ra	5	33,413	
		Khao Chaison	7	64,500	
		Tamot	3	27,982	
		Khuan Khanun	12	82,053	
		Pak Phayun	7	50,052	
		Sub-Total	66	516,127	
3	Songkhla	Mueang Songkhla	6	237,947	Klong Ratthaphum Klong U-Tapao
		Sathing Phra	11	50,089	East Coast Sub-Basin 1
		Chana	14	92,163	East Coast Sub-Basin 2
		Na Thawi	10	58,675	East Coast Sub-Basin 3
		Thepha	6	64,636	East Coast Sub-Basin 4
		Saba Yoi	9	63,496	
		Ranot	12	67,551	
		Krasae Sin	4	16,055	
		Rattaphum	6	67,961	
		Sadao	9	120,306	
		Hat Yai	13	384,994	
		Na Mon	4	20,950	
		Khuan Niang	4	33,264	
		Bang Klam	4	27,392	
		Singhanakhon	11	79,281	
		Khlong Hoi Khong	4	23,504	
		Sub-Total	126		

3.4.2 Desk Study

This involved studying various related literature relevant to the study. This section reviewed literatures and other scientific information on the subject matter. Lessons learnt and any experiences gained were useful in the study.

3.4.3 In-depth Interviews

In-depth interviews were also conducted with some of the participants of the field survey. Variables taken into considerations were gender, leadership positions, level of education, in-depth knowledge of the focus of the research as well as the participants representing particular institutions and actorgroups identified during the field survey.

3.4.4 Observation (direct and indirect)

Making a field visit to the case study site created the opportunity for direct and indirect observations. Such observations served as yet another source of evidence in the case study (Yin 2003, 2009, Gillham 2000). Participant observation was employed in this study to support other forms of data gathering and collection and was very useful in this study to tease out such hidden and often unspoken actions loaded with meaning (Sithole 2011). It also resulted in the important insights into how the impacts on resource management and governance institutions and patterns of access to water resources by the members of the communities (women and men).

3.5 Data Analysis

The process of data analysis involved making sense out of the text and image data (Creswell, 2009). Data analysis consists of examining, categorizing, tabulating, testing or otherwise combining both the qualitative and quantitative evidence to address the research questions of the study (Yin, 2009). It can also involve preparing the data for analysis, conducting different analysis, moving deeper and deeper into understanding the data. The qualitative data generated were analyzed using thematic approach (Yin 2003, 2009, Creswell 2009). Quantitative data were analyzed using simple descriptive statistics with the help of Excel Statistical packages. Frequencies and percentages were calculated to facilitate the drawing up inferences related to the SLB governance.

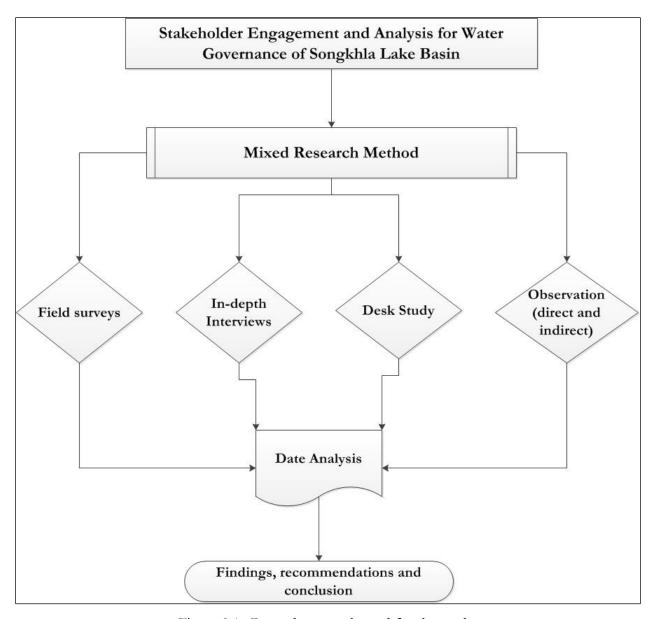


Figure 3.1: General approach used for the study

CHAPTER FOUR

FIELD SURVEY RESULTS

For ease of data analysis, the survey tool for stakeholders' engagement were grouped into the following:

- (1) Basic stakeholders' characteristics
- (2) Stakeholders' resources
- (3) Community resource governance and
- (4) Stakeholder perception on SLB Development Plans

4.1 Basic Stakeholder Characteristics

The study area selected was designed to focus more on the residential area of the communities. The study area is well developed, advanced and equipped with basic infrastructure of roads, electricity and water supply. The average age of the respondents were between 18 to 60 and above (figure 4.1) and the ratio of male to female respondents were equal (figure 4.2) and majority of the respondents were married (figure 4.3). Each family had an average of 3 children (figure 4.4) with the average household size being 6.2 (figure 4.5). Majority of the respondents had formal education of one form or the other (figure 4.6), and all the respondents had lived in these communities for a minimum period of 10 years (figure 4.7). This showed that the respondents were knowledgeable and experienced enough to address the core issues of this research. The major water supply and sanitation systems in the communities were also identified (figure 4.8 and .9).

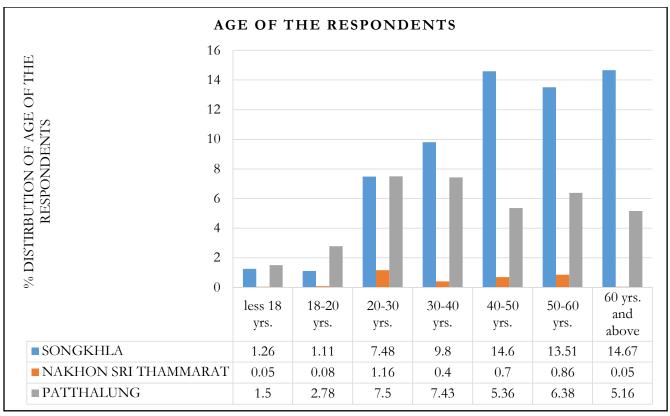


Figure 4.1: Age of respondents

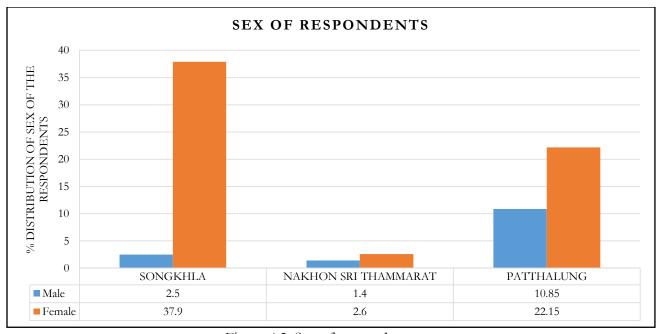


Figure 4.2: Sex of respondents

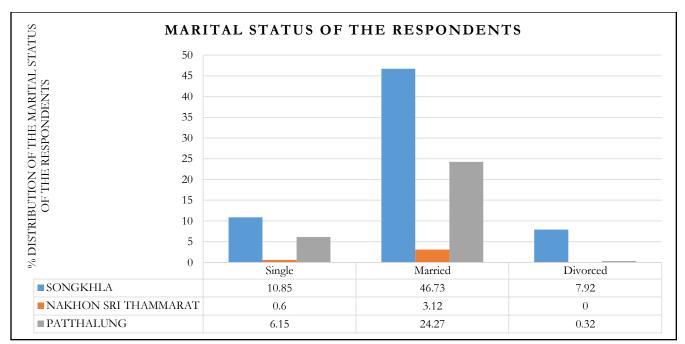


Figure 4.3: Marital status of respondents

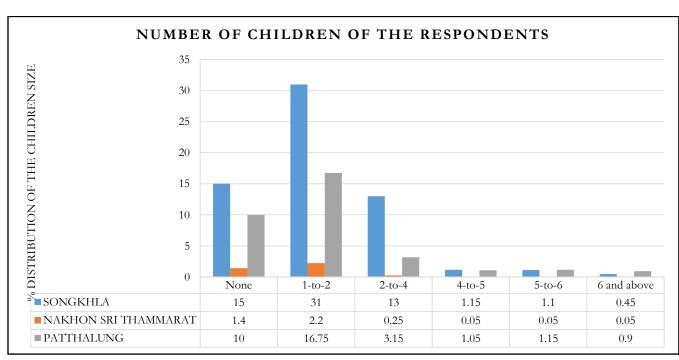


Figure 4.4: Number of children of the respondents

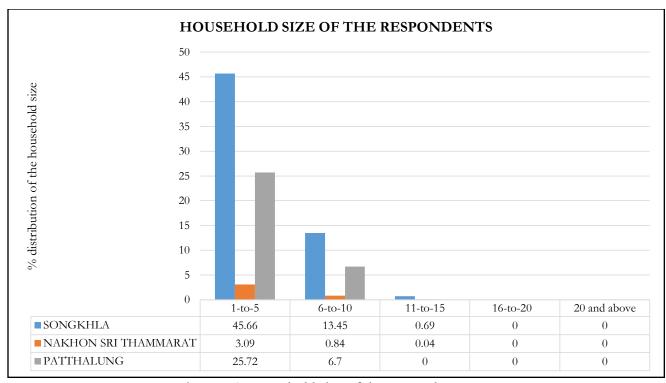


Figure 4.5: Household size of the respondents

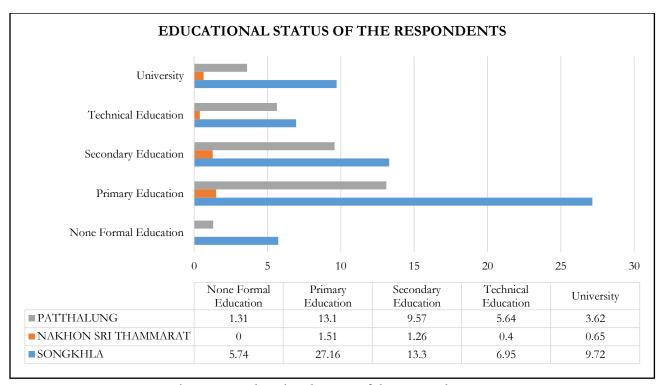


Figure 4.6: Educational status of the respondents

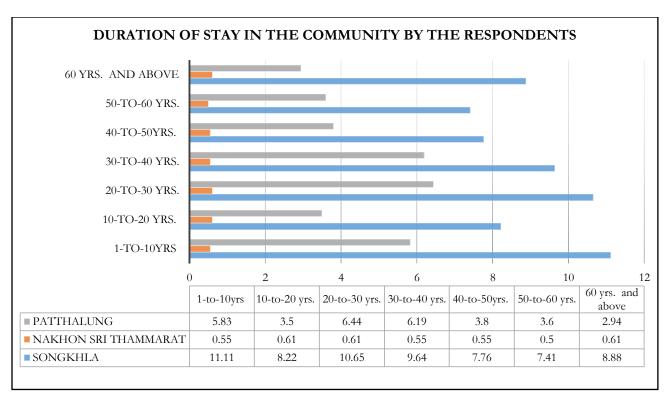


Figure 4.7: Duration of stay in the community by the respondents

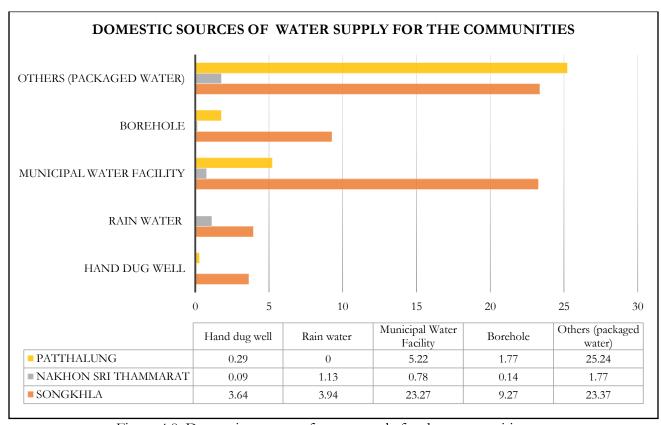


Figure 4.8: Domestic sources of water supply for the communities

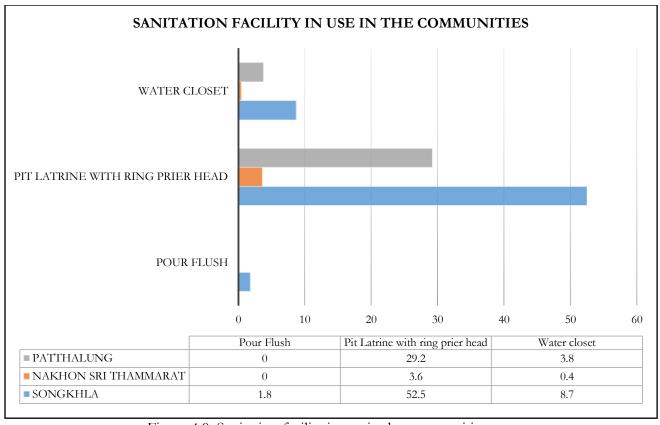


Figure 4.9: Sanitation facility in use in the communities

4.2 Stakeholders Resource Profile (Livelihood Issues)

4.2.1 Property and land ownership

There were 11 major types of land holdings in the communities under study: residential lot, aquaculture (fish or shrimps) ponds, swine farms, cash crops other than rice plantations, irrigated, rain fed and native rice, orchards, rubber plantations, fishing lots in Songkhla Lake, oil palm plantations and vegetable gardens. About 38 percent of the respondents claimed to have residential lots and none lived in rented apartments (figure 4.10). The fishing lot acquisition in the lake depends on the first person to stake a claim and he/she can pass it on to their families or sell it to another person. Each family lives in a simple dwelling well-built with wood, cement, fabricated materials and roofing materials made of galvanized zinc, asbestos roofing sheets and some with thatched roofs. Wood and cements are common materials used for the floors and walls. Cooking is done with wood, gas cooker and in some cases electricity. However, most of the households eat out often, buying food from the many restaurants and food vendors scattered around.

