



UNIVERSITI PUTRA MALAYSIA

***TOWARDS FISHERY CO-MANAGEMENT FOR
KOTA MARUDU, SABAH***

ILLISRIYANI ISMAIL

IKDPM 2013 3

**TOWARDS FISHERY CO-MANAGEMENT FOR
KOTA MARUDU, SABAH**

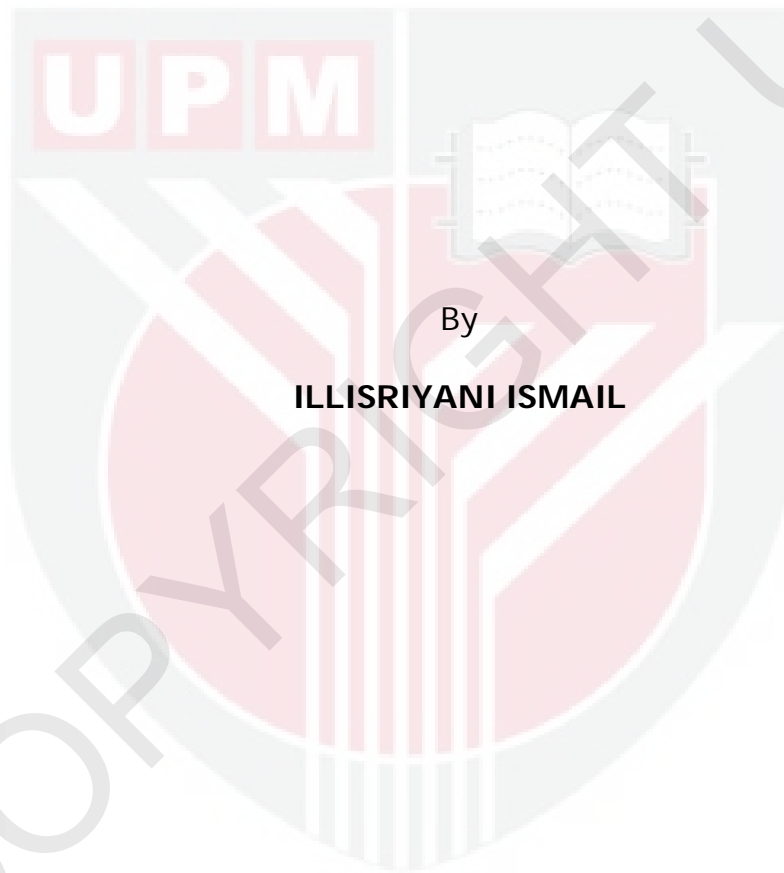


ILLISRIYANI ISMAIL

**MASTER OF SCIENCE
UNIVERSITI PUTRA MALAYSIA**

2013

**TOWARDS FISHERY CO-MANAGEMENT FOR
KOTA MARUDU, SABAH**



By

ILLISRIYANI ISMAIL

**Thesis Submitted to the School of Graduate Studies,
Universiti Putra Malaysia, in Fulfilment of the Requirements for the
Degree of Master of Science**

January 2013

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science.

**TOWARDS FISHERY CO-MANAGEMENT FOR
KOTA MARUDU, SABAH**

By

ILLISRIYANI ISMAIL

January 2013

Chair : Associate Professor Kusairi Mohd Noh

Faculty : Institute of Agricultural and Food Policy Studies

This study is based on the project titled "Co-management Arrangements for Kota Marudu", funded by Ministry of Science, Technology and Innovation (MOSTI), Malaysia. The general objective of this study was to design policy, institutions and projects for sustainable natural resource management in Kota Marudu, Sabah. The three specific objectives were; (i) to identify and determine the status of stakeholders in the Kota Marudu area with respect to poverty and gender issues; (ii) to identify opportunities for poverty reduction, income generation and alternative livelihood without compromising the ecological integrity of coastal resources with respect to fisheries management, and; (iii) to evaluate and improve the management of coastal resources with respect to sustainability issues.

A Logical Framework Analysis (LFA) and a Key Informant Survey (KIS) were conducted in preparation for the Household Survey (HHS). From the LFA analysis conducted in February 2009, the fishing industry in the area was not developed and sustainably managed. The return to fishing was very low and there were a number of contributing factors such as; non-sustainable fishing practices such as “bomb” and “cyanide” fishing, declining fish stock, unskilled human resource, undeveloped institutional capacities, and lack of government support, basic infrastructures and legislative enforcement.

The KIS survey (conducted in May 2009) involved 14 representatives of the fishing community (comprising of village heads, members of development and security committee and *Ketua Anak Negeri* and eight respondents from the agencies (public and NGO). The village heads and community representatives in the KIS study highlighted the socio-economic conditions of the fishing community. It was mentioned that most of the problems centred around the lack of basic social infrastructure and facilities giving rise to problem such as frequent occurrence of floods (due to lack of flood control measures such as desilt and widening of waterways). With respect to fishing, use of illegal method such as dynamite fishing and encroachment by fishers from outside the area were the most reported. The high incidence of poverty and the presence of illegal immigrants were also reported by the village representatives.

