

FEASIBILITY STUDY & BUSINESS PLAN
FOR
PEARL CULTURE IN KILWA, MAFIA AND ZANZIBAR



Prepared for







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March 2011

ABSTRACT

The Study and Business Plan document provides an analysis of the economic feasibility of several small-scale aquaculture operations on half pearl oyster farms as way of earning income and supplemental economic activity for coastal communities in the neighbouring villages in the Fumba peninsula in Zanzibar, Mafia district and Kilwa district in Pwani and Lindi regions respectively. It is concerned with understanding the obstacles and opportunities of pearl cultivators in a social, environmental and economic context, as well as further giving an account of findings that form basis of the business plan in the promotion of pearl culture in these communities. The villages in these communities are characterized by artisanal fishery, fish and food vending and some livestock keeping.

The market situation of the pearl industry is examined and changes in its structure are related to new possible technologies and marketing strategies. Socio-economic impacts are explored briefly and sources of market outlet are specified and factors involved in the marketing of pearls are given particular attention. Most, but not exclusive attention, is given to the experiences of some other countries like the Australian pearl industry and that of Tahiti who are among the major global producer of pearls.

The study analysis and associated Business Plan recommend these communities to strengthen interventions in order to increase the participation of poor communities to sustain their livelihoods. Extension and funding agencies, other international organizations, private sector and the government will need to commit in the years to come to concrete action for implementation as the study strives to collaborate with engaged stakeholders in exploring the market potential that will induce consumer preference. At present, absence of operating 'market' that would put domestic users, tourism industry consumers and local pearl producers in touch with each other is a serious limiting factor.

Financial projections for each small-scale pearl oyster farm using raft, spat collection

and long-line method estimates annual operating costs of US\$ 7,559,210.53

(Tsh. 11,496,000.00/-) for each farm whereas an annual cash flow and enterprise budget show that initial capital investment of US\$ 18,750,000.00 (Tsh. 28,500,000.00/-) Annual operating expenses are US\$ 13,397,746.71 (Tsh. 20,364,575.00) when in full operation. The main costs contributing to annual operating expenses include Professional Fees (19%), Merchandising (14.2%), Repair and Maintenance (14%), Training and Development (11.9%), Agent Commission (11%). Net returns over a 5 year farm horizon based on an 8 % discount rate indicate a positive NPV of US\$ 57,000.00 (Tsh.86,639,500/-) compared to the initial costs of US \$ 26,315,789.47 (Tz sh. 40,000.00/-).

The study is led by ReCoMaP as part of its mission to enhance sustainable management and conservation of resources in coastal areas to contribute to poverty reduction. In partnership with WWF, WIOMSA and IMS who extend research and extension services to build the capacity of pearl farmers in these coastal communities, successful pilot farms in several coastal villages of Tanzania were developed. It is henceforth the right time for Pearl farming to commercial pearl oyster cultivation and other coastal livelihoods such as management of marine environments, oyster shells craft, jewellery making and other related products.

At global level, increasing number of pearl farming projects, pearl industry despite significant growth in the past two decades is at present undergoing significant transformation due to globally induced economic and environmental changes resulting in over production and low demand hence beginners in pearl culture should struggle to maintain high quality production in order to compete in global market that is somehow fragmented.

The possibility to merge proactive consumer engagement with responsible forms of pearl cultivation presents great potential. In many countries in recent decades, the pearl industry has contributed significantly to improved coastal livelihoods and regional economic development hence, in Tanzania, the economic viability and long-term future of pearl farming venture is directly dependent on a healthy marine

environment; a clear economic incentive for long-term marine conservation in ecosystems that are very vulnerable to environmental degradation. The quality of pearl production is a direct measure of environmental management efforts to develop local and heritage products for the tourist industry and local enterprise in order that the local community gets equity.





AUTHORIZATION MEMORANDUM

The study pearl farming in Tanzania has been completed in accordance with the requirements set in the terms of reference.

MANAGEMENT CERTIFICATION

_____ The document is accepted

_____ The document is accepted pending the changes noted

_____ The document is not accepted

NAME

DATE

For: ICZMO

NAME

DATE

For: RCU- ReCoMaP

ACKNOWLEDGEMENT

The Consultant acknowledge the pleasant cooperation extended during the study and wish to thank all those individuals, groups and institutions who have contributed to the work by way of information, documents for literature review, advice, views, suggestions and facilitation.

Sincere appreciation are expressed to a number of people who are key participants and stakeholders to pearl farming in Mafia, Kilwa and Unguja including pearl farmers, women who make oyster shells jewelry, respective institutions for their great assistance and allowed use of facilities.

Deep thanks should go to Baraka Kalangahe of ICZM office in Tanzania, Dr Narriman Jiddawi (IMS), Jason Ruben (WWF), Hamoud Abdulla and Ismail Juma. (WWF-RUMAKI) and Mussa Haji (WIOMSA) who selflessly extended assistance and comments.