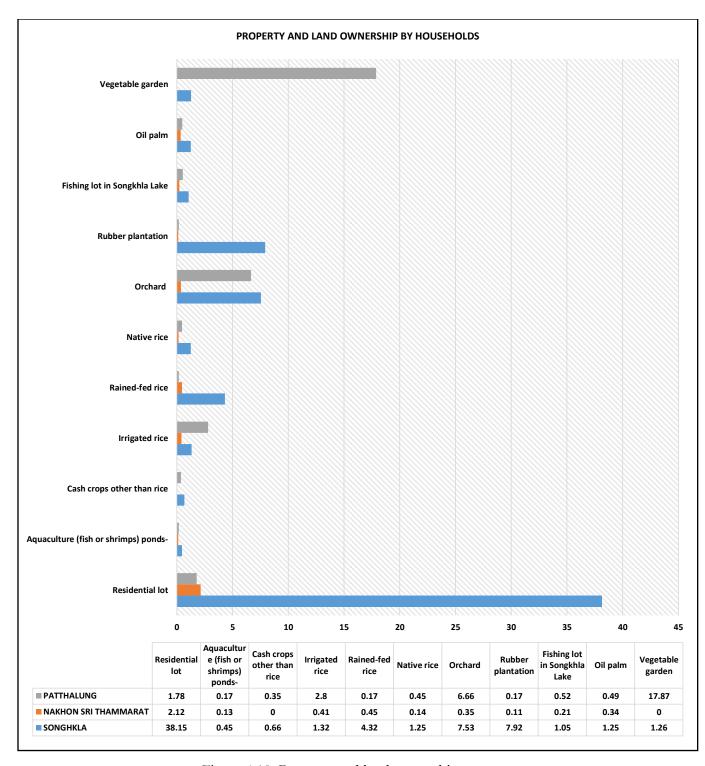


Figure 4.10: Property and land ownership

4.2.2 Livelihoods activities of the respondents

Agricultural activities, which include rice farming, animal husbandry, aquaculture and processing, fishing, resin (latex) collection, etc, were considered the principal livelihood activities in the study area. There was also a high percentage of people who engaged in trading and in other commercial activities, very few were engaged in the public sector. The communities were well sufficient because of high level of economic activities that generate income within the communities. All members of the family contribute to the labour pool in every household's economic activity. The male and female played major roles in fishing, hunting, resin collection and the hiring out of their labour services (figure 4.11). We observed that the rubber, palm oil tree and farming rice communities were wealthier than the fishing communities. Farming were mostly non-mechanized and plows and harrow pulled by semi-automatic machines, land tractors, cows and water buffalos used in land preparation. The majority of the households also raised animals as alternative and complementary activity. Animals were used for home consumption or sold at the market to augment the family income. Fishing is the major contributor to the food security and nutritional requirements of the communities under study, especially those living near the Lake. All the communities very close to the Lake engage in one form of fishing or the other. The most commonly used fishing equipment include hook, line and grill net. There are also some reported cases of the use of destructive methods of fishing like electric fishing, etc. Resin collection from rubber plant is one of the most important economic activity in the study area. Rubber plantation is the dominant economic tree and stands as the major income generating activity. It was noticed that oil palm plantation is also a high income generating venture. The average income per household in the study area ranges from minimum of 300 BTH (not captured by the options provided in the survey, but obtained by the research team through further probing) to 1000 BTH (per month) and maximum of 20000 BTH (per month) (very few earned this amount) (figure 4.12). The study also highlights the major challenges affecting livelihood in each of the Provinces (Table 4.1) and majority of the respondents stated that there is high cost of living (figure 4.13).

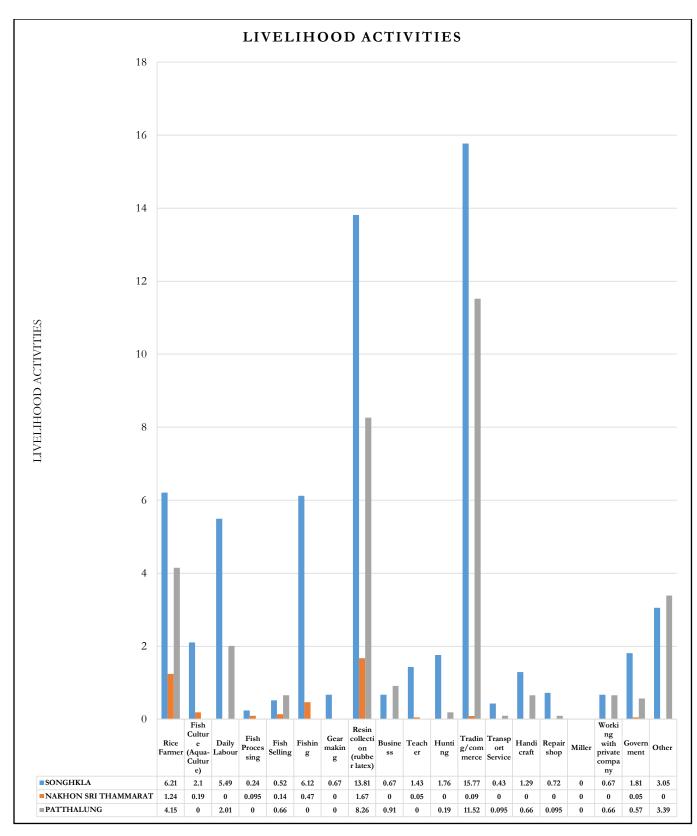


Figure 4.11: Livelihood activities of respondents

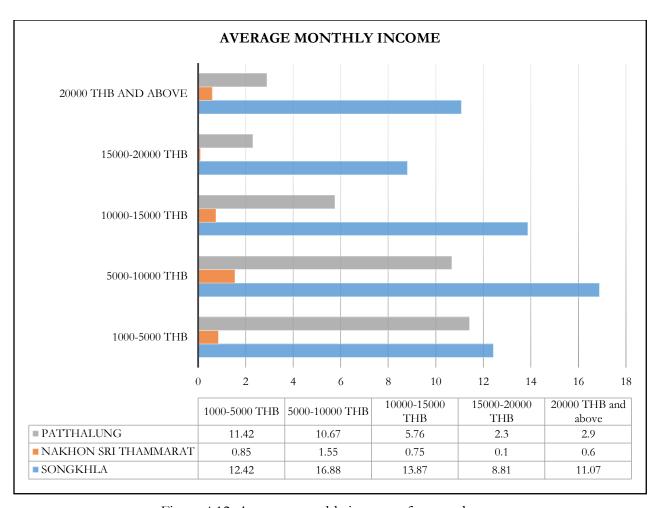


Figure 4.12: Average monthly income of respondents

Table 4.1: Major factors affecting livelihood in the Communities

Province	Major factors affecting livelihood in the Communities
Songkhla	- High cost of living due to the current economic situation in the country.
	- Wastewater from shrimp farms, home-stays in Kho-yo and industries
	affect the water quality in the Lake, which in turn affect fish catch, as well
	as resulting in high number of dead fishes often seen in the Lake.
	- Economic and political situation in the country affect livelihood
	- Low fish catch from the Lake
	- Unfavourable and unpredictable weather conditions
	- Untreated wastewater from all sources channeled into the Lake is
	responsible for low fish catch
	- Low level of return on investment in agriculture
	- Economic situation due to fluctuations in the price of rubber and rice in
	the world trading markets
	- Lack of industry to process sea food affect livelihood of the fishing
	population
	- Low level of construction activities due to the present economic and
	political situation in the country
	- Low productivity of resin from rubber plant
	- The challenge of subsistence agriculture
	- Lack of regular income for those in daily labour category
	- Issues with drug addictions, stealing and robbery
	- Uncertainty in the weather conditions affecting agriculture
	- Negative effect of current political and economic situation in the country
	- Depletion of aquatic resources in the Lake
	- Environmental conditions affecting coastal fishing
	- Regular interruption of water from municipalities' water treatment plants
	- Insects and pests problem in the community
	- High level of unemployment
	- Increase in the number of super-markets affect the rate of sales by the

	individual shops	
	- Weather conditions affecting agriculture	
	- Flooding and drought affecting agricultural activities	
	Low cost of rubber resin in the market	
	Low cost of rice in the market	
	Decrease in fish catch in the Gulf of Thailand	
	Depletion of fisheries resources at the Lake	
	Issues around insecurity	
	Climatic issues, especially drought affecting agricultural activities	
	- Soil salinity and acidity affecting yields from farms	
	- Increase in population density	
	- High cost of fertilizer and other farming input	
Nakhon Sri	- Impact of politics	
Thammarat	- Low price of rice	
	- High cost of living	
	- Negative impact of weather	
	- Poor quality water from the Provincial Water Authority (PWA)	
	- Low price for agricultural products like rice and rubber resin	
	- Negative impact of flooding and erosion	
	Low salary	
	Soil and water pollution	
	- Poor garbage management and wastewater from industry and community	
Patthalung	- High cost of living	
	- Climatic change	
	- Low income	
	- Low return on investment from agriculture and rubber plantations	
	- Climate change affecting agriculture	
	- Low price of rubber resin in the market	
	- Coastal erosion and flooding	
	- Challenges in water resources allocation	

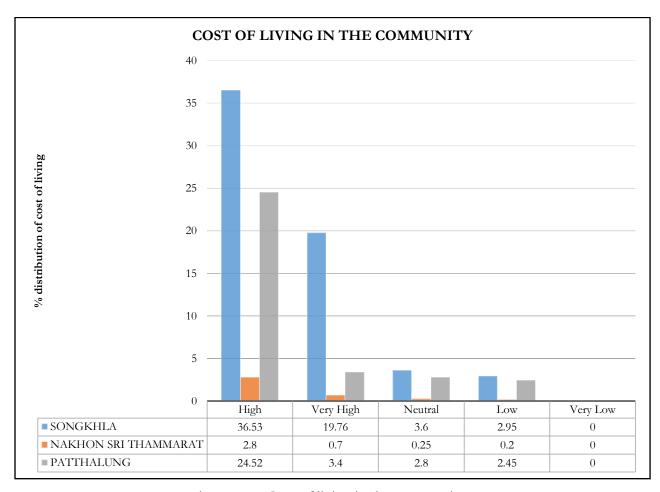


Figure 4.13: Cost of living in the community

4.3 Community Resource Governance

4.3.1 Stakeholders' perception on SLB challenges

The respondents were asked to identify the major problems affecting Songkhla Lake based on their perceptions (Table 4.2) as they interact daily with their environment. The major pressure on the Lake as identified by the respondents are: issues of untreated wastewater and direct defecation into the Lake; unregulated and crowded fishing lots; deforestation of mangrove forests; nutrient enrichment from agricultural (rice, rubber, etc.) and aquaculture activities; and so on. It was observed that the level of awareness of public policies for the protection of the SLB was very low in

these communities (Figure 4.14). The few who were aware identified the following policy instruments that they perceived were relevant for the protection of the SLB:

- I. Control and regulation on fishing
- II. Environmental conservation and pollution control laws
- III. Treatment and management of industrial and domestic wastewater
- IV. Promotion of public health
- V. Marine protection and other aquatic resources

Table 4.2: The major problems affecting Songkhla Lake today from the stakeholders' perspectives

Table 4.2: The	major problems affecting Songkhla Lake today from the stakeholders' perspectives
Province	The major problem affecting Songkhla Lake today
Songkhla	- All the cities and communities around the Lake Basin channeled untreated
	storm-water into the Lake without primary treatment (screening, grit
	removals etc)
	- Disposal of solid waste (garbage) around the bank of the Lake in almost all
	the communities surrounding the lake
	- Untreated industrial wastewater drained into the Lake
	- Water hyacinth and siltation of the Lake
	- Densely populated fishing tools in the Lake
	- Fishing lots in the Lake are not regulated by the relevant government
	agencies
	- The fishing communities' feel that the activities of the Kho-yo home stay are
	more polluting than the wastewater from the shrimp farms.
	- The home-stay in Kho-yo is partly responsible for the degradation of the
	water quality because of direct defecation and disposal of wastewater into the
	Lake.
	- They feel that it is very difficult for relevant agencies of government to
	regulate the activities of home-stays because according to them 'the home-
	stays are very powerful'.
	- Deforestation of mangrove forests

- Indiscriminate discharge of wastewater from shrimp farms
- Direct discharge of untreated municipalities and cities storm-water and wastewater into the Lake, especially during raining seasons
- The water barrier installed between the Gulf of Thailand and the Lake have also affected the water quality of the Lake.
- Crowded fishing lots and tools
- Direct discharge of untreated industrial wastewater into the Lake resulting in high number of dead fishes in the Lake
- Wastewater and garbage from the industries and communities
- Wastewater from industry, home-stays and communities polluting the Lake
- Over-crowding of fishing tools in the Lake
- Garbage, wastewater and industrial and agro-chemicals disposal into the Lake
- Shallow depth of the Lake due to high in-flow of siltation materials from surface run-off.
- Direct defecation by home-stay businesses and communities into the Lake causing sewage pollution.
- The peculiar problem of Kho-yo is the issue of noise pollution from homestays which all the inhabitants complain about
- Wastewater from the cities and municipalities around the Lake
- Obstruction of the drainage system of the Lake by the erection of barriers
- Lack of proper coordination amongst relevant government agencies and departments
- Siltation resulting in shallowness caused by indiscriminate garbage disposal
- Congestion of fish cages in the Lake
- Flooding, coastal erosion and climate change
- Sand siltation from drainages
- Pollution from the oil and gas exploration and production
- Salt water intrusion and garbage
- Corruption