The HHS was carried out at 13 villages involving 170 respondents who were mainly fishers. This was conducted in June 2009. The survey on the households provided the socio-economic profile of the fishing community in the area. Besides having high percentage of poverty in the area, the community also lacked education opportunities and basic amenities. The respondents in general agreed that the fisheries resource management in Kota Marudu is in need of a revamp so that wastage and damage are minimised and enough fish will be available for future generations.

For a successful co-management plan, it is recommended that two committees be set up to initiate the plan and identify the activities to be carried out. The recommended two committees are the Coordination and Monitoring Committee and Fisheries Resource Management Committee. This is similar to the administrative set-up at the Langkawi co-management plan. Several activities are also suggested based on the findings and observations of the study. The activities include aquaculture and agriculture production, marketing and processing, input supply and services, tourism and hospitality.

The success of the plan however is a function of multitude of factors. Since the fishing industry in Kota Marudu is small scale and subsistence-based and basic infrastructure is clearly lacking, the plan requires involvement from all

parties, such as the local community, institutions, and external assistance agencies.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains.

**KE ARAH PEMBENTUKAN PENGURUSAN BERSAMA
SUMBER PERIKANAN DI KOTA MARUDU, SABAH**

Oleh

ILLISRIYANI ISMAIL

Januari 2013

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Kajian ini adalah berdasarkan kepada projek yang bertajuk "Pengurusan Bersama di Kota Marudu", yang dibiayai oleh Kementerian Sains, Teknologi dan Inovasi (MOSTI) Malaysia. Objektif umum kajian ini adalah untuk mereka bentuk dasar, institusi dan projek untuk pengurusan perikanan yang mapan di Kota Marudu, Sabah. Tiga objektif khusus adalah; (i) untuk mengenalpasti dan menentukan status pihak berkepentingan dalam kawasan Majlis Daerah Kota Marudu mengenai isu-isu kemiskinan dan jantina; (ii) untuk mengenal pasti peluang untuk mengurangkan kemiskinan, penjaan pendapatan dan mata pencarian alternatif tanpa menjejaskan integriti ekologi sumber pantai merujuk kepada pengurusan sumber perikanan, dan (iii) untuk menilai dan memperbaiki pengurusan sumber pantai yang berkaitan dengan isu-isu kemampunan.

Logical Framework Analysis (LFA) dan *Key Informant Survey* (KIS) telah dijalankan dalam penyediaan *Household Survey* (HHS). Daripada analisis LFA yang dijalankan pada bulan Februari 2009, secara umum, pihak berkepentingan (wakil dari agensi kerajaan, nelayan dan NGO) bersetuju bahawa industri perikanan di kawasan itu tidak diurus dengan baik dan mundur. Ini menyebabkan hasil tangkapan ikan berkurangan. Ini adalah kerana terdapat beberapa faktor yang menyumbang seperti; amalan memancing bukan-mampan seperti "bom" dan "sianida", sumber perikanan yang semakin berkurangan, sumber manusia yang kurang mahir, kelemahan sesebuah institusi dan kurang sokongan dari kerajaan, kekurangan infrastruktur asas dan penguatkuasaan perundangan.

Tinjauan KIS (yang dijalankan pada bulan Mei 2009) melibatkan 14 wakil masyarakat nelayan (terdiri daripada ketua kampung, ahli jawatankuasa pembangunan dan keselamatan, dan Ketua Anak Negeri) dan lapan responden yang terdiri daripada agensi-agensi (awam dan NGO). Ketua kampung dan wakil masyarakat dalam kajian KIS menekankan isu berkaitan keadaan sosio-ekonomi masyarakat nelayan. Mereka menyatakan bahawa kawasan itu kekurangan kemudahan dan infrastruktur, pekerja mahir yang rendah dan pelaburan kerajaan yang sedikit ke dalam kawasan tersebut. Turut dinyatakan bahawa kebanyakan masalah adalah tertumpu kepada kekurangan infrastruktur asas sosial dan kemudahan. Ini telah menimbulkan masalah seperti banjir yang kerap berlaku (tiada tindakan untuk kawalan

banjir seperti nyahlodak dan pelebaran laluan air). Selain dari itu, memancing dengan menggunakan kaedah terlarang seperti dinamit dan pencerobohan oleh nelayan dari luar kawasan adalah paling banyak dilaporkan. Insiden kemiskinan dan kehadiran pendatang tanpa izin yang tinggi juga dilaporkan oleh wakil kampung.

Kajiselidik HHS meliputi 13 kampung dengan 170 responden yang majoritinya adalah nelayan. Ianya dijalankan pada bulan Jun 2009 dan merangkumi profil sosio-ekonomi masyarakat nelayan di kawasan itu. Selain mempunyai peratusan kemiskinan yang tinggi, komuniti perikanan di situ juga kurang pendedahan kepada pendidikan dan kemudahan asas yang lain. Responden secara umum bersetuju bahawa pengurusan bersama sumber perikanan di Kota Marudu memerlukan penyusunan semula supaya pembaziran dan kerosakan dikurangkan dan sumber ikan yang mencukupi untuk generasi akan datang.