Profound acknowledgements are extended to Imruh Bakari of Savannah Films and Fatma Ali of RWSWH for their valuable technical inputs, and the various businesses particularly the Jewelers and galleries around Stone Town, Zanzibar and Dar es Salaam for sparing their precious time to share ideas.

The views, findings and opinions expressed herein are those of the Consultant and wish to express great thanks to everyone. It is not possible to mention them all. The Consultant however wishes to make no warranty of its accuracy as data and information was received from a variety of sources.

Munira Humoud Said

RWSWH

LIST OF CONTENT

Abstract	
Authorization Memorandum	
Acknowledgement	
Table of Content	
Acronyms	
Glossary	
Executive Summary.....	1
Introduction	6
<i>Background</i>	6
<i>Purpose of Study</i>	7
<i>Methodology and Data Collection</i>	8
<i>Scope and Limitation</i>	10
Description and Significance of Pearl Culture	12
<i>Pearl Industry</i>	13
<i>Outstanding Value of Pearl</i>	19
<i>Global Trends</i>	21
<i>National Framework for Pearl Entrepreneurship</i>	22
<i>Existing Situation</i>	25
Pearl Culture in Kilwa, Mafia and Zanzibar.....	27
<i>Mafia</i>	27
<i>Kilwa</i>	29
<i>Zanzibar</i>	30
<i>Acqua-culture and Conservation</i>	32
<i>Hatchery and Spat Collection</i>	32
<i>Pearl Culture and Women Empowerment</i>	33
<i>Legal Framework</i>	35
Stakeholders Consultations	36
<i>Meeting with Extension Agents- WWF, WIOMSA & IMS</i>	36
<i>Meeting with Government Partners</i>	36
<i>Meeting with Potential Clientele</i>	37



Summary of Findings and Recommendations.....	40
<i>External Dimension</i>	43
<i>Financial Dimension</i>	43
<i>Artistic Partnership</i>	44
<i>Government Partnership</i>	45
<i>Community Partnership</i>	45
<i>IT and Networking</i>	46
The Business Concept.....	50
<i>Mission</i>	51
<i>Values</i>	51
<i>Scope of Activities</i>	52
<i>SWOT Analysis</i>	57
Some KeySuccess Factors.....	60
Marketing Analysis & Strategy.....	66
<i>Marketing Strategy</i>	66
<i>Product Differentiation</i>	66
<i>Sales Strategy</i>	69
<i>Price Strategy</i>	70
<i>Touch Points</i>	70
<i>Branding and IP for Pearls</i>	71
<i>Promotion and Awareness Creation</i>	73
Financial Plan	75
<i>Assumptions</i>	75
<i>Projected Cash Flows</i>	76
<i>Projected Profit and Loss</i>	79
<i>Projected Balance Sheet</i>	81
Conclusion	84
List of People Met.....	88

ACRONYMS

BDG	Business Development Gateway
CRC	Coastal Resource Center
FAST	Faculty of Aquatic Science and Technology
GDP	Gross Domestic Product
GNU	Government of National Unity
IMCAFA	Integrated Management of Coastal and Freshwater Systems
ICM	Integrated Coastal Management
ICZM	Integrated Coastal Zone Management
IP	Intellectual Property
JCU	James Cook University
IMS	Institute of Marine Science
IPR	Intellectual Property Right
MACEMP	Marine and Coastal Environmental Management Project
MBCA	Menai Bay Conservation Area
MKUKUTA	Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Tanzania
MKUZA	Mkakati wa Kukuza Uchumi na Kupunguza Umasikini Zanzibar
MKURABITA	Mkakati wa Kurasimisha Biashara Ndogo Ndogo na Rasilimali Tanzania
MIMP	Mafia Island Marine Park
MSME	Micro, Small and Medium Enterprises
NGO	Non Governmental Organisation
NSGPR	National Strategy of Poverty Reduction
Recomap	Regional Program for the Sustainable Management of the Coastal Zones
RGoZ	Revolutionary Government of Zanzibar
RWSWH	Reclaim Women Space in World Heritage
RUMAKI	Rufiji, Mafia and Kilwa
SACCOS	Savings and Credit Cooperative Societies
SME	Small and Medium Enterprise
SUCCESS	Sustainable Coastal Communities and Ecosystems Program
TOR	Terms of Reference



UDSM	University of Dar es Salaam
USAID	United States Agency for International Development
WIOMSA	Western Indian Ocean Marine Science Association
WIPO	World Intellectual Property Organisation
WWF	World Wildlife Fund for Nature
ZSGPR	Zanzibar Strategy for Growth and Poverty Reduction