	- Pesticides, herbicides and fertilizer contamination from agricultural activities	
	Destruction and degradation of mangrove forests	
	Decrease in the number of aquatic animals	
	Odor and soot nuisance channeled into the Lake by the industries and	
	communities	
	- Lack of adequate trained manpower to manage the pollution problems in the	
	Lake	
	- Lack of public awareness on environmental management	
	- Act as a sink for all wastewater and storm water from all the industries and	
	communities in the Basin	
	- Destruction of the natural resource base of the Lake by erosion, flooding	
	and wastewater from communities, agricultural activities and industries	
	- Salt water intrusion from the Gulf of Thailand	
Nakhon Sri	- Improper solid waste management (garbage)	
Thammarat	- Decrease in aquatic animals (fish)	
	- Salt water intrusion	
	- Wastewater from communities and industries	
	- Rapid sedimentation and siltation of the Lake leading to shallow lake effect	
	- Negative impact of soil erosion and flooding	
	- Destruction of peat swamp and mangrove forests	
	- Coastal erosion and flooding	
	- High level of heavy metals and other agro-chemicals in the soil like	
	pesticides, herbicides and nutrients from fertilizers	
	- Salt water intrusion into the Lake and other arable lands	
	- Indiscriminate disposal of solid waste (garbage) from communities and	
	industries	
	- Air pollution	
Patthalung	- Decrease of aquatic animals	
	- Garbage and wastewater from communities and industries	
	- Pesticides, herbicides and fertilizer nutrients from agricultural activities	

- Deforestation causing siltation of the Lake
- Erosion and flooding
- Chemical waste and garbage from Hat Yai district
- Soil erosion and flooding
- Shallow lake
- Deforestation causing siltation of the Lake
- Garbage and wastewater from communities, piggery farms and industry
- Air pollution from the industry
- Deforestation of mangrove and peat swamp forests
- Coastal erosion and flooding
- Negative impact of oil and gas exploration and production
- Over-crowded fishing gear in the Lake
- Depletion of fisheries resources in the Lake
- Salt water intrusion from the Gulf of Thailand
- Wastewater and garbage from the industry and communities
- Congested fishing cages and traps in the Lake

When asked to assess the negative trends of compliance and enforcement of relevant policies and legal instruments, they gave the following reasons as being responsible (Table 4.3):

- I. Low level of awareness among the people on the various environmental and related policies
- II. Inadequacy of current relevant and related public policies and legislations
- III. Lack of specific policy instruments developed for the sole purpose of protecting Songkhla Lake Basin
- IV. The attitude of the regulating bodies to the contraventions of the provision of these instruments making it very difficult to ensure compliance and enforcement.

Table 4.3: Respondents Perception on enforcement of national policies and laws that can be applied for protection of Songkhla Lake

Respondents Perception on enforcement of policies and laws for protection of Songkhla Lake

- The law is not suitable making enforcement difficult
- The level of awareness among the people on the various environmental and related policies laws and regulation is very low, this makes compliance very difficult
- Lack of proper enforcement of public health laws
- Not very specific for the protection of the Lake and, therefore, not suitable and not easily enforceable
- Lack of enforcement of these laws are the major hindrance to the sustainability of the Lake
- Poor enforcement of relevant laws due to lack of creation of awareness using the media
- Enforcement and the regulatory community are not serious in ensuring compliance with available legislation
- Weak enforcement mechanism
- Negative attitude of the regulating community
- Level of awareness on relevant legislations and policies concerning the protection of the Lake is very poor among the people and as well as in the industry

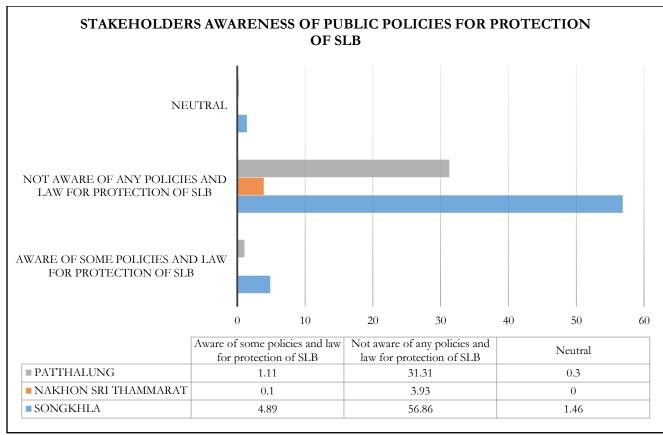


Figure 4.14: Stakeholders awareness of public policies for protection of SLB

Involvement in community resource groups' management and other non-governmental organizations' activities in the communities for the purpose of the protection of the SLB was found to be very low (figure 4.15). The major community groups' activities identified during the course of the study were community cooperative societies, which had to do with savings and lending of money to their members (Table 4.4). There were, however, some community and environmental conservation groups in some of the communities, while in some, they were rare. The respondents rate the impact of these organizations to be very low (figure 4.15).

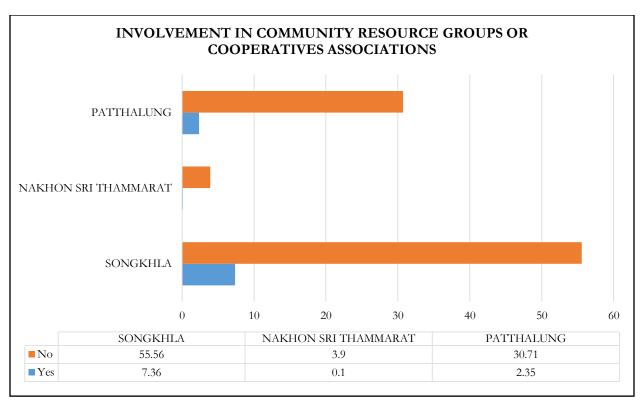


Figure 4.15: Involvement in community resource groups or cooperatives associations

Table 4.4: Activities of NGOs, CBOs, and community resource and cooperative associations

Province	Activities of NGOs, CBOs, community resource and cooperative
	associations
Songkhla	 Cooperative societies for lending and borrowing money to support members is present in most communities of the Basin Mangrove Protection groups support the conservation of mangrove forests and other aquatic resources in the Lake, as well as, undertake environmental awareness campaigns in the communities. Protection and care for the elderly in the communities Environmental conservation and monitoring of water quality in the SUMRONG Canal
	- Kornwit, an NGO with its main activity being the campaign against
	indiscriminate discharge of sewage into water bodies and environmental protection.
	Protocuom

- Weaving and handicraft development society, which encourages weaving for making of local fabrics in Kho-vo
- Environmental protection and conservation groups, encouraging conservation activities around the Lake. They also organize seminars for the need to dredge of the Lake
- Environmental protection and conservation of elephant group; their main activity is for the protection and conservation of elephants and also participate in environmental awareness creation in Boyang community
- Beach cleaning and artificial coral related activities at Kho Teao
- Conservation of mangrove forests in Thunglan
- Petanque Players involved the operation of Thrift Cooperative Society in Khong Muang
- Kangtan Mooban, Rak Talasab Songkhla and Green Peace engage in environmental campaigns for the protection, conservation and development of the Songkhla Lake in Tha Chamuang
- Rak Tala Sab for improvement of the Lake in Pak-ro
- Love Bang Klam involved in the protection and cleaning of the canals in the community and tree planting along the canals in Prik
- Phadam Forest Conservation organization involved in the task of protection and conservation of forests in Thung-mo
- Community development society involved in community cleaning, garbage collection and disposal activities
- Ban Khao Homestay involved in the improvement of homestay businesses
- The Volunteer Group assist in firefighting and protection activities and also provide food to the needy in Watson community
- Development and environmental protection and conservation area involved in the enforcement of trawling prohibition area in Pa Khat
- Earth Conserve, Green Peace and Association of Scooters all involved in environmental conservation, awareness and donation of sporting equipment to schools in Samnak Taeo
- Nod-Na-la involved in forest conservation, tree planting and environmental

	awareness	
	- Release of fish and other aquatic animals into the Lake in Tha-hin	
	- Mueang Song Tala involved in cycling for the environment	
	- Green Peace involved in environmental conservation	
Nakhon Sri	- Community organization involved in promoting better solid waste	
Thammarat	management management	
	- Community organization involved in promoting better conservation of peat	
	swamp and mangrove forests	
Patthalung	- Community organization involved in tree planting and forest conservation	
	- Community organization involved in forest development, tree planting and	
	conservation	
	- Council involved in garbage management on the beach and building of weir	
	- Yad Association for management and conservation of mangrove forests	
	- Tamot Farm involved in tree planting	
	- Thrift Cooperative Society involved in savings and loans for members	
	- Songkhla Lake Conserve Project involved in the raising of awareness and	
	conservation of the Lake	
	- Community organization involved in planting of mangroves and	
	conservation	

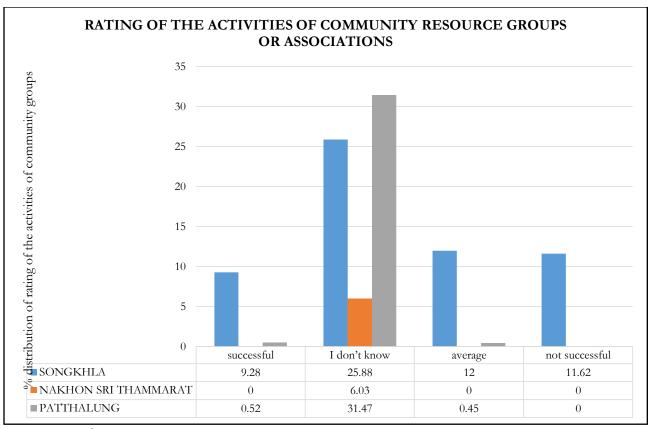


Figure 4.16: Rating of the activities of community resource groups or associations

4.4 Stakeholder Perception on Songkhla Lake Basin Development Master Plan 2011-2016

This section tried to measure the level of respondents awareness and to gauge their understanding of the various issues on the SLB Development Master Plan, as well as to determine the level of support they would give for the actualization of this Plan. The study revealed that the level of awareness of the SLB development master plan is very low among the members of the communities under study (Figure 4.17). Also, the respondents could not see how the present form of the SLB Master Plan could improve the quality of the Lake (figure 4.18)

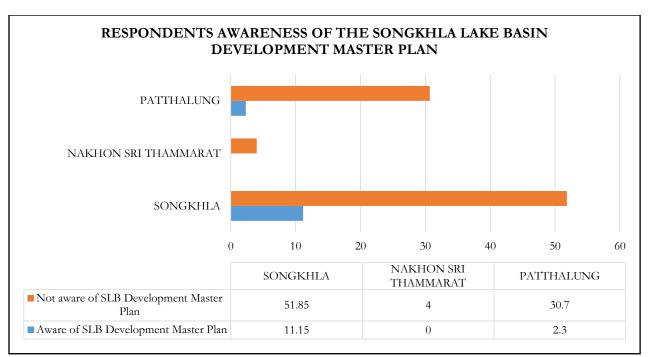


Figure 4.17: Respondents awareness of the Songkhla Lake Basin Development Master Plan

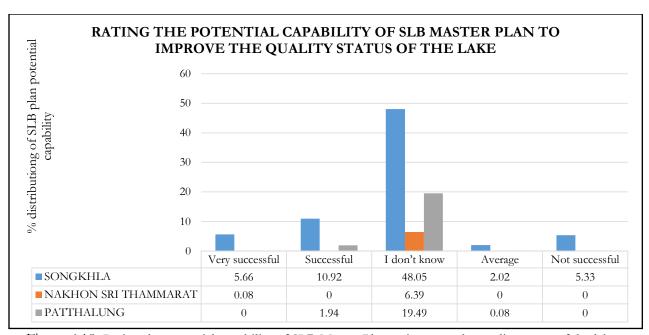


Figure 4.18: Rating the potential capability of SLB Master Plan to improve the quality status of the lake

We proceeded to explain to the respondents the mission, vision and programmes of the SLB development plan (2011-2016); it was at this point we requested them to prioritize development programmes in the SLB plans based on their perceptions (Table 4.5) and also on their willingness to

support these actions. The respondents' choices were not in the order of priority as was presented in the SLB Reviewed Development Master Plan 2011-2016. It should also be noted that the choices of the respondents' development activities were actually based on how the needed improvement of Songkhla Lake will have a positive multiplier effect on their livelihood, health and wellbeing (Figure 4.19).