Untuk pelan pengurusan bersama yang berjaya di Kota Marudu, adalah disyorkan bahawa dua jawatankuasa akan ditubuhkan sebagai permulaan untuk mengenal pasti aktiviti-aktiviti yang perlu dijalankan. Kedua-dua jawatankuasa ini adalah Jawatankuasa Penyelarasan dan Pemantauan dan Jawatankuasa Pengurusan Sumber Perikanan. Ini adalah berdasarkan kepada pelan pengurusan bersama yang telah dilaksanakan di Langkawi. Antara aktiviti yang dicadangkan berdasarkan penemuan dan pemerhatian

kajian adalah akuakultur, pertanian, pemasaran dan pemrosesan, bekalan input dan perkhidmatan, pelancongan dan hospitaliti.

Walau bagaimanapun, kejayaan pelan pengurusan bersama adalah dipengaruhi oleh pelbagai faktor. Memandangkan industri perikanan di Kota Marudu adalah perikanan secara tradisional dan juga faktor kekurangan infrastruktur asas di kawasan tersebut, rancangan itu memerlukan penglibatan dari semua pihak iaitu masyarakat tempatan, institusi dan agensi luar. Tanpa kerjasama yang padu dan lestari, pelan pengurusan bersama tidak akan dapat dijalankan di Kota Marudu dengan jayanya.

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My utmost gratitude goes to my Thesis Committee Members especially my advisor, Mr. Kusairi Mohd Noh whose insight, direction and critical comments are greatly appreciated. I thank Prof. Dr. Fatimah Mohamed Arshad and Prof. Dr. Tai Shzee Yew, for all their positive energy, feedback and advice. They were invaluable.

I would also like to thank the Ministry of Science, Technology and Innovation (MOSTI) Malaysia for the financial support, without which this study may have not been conducted in the first place.

There are numerous individuals who have lent their helping hands in this study. It is impossible for me to list all of them but to each and every one, I express my heartiest thank you and know that your kindness is immensely appreciated.

Last but definitely not the least, this study could not have been completed without the support of the people of Kota Marudu, particularly the fishers, villagers, village heads and the children. Their sincerity and kindness made the otherwise menial survey more enjoyable and most of all, more meaningful as it was appreciated and welcomed with open arms and warm hearts. This study is especially dedicated to them.

Thank you.

I certify that a Thesis Examination Committee has met on **7 January 2013** to conduct the final examination of **Illisriyani Ismail** on her Master of Science thesis entitled "**Towards Fishery Co-management for Kota Marudu, Sabah**" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the **Master of Science**.

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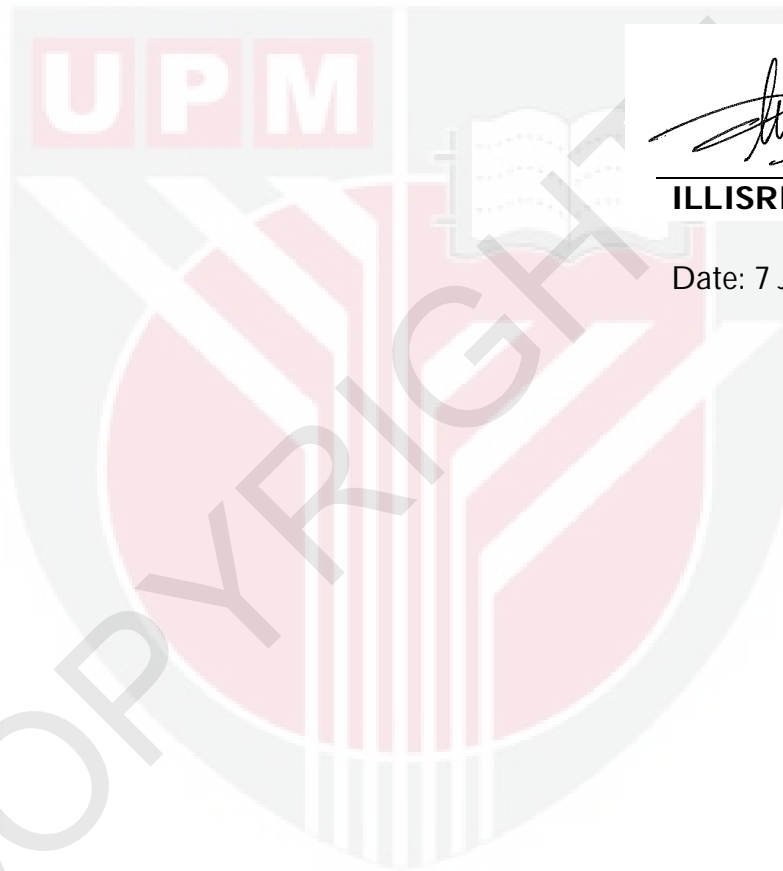
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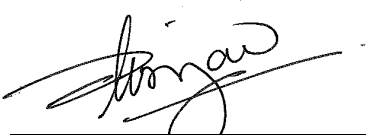
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DECLARATION

I declare that the thesis is my original work except for quotations and citations which have been duly acknowledges. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or at any other institution.