GLOSSARY

Brand	Is a word to denote the characteristic of a particular supplier
Copyright	Is a set of exclusive rights granted to the author or creator of an original work including the right to copy, distribute and adopt the work
Cultured pearls	Any pearl grown with the influence of human interaction
Inclusions	Sometimes called blemishes, are imperfections in the surface of the pearl. These may be cracks or bumps in the surface. The fewer imperfections, the greater the quality and value of the pearl.
Luster	The brightness or radiance of light from a pearl. A high quality pearl will be brilliant and bright, and you should be able to easily see your own reflection in its surface.
Matching	The ability of a set of pearls to resemble or harmonize with each other is referred to as matching. The greater the matching, the greater the value of the piece of pearl jewelry.
Mari culture	Is specialized branch of aquaculture involving cultivation of marine organisms for food and other products in the open ocean
Nacre	The thickness of the pearl's coating. Is a layer of <i>aragonite</i> and <i>conchiolin</i> that form around the pearl's center. The thicker the nacre, the longer a pearl will typically last.
Size	Pearls range in size from a couple of millimeters to over 15 millimeters depending on the type. The larger the pearl, the more rare and valuable it is
Shape	Pearls come in a number of different shapes including round, off-round, oval, baroque, and ringed. Round pearls are the most desired and valuable.
Touch points	An interaction with potential customer.

EXECUTIVE SUMMARY

Following survey to determine socio economic status of farmers, pearl farming in Fumba peninsula and neighbouring villages started in 2006 on pilot base as alternative income generating activity. The initiative was first financed by USAID through SUCCESS project.

Although it started with the site at Bweleo, additional fund from the Regional Program for the Sustainable Management of the Coastal Zones of the Indian Ocean (ReCoMaP) financed by the European Union, other two sites at Unguja Ukuu and another at Nyamanzi as well as Mafia, Kilwa and some other parts of Tanzania mainland engaged in growing oysters for pearl production. ReCoMaP in partnership with WWF and MIMP on the mainland Tanzania and IMS and WIOMSA on the islands of Zanzibar are exploring with coastal communities to enhance sustainable livelihoods and address the high levels of poverty in the islands at the same time facilitate conservation measures. In this context, pearl culture is proving to be a valuable opportunity for income generation for coastal communities.

This feasibility study is undertaken with the main objective of establishing economic feasibility of the pearl farming in Kilwa, Mafia and Unguja (Zanzibar) whose traditional sources of income is fishing, coconut production and farming. ReCoMaP has commissioned the study in the expectation of farmers setting up a profitable and self sustaining pearl culture business, and for increased number of beneficiaries within broader target area. Small scale production of the first cultured pearls indeed offers opportunities for income generation for coastal communities in Tanzania and may provide an important part of the management process for sustainable use of coastal ecosystem.

The study review was carried out between the month of January and February 2011 and based its assessment on interviews with pearl farming groups in the above

mentioned areas. For the sustainability of pearl farming as a business venture and important source of livelihood among coastal population, the initiative is also in recognition of the need to initiate a business plan that would position pearl production and institutionalize the venture as an accredited enterprise that is sustained through its own related investment. The business plan attempts to give an analysis that justify having such a venture and how activities would be accommodated.

The study assessed feasibility on the basis of four dimensions: growth, financial, technical and operational dimensions to analyse the possibilities of innovative revenue expansion from identified emerging opportunities. The overall assessment indicate on continuing growth and expansion, establishing the requisite cooperative structure to support that growth, operating safely and efficiently, and generating balanced returns. Adequate skills in terms of timing of implanting, cleaning and implanting of nuclei, depth of farming pearls, size of shells/mother of pearls as well as other environmental factors and genetics have been achieved.

SCOPE OF BUSINESS PLAN

The Consultant agrees on the primary Cooperative model under process or planning. The Cooperative manages community farms to develop business both directly and through a professional management/marketing agent to develop links between farms and potential markets such as individual buyers, crafts persons and resorts. Partnership with jewelry makers should also be established to supply pearls as raw material and gems

The Vision

Half Pearl culture through Cooperatives envision to be a benchmark in the pearl enterprise within the next five years dedicating to set industry trend for a socially, economically, and environmentally responsible and profitable business.

MAIN FINDINGS

- Production of half pearls that are of quality provide a promising opportunity for income generation within Fumba peninsula, Mafia Island and Kilwa.
- The number of pearl farmers is extending to Unguja Ukuu in Zanzibar and Mtwara In mainland. This can to a great extent be attributed to recent support from development partners particularly ReCoMaP.
- Slightly less than 50% of the pearl farmers are female except for few villages at Bweleo in and Unguja where the group is much bigger and women are more 80% hence pearl culture supplement women empowerment in making decisions for their economic gains
- Pearl culture has the potential to existing gemstones industry
- The absence of a strong program places pearl producers at a competitive disadvantage. The non existence of marketing strategies among the groups of pearl farmers could be one of the issues which can result in a lot of frustration.
- Farmers around Somanga have not made progress like their colleagues in Songosongo or Mafia. Apparently this is attributed to deliberate destruction of rafts by fishermen
- In spite of the persisting challenges mostly owing to resource limitations, a number of individuals livelihoods have improved
- Creating critical positions within groups is important to nurture the management and administrative capacity of taking care of the business
- There is undertone of reluctance from members of Chaza Njema at Bweleo to go on existing as one large group
- Tourism will provide main market for pearls, pearl products and pearl souvenir
- Ongoing research efforts to by WWF to establish hatchery are positive
- There are no current activities to focus on traditional shell and beads craft and little focus on community outreach. The farmers have no valid Work Plan or Business Plan for the coming year.
- Income previously generated from sales of pearls was not reinvested