Table 4.5: Stakeholders' priority actions for the SLB Development Plan

S/No	SLB Development Plan Activity	Stakeholders Activity Perception
	Prioritization	Prioritization
1	Improved terrestrial forest	Improved management of municipal solid
		waste and wastewater
2	Improved peat swamp forest	Improved water quality to meet
		recommended standards
3	Re-instatement of aquatic resources (fishery	Reduce and prevent coastal erosion and
	resources/rare species/biodiversity	flooding
4	Reduce and prevent sedimentation	Improved governance, coordination and
		cooperation amongst all stakeholders
5	Reduce and prevent coastal erosion	Reduce and prevent sedimentation
6	Improved water quality to meet	Re-instatement of aquatic resources
	recommended standards	(fishery resources/rare
		species/biodiversity)
7	Improved management of municipal solid	
	waste and wastewater	
8	Improved governance, coordination and	
	cooperation amongst all stakeholders	

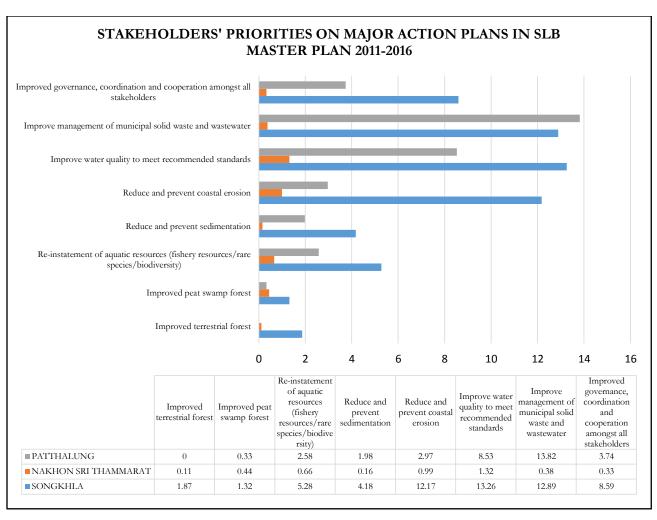


Figure 4.19: Stakeholders' Priorities on major action plans in SLB Master Plan 2011-2016

4.4.1 Stakeholders' willingness to support SLB Master Plan Development Activity

The respondents were willing to support priority aspects of the Songkhla Master Plan they earlier identified (Figure 4.20), and the willing to dedicate a token (resources) to demonstrate thier support the implementation of their priority projects on the Songkhla Master Plan(Figure 4.21). They indicated their interest and willingness to make public the support for their priority projects of the Songkhla Master Plan (Figure 4.22) and were ready and willing to work with like minds/organizations to support their priority of the Songkhla Master Plan Development Projects (Figure 4.23). They also showed their willingness to take initiatives in supporting their priority of the Songkhla Master Plan Development Projects (Figure 4.24). The study also observed that those with more education regardless of the age, have little desire to be involved with the SLB at any level. The

younger (20-50) population have more desire to be a part of the SLB action regardless of the educational level, than the older (50 and above) population. The women were more likely to support than the men.

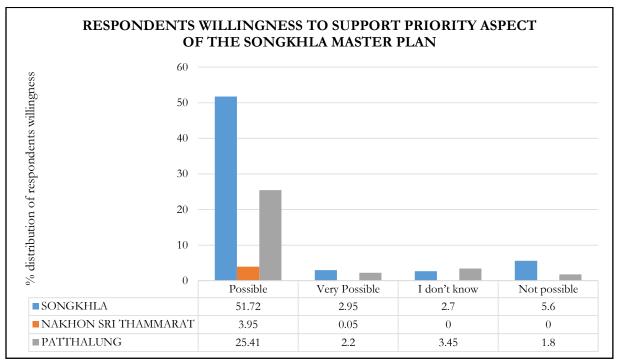


Figure 4.20: Respondents Willingness to support priority aspects of the Songkhla Master Plan

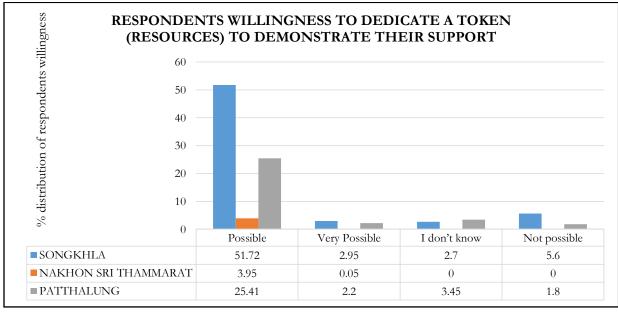


Figure 4.21: Respondents willingness to dedicate a token (resources) to demonstrate their support

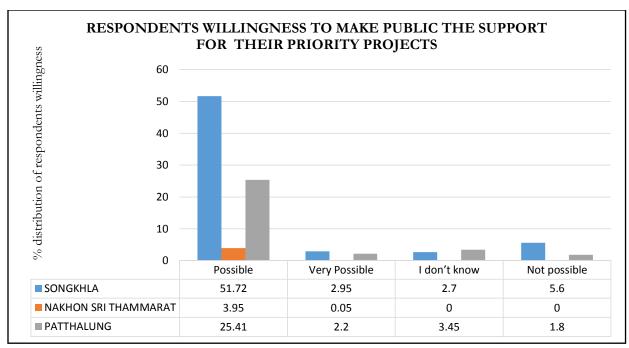


Figure 4.22: Respondents willingness to make public the support for their priority projects

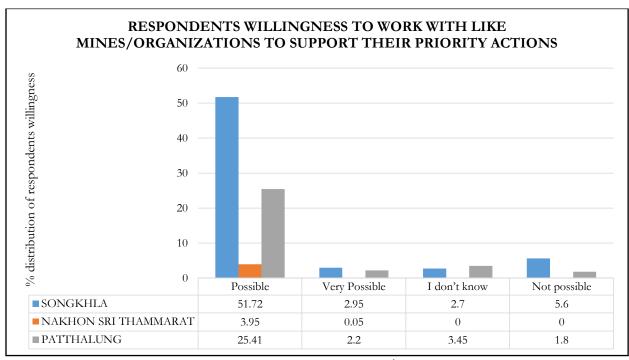


Figure 4.23: Respondents willingness to work with like minds/organizations to support their priority actions

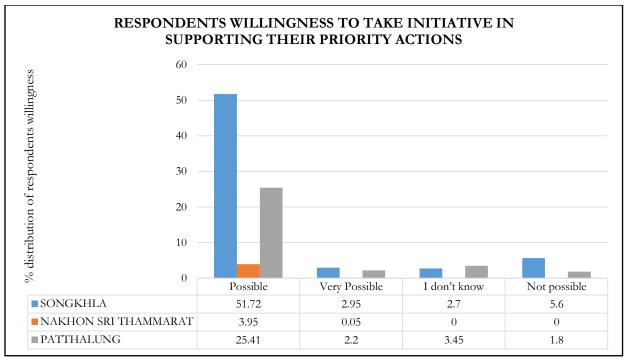


Figure 4.24: Respondents willingness to take initiatives in supporting their priority actions

The respondents were asked to list some organizations that may be willing to support these actions in the Plan and the following major actors were identified (Table 4.6). Though this list is inexhaustive, but it gives an idea of the level of knowledge of the respondents concerning the challenges facing the SLB and how the situation could be salvaged.

Table 4.6: Organizations or persons that would support this project

Organizations or persons that would support this project

- Village heads and their community members
- Relevant government agencies
- Provincial Administrative Organization
- Provincial Water Authorities
- Provincial Electricity Authorities
- Tambon Administrative Organizations
- Municipalities Administrative Organizations
- Ministry of Environment and Natural Resources and their relevant departments
- Relevant Environment and Water Quality Regulatory agencies/departments at National

and Provincial level

- Manufacturing companies and industries operating in the SLB
- Provincial Public Health office,
- Department of Fisheries,
- Garbage bank operators (solid waste recycling enterprises) in the SLB
- Songkhla Port Authority of Thailand/Harbour Department
- Construction industry
- Department of Water Resources
- Coastal and Marine Resources government related agencies/departments
- Fisheries groups in the communities
- Department of Forestry
- Royal Irrigation Department
- Department of Groundwater Resources
- Dam construction companies
- Supermarkets and shopping malls, especially in the area of public awareness
- Mayors of the municipalities in the Basin
- Operators of aquaculture businesses
- Public relations and media organizations
- Community people, villagers and volunteers
- Prince of Songkhla University and other higher institution of learning
- Songkhla Lake Basin Organization

The respondents also listed some benefits for active participation of all stakeholders in the improvement of Songkhla Lake (Table 4.7), and likely opposers of the projects as well as why the identified stakeholders may not support the projects (Table 4.8). The respondents also suggested further actions that will improve the status of the Songkhla Lake and its Basin (Table 4.9).

Table 4.7: Likely benefits of supporting the improvement of Songkhla Lake Basin

Benefit for the supporting organizations, communities and persons

- Improvement of water quality
- Improvement of fisheries resources in the Lake
- Improvement in the livelihood of the communities in and around the Lake
- Improvement of co-operation amongst the communities in the Basin
- Improvement in the quality of the mangrove forests
- Improvement in the environmental sanitation and cleanliness level of the communities
- For the private sector involvement (industries and companies) to show that they are environment friendly organizations
- Solutions for wastewater treatment and management
- Solid waste treatment and management solutions
- Clean cities and environment for the benefit of the people
- Reduction of the current negative impacts on the Lake in the communities like odour nuisance
- Properly organized fishing activities
- Improvement of treatment systems for stormwater
- Increased the resource base of the Lake
- Better environment and better water quality
- Increase aquatic life for improvement in the protein level of the communities
- Better and improved quality of life in the communities
- Better and clean communities
- Improvement of peat swamp forests and management
- Improvement of cooperation with government agencies and institutions
- Improvement of wastewater treatment
- Improved community and stakeholders participation in the management and governance of the lake and basin
- Improved environmental conditions
- Improved wastewater and waste (garbage) management
- Improved community relations between the government and the industries

- Improved conservation activities
- Increased aquatic animals (fish and shrimps) in the Lake
- Increase in the awareness level amongst the community members and by introduction of community mobilization programmes
- Improvement in better water allocation throughout the year with sufficient quantity and quality
- Prevention and reduction of soil and coastal erosion and flooding
- Improvement of peat swamp and mangrove forests conservation
- Better water resources management and governance
- Better support for government activities
- Better water management in the canals
- Improvement in the fish ecosystem in the Lake
- Better resource management
- Songkhla Lake Conservation campaign
- Improvement in solid waste management
- Strengthen better relationships and ties amongst the communities, government and industry
- Better water quality and better quality of life
- Forest conservation and increase in aquatic animals
- Improvement in hygiene and sanitation practices among the communities
- Increased and abundant resources in the Lake for sustenance of the communities
- Improvement of law enforcement in the Basin
- Increase in trust between the communities, government and industries

Table 4.8: Those that may likely oppose the projects and why?

Organizations or persons that may likely oppose this project

- Fishermen and women (fisheries communities)
- Industries
- Communities located around the Lake
- Public related agencies

Why the organizations or persons may likely oppose this project

- Opposition could arise if the proposed programmes affect their livelihoods negatively
- Opposition because of lack of trust by the communities
- If the programmes create unnecessary conflicts with the communities
- Those whose livelihood are based on illegality
- Demolition of fishing tools may likely result in protests
- Inadequate funding for the projects
- Lack of cooperation among the public related agencies, industries and communities
- If final outcome does not result in the improvement of water quality and solid waste (garbage) management

The stakeholders concluded by suggesting additional actions that should be taken to improve the sustainability of the Songkhla Lake Basin (SLB) (Table 4.9).

Table 4.9: Suggested actions to be taken for the improvement of the Lake

- Dredging for the removal of sediments from the Lake to improve its depth
- Dredging of the Lake for improvement of transportation as a source of tourist attraction and income generation
- Lake shore protections all around the Lake communities with adequate system of drainages installed with primary wastewater separating system and grit removal before wastewater is drained to the Lake
- Installation of treatment systems for all storm-water entering the Lake
- Dialogue with the fishing communities on how to improve fishing activities in the Lake without damaging and destroying the aquatic resources and quality of the Lake water.
- Carry-out special activities targeting the garbage bank operators and municipal cities solid waste collectors for the purpose of achieving 80 percent solid waste collection rate in the

- SLB as against less than 30 percent collection rate in the whole of SLB
- Using the community leaders to spread the message through their communities monthly meetings and use of the community radio
- Empowerment of the communities around the Lake for self-management and protection of the Lake
- In the case of Kho-yo Home Stays, the respondents suggested that the issue of land ownership needed to be properly addressed so that proper investments can be made to improve the infrastructures of their business which will also address the current sanitation challenges they face.
- There were also suggestions for development of improved and appropriate sanitation devises that will be suitable for the home stay businesses location; technology like sewage holding tanks and other technological options should be considered
- One of the law enforcement officers interviewed stressed the fact that there are enough laws if properly enforceds which could improve the quality of the Lake, but called for better awareness creation among the people on the various relevant laws and policies for the protection of the Lake
- Enlistment of the role of the community leaders in this area cannot be over-emphasised
- Organizing joint regular meetings between the government, communities and policy makers
- Undertake environmental impact assessments of the Lake for proper compensation of the immediate communities around the Lake and undertake appropriate remediation programmes
- Improvement in the law enforcement mechanisms
- Improvement in solid waste and wastewater treatment and management
- Establish or dedicate specific institutions/organizations to be responsible for Songkhla Lake management and governance
- Improve conservation activities
- Increase aquatic animals (fish and shrimps) in the Lake
- Development of community awareness programmes
- Improve water management and governance
- Improve budget allocation for the development of Songkhla Lake

- Enforcement of fishing legislation and other relevant legal instruments for the protection of the Lake
- Improve the relationship between the people, communities for better management of the Lake and the Basin
- Improve water quality in the Lake
- Develop programmes that will assist in awareness raising for the protection and conservation of the Lake
- Encourage waste separation at community level
- Educate people on waste management
- Education and training for the villagers
- Prevent sedimentation of the lake
- Regular water quality monitoring

CHAPTER FIVE

STAKEHOLDERS ANALYSIS

5.1 National Stakeholders

Water management and governance in the SLB are directly coordinated from the central government's ministries which supervises more than thirty national centralized-deconcentrated departments (agencies) with various roles in water resources management. The centralizeddeconcentrated departments delegate their responsibilities to the SLB provincial/regional deconcentrated department offices under the direct supervision of the provincial governors who is a career civil servant with the Ministry of Interior (MOI) (Nagai et al. 2008) (figure 2). The three most dominant ministries in terms of water management are the Ministry of Agriculture and Cooperatives (MOAC), the Ministry of Natural Resources and Environment (MONRE), Ministry of Industry (MOI) and Ministry of Interior (MI). Other ministries with tasks related to water resources in the Basin include Ministries of Energy, Public Health, Social Development and Human Securities and Tourism and Sports. Each of these ministries operate through their regional offices in the Basin. At the policy development and coordinating level, several committees play important roles relating to water resources management. These include the National Economic and Social Development Board (NESDB), Office of Natural Resources and Environmental Policy (ONEP) and National Environmental Board (NEB) (Biltonen et al. 2001, Biltonen 2011, Cookey et al. 2015).