ILLISRIYANI ISMAIL

Date: 7 January 2013

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LIST OF ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
Ao.Bo.To	Sub-district Administrative Organization
AR	Artificial Reefs
ASEAN- SEAFDEC	Association of Southeast Asian Nation - Southeast Asian Fisheries Development Center
AusAID	Australian Agency for International Development
BMU	Beach Management Unit
B/L	By-Laws
BRAC	Bangladesh Rural Advancement Committee
CB-CRM	Community Based Coastal Resource Management
CBNRM	Community Based Natural Resource Management
CBFM	Community Based Fisheries Management
CBRM	Community Based Resource Management
CF	Community Fisheries
CFAA	Community Fishing Area Agreement
CFAMP	Community Fisheries Area Management Plan
CFMO	Community Fishery Management Organisations
CFZM	Community Fisheries Zoning Map
CHP	Community Harvest Plan
CIDA	Canadian Development International Agency
CMB	Community Management Board
CMDEC	Chumphon Marine Fisheries Research and Development Center
CRED	Center for Rural and Environment Development
DA	Department of Agriculture
DFID	United Kingdom Department for International Development
DFO	Department of Fisheries and Oceans Canada
DG	Director-General
DMP	Dockside Monitoring Program
DOF	Department of Fisheries
DoF	Department of Fisheries
EAC	East Africa Community
EC	European Commission
EOJ	Embassy of Japan
EPU	Economic Planning Unit
et al.	et alia
etc.	et cetera
FAD	Fish Aggregating Devices
FAO	Food and Agriculture Organization

FCG	Fisheries Consultative Group
FED	Fish Enhancing Device
FiA	Fisheries Administration
FR	Fisheries Regulations
FRMP	Fisheries Resources Management Plan
FSP	Fisheries Sector Program
GRT	Gross Registered Tonnage
GTIS	Global Trade Information Services
GTZ	German Organisation for Technical Cooperation
ha.	Hectare
HHS	Household Survey
hp	horse power
ICC	Implementation Coordination Committee
ICM	Integrated Coastal Management
ICLARM	International Center for Living Aquatic Resources Management
ICRM	Integrated Coastal Resources Management
ICRM-PD	Integrated Coastal Resources Management in Pathew District
ICRM-PL	Integrated Coastal Resources Management in Pulau Langkawi
ICRM-SV	Integrated Coastal Resources Management in Sihanoukville
ICSF	International Collective in Support of Fishworkers
ICZM	Integrated Coastal Zone Management
IDS	Institute for Development Studies
IDRC	International Development Research Centre
IFA	Inland Fisheries and Aquaculture Enactment
IFMP	Implementation of a Fisheries Management Plan Project
IFM	Institute of Fisheries Management
IIRR	Institute of Rural reconstruction
IKDPM	<i>Institut Kajian Dasar Pertanian dan Makanan (Institute of Agricultural and Food Policy Studies)</i>
ILM	Integrated Lake Management
ISNAR	International Service for National Agricultural Research
ITQ	Individual Transferable Quota
JICA	Japan International Cooperation Agency
JK	<i>Jawatankuasa (Committee)</i>
JKKK	<i>Jawatankuasa Kemajuan dan Keselamatan Kampung (Village Development Security Committee)</i>
JTF-1	Japanese Trust Fund 1
JUPEM	<i>Jabatan Ukur dan Pemetaan Malaysia (The Department of Survey and Mapping Malaysia)</i>
KEN	<i>Kumpulan Ekonomi Nelayan (Fishermen's Economic Group)</i>

KEW	<i>Kumpulan Ekonomi Wanita</i> (Women's Economic Group)
Kg.	<i>Kampung</i> (Village)
kg	kilogram
KIS	Key Informant Survey
km	Kilometre
KMO	Kaiser-Meyer-Olkin
KPSP	<i>Komuniti Pengurusan Sumber Perikanan</i> (Fishery Resource Management Community)
LBCRM-PD	Locally Based Coastal Resources Management in Pathew District
LBCRM-PL	Locally Based Coastal Resources Management in Pulau Langkawi
LIA	Legal, Policy and Institutional Assessment
LEU	Local Enforcement Unit
LFA	Logical Framework Analysis
LGC	Local Government Code
LVFO	Lake Victoria Fisheries Organisation
LKIM	<i>Lembaga Kemajuan Ikan Malaysia</i> (Fisheries Development Authority of Malaysia)
LNS	Local Government Code
MOSTI	Ministry of Science, Technology and Innovation, Malaysia
MoU	Memoranda of Understanding
MOV	Means of verification
n.a.	Not available
NGO	Non-governmental Organization
NIMBY	not-in-my-backyard syndrome
NOD	National Oceanography Directorate
NZAID	New Zealand's International and Aid Agency
OECD	Organisation for Economic Co-operation and Development
PCM	Program Committee Meeting
PFG	Pakklong Fisheries Group
PNK	<i>Persatuan Nelayan Kawasan</i> (State Fishermen Association)
POF	Provincial Office of Fisheries
PRSP	Poverty Reduction Strategy Paper
REA	Research and Ecological Assessment
RM	<i>Ringgit Malaysia</i>
RMK9	<i>Rancangan Malaysia Kesembilan</i> (Ninth Malaysia Plan)
R&D	Research and Development
Sdn. Bhd.	<i>Sendirian Berhad</i> (Private Limited Company)
SDOF	Department of Fisheries Sabah
SEA	Socio-economic Assessment
SEAFDEC	Southeast Asian Fisheries Development Center