- Appropriate training was conducted by the local and international expertise to orient the groups with the appropriate skills and techniques of cultivating pearl resulting in adequate number of people trained in raft deployment and farming techniques
- Gaps exist in capacity to improve production for better markets outlets
- Local processing capability should be developed at short-term for the sake of value addition.
- Integration of brand theory and buying psychology is significant factor to promote awareness of a geographical brand, and to form a well deserving image for pearls from Mafia, Kilwa and Zanzibar.

KEY RECOMMENDATIONS

The business strategy is expected to address constraints of pearl production, processing and marketing but sooner or later would need to be complemented with the IP and product branding. Implementation of the IP and brand strategy for ongoing pearl farming demand strategic external support offered by institution such as WIPO, Word Bank and European Union.

In principle the Consultancy sees an integration of 4 scenarios for business promotion and resource mobilization:

Option 1: Pursue or finalise establishment of Cooperatives which will assume ownership of the farms, with SACCOS being the most significant forms of participation in financial markets in rural Tanzania¹. Each Cooperative will use the business plan as source of reference in it undertakings. Although it is agreed that this is the most recommendable solution but it may take time to realize a new arrangement.

Option 2: Enter into contract on commission basis with a professional management/marketing company to promote sales and market pearl culture to better commercialize and nurture pearl industry.

¹ Report on the Survey of Rural Savings

Option 3 (uncertain recommendation): Find alternative avenues that include finding a partner from the business community to invest or buy share in the business.

Option 4 (recommended): The current programmes supporting mariculture activities should continue to provide extension support and to assist in mobilizing and managing resources until the business plan is well underway in its execution.

With serious capacity concern and the challenges at different levels in organizing pearl farms as venture, this may take a long time and may also lead to even more unexpected problems which are not foreseeable at this point in time. It is imperative then to continue coaching group members for each to start developing specific area of specialization depending on qualifications, skills and interest.

The business shall encompass:

1. Retail outlets of small scale pearl farm products
2. Sales to resorts and high end hotels
3. Small demonstration workshops and a gift shop for tourist on excursions
4. Sales to local and tourists related businesses and fashion boutiques including jewelry shops and galleries
5. Retailing pearls, pearl products and pearl oyster shells as raw material through craft marketing and cooperatives outlets
6. Online and overseas sale both wholesaling and retail
7. Auctioning

INTRODUCTION

The Regional Program for the sustainable management of the coastal zones of the Indian Ocean (ReCoMaP) support local communities to reduce threats of over exploitation, habitat degradation and destructive finishing practices as key sources to enhance better livelihood. ReCoMaP through Call for Proposal, provided grants to WWF and WIOMSA and entered into a 3 year contract for institutional support to expand the Fumba programme in Unguja by promoting the development of pearl farming.

Pearl farming is increasingly recognized as sustainable alternative livelihood for coastal population and at institutional level, ReCoMaP in Tanzania is coordinating to ensure activities are managed at same pace. International and internal NGOs working in the field and IMS as government research organization have taken the responsibility to implement demonstration projects in the pilot phase. The objective of the core funding correspond to WWF objective to implement a project titled Promoting Pearl Oyster Culturing in Tanzania building the capacity in two districts of Mafia and Kilwa, and planning for sustainable future expansion in other areas of the mainland coast

BACKGROUND ²

The ReCoMaP support to WWF and WIOMSA for promoting the development of pearl farming in Kilwa, Mafia and Unguja Islands and planning for sustainable future expansion in other areas of the mainland coasts, have started to show some promising results. WWF has managed to establish a small scale hatchery in Mafia and mobilized sensitized communities in Mafia, Somanga, Songosongo to set up pearl farms comprising of farms targeting production of half pearls.

Half pearl oyster farming is among one of the successful proposed mariculture activity that was initiated and is still going on in Fumba peninsular area since 2006, as alternative livehood activity for Menai bay communities. Initially it was a pilot

² Terms of Reference

study at Bweleo village only funded by USAID under SUCCESES project. at the start, several trainings were carried out which involved men and women from Bweleo and two IMS researchers who successfully continued training to the community under supervision of IMS and financial supported by USAID. Following these initial efforts, in 2008, WIOMSA via ReCoMap support, aimed to expand the half pearl productions technology to other three village of Fumba peninsular including Fumba, Unguja ukuu, Nyamanzi and Bweleo with the objective of facilitation the extension of half-pearl farming to the community aiming at reducing poverty. Similar efforts were extended to Mafia and Kilwa in partnership with WWF.