There are at least 28 water related laws administered by over 30 departments overseeing water issues in the eight ministries (Biltonen et al. 2001, Biltonen 2011). The laws governing water resources are directly or indirectly, derived from some basic legal texts, traditional and customary laws and/or from special laws regulating one or more uses of water. A single law may regulate more than one aspect of uses (Sukhsri, 1999, UN-Water/WWAP, 2007). Water resources management in the SLB is complicated by gaps and overlaps in management responsibilities because of many government agencies and private parties involved in the development and exploitation of the surface-water and ground water resources. The coordination and cooperation between the different parties are very weak. In order to address these challenges, the government established the National Water Resource

Committee (NWRC) in 1996, co-ordinated by the Department of Water Resources (DWR), though formally under the Prime Minister Office (DWR, 2006, Kanjina, 2008).

The turning point in the management of natural resources in the country was the introduction of decentralization policy of natural resources management of 1997 Constitution (KOT, 1997) and the National Water Resources Management Policy was formulated in 2000 (Wongbandit 2005; Hirsch et al. 2005; WWAP, 2007; Sethaputra et al. 2001). Tan-Kim-Yong, et al (2003). The Thai 1997 Constitution makes provision for communities to be involved in managing natural resources. This was further re-echoed in the 2007 Thai Constitution with the provision that the public shall have the opportunity to participate in the development of policies and rules governing the use of natural resources. Another important policy instrument is the National Development Plans (NP) by NESDB, which set the direction for the development pattern of the country. The aim of the first development plan on water resources management was to respond to the demand for water in agricultural and other economic activities by emphasizing supply-side management (Sethaputra et al. 2001). Doungsuwan et al., (2013) noted that even though the direction of development has changed since National Development Plan eight (NP8), the development under these plans continue to negatively impact the SLB because much focus is on resource utilization.

5.2 Basin Stakeholders

The direct management and governance of the SLB are the responsibilities of provincial/regional offices of the central government ministries and deconcentrated departments under the direct supervision of the provincial governors. Water resources development, management, allocations and quality control activities are undertaken by the Department of Water Resources (DWR), Royal Irrigation Department (RID), Groundwater Resources Department (GRD) and Pollution Control Department (PDC) regional offices located in the SLB. The DWR is the main state agency responsible for coordinating surface water resources planning, development, conservation and protection in the SLB through their regional office. The DWR directly supervises the operations of the Songkhla Lake Basin Committee (SLBC), for the implementation of the integrated water resources management programmes in the Basin. The RID is responsible for the allocation of water to farmers for agricultural purposes through various irrigation schemes. Irrigation water is taken mostly from the diversion from the tributary streams and by pumping from the Lake at Ranot (Bamroongrugsa 1998, ONEP 1997, 2005, 2008, 2011). Small scale irrigation projects are

constructed by RID and at completion projects are handed over to the Tambon Administrative Organizations (TAO), which makes decisions on operations and maintenance and regular visits and inspections are carried out by the Provincial Irrigation Office (PIO) for structural and hydraulic failures.

The Department of Groundwater Resources (DGW) regional office in the Basin oversees the development and management of groundwater resources. The groundwater resources in the SLB are located in three major aquifers: shallow sand aquifers, deep gravel aquifers and the groundwater in rock contained in fractures or solution cavities (ONEP 2011). Groundwater resources in the Basin are accessed through shallow hand dug wells for rural water supply. Deep wells are mostly used by private, commercial and industrial plants in the Basin. There are also private groundwater irrigation projects for some private farm holders use, especially by rubber, paddy rice and oil palm nurseries as well as for vegetable farms in the Basin. It is estimated that groundwater provides domestic water for an estimated 60 percent of the population in the SLB (Bamroongrugsa, 1998, Kongthong and Ratanachai, 2012).

Provincial Waterworks Authority (PWA) is responsible for the development and management of municipal urban water supply facilities located at Hat Yai, Songkhla, Phatthalung, Sadao, Patong, Plangla and Cha-uat. The PWA offices in the Basin report to the PWA in Bangkok and the revenue derived from water supply services are used for the operations and maintenance. Water supply schemes in smaller cities are operated, maintained and managed by the respective Municipality Administrative Organizations (tessaban), which report to the Provincial Governors. The village waterworks are managed by the Tambon Administrative Organizations (TAO); their budget derives from the local taxes and budget support from the central government. Wastewater and sanitation responsibilities is under the local government administrations (KOT 1991, Nagari et al. 2008) subject to direct supervision by the relevant central government agencies regional offices in the Basin.

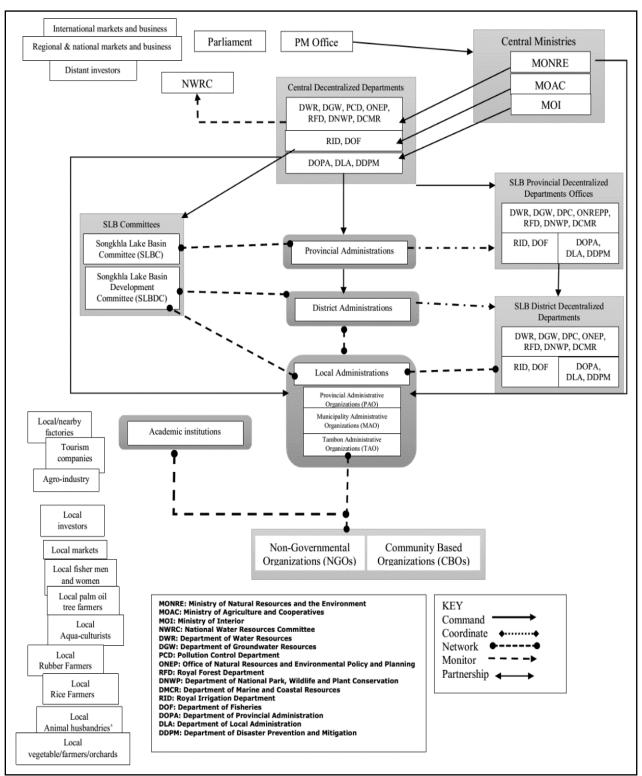


Figure 5.1: Institutional Actors in Songkhla Lake Basin Source: Cookey et al. 2015

5.3 SLB Management Committees Stakeholders

The Songkhla Lake Basin Development Committee (SLBDC) was established in 1993 as an interagency coordinating body by the Office of Natural Resources and Environmental Policy and Planning (ONEP). The mandate of the SLBDC is to formulate policies for conservation and restoration of natural resources and environment of the Basin. This Committee contributed immensely to the development of various master plans and other resource conservation projects and programmes in the Basin (ONEP 2011). The Songkhla Lake Basin Committee (SLBC) was established in 2007, as a coordinating body for integrated water resources management in the Basin by the Department of Water Resources (DWR) (Uraiwong, 2013). They are charged with the responsibility to develop basin-specific programmes in close consultation with stakeholders. The SLBC has three working groups: integrated river basin planning, information and public relations; and participation (DWR, 2006). The working groups provide advice regarding water resource management, coordinate basin activities with other government agencies, determine the priority and allocation as well as monitoring and evaluation (DWR, 2006, Kanjina, 2008).

5.4 Basin Civil Society Stakeholders

There are active civil society organizations involved in the development activities in the Basin. One of the major actors are the Water Users Association which partner with RID in the issues of irrigation. They play a key role in negotiating water allocation for stakeholders according to farmers' planting schedules and help in settling water allocation disputes and irrigation canal maintenance and dredging (Kamnerdmanee, 2011, cited in Kumnerdpet, 2011 and Semmahasak, 2013). Others are the Songkhla Lake Basin Board (SLB Board), which is an active and entrepreneurial civil society organization (Kongthong and Ratanachai, 2012). The Tambon Ta-Hin Community Council with the main objective being to advocate against illegal fisheries activities in the Lake. Others are the Ruk Thale Noi Fisherfolk Society responsible for stopping illegal fishing for natural restoration (Kongthong and Ratanachai, 2012). There are also numerous cooperatives and thrifts societies, mangrove protection groups, weaving and environmental protection and conservations of elephant groups actively involved in the conservation and protection activities of the SLB.

Table 5.1: Key Stakeholders identified for water governance in SLB

Stakeholders	Functions/importance/influence			
Central actors in water governance of SLB				
Ministry of Natural Resources	Responsible for management of water resources and to			
and the Environment (MONR	E) ensure total environmental management and sustainability of			
(16th Regional Office of	the country through the conservation and sustainable			
Environment)	utilization of all natural resources.			
National Water Resources	It is vested with the authority to propose policies for the			
Committee (NWRC)	management and development of water resources for			
	Cabinet approval			
Regional Office of the	The regional office of the agency responsible for water			
Department of Water Resourc	resource management in the Basin. The office provides			
(RDWR)	support to the Songkhla Lake Basin Committee			
Regional Office of the	Oversee the development and management of groundwater			
Department of Groundwater	resources in the Lake Basin			
(RDGW)				
Regional Office of the Pollution	on Control, prevent, reduce pollution and conserve the			
Control Department (RPCD)	environment of the Lake Basin.			
Regional Office of the Natural	Office responsible for coordination, administration and			
Resources and Environmental	management of natural resources and supervise the Songkhla			
Policy and Planning (ONEP)	Lake Development Committee (SLBDC)			
Regional Office of the Royal	Office responsible for the sustainable management of			
Forest Department (RFD)	Thailand's forest resources			
Regional Office of the	The office responsible for the supervision of the protected			
Department of National Park,	areas in the Basin e.g. Ramsar site at Kuan Si Sian within the			
Wildlife and Plant Conservation	n Thale Noi Non-hunting area in Songkhla, Phattalung,			
(DNWP)	Nakorn Sri thammarat Province of Southern Thailand			
Regional Office of the	Office responsible for the conservation and restoration of			
Department of Marine and	marine natural resources and sustainable use in the Basin.			
Coastal Resources (RDMCR)				
Ministry of Agriculture and	Irrigation development for the purpose of improvement and			

Cooperatives (MOAC)	growth of agricultural sector of the economy			
Provincial office of the Royal	The office responsible for the management of irrigation-			
Irrigation Department (RID)	water resources and infrastructure development and			
	protection of water resources and catchments.			
Provincial office of the	The office responsible for licensing of fishing gear, fish			
Department of Fisheries (DOF)	farming, shrimp farming, mariculture and fisheries research.			
The Ministry of Interior	It is the responsibility of the Ministry to establish farmer			
	groups, protect tenants' development of water resources			
	small irrigation outside the Royal Irrigation Department			
	(RID) projects and provision of basic services in rural areas.			
Department of Provincial	The agency of government responsible for the supervision of			
Administration (DOPA)	the Provincial Administrative Organizations (PAO)			
Department of Local	The agency of government responsible for the supervision of			
Administration (DLA)	the Tambons Administrative Organizations (TAO) and			
	Municipal Administrative Organizations (MAO)			
Department of Disaster	The agency of government responsible for management of			
Prevention and Mitigation	all water related disasters and emergencies.			
(DDPM)				
Provincial Waterworks Authority	The State enterprises responsible for domestic water supply			
(PWA)	established in 1978 in response to growing demand for water			
	supply services in various provinces			
Basin actors in water governance				
The Songkhla Lake Basin	An inter-agency coordinating body established by ONEP in			
Development Committee	1993 to formulate policies for conservation and restoration			
(SLBDC)	of natural resources and environment of the Basin.			
The Songkhla Lake Basin	IWRM agency established in 2007 by DWR as a coordinating			
Committee (SLBC)	body for water resources management in the SLB			
Provincial administration	This is the function of various ministries and departments as			
	delegated to the regional or provincial levels under the			
	supervision of the Provincial Governor with assigned			
	ı			

	officials from central administrative agencies. Some of these
	functions include: supplying local domestic water and
	sanitation services.
Local administration	This is the autonomous administrative authority of the
	people in each administrative locality. TAOs have the
	responsibility for local development and natural resource
	management
Water Users Associations (WUA)	Legally registered association with the Ministry of Interior
	under the Civil and Commercial Code (1992). The aims and
	objectives of WUA are to collaborate with the Royal
	Irrigation Department (RID) on the issues of irrigation. One
	responsibility of WUA is to negotiate water allocation for its
	stakeholders according to farmers' planting schedules
Civil Society Organizations	One of the most prominent is the Songkhla Lake Basin
	Board (SLB Board), The Tambon Ta-Hin Community
	Council, The SLB Women's Network etc.
Research and educational	Contributes in the trainings, researches and capacity building
institutions	programmes in the SLB
Private sector	Engages in various commercial concerns in the SLB. They
	include but not limited to the following
	farmers/fishers/traders etc.

CHAPTER SIX

PUBLIC PARTICIPATION

6.1 Introduction

This chapter will reflect on some recommended public participation best practices that can be adapted for the SLB. Participation has been the main focus of attention for environmental management discourse and practice. Globally much attention is paid to give backing to national implementations of international norms and conventions on public participation. Today, within the planning and implementations stages of many environmental issues, it is regularly required to characterize the level of interests and powers of the stakeholders. Aggestam (2007) opined that the solutions for real-world problems require the involvement of all stakeholders or the public in the management of the society's affairs.