SEAFDEC/TD	Southeast Asian Fisheries Development Center/Training Department
SEARCA	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SMART	Specific, Measurable, Achievable, Realistic and Timely
SMBMC	San Miguel Bay Management Council
Std. Deviation	Standard Deviation
Tg.	<i>Tanjung</i> (Cape)
UMNO	United Malay National Organisation
UN	United Nations
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
UPM	<i>Universiti Putra Malaysia</i>
USAID	United States Agency for International Development
USIA	<i>Pertubuhan Islam Seluruh Sabah</i> (Islamic Organisations in Sabah)
VI	Verifiable Indicators
WWF	World Wildlife Fund

Exchange rate as at date 2008
 USD1 = MYR3.46

CHAPTER 1

INTRODUCTION

1.1 Background of Kota Marudu

Kota Marudu is one of the largest administrative districts in the Kudat Division of Sabah. Kota Marudu covers a total land area of 1,786 km² and its coastal zone is 469 km² (including 2 km² of islands) or 26% of the total land area (Rooney Busing, 2001) (Figure 1.1). It accounts for 41.5% of the total area of Kudat Division and 2.6% of the total area of Sabah (Department of Statistics, Sabah, 2007).

In 2007, its population was estimated at 70,900 people who accounted for 36.7% of the Kudat Division or 2.3% of Sabah population. The population consist of Malay, Kadazan-Dusun, Bajau, Murut, Bumiputera, Chinese and others. More than half of the population are dominated by people aged between 0-39 years and most of them are children and teenagers.

The major part of the population in Kota Marudu is concentrated in the coastal area (Figure 1.1).

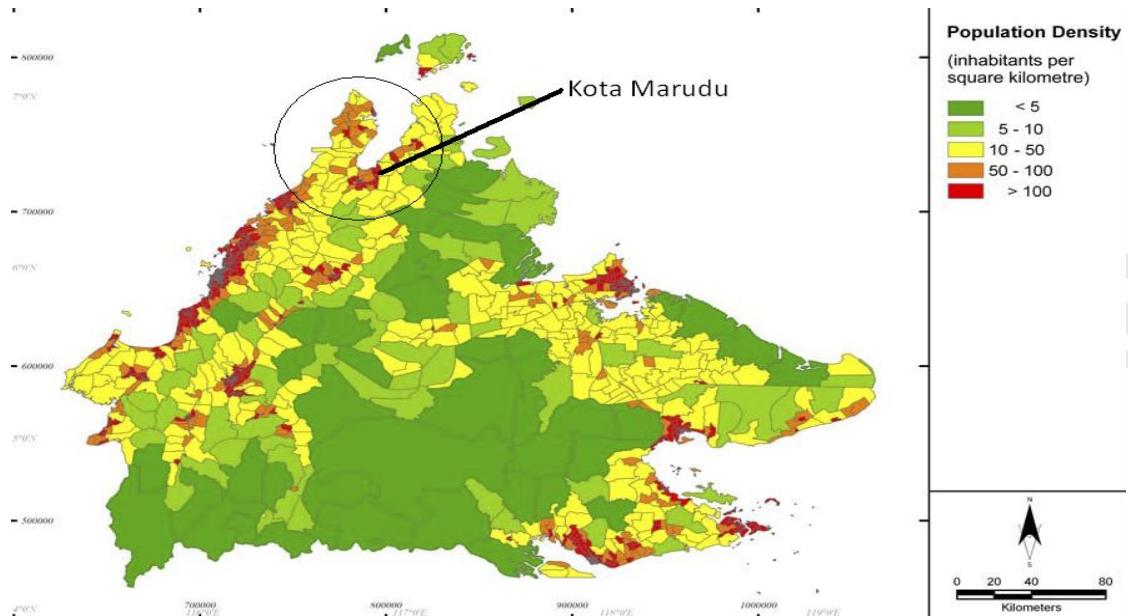


Figure 1.1: Population Density along the Coastal Areas, Kota Marudu, Sabah.

(Source: DHI Water and Environment (M) Sdn Bhd, 2005)

Extensive alluvial floodplains and tidal swamps are the main features of the coastal zone. The mangrove area in Kota Marudu is estimated to be 13,636 ha (Sea Resources Management Sdn Bhd, 2008). The mangrove swamps and intertidal mudflats support a major commercial fishery for both fin fish and prawns. The environments around the bay are important breeding areas and nursery grounds for demersal and pelagic fish and prawns.