PURPOSE OF STUDY

During the evaluation mission held in September and October 2010, it was observed that most projects lacked feasibility studies on the economic feasibility of the livelihood projects and beneficiaries are constrained with marketing of their products. It is an undisputed fact that for a livelihood intervention to be sustainable and alleviate poverty it has to be economically feasible.

To achieve these, ReCoMaP sought the assistance of a Consultant who, in close coordination with WWF and WIOMSA to implement the following:

1. Conduct a feasibility study that among other thing identify market bottleneck constraining pearl marketing.
2. Assist farmers in developing a business plan.
3. Provide feedback to stakeholders on the finding of the feasibility study during a two days feedback workshop to be organized by ReCoMaP.

Expected Outputs

1. Feasibility study.
2. Pearl Farming Business Plan.

Henceforth, the purpose of the study assignment was to assess feasibility according to the main objectives of the pearl culture programme and to the degree possible assess impact at individual and societal level seen in the light of pearl cultivation around marine and coastal areas of Tanzanian. According to the TOR, the study will be used by ReCoMaP to assess the overall potential for success of the program with the view to use the established business plan as reference when mobilizing resources and basis for the assessment of prospective interventions required to promoting pearl cultivation as sustainable business venture.

The overall objective of the feasibility study and the business plan are critical reference against which findings and recommendations are compared. The exercise is an exploration of what is hoped to provide a more comprehensive view in further expanding pearl culture as source of sustainable livelihood and poverty reduction particularly poor women around the Fumba peninsula, Mafia Island and Kilwa.

METHODOLOGY AND DATA COLLECTION

The Consultant assessment of key results area is included in the findings and people met are enlisted in the report. Data collection involved informal and formal interviews, direct and participatory observation, focus group discussions and literature search. Few persons who were not easy to meet, were interviewed through telephones and internet.

The study was conducted in Mafia, Kilwa and Zanzibar between the month of January and February 2011. The applied methodology intended to answer key study issues as per ToR using following key action points:

- Primary data from management files and published documents
- Collecting qualitative and quantitative data
- Perspective of the community, public sector and private sector

In the exercise, the Consultant in close consultation with ICZM Officer met with officers from IMS, WIOMSA, WWF and ReCoMaP as well as government officers from the fishery department and individuals from farmers groups in Zanzibar, Mafia and Kilwa.

It should be noted that the study took place in a period in which farmers have already harvested pearls and shared proceeds with hardly any savings to meet critical strategic and operational challenges on their own. Methodologically speaking this influenced the approach when preparing the financial statements in relation to sources of funds as it was risky to indicate members' equity in the absence of savings.

Desk review of pearl farming in Tanzania and globally was carried out prior to study so as to inform on the field work. The ICZM Officer introduced to the consultant the professional contact in Kilwa, Mafia and Zanzibar from WWF, WIOMSA and IMS respectively. A mixture of qualitative and quantitative approaches was applied but the main methodology was through interviews (qualitative) and documents, statistics, files (at least partly quantitative). The framework and the approach to developing appropriate criteria for the review were derived from the TOR and the contract between the Consultant and ReCoMaP signed January, 2011. The review sought to answer issues as set down in the TOR. The Consultant applied the indicator framework set down in the contract as the main reference for reviewing progress and achievements. The analytical framework however was organized along the four dimensions illustrated below as main general indicators for feasibility.

It should, however, be noted that goals of commercializing pearl culture are not over ambitious and can be expected to generate results in three and half year period. Reaching out the prospective clientele may also be quite challenging in the current media and competitive society. The study should not be expected to be able to make definite conclusions on societal impact in the entire region but be limited to the development and impact in Tanzania.

The Consultancy look into how ReComap positioned itself as one of the leading actor in the region through its relations with local and international partners and networks as they are manifested by the use of particularly environmental friendly approach in exploring natural and coastal resources for livelihood.

This model illustrates our four-pronged approach, which focuses on continuing growth and expansion, establishing the requisite corporate structure to support that growth, operating safely and efficiently, and generating balanced returns.