Environmental Law Institute (ELI) (2007) declared that public participation is also inextricably tied to the right to a healthy environment; it is the necessary precursor to the realization of such a right. Indeed, public participation had its earliest articulation in the human rights instruments of the mid-20th century. Understanding public participation as a human right has profound implications for decision-makers. Aside from legal duties or instrumental reasons, if participation is a right, there are attendant ethical obligations to provide meaningful participation to stakeholders and the general public. Stakeholders, including local communities and NGOs have detailed knowledge, including traditional knowledge, of their water resources that are not available to governments or to international institutions making the policy decisions that govern those resources. Thus, involving the public can broaden the potential sources of relevant information, knowledge, and expertise available to projects.

Stakeholder engagement broadly refers to a framework of policies, principles, and techniques, which ensure that citizens and communities, individuals, groups, and organizations have the opportunity to be engaged in a meaningful way in the process of decision-making that will affect them, or in which they have an interest. Thus, public participation can be recognised as a practice of stakeholder engagement (Yee, 2010).

While, public participation refers to the process of allowing people to influence the outcome of plans and working processes, it can also be to involve the public/stakeholders in plan preparation and decision making (Hophmayer-Tokich, 2002). In the past, it was meant as an opportunity given to the public to make comments on plans or projects developed by authorities, and in the water resources sectors, it was an exclusive domain of the authorities and their experts. On the other hand, Avramoski, (2004), refers to it as the involvement and appropriate representation of stakeholders of a broad spectrum (economic, political and social interests) in the decision-making process. Stakeholder engagement and public participation are a means of achieving:

- i. Participatory democracy (e.g. community empowerment and providing the opportunity to develop knowledge for making informed choices)
- ii. Transparency in decision-making process
- iii. Community empowerment and support
- iv. Reduced conflict over decisions between decision-makers and public groups, and between the groups

According to Appelstrand (2002), participation is not just a means but also a model for involving those concerned. It should be understood as a proactive approach for creating an enhanced understanding of objectives, problems and their solution.

Optimally any participative process will help to create more informed operative decisions, and thus provide a more solid base for policy outputs, increasing the chance of reaching 'sustainable' decisions that consider long-term effects. Participation enables owners and other interested parties to share knowledge and requires government agencies to develop mechanisms to blend moral and scientific elements so as to serve the growing value of pluralism (Nelson 1995). Although public participation is more a matter of policy than law, it does have considerable legal implications. The manner in which law defines the role of 'the public' may be relevant to the interpretation of participation under national and international law.

6.2 Legal and Policy Framework for Public Participation

Participation was addressed internationally by the UN Conference on the Human Environment in Stockholm, 1972 and by the UN General Assembly through the adoption of the World Charter for Nature in 1982; although it did not become a major issue in the international policy arena until the

early 1990s. The more recent development of new norms and perspectives encouraging a broad-based, bottom-up approach in the management of natural resources was set out at the 1992 UN Conference on Environment and Development (UNCED) (Ebbesson 1997).

Principle 10 in the Rio Declaration on Environment and Development, (1992) states that: environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided. This was further enhanced by the UN Convention on Access to Information, Public Participation in Decision Making and Access to Justic in Environmental Matters (Arhus Convention, 1998).

This convention triggered the passages of Freedom of Information Acts in many countries of the world. In the USA, state and federal legislations mandate public involvement (Duram and Brown, 1999). In Europe, the EU Water Framework Directives adopted in 2000 prescribes public involvement in policy preparation and implementation (Hophmayer-Tokich, 2002). With the following provisions 'the success of the Directive relies on close cooperation and coherent action at community, Member state and local level as well as on information, consultation and involvement of the public, including users' (EU, 2000/60/EC).

In Thailand, public participation was first identified under the National Environmental Quality Act (NEQA), B.E. 2518 (1975). This was further developed and improved upon in 1992 when it first appeared in the 7th National Economic and Social Development Plan (NESDP) (1992-1996) and was properly enhanced by the provisions of the 1997 Constitution of the Royal Thai Government. The 7th NESDP (1992-1996) states that 'in order to protect and solve environmental problems, public must participate in assessing and monitoring environmental standard Encourage public (public organization, central and local NGOs) this does not include the people who have more information and the government to participate in conserving natural resources and the environment (projet management, assessment and evaluation)' (Muneenam, 2006).

The Thai National Policies and Plans for Wetland Management (1993), strategic measures 1 focussed 'on increase awareness of the importance and values of wetlands; which is still the primary level of participation and does not necessary ensure feed-back from the public. The 9th NESDP emphasised participatory approach that involves all stakeholders in the management of the natural resources of the country for the purpose of achievement of the sustainable development of natural resources, environment and to maintain ecological balance (Veeravaitaya, et, al. 2005). By this the local people, communities and other stakehoders are encouraged to participate in natural resources management.

The Thai National Sustianable Development (NSD) (ONESDB, 2008) Strategy 4 focused on 'ensuring good governance at all levels of the society and to strengthen public participation process'. The strategic vision is to promote the participation role of development partners/stakeholders from all sectors, namely public sector, private sector, civil society and citizens to be more comprehensive and productive.

In general terms there are enough broad policy statements on public participation in Thailand, but what remains to be seen is the actual implementation and actualization of these noble ambitions. There is the need to put in place more specific policy frameworks to address the practical aspects of public participation, which puts the citizens at the centre of the participation. Some theorists believe that creating better governance at the local level cannot only occur through assigning greater roles to local communities, but rather through the local population being given a role within a wider 'decentralizing' process of the country as a whole (Patel and Stel, 2004).

6.3 A new ladder of citizen participation

In response to the Arstein's Ladder (1969), Connor, (1988) published 'a new ladder of citizen participation' with the purpose to provide a systematic approach to preventing and resolving public controversy about specific policies, programmes and projects. This new ladder includes:

- i. Education which is the foundation of any programme to prevent and resolve public controversy
- ii. Information feedback
- iii. Consultation
- iv. Joint planning
- v. Mediation

- vi. Litigation
- vii. Resolution/Prevention

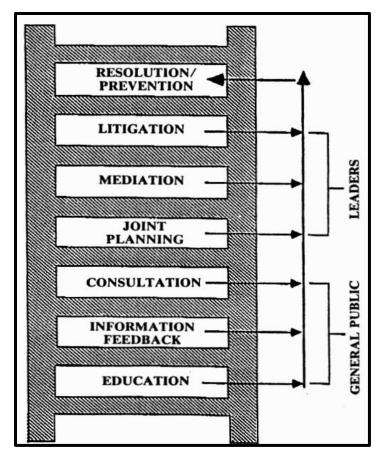


Figure 6.1: A new ladder of citizen participation Source: Connor, 1988

According to Connor, (1988), the new ladder is designed to orient managers and others to the many approaches available to prevent and resolve public controversy about various programmes, plans, projects and proposals. This implies that:

- i. There is no one best way to design and manage a public participation program-it must reflect the specifics of the given situation;
- ii. There is a cumulative relationship between the rungs on the ladder-each successive rung builds upon the previous one;
- iii. At times, several approaches will be used simultaneously in order to meet the needs of the parties involved;

iv. A complex economic, social, cultural and political issue will not be resolved by a news release and a public meeting; a systematic process appropriate for the specific situation must be designed and implemented.

According to the World Bank (2000), there are four exclusive levels (or types) of participation, in ascending order, from least influence to more influence:

- (i) information sharing (one-way communication);
- (ii) consultation (two-way communication);
- (iii) collaboration (shared control over decisions and resources); and
- (iv) empowerment (transfer of control over decisions and resources).

The International Association for Public Participation (IAP2) categorizes public participation into five elements in increasing order of public influence (IAP2, 2007):

- i. Inform to provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.
- ii. Consult to obtain public feedback on analysis, alternatives and/or decisions.
- iii. Involve to work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered
- iv. Collaborate to partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.
- v. Empower to place final decision making in the hands of the public.

IFC (2007) opined that effective participation cannot be achieved by simply adopting a successful model from another context and that public participation should be designed and informed by key principles and be sensitive to relevant local institutions and governance arrangements. IFC (2007) then proposed the following as the key principles for a successful implementation of public participation or stakeholders engagement processes:

- i. Providing meaningful information in a format and language that is readily understandable and tailored to the needs of the target stakeholder group(s)
- ii. Providing information in advance of consultation activities and decision-making

- iii. Disseminating information in ways and locations that allow ease of access by stakeholders
- Respect for local traditions, languages, timeframes, and decision-making processes iv.
- ν . Two-way dialogue that gives both sides the opportunity to exchange views and information, to listen, and to have their issues heard and addressed
- Inclusiveness in representation of views, including women, vulnerable and/or minority groups vi.
- vii. Processes free of intimidation or coercion
- viii. Clear mechanisms for responding to people's concerns, suggestions, and grievances
- Incorporating feedback into project or program design, and reporting back to stakeholders ix.

6.4 Public Participation in Water Management and Governance

Water management and governance is a complex issue that cannot be handled by the managers of water resources alone. There are various interrelated issues that must be addressed; issues like water quantity and quality, groundwater and surface water, land and water interactions, biologic and habitat concerns. This gears managers towards the integration of all these issues into water systems (Van de Kerkhof and Huitema 2003).

Another aspect of this issue is that there are many users who use water more intensively and their needs must be addressed. Mostert (2003) noted that the technical and infrastructure aspects that were the core elements of water management in the past, do not always suit new aspirations that arise from the development of environmental, social, cultural and local economic values attributed to water. Furthermore, new problems arose, such as diffuse-source pollution, for which technical solutions do not exist. These pressing issues, especially pollution from agricultural activities, is very often unsolvable without commitment and cooperation of polluters (Pahl-Wostl 2002).

All these cause gradual changes in water management and governance from the command and control approach, based on experts view, to more interactive and integrative systems that address the cultural, economic and environmental issues in decision-making and not only the technical ones. Hence, more actors are needed and are involved and decisions are based more on social acceptance. Thus, public participation and involvement is increasingly recognized as an important component of water management and governance (Duram and Brown 1999, Beierle and Konisky 1999). Patel and Stel (2004) observed that the water resources management sector was the last sector to acknowledge

the need for public participation within its planning processes, since historically, public participation has been associated with sectors like urban and spatial planning.

6.4.1 Components of Public Participation in Water Management and Governance

Hophmayer-Tokich (2002) identified four major components of public participation in water resources management based on the EU Water Framework Directives and they are:

- i. Identifying the relevant public and stakeholders, which include general public and users with respect for consultations and provisions of information (FAO/EC/ILO 2000, Thomas 1995). This can be done using the top-down approach by competent authority, and bottomup approach in which the competent authority allows the public define itself.
- ii. Involving as early and in as many stages of the process as possible. Public participation needs to take place when public and stakeholders input can still make a difference in the design and/or decision to implement a project. It is important to start early when options are still available and parties are open to new suggestions.
- iii. Selecting suitable techniques. There are different methods that can be used for information supply (newsletters, internet, briefings, information repositories, etc.) consultation (interviews, polls and surveys, open houses/exhibitions, public meetings, etc.) and active involvement (advisory committees, task forces, citizens' jury, working conferences, etc).
- iv. Obtaining decision makers' commitment. Public participation cannot be effective without the commitment from government leaders, top managers or from the elected officials.

6.4.2 Forms of Public Participation in Water Resources Management and Governance

There are three main types of public participation in water resources management and governance as identified by the EU Water Framework Directives. These are information supply, consultation and active involvement.

i. *Information* supply entails public access to information. It is a one-way relationship in which authorities produce and deliver information to the public.

- ii. Consultation is the first form of real public participation. It is a two-way relationship in which the public and stakeholders can react to proposals developed by authorities. It does not, however, mean a share in the decision-making, nor an obligation to adapt the plans based on the consultations. There are two types of consultations, which are after plan preparations (traditional consultations) and consultation before and during the preparation of the plan. In this case, information, ideas and concerns of the public and stakeholders are considered during the plan preparations.
- iii. Active involvement is an intensive form of public participation. The stakeholders take part in the development of the plan, thus authorities and public or stakeholders cooperate. Active involvement can also be divided into two parts. The first one entails deliberation with stakeholders in various phases decision making, albeit the authorities ultimately decide. The second one covers shared of decision making or self-determination in which the stakeholders not only participate in the plan preparation, but also in decision making.

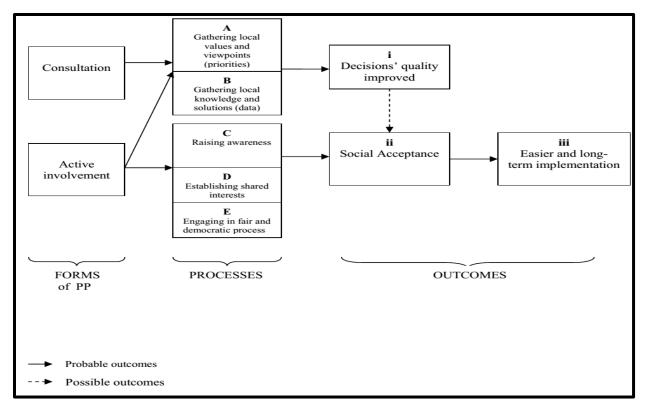


Figure 6.2: Forms, processes and possible outcomes of Public Participation Source: Hophmayer-Tokich, 2002.

The different levels of participation are not mutually exclusive. They build on each other: consultation implies information supply and active involvement implies consultation. The choice of level depends on aspects like the timing of the public participation and the state of the planning process, the (political and historical) context for public participation, available resources, objectives or benefits of the public participation and the stakeholdrs identified to be involved (EU-EFD-Guidance document 8, 2003). According to the EU-Water Framework Directives (2000), the first two levels of participation are to be ensured, the latter should be encouraged.