Most of the communities that live along these coastal areas are dependent on the fisheries and aquaculture activities where 66.1% of them are fishers and skilled agricultural workers (Table 1.1). This is followed by technicians and associate professionals (6.3%), service workers and shop and market sale workers (5.8%), plant machine-operators and assemblers and elementary

occupations (4.9%). Less than 4% of the community in Kota Marudu are involved in craft and related trades and the clerical works. Only a minority of the community are involved as professionals and worked as legislators, senior officials and managers (2.6% and 2.3%).

Total fishers in Kota Marudu as at 2009 are 746. Tg. Batu Laut and Teritipan have the highest number of fishers with 94 and 80 respectively. While Bongon and Radu Laut have the lowest number of fishers which are eight and nine respectively. This fishery production covered 24 fishing villages and 564 fishing boats that operating catch fish, prawn and others and included part time fishing boats (DoF, Sabah, 2009).

Table 1.1: Number of Fishers by Village in Kota Marudu, Sabah (2000)

Village	Total Fishers	%
Tg. Batu Laut	94	12.6
Teritipan	80	10.7
Tambun	66	8.8
Tanah Merah	64	8.6
Jambutan Laya-Laya	39	5.2
Tigaman	38	5.1
Popok Laut	38	5.1
Marudu Laut	37	5.0
Tandek Laut	36	4.8
Korongkom	29	3.9
Teringai Laut	27	3.6
Bingkongan	25	3.4
Marasinsim	24	3.2
Muhang	19	2.5
Langkon Lama	19	2.5
Asin-Asin	17	2.3
Bintasan Laut	15	2.0
Selaping	14	1.9
Birahan Laut	13	1.7
Sri Aman	12	1.6
Rasak Laut	12	1.6
Mandawang Laut	11	1.5
Radu Laut	9	1.2
Bongon	8	1.1
Total	746	100

(Source: Department of Fisheries Sabah, 2000)

In order to support the fishers in the district, the Department of Fisheries, Sabah has provided winches, fish nets and boat engines to marine fishers and also freshwater fish seeds to the community involved in aquaculture.

Fish landing jetties are available at Tanjung Batu Laut, Pekan Tandek, Pekan Lama, Tandek Laut, Petogor, Taritipan, Tanjung Batu Tengah, Birahan Laut and Tanah Merah. Table 1.2 shows the names of fishery development

stations (*Stesen Pembangunan*) that have been built for the fishers in Kota Marudu.

Table 1.2: Fishery Development Stations in Kota Marudu, Sabah

Name	Location	Distance from Kota Marudu (km)
<i>Pusat Serbaguna Perikanan Darat Tasik Buyut</i>	Kg. Mangkalua	11
<i>Stesen Perikanan Tanjung. Batu</i>	Tanjung Batu	25
<i>Stesen Projek Tukun Tiruan</i>	Kg. Selaping	5

(Source: Department of Fisheries Sabah, 2000)

Most of the fishing activities carried out in this district are traditional in nature and much confined to the inner part of the Marudu Bay comprising 10-30 footer boats powered with outboard engines. Major fishing activities include catching of shrimps using trammel nets, mangrove crab trapping and shellfish collection.

Aquaculture is an important contributor to the annual fish production in Kota Marudu. Freshwater aquaculture involving traditional earthen pond systems is carried out on a subsistence basis in the non-coastal areas. On the other hand, commercial marine aquaculture, comprising floating cage systems and mollusc culture (green mussel and oyster) is carried out to a lesser extent (Rooney Biusing, 2001).

Despite its rich natural habitat, Kota Marudu is considered as one of the most backward and poorest areas in Sabah where the incidence of poverty was

estimated at 37.1% of the population (Sabah Development Corridor, Institute for Development Studies, 2007). Lately, the area showed evidence of environmental degradation and the effects of over-fishing due to logging activities at the hinterlands and poor coastal management. These activities include reclamation of swamps and clear-felling of mangroves for agricultural land and fish bombing and cyanide fishing which threaten the reefs in the area.

As shown in Table 1.3 and Figure 1.2, the quantity of catch for all categories of fish and crustaceans has declined significantly between 2000 and 2008. For instance, the fish catch has declined from 125,320 metric tonnes in 2000 to 89,000 in 2008 indicating a decline of 29%. Catches such as squids and shellfish registered the most serious decline (72.5% and 67.8% respectively). The serious decline in fish catch clearly indicates a systemic problem in terms of resource management in the area. As shown in Table 1.3, the share of squids in terms of total catch has declined from 6.8% to 2.7% between the said period. A similar trend is observed in the case of shellfish. On the other hand there is a slow increase in the share of fish (from 83.5% to 86.8%) and shrimps (from 3.9% to 4.2%).