SCOPE AND LIMITATION

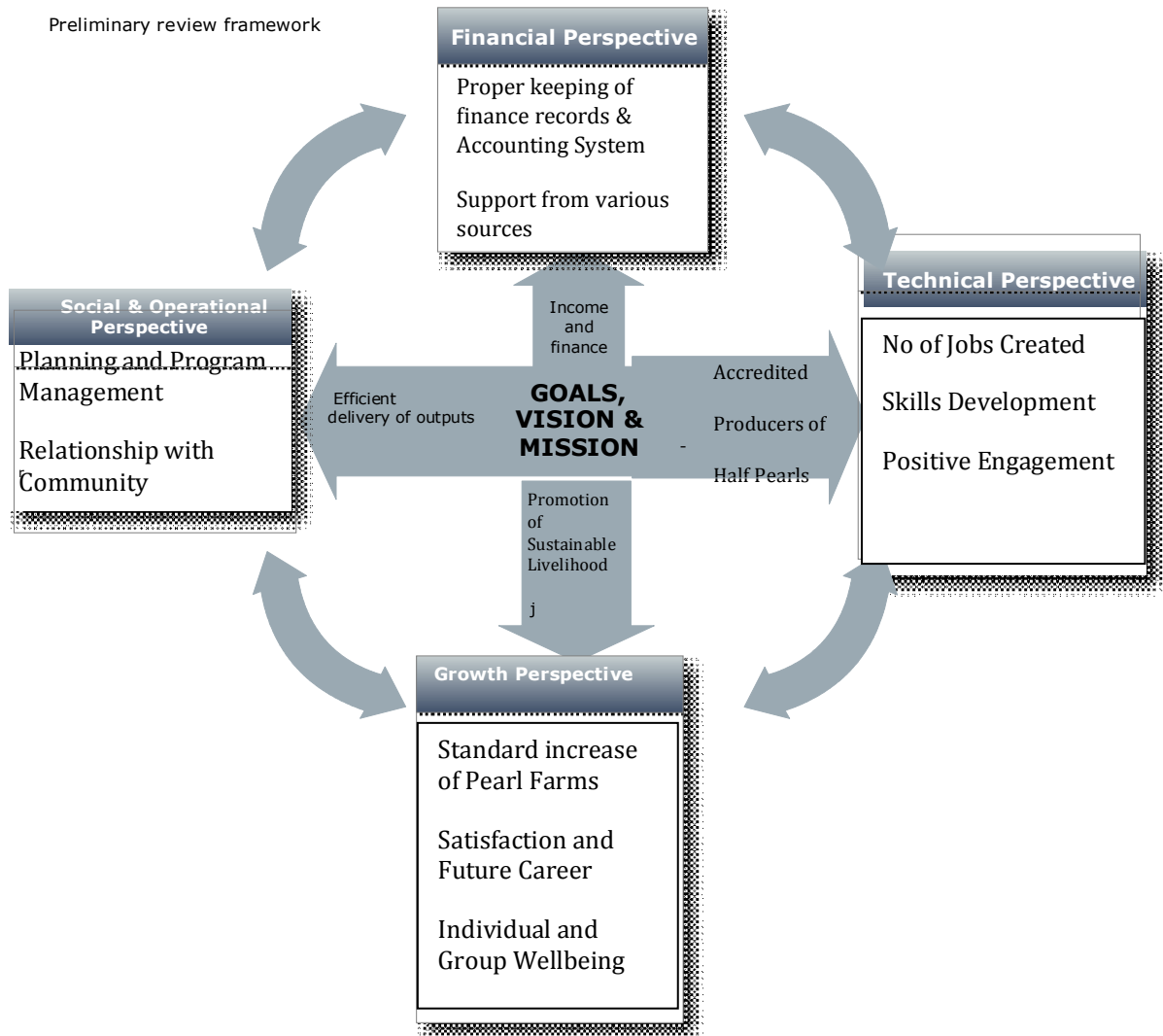
For sustainability of pearl farming, ReCoMaP in partnership with WWF, WIOMSA and IMS, the study was commissioned in recognition of the need to initiate a business plan and work towards positioning small scale pearl farms to transform into sustainable business entities by tapping market potential and realize significant profit.

The objective of the study is to identify constraints in the development of pearl marketing and propose a business plan that suggest how best to address them.

Henceforth, the study summarized an assessment and analysis for increased competitiveness and growth. In particular, the study identified emerging opportunities within the economic potential and related challenges facing business growth. However, due to time and resource limitation, the study was carried out basing more on literature survey and field observation. In this context, study limitations attest to the reality in which business environment particularly small entrepreneurs thrives in Tanzania and small island economy like Mafia and Zanzibar.

Specifically the analysis framework applied is based on four perspectives of performance and feasibility. It focuses on continuing growth and expansion, operational, technical capacity and financial perspective to assess internal management for generating balanced returns. A simplified model of this framework can be illustrated as follows:

Preliminary review framework



DESCRIPTION AND SIGNIFICANCE OF PEARL CULTURE

Pearl farming is the industry responsible for grafting *pearl molluscs* – the invertebrate having a soft body that is often protected by a shell, such as with the snail, clam, mussel, or oyster; and producing *cultured pearls* - pearls formed by the insertion of a piece of mantle tissue, with or without a nucleus, into the mother oyster or mussel.

Pearl oysters are probably the most noted source of the “natural pearl” and over the centuries, as pearls have become highly valued and admired, the process of creating the “cultured pearl” has developed to satisfy the consumer demand and to guarantee a reliable and steady supply. Today, rare and very expensive natural pearls do exist, but the global market is dominated by equally prized cultured pearls.