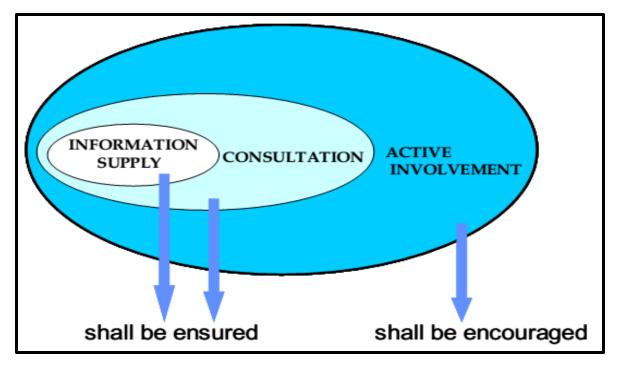


Figure 6.3: Different levels of participation

Source: EU-EFD-Guidance document 8, 2003

Public participation should be organized at the lowest scales because at the local scale the effects of management will be felt most directly and more responses from, especially local stakeholders, can be expected if public participation is organized at this scale. The possible approach for scale issues include:

- i. Determine which issues should be addressed at which level.
- ii. Determine what types of publics can make what types of contribution and what type of public participation is most appropriate for the publics and possible contributions concerned.

- iii. Organise public participation as close to the public concerned as possible, given budgetary and staffing constraints;
- iv. Communicate the (first) results as soon aspossible across different scales and between relevant units at the
- Report on follow-up not only in the river basin management plan, but also at the level where public v. participation was organised.

6.5 Public Participation in Lake Basin Governance

Participation in lake basin governance becomes very important, especially in the face of current increasing exploitation of natural resources, inappropriate land-use practices, and uncoordinated sectoral policies and development activities in the Basin. This requires new strategies to rescue valuable freshwater resources. According to Avramoski, (2004), stakeholders in lake basin management are individuals or representatives of a group who make use of, have an impact on, or are impacted by the issue of concern.

Experience from case studies of 28 lakes located in all regions of the world funded by the World Bank's Global Environment Funds (GEF) shows that local communities and non-governmental organizations (NGOs) are among those stakeholders that can significantly affect the outcome of management efforts in lake basins. The case studies clearly demonstrate that active community participation is vital to sustainable development in lake basin management. Avramoski (2004) concluded by stating that community-level participation is evident when the outcomes of participation are clearly and directly linked to the improvement of livelihood of participating communities.

Governance agencies have always planned a central role in the design and facilitation of participation exercises. For instance, in Lake Constance (Austria, Germany and Switzerland) stakeholders are involved according to the national legal possibilities. Local citizens and stakeholders can present their questions and requests to the International Bodensee Conference (IBK) - an intergovernmental organization established by the riparian federal states and cantons. In Lake Baikal (Russia), NGOs and the general public in the region participated in the development of strategic action plan through public hearings and workshops. In Lake Dianchi (China), the government involved stakeholders through dissemination of information or public hearing in the environmental assessment process for plans and projects (Avramoski 2004).

Avramoski (2004) noted that Lake Naivasha in Kenya is a case in point where participatory management evolved in a bottom-up fashion. The origins of environmental management of Lake Naivasha are linked to the activities of the Lake Naivasha Riparian Association (LNRA) - a nongovernmental organization established in 1929 by landowners around Lake Naivasha. The planning process initiated by LNRA eventually resulted in a Management Plan that was adopted by the Government of Kenya as an official document. In Lake Baringo (Kenya), the awareness-building programme was linked to the establishment of four wildlife sanctuaries managed by local communities.

6.5.1 Citizen Participation in Lake Basin Water Resources Management and Governance

Public participation and citizen involvments in lake basin management can be looked at from two main themes. The first concern is participation at the community level and also the role of NGOs. The reviews of issues of participation from the 28 lake basins in the world revealed that at community level the stakeholders involvement may be individual and or community based organizations. In some cases, they are referred to as primary stakeholders (World Bank, 2000). Avramoski (2004) referred to them as community-level participation. The term community is used to designate both communities-of-place and communities-of-interest. Communities-of-place include members of the public who may be affected by or interested in management decisions and actions by nature of their residency within or near management activities, while communities-of-interests are groups with a focused interest in (often accompanied by organized efforts to influence) management of resources unrelated to their member residence (Kusel et al, 1996). Some communities, however, may be both of place and interest, such as villages highly depended on fishery, forestry or agriculture.

6.5.2 Ngos Participation in Lake Basins Water Resources Management and **Governance**

The term NGOs generally denote formal and informal groups of individuals organized for myriad of reasons that engage human imagination and aspirations. They can be set up to advocate for a particular cause, or to carry out programmes on the ground, and their memberships cut across from local to global. The Community Based Organizations (CBOs) fall here. These groups are intermediaries in the process of delivering policies and projects to local communities. Avramoski (2004) referred to them as secondary stakeholders. In addition to NGOs, other secondary stakeholders include government, research and educational institutes, labour unions and the private sector. The roles of NGOs in lake basin management has being around the area of:

- i. Collection, dissemination, and analysis of information
- ii. Public awareness raising and environmental education
- 111. Agenda-setting and policy development
- iv. Performing operational functions
- v. Capacity building of local communities
- vi. Mediation between government agencies and local communities and
- vii. Mobilization of funding

6.5.3 NGO Best Practice in Lake Basin Management and Governance - Great Lakes United

The classical case of NGOs participation in lake basins management is that of the Great Lakes United, an organization established by the citizens of the Great Lake Region (United States and Canada). The organizational members were brought together by the awareness that the world's largest fresh water ecosystem was under very serious threat. These concerns attracted the attention of individual members who recognized the need for an integrated approach to recovery. The Basin contains twenty per cent of the world's available surface water and is home to a broad variety of natural habitat. Members saw, on the one hand, a basin with abundant water resources and aquatic habitats, with biologically rich coastal waters, blue ribbon trout streams, and sparkling inland lakes. On the other hand, members were keenly aware that over two-thirds of the Basin's original wetlands

had been lost, thousands of miles of rivers had been impaired, and miles of shoreline had been degraded.

From the outset it was clear that the coalition would need to look to governments whose regulatory powers and funding was necessary to preserve, protect and restore the ecosystem. The need was also recognized for concerned individuals and the environmentally-focused non-governmental organizations (NGOs) operating in the Basin to ensure that decision-makers were cognizant of the threats to the Great Lakes and St. Lawrence River and that they were prepared to act. It was against this backdrop that Great Lakes United was born.

Reflecting on the past, the Basin's environmental community have played an active and key role, and have successfully advocated for greater environmental protection. Together, grassroot environmental organizations, municipalities, unions, and dedicated individuals have worked for stronger water quality standards, zero discharge, and other programmes aimed at reducing the amount of toxic chemicals used and produced in the Basin, as well as, programs to protect the Basin's ecosystem from water diversions and flow controls that can cause significant damage. Agreements to protect the Great Lakes and the St. Lawrence River have contributed to global environmental policies. These successes are shared and furthered by the growth of a vocal, and increasingly influential, environmental movement.

Great Lakes United's collective voice has been a powerful means of articulating the concerns of hundreds of citizens and community organizations across a broad spectrum of interests. At its core, is coalitions have derived strength from its member organizations and, in turn, provided support to them. Great Lakes United has been a powerful catalyst for action (http://www.greatlakesunited.org/en/about/history/).

Conclusively, it should be noted that public participation and engagement of relevant stakeholders in lake basin water resources management and governance will prevent further deterioration of water resources in the SLB and will protect and enhance the status of water resources, as well as, ensure sustained improvement of the aquatic environment through behavioural change of the public's attitude that has been inimical to the well-being of the SLB resources. The only challenge is to know who, when and how to engage the public and enable fruitful public participation. It is noteworthy to

state that it will be wrong to prescribe a particular public participation or stakeholder engagement model for the SLB without first taking into consideration all the unique factor and perculiar feature of the SLB. It is even more inappropriate to try and impose a model that may have worked in another context on the SLB because the conditions and actors are not the same. Therefore, this report only recommends that careful planning and consideration should go into the choice and design of the model used for the SLB.

CHAPTER SEVEN

DISCUSSION AND CONCLUSION

7.1 Discussion

During the past decades several ecological problems have affected SLB. The most important one is the degradation and deterioration of the water quality and depletion of the water quantity of the Songkhla Lake as a result of the rich biodiversity of the Basin. Also, noted by the stakeholders and many other scholars is the serious deterioration of life conditions for fish, amphibians, shrimps and other aquatic resources. The decreased depth as well as the increased nutrient content of the Lake has resulted in serious eutrophication problems. Apart from changes in the hydrological and water quality regimes, the disturbance from direct anthropogenic impacts should be taken into consideration. The main lesson drawn from this study shows that these challenges result because of lack of public participation of the Basin communities in the governance and management of the SLB.

These findings are in agreement with Neef (2008) who observed that public participation in Thai water management is still in its infancy, with legislative and executive responsibilities divided between a variety of state agencies and local authorities. Kanjina (2008) noted that Thai water sector has long been dominated by a myriad of largely uncoordinated state agencies acting independently, but lately trying to move towards more participatory policies. The difficulty of moving toward a more participatory water governance is perhaps best captured by Thomas and WAC (2005) in their observation that despite over thirty years of conscious efforts to adjust policies, organizational structures, regulations, programmes and budgets to facilitate cross ministerial coordination, relatively little progress is apparent at the central government level. Indeed, even cross-departmental coordination within individual ministries is a very daunting task. The main challenge, therefore, is how to coordinate these various governance agencies, Local Administrative Organizations as well as engage the full participation of the Basin stakeholders in governance of the SLB.

This study has also shown that the participation and engagement of stakeholders as well as management of their perception is a critical factor for successful lake basin management. Perception

is what guides actions toward the right or wrong direction (Gibson, 1966 and 1987). Perception is not a passive receipt of signal but is shaped by learning, memory, expectation and attention. It is nurtured by concept and expectations (knowledge) and selective mechanism (attention) that influences actions (Gregory, 1987 and Bernstein, 2011). When people's perceptions are properly understood and well-articulated into any development plan, responsibilities will be properly shared amongst the various actors, institutions and stakeholders. The key actors will seek for adequate buy-in from the people. This is what demonstrates the degree of transparency and inclusiveness of the decision-making process. A development initiative that fails to address the issue of perception of their relevant stakeholders cannot cater for their wide range of needs, especially those at the risk of losing their livelihood because of the over exploitation and degradation of the resource seeking to be protected. Also, participation is a key element of measuring modern day resource governance, and since addressing the issues of perception is a major determinant of effective participation of stakeholders, then we cannot continue to down-play or misrepresent it (Cookey et.al. 2014).

The paradigm shift of the 21st century in stakeholders participation is geared towards engagement; unfortunately, most development initiaters, planners and implementers, especially in the government agencies, still practice mere awareness participation strategies, which is a hindrance to natural resource governance (Krick et al. 2005) and sustainable legal frameworks for the resource system and its interaction with broader society (Charles, 2004). This is because a sustainable natural resource governance system should be able to structure ways and means in which the divergent preferences of interdependent actors are translated into policy choices to allocate values, so that the plurality of interests is transformed into coordinated action and the compliance of actors is achieved (Eising and Kohler-Koch, (2000).

The high point of this study was the ability to gather information about the major challenges facing Songkhla Lake Basin in Songkhla province based on the perception of the stakeholders. It also brought out the issues that are dear to the hearts of the stakeholders, especially the impact of the current state of the Lake on their livelihoods. The study highlighted the real and perceived conflict issues within the stakeholders in each Tambon, depending on how each of their livelihood were impacted in the Lake by each other. It also brought out conflict issues between the Provinces and the Tambons depending on the dominant livelihood activities in that Tambons. For instance, the residents of Kho-yo are of the opinion that the noise from the home-stays is a major public health

issue in the community. The fishing community of Khu Tao feels that the home-stay at Kho-yo have more polluting effect than wastewater from the shrimp farms in Songkhla Lake, which in turn affects their livelihood negatively. They also perceived that it is difficult to regulate the home-stay activities because of their influence and status in the community (Cookey et.al. 2014).

The results also showed that majority of the stakeholders were not aware of the SLB Development Master Plan and if given the opportunity they would support their own priority actions of the Master Plan for the sustainability of the Lake. It was very interesting to note that their priority actions were quite different from the order of prioritization in the development plan. Stakeholders did not really consider all the recommended actions as been essential for the sustainability of the Lake, which may not necessarily be right, but is that how they see it. (Cookey et.al. 2014).

The best revelation the study made was that contrary to hitherto assumptions, the people are more than willing to support and participate in any sincere plan and programme to improve the Lake. They want to enjoy all the benefits (social, economic and psychological) of the Lake that has served as their home and provider over the years. They want to bathe, play, ride and celebrate around the Lake without being endangered or disgusted with stench and garbage. They want a living dynamic Lake that they can boast of with the dolphins and its beauty to enjoy. They believe this is not too much to ask, and they would give their best to see it happen.

It was also noted that very limited number of NGOs'/CBOs' are working on issues related to the SLB. In fact, there were more NGOs/CBOs working on issues of improvement of economic wellbeing of the community members (cooperative societies, especially on issues of loans and saving) than on environmental related issues like conservation of natural resources. Even on the few that dealt with these issues, the community members hardly felt their impact. Therefore, there is need for intervention capacity development programmes to strengthen these community based organizations to enable them play active roles in the protection and improvement of the environmental status of the Songkhla Lake. The capacity development programmes should incorporate building the networking skills of the operators of these community based organizations, which is capable of encouraging them to work together to form the necessary critical mass to accelerate the sustainability actions for the Lake Basin.