Table 1.3: Catch by Species Type in Kota Marudu (2000-2008) (%)

Year	Fish	Crabs	Squids	Shrimps	Shellfish	Total
2000	83.5	4.5	6.8	3.9	1.3	100
2001	84.2	5.1	6.1	3.7	0.9	100
2002	87.8	3.2	4.9	3.6	0.6	100
2003	83.6	6.4	4.5	3.8	1.7	100
2004	83.7	4.5	5.0	5.2	1.6	100
2005	83.7	5.8	5.1	4.8	0.6	100
2006	84.2	6.9	3.0	4.9	1.0	100
2007	85.5	6.5	2.9	4.3	0.8	100
2008	86.8	5.7	2.7	4.2	0.6	100

(Source: Department of Fisheries, Sabah, 2009)

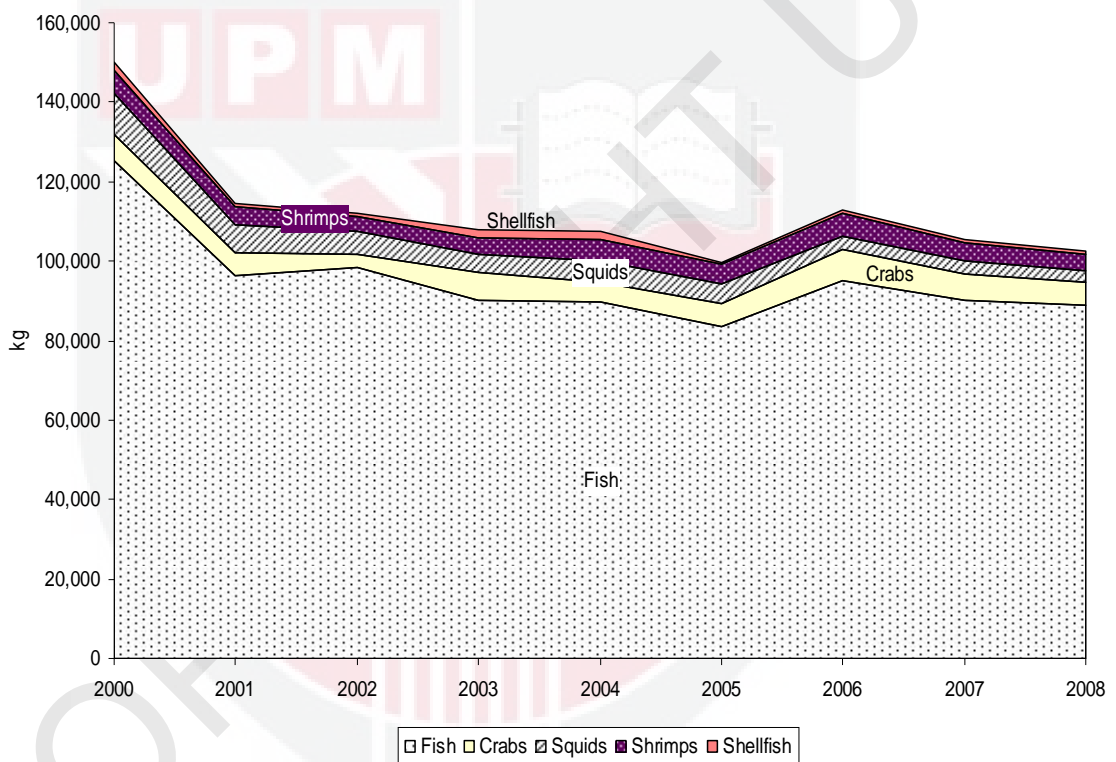


Figure 1.2: Quantity of Catch by Species Type in Kota Marudu (2000-2008) (kg).

(Source: Department of Fisheries, Sabah, 2009)

This study titled "Towards Fisheries Co-Management Arrangements for Kota Marudu, Sabah" was proposed to examine the possibility of introducing fisheries co-management among the locals to manage their coastal resources to ensure sustainability. Improved management of the

coastal resources based on an integrated and comprehensive approach involving the various stakeholders and local communities is vital for sustainable development and enhancement of the value of the bay resources.

1.2 Problem Statement

The serious decline of fisheries catch in Kota Marudu calls for a relook into the management of its coastal resources from a holistic dimension, ranging from the governance to the local's perception and readiness to work together to monitor these resources. The fisheries management at present is limited to licensing and gear regulations (Rooney Busing, 2001).

In terms of governance, being an undeveloped area, the resources are very much governed by customary practices. Therefore control access to resources through legal institutions may prove a serious oversight with negative consequences. For example discourses that justify centralized rule while complicating the realities of those who live on the margins and whose lives depend directly on natural resources are often not adequately considered. Ideals of protection and/or commercialization of resources that privilege the elite concerns over local concerns and subsistence uses are rampant. Rural people are often blamed for resource degradation while overlooking legal, political and economic structures that influence how rural people use resources. Current legal and institutional arrangements make it difficult for marginal people to define their own interests in their own terms. Under these

circumstances there is a need to evaluate community based management arrangement for Kota Marudu coastal area that will ensure a more sustainable and socially acceptable management regime for the area.

Co-management is defined as a form of institutional arrangement between the government and user groups to effectively manage defined resources. The management approach lies between the polar approaches of centralized control and privatization and covers a broad spectrum of management strategies from informing, consultation and cooperation to partnership, community control and inter area coordination (Graham et al., 2006).