As one of the oldest and longest known gems, pearls have been part of the cultures of the Middle East and Indian Ocean centuries. This region has been acknowledged as being the home of some of the oldest known “natural” pearl formations. This was also one the principal regions which, along with China and Japan provided the pearls that initially established and supplied the global trade. Subsequent experimentation and the increasing development of pearl cultivation around the world have brought both diversity and innovation to pearl farming.

It is acknowledged that today pearl farming is a highly competitive business. The basic method remains “simple”, but environmental conditions, technical information, as well as the development of “secret” methods, could be identified as factors to be noted if a new farmer is going to start and sustain a pearl farming operation. These considerations should no doubt be made in addition to the application of the “proven methods”. Some of these which have been noted by Maria Haws (2002) in *The Basic Methods of Pearl Farming: A Layman’s Manual*³. The knowledge and information in this manual is “inspired by the pearl farmers of Penrhyn (Tongareva), Cook Islands,

³ Maria Haws (2002) *The Basic Methods of Pearl Farming: A Layman’s Manual*, Center for Tropical and Subtropical Aquaculture, Publication No. 127

who worked to establish pearl farms while maintaining the environmental health of their lagoon.”⁴

In framing the economic activity and environmental concerns, Haws highlights an experience and circumstances that may be of critical significance as a point of reference in assessing the potential of a pearl farming initiative for Mafia, Kilwa and Zanzibar; while equally supporting the Regional Programme for the Sustainable Management of the Coastal Zones the Indian Ocean Countries (ReCoMaP) development perspective that guides the Tanzania initiative.

It has been noted that the demise of “natural pearls” has been due largely to “overfishing”. Equally, it is known that environmental pollution and certain extreme conditions such as storms, excessive heat or cold are also detrimental to pearl cultivation. Hence, the importance of the established methods and the accumulated knowledge that currently informs the practices of the industry. Pearl farming in its simplicity was radically transformed in the early 20th century and as Haws notes,

Japanese researchers developed methods that brought pearl production under the control of humans in the early twentieth century. These “cultured pearls” are generally larger and of a more consistent size and colour than natural pearls. Producing cultured pearls depends on a surgical procedure called grafting, which entails surgically implanting an artificial nucleus (shell bead) into the tissue of a pearl oyster. The oyster then secretes nacre around the nucleus. After several years of caring for the oysters, the cultured pearls are harvested⁵.

PEARL INDUSTRY

⁴ Ibid p.1

⁵ Ibid p.5

The cultured pearls which now supply the world market are of a number of varieties.

Species vary according to the location of production, as well as the characteristics of the gem. The following selection is listed by the Australian jewelry and gems dealers Costellos⁶:

Australian Pearls - The Australian South Sea Pearl is unquestionably the rarest and finest cultured pearl in the world.

South Sea Pearls - There are two basic groups of South Sea cultured pearls: white and black. Pearls from the white group are primarily cultured in the northern waters of Australia, the Philippines and Indonesia. Pearls from the black group, among which is the legendary black pearl of the South Pacific, are most frequently found over a wide area stretching from the Cook Islands, eastward through Tahiti to the Tuamotu Archipelago and the Gambier Islands in French Polynesia.



White South Sea Pearls



Tahitian Pearl Earrings

Tahitian Pearls - The cultured pearl of Tahiti is synonymous with magic . Most come from the atolls and lagoons of the South Pacific and perfection

Akoya Pearls - Considered the classic amongst cultured pearls, Akoya Pearls are primarily round or oval in shape and measure 2 to 10mm. They are cultured in southwestern Japan and China. Their colours range from pinkish white to creamy shades and silvery blue.

Keshi Pearls - Possessing a whimsical charm entirely different to the perfectly round, large pearls, seedless keshi pearls arise spontaneously in the culture of Akoya, and South Sea pearls. These small freeform pearls make fascinating necklaces in colours ranging from silvery white to silvery grey.

⁶ See: www.costellos.com.au

Mabé Pearls - Mabé Pearls are attractive half pearls with beautiful, rainbow-coloured iridescence. The pearl was named after the mabé pearl oyster which is found mainly in the tropical seas of Southeast Asia and in the Japanese islands around Okinawa. Since the beginning of the century, many attempts had been made to cultivate round pearls from the mabé oyster but all had failed. However, in the 1950s hemispherical pearls (or 'half pearls' as they are more commonly known) were successfully cultivated. Today, most of these cultured half pearls do not come from the mabé oyster, but rather from the South Sea's silver-lipped oyster. Mabé pearls are also available in oval, cushion, drop and heart shapes.

Chinese Freshwater Pearls - Chinese Freshwater Pearls are grown in an amazing variety of delicate shapes ranging from round and oval to button, drop and baroque. Their colours vary from pure white to orange and rosy violet.

Kasumiga Pearls - The Kasumiga is a new type of pearl that comes from a lake northeast of Tokyo. The mussels are a crossbreed between Japanese and Chinese freshwater mussels, and are implanted with round or flat seeds. Kasumiga Pearls glow in rosy hues of light to dark pink.