The study also observed that there were very low levels of relationship between the community based organizations with relevant government agencies/institutions tasked with the responsibilities for the protection and conservation of Songkhla Lake. Therefore, we suggest more deliberate policies and programmes geared towards adequate integration of these community organizations for the improvement of the Lake Basin. The government officials, being the important actors in dissemination of laws or other information in the communities, should help to build the capacity of the communities for protective actions of the Lake (Cookey et.al. 2014).

The respondents believe that the implementation of the SLB Master Plan should be done from the Tambon Administrative Organizations (TAO) as they are the closest level of government to the communities. The people do not feel connected to the authorized government agencies when it comes to the issues of the protection of the Songkhla Lake. They also deplored the fact that there is no particular government agency saddled with the responsibility of the protection, management and governance of the Songkhla Lake. They want to know who to hold responsible for the wellbeing of the SLB.

Since, developing the right perception is fed and nurtured by proper education and information, which will cause people to act in a proper manner required of them, we cannot act in the Arnstein (1969) 'tokenism' and expect the people to develop the right perception that will produce the right resource governance actions. We should adopt Connor, (1988)'s 'new ladder of citizen participation' with the purpose of providing a systematic approach to molding stakeholder perception based on the right knowledge achieved through a well thought-out public education and information programming. This new ladder includes:

- I. Education, which is the foundation of any programme to prevent and resolve public controversy
- II. Information feedback
- III. Consultation
- IV. Joint planning
- V. Mediation and in extreme cases
- VI. Litigation and
- VII. Resolution/prevention of conflict.

This is the right way to enhance the public perception that will ensure sustainable governance of natural resource of the Songkhla Lake Basin.

Superficially, it may seem that the communities in the SLB do not care about the deplorable state of the Lake and are not supportive of several efforts to fix the Lake. But, this is not true as the result of field work has shown that the people are worried about the gradual demise of their beloved SONGKHLA LAKE. Besides, it is wrong for anyone to assume to know more about the Lake than those who live with it every day, have witnessed and experienced its different moods and aura, hold treasures of the past 100 years of the Lake passed down to them through ancestral lines, and know the deep secrets of the Lake through a long-term relationship. To them, the SLB is a friend, a parent-a living support and pillar, a constant they have gotten used to and would not wish to live without. Therefore, to understand and move the SLB towards sustainability, will essentially require insights into the perception of these gate keepers. Conclusively, we need to include the perceptions of the communities in SLB into the development plan for proper stakeholder participation.

It is of essence to reiterate that this study is not recommending any particular model of stakeholder engagement for the SLB. However, we suggest that a model be designed based on best practice that fit into the unique nature and peculiar features of the Basin and its people. It can be a mix of concepts with relevant aspects guaranteed to work in the SLB. Research to determine such a model should be carried out.

7.2 Conclusions

The main conclusions of this study are as follows:

- I. The study observed that there is absence of public participation and stakehokders involvement in the management and governance of Songkhla Lake Basin. The respondents feel neglected, not consulted and involved in the major decisions for the conservation and protection of the Songkhla Lake.
- II. The study noted that the people and the communities in the Basin are not aware of the previous development plans of the Songkhla Lake Basin. This makes it difficult for the active participation of the stakeholders in the development and protection of the Lake.
- III. The hierarchy of the priority actions in the SLB Development Master Plan were not exactly the priorities of the communities in the Basin.

- IV. The people are also willing to support any laudable programme that shall improve the status of the Lake. Therefore, it will be better to realign the action plans of the SLB Development Master Plan with the priorities of the people.
- V. The respondents are not satisfied with the enforcement mechanisms of the various laws and regulations, especially those concerned with the conservation and protection of the Lake. The communities will like to see a change.
- VI. The respondents are not aware of the activities of the Songkhla Lake Basin Development Committee (SLBDC) and Songkhla Lake Basin Committee (SLBC), the committees that preside over the management and governance of the Lake Basin.
- VII. The impact of the NGOs/CBOs are not felt by the communities and they keep talking about creating adequate awareness about the Lake. The NGOs/CBOs can fill this niche.
- VIII. There is low level of environmental awareness in the communities, especially concerning the Basin and the people want to know about these things.
- IX. The stakeholders express concern over the fact that there is no particular government agency or agencies assigned with the responsibility for the management and governance of the SLB. They would like to see a change.
- Χ. The overall results show a high degree of willingness by the communities to support any laudable programmes that will improve the sustainability of the Lake Basin, but this support can be withdrawn if the proposed programmes affect their livelihood negatively, create unnecessary conflicts within the communities and if final outcomes do not result in the improvement of water quality and solid waste (garbage) management.
- XI. However, the people pointed out that the fishermen and women, industries, etc, would most likely oppose such programmes to protect their advantage and vested interests. Some observed that the industries will oppose it because of the cost of installation of wastewater treatment facilities in their various premises and the fishers will oppose it because of control over fishing rights. The general communities may likely oppose it because of lack of trust.

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APPENDIX I

STAKEHOLDERS' ENGAGEMENT AND ANALYSIS

Songkhla Lake Water Governance Baseline Project Hewlett-Packard

Faculty of Environmental Management, Songkhla Lake Basin Research Centre, Prince of Songkhla University, Hat Yai

Introduction

We are conducting a research to determine the understanding and perception of stakeholders of the Songkhla Lake Basin Development Projects (2013-2016), that was carried out by the Office of Natural Resources and Environmental Policy and Planning. The plan outline strategies and programmes for the improvement and sustainability of Songkhla Lake. The achievement of this plan depends on the tangible contributions of all stakeholders in the lake basin. The expected outcomes of this study shall be a better understanding of the stakeholder concerns regarding the sustainability of Songkhla Lake Basin.

We plan to conduct about 2000 interviews to produce a general report on the opinions of all the major stakeholders in Songkhla Lake Basin. The information obtained through these interviews will be used for the implementation of the Songkhla Lake Basin Development Projects (2013-2016). We would like to ask you a few specific questions about your opinion regarding the Songkhla Lake Basin Development Projects (2013-2016).

A. <u>Background Information</u>

Age (a) 18-20 (b) 20-30 (c) 30 -40 (d) 40-50 (e) 50-60 (f) 60 and above Sex: (a) Male (b) Female Religion: (a) Buddhism (b) Christianity (c) Hinduism (d) Islam (e) Traditional Worshipper (f) Others Marital Status: (a) Single (b) Married (c) Divorced (d) Widow (e) Separated Number of children: (a) 1-2 (b) 2-4 (c) 4-5 (d) 5-6) (e) 6 and above

12. How long have you lived in this community? ((a) 1-10vrs (b) 10-	20 vrs (c) 20-30 vrs (d) 30-40 vrs (e) 40-50 vrs
(f) 50-60 yrs (g) 60 yrs and above	a) 1 10,10 (0) 10	20 320 (6) 20 00 320 (2) 00 10 320 (6) 10 00 320
B. <u>Livelihood Issues</u>		
13. Land Ownership by households and access to o	common land (Tic	k the most appropriate)
Land use	Tick	Area (ha/rai)
Residential lot		
Aquaculture (fish or shrimps) ponds		
Cash crops other than rice		
Irrigated rice		
Rained-fed rice		
Native rice		
Orchard		
Rubber plantation		
Fishing lot in Songkhla Lake		
Oil palm		
Vegetable garden		
Commons access forest/scrub		
Commons access grassland/grazing		
14. What are your means of livelihood? Rate you (main source of your income) and 5 less import		
Livelihood	Rate	
Rice Farmer		
Fish Culture		
Daily Labour		
109 Stakeholders Engagement and Analysis for Water Gove	ernance of Songkhla	Lake Basin, Thailand

8. Number of Children in school: (a) 1-2 (b) 2-4 (c) 4-5 (d) 5-6) (e) 6 and above

10. Household size: (a) 1-5 (b) 6-10 (c) 11-15 (d) 16-20 (e) 20 and above

University (f) others specify -----

Number of children Not in school: (a) 1-2 (b) 2-4 (c) 4-5 (d) 5-6) (e) 6 and above

11. Educational Status: (a) No formal education (b) Primary school (c) Secondary school (d) Technical College (e)

Fish Pro	rcessing	
Fish Sell	ing	
Fishing		
Gear ma		
Resin co	llection (rubber latex)	
Business		
Teacher		
Hunting		
_	/commerce	
_	rt Service	
Handicr		
Repair s	hop	
Miller		
	with private company	
Govern		
15.	What is an average monthly income: (a) 1000-5000	(b) 5000-10000 (c) 10000-15000 (d) 15000-20000 (e) 20000
	and above	
	What are the major factors affecting livelihood in t	his community?
English:_		
17.	Cost of living in the community is high: (a) Agree disagree	(b) Strongly agree (c) I don't know (d) Disagree (e) Strongly
C.	Social Infrastructure and Support Services	
18.	Schools available in the community (a) Primary University (e) Others	(b) Secondary (c) Technical College (d)
19.	19. Healthcare facilities available in this community (a)General Hospital (b) Cottage Hospital (c) Health Centre (d) Private Clinics (e)Pharmacy (f) Thai Traditional Medicine (g) others (Specify)	
20.	What is the major source of drinking water availab Treated water tap (d) Borehole	le in your community? (a) Hand dug Well (b) Rain Water (c)

21.	What is the major source of water for agriculture in the community: (a) Songkhla Lake (b water (e) Others) rain (c) well (d) tap
22.	What type of toilet facility do you use?(a) Pour Flush (b) Pit Latrine with Ring Prier head (c) line (d) Water closet (e) Others (specify)	e) Pit Latrine without
D.	Community Resources Governance	
23.	What do you think is the major problem affecting Songkhla Lake today and why this problem	em?
Thai:		-
English:_		-
24.	Do you know any policy or laws for protection of Songkhla Lake? (a) Yes (b) No	
25.	If yes, what are these laws?	
Thai:		-
English:_		-
26.	Do you think these laws are properly enforce in your area? If no why?	
Thai:		-
English:_		-
27.	Are you involve in any resource group management in your community? (a) Yes (b) No.	
28.	If yes, what is the name:	
29.	What are the activities of the group?	
Thai:		-
English:_		-

30.	Rate the success of the group activities: (a) very successful (b) successful (c) I don't know (d) average (e) not successful
31.	Do you know any NGOs working in this community for improvement of Songgkhla Lake? (a) Yes (b) No.
32.	If yes what is the name:
33.	If yes, What activities have been undertaken by the group?
Thai:	
English:_	
34.	Rate the success of the NGO activities: (a) very successful (b) successful (c) I don't know (d) average (e) not successful
E.	Songkhla Lake Basin Development Master Plan
	(a) Are you aware of the Songkhla Lake Basin Development Master Plan? (a) Yes (b) No
(a)	If Yes, do you believe that this plan if properly implemented have the potential to improve the quality status of the lake? (a) Agree (b) Strongly agree (c) I don't know (d) Disagree (e) Strongly disagree

Note: Before you continue in the interview explain the vision and objectives of the SLB Master Plan

Vision for Songkhla Lake Basin

To restored and managed the basin along a sustainability framework, keeping balance among ecological, economic and social systems under institutional framework which pays high respect to public participation, efficiency, transparency and justice.

The objective of the Master Plan

To establish mechanism which can manage and administer Songkhla Lake Basin in an integrated manner, keeping balance among ecological, socio-economic and community systems; allowing strong participation from all stakeholders recognizing their key roles in steering Songkhla Lake Basin people's and communities actions.

F. Respondent Support for SLB Plan

35. Which of the aspect of this Master Plan Project would you support if you are called upon? (circle only one option)

a)	Improved	terrestrial	forest

- b) Improved peat swamp forest
- c) Re-instatement of aquatic resources (fishery resources/rare species/biodiversity
- d) Reduce and prevent sedimentation
- e) Reduce and prevent coastal erosion
- f) Improved water quality to meet recommended standards
- g) Improved management of municipal solid waste and wastewater
- h) Improved governance, coordination and cooperation amongst all stakeholders
- 36. If necessary could you dedicate a token to demonstrate this support? (a) Possible (b) Very Possible (c) I don't know (d) Likely (e) Not possible
- 37. Could you make this support public (a) Possible (b) Very Possible (c) I don't know (d) Likely (e) Not possible
- 38. Can you work with like mine persons/organizations to support this plan? (a) Possible (b) Very Possible (c) I don't know (d) Likely (e) Not possible
- 39. Would you take the initiative in supporting this project? (a) Possible (b) Very Possible (c) I don't know (d) Likely (e) Not possible
- 40. Under what condition would you choose NOT to support this project?

Thai:	 	
English:		

We would now like to ask you a few specific questions about your opinion regarding others' opinions of the implementation of Songkhla Lake Basin Development Projects (2013-2016)

G. Other Supporters:

41.	What other organizations or persons do you think would support this project? (probe for other organizatio	ns
	or stakeholders not already in our priority list)	

Thai:		
English:	 	

42.	What do you think these supporters would gain from this project?	
Thai:		
English:_		
43.	Which of these supporters would take the initiative to actively support this project?	
Thai:		
English:_		
44.	Which of these supporters would work together to demonstrate their support for this project	ct?
Thai:		
English:_		
45.	Under what conditions do you think these actors would come to oppose this project?	
Thai:		
English:_		
Н.	Other Opposers:	
46.	What other organizations, departments within an organization, or persons do you think project? (probe for other organizations or stakeholders not already in our priority list)	would oppose thi
Thai:		
English:_		
47.	What do you think these opponents would gain from preventing this project?	
Thai:		

English:_	
48.	Which of these opponents would take the initiative to actively oppose this project?
Thai:	
English:_	
49.	Which of these actors would work together to demonstrate their opposition for this project?
Thai:	
English:_	
50.	Under what conditions do you think these actors would come to support this project?
Thai:	
English:_	