A number of successful co-management models have been implemented in the neighbouring countries (Sihanoukville, Cambodia and Chumphon, Thailand) as well as in Kuala Teriang, Langkawi, Malaysia. Co-management of fisheries resource projects were introduced into these areas in stages under the supervision of the ASEAN-SEAFDEC collaborative mechanism arrangement supported financially by Japanese Trust Fund since 2001 (SEAFDEC, 2008). The first project was implemented in Pathew District, Chumphon Province Thailand in 2001 and later replicated in Pulau Langkawi in 2003 and Sihanoukville, Cambodia in 2005. Each of the project went through a number of hiccups and problems (such as tsunami destruction particularly in Langkawi), but with time, these were overcome.

A number of co-management models have also been implemented in other parts in Asia and Africa. The lessons learned from coastal resource management and poverty reduction in these areas indicate the following; a) importance of the long-term process of coastal resource management and poverty reduction, and b) need for (i) strong leadership and a capable implementation agency; (ii) comprehensive analysis and assessment of operational requirements, barriers, and risks; (iii) an integrated approach and a well-designed program to simultaneously address environmental and social issues in coastal areas; (iv) active participation of the private sector and communities in project preparation and implementation; and (v) provision of social and technical services and tangible economic activities for poor coastal communities (Asian Development Bank, 2003).

There is a growing consensus among many fisheries researchers and managers working in Southeast Asia that the solutions to the current problems in the sector rest outside its traditional realm. This calls for a broader vision of the fisheries system, going beyond fisheries sector-specific policies to the vast array of seemingly unrelated policies that may have beneficial side effects for the fisheries sector. The broader policy context is justified by the inter-linkages among fisheries resource management issues, on the one hand, and issues of economics and community development on the other (Wilson, Nielsen and Degnbol 2003).

Co-management and community based natural resource management (CBNRM) strategies are increasingly seen as an approach for such linked development and management initiatives. Community-centered co-management can serve as a mechanism for not only resource management, but for social, community and economic development by promoting participation and empowerment of people to actively solve problems and address needs in the community. Throughout Southeast Asia, co-management and CBNRM has re-emerged, through initiatives of the people, NGOs, government and international agencies, as a way to involve resource users, provide greater localized control over resources, and utilize indigenous institutional arrangements and knowledge in fisheries management (Pomeroy and Kuperan 2003). Hence, this study is an attempt to examine the possibility of introducing co-management of fisheries resources among the locals of Kota Marudu to ensure sustainability of resources and development in the area.

1.3 Objectives of the Study

The overall objective is to design policy, institutions and projects for sustainable natural resource management in Kota Marudu, Sabah.

Specific objectives are:

- (i) To identify and determine the status of stakeholders in the Kota Marudu area with respect to poverty and gender issues;
- (ii) To identify opportunities for poverty reduction, income generation and alternative livelihood without compromising the ecological integrity of coastal resources with respect to fisheries management; and
- (iii) To evaluate and improve the management of coastal resources with respect to sustainability issues.

1.4 Scope of the Research

The research aimed at assisting the State Government of Sabah in designing policy, institutions and projects that will support initiatives for poverty reduction and sustainable natural resource management in the Marudu Bay area. The ensuing policies, institutions and investment projects will have the following objectives: (i) to improve the condition of coastal and marine fisheries and related resources; and (ii) to reduce poverty in coastal communities by improving the management of coastal resources and

ecosystems, minimizing threats to their ecological integrity, and providing income generation and alternative livelihood opportunities. As proven in Sihanoukville, Cambodia, Chumphon, Thailand and Kuala Teriang, Langkawi, co-management and community based natural resource management strategies hold the key for sustainable development in Kota Marudu. Hence, the co-management and community based natural resource management framework is used as a guiding principle of this study.

However, before this framework is translated into action plans for the area, a number of base line surveys need to be carried out to provide vital information such as the socio-economic profiles of the population, the resources available, institutional set up, geo-physical situation of the area and other macro and micro dimensions of the community and localities. This of course requires a comprehensive and detailed plan of research programmes. Nevertheless, as a starting point, this study is an exploratory one to provide inputs for further research in the future.

The study chose to focus on Kota Marudu district due to the high incidence of poverty as well as budgetary constraint and relatively better accessibility to the area compared to Pitas or Kota Belud. It covers only coastal fisheries communities in the area. The scope of the study covers aspects such as: (i) the status of the stakeholder in the area particularly socio-economic profile of the fishermen and the role of each stakeholder (such as legislator, community

leaders, traders) in the fisheries resource management, (ii) to examine the stakeholders' perception on the sustainability issues of the resources in their area and their readiness to adopt a co-management concept to help conserve those resources. Based on these findings, the study proposes a co-management plan for the area to be pursued further by the relevant agencies.

1.5 Organisation of the Study

In the second chapter of this document is the literature review. This review starts with the general concept of co-management. This is followed by looking at co-management in the fisheries management systems of selected countries.

The third chapter exposes in detail the methods that are used to undertake the research. In Chapter 4 the discussions of the findings of the study are presented. Finally, Chapter 5 contains conclusions and policy recommendations arising from the main findings.

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