The farming of cultured pearls is a delicate and labour intensive activity. The principle locations of cultivation are now to be found in Australia, the South Seas, and Japan using seawater; and in China, the USA, and also Japan, where freshwater is used. This environmentally friendly business is suited to "island areas". Here it is most likely to find an abundance of the "boating, diving and fishing skills" that are required. As Haws also notes, a principal advantage of pearl production is that "the final product is lightweight and non-perishable" and there is no need for "artificial feeds, complicated farm structures or constant attention". All of these factors are part of what makes pearl farming an attractive opportunity for an Indian Ocean island such as Zanzibar and Mafia.

In their study, "Ukulima wa Lulu, Zanzibar, Tanzania (*Nusu Lulu*)"⁷, Narriman et al elaborate on the appropriateness of pearl farming for Zanzibar. The significance of

⁷ Harriman, Jiddawi & Soud (2010)

the Indian Ocean environment is noted, as well as other needs and requirements of the industry which are available in Zanzibar. There is also the potential for jewellery and gem products of high quality and value. In the context of “Pearl farming and jewelry making in Zanzibar: empowering women economically”⁸ involving both supported by Western Indian Ocean Marine Science Association (WIOMSA) and Institute of Marine Sciences (IMS), the cultivation of pearls takes on a definitive significance in relation to national policies towards poverty reduction, wealth creation and development.

As a precursor to outlining the “benefits” of cultivating pearls, Haws makes three cautionary observations⁹:

- Successful pearl farming requires a long-term investment of time, money and hard work.
- Production of high quality pearls is the key to having a profitable farm.
- Production of high quality pearls is only possible under certain conditions.

Under each of these, certain factors and prerequisites are noted which contextualise the simplicity of the process and its strategic needs and requirements. As also implied in “Ukulima wa Lulu, Zanzibar, Tanzania (*Nusu Lulu*)”¹⁰, these infrastructural and knowledge resources are of importance to pearl farming as a business venture. In effect, these resources together, are critical determinants for a successful industry, which of necessity would include not solely the cultivation of pearls, but equally the harvesting of good quality pearls and effective marketing these as valued products. This suggests a need for consistent vigilance and quality control at each stage of the process. As is clearly stated on the third cautionary point noted above, the starting criteria for the production of “high quality pearls” are:

A reliable source of pearl oysters.

A suitable site.

⁸ ReCoMaP project #07/01/381

⁹ Haws (2002)

¹⁰ Harriman et al (2010)

Sufficient funds to establish and operate a farm.

Access to grafting technicians.

Ability to market pearls

With these in mind Haws' handbook focuses on methods used to cultivate the "Black-Lip pearl oysters (which) are known as *black pearls* or *Tahitian black pearls*." These are mostly produced in "the sheltered waters" of the Indo-Pacific area off French Polynesia and the Cook Islands. Growing black pearl industries exist in Australia, Indonesia, the Philippines and the Western Pacific Islands. Here, the waters are of high salinity and with temperatures of 25 – 30 degrees centigrade. "They appear to grow best in clear waters that are free of large amounts of sediment since pearl oysters may have difficulty feeding in turbid water"¹¹. Favourably conditions are to be found in the waters surrounding Fumba peninsula and Unguja Ukuu in Zanzibar, Mafia, Kilwa and Mtwara on the mainland. These conditions are likely to be favourable for considering or adapting the pearl farming methods discussed by Haws¹², noted as: The Tahitian Longline Method, Floating rafts, and Underwater trestles.

In the context of Tanzania including Zanzibar, about to embark on a new industry, there are specific factors to be addressed. Some have already been considered and may be noted under the headings check-list of: Labour; Equipment, supplies and facilities; Location; Spat (young pearl oysters) source; Grafting/seeding (nucleus implantation); Marketing expenses. These in addition to other infrastructural and institutional expenses, indicate the resources and expertise required for the industry of pearl cultivation, with both short term challenges and long term benefits in mind.

The process of pearl cultivation is designated by the following stages¹³:

First step: The first step in the pearl production process is to obtain oysters to be nucleated. In the early days of the cultured pearl industry, oysters were simply

¹¹ Haws (2002) p.9

¹² Ibid pp.23-27

¹³ Info adapted from: <http://www.pearl-guide.com/pearl-farms.shtml>

collected from the sea. Although some farmers continue using this method today, many use the more modern practice of breeding their own oysters. To do this, the pearl farmer collects oyster sperm and eggs from high-quality oysters already on the farm. The sperm are used to fertilize the eggs, and so create a new generation of oyster larvae.

Pearl Farming: The larvae are allowed to float freely in the water, under controlled conditions, until they are a few weeks old. In the wild, the larvae would then attach themselves to a rock or similar object, so the farmers provide "collectors" for this purpose. Over a period of a few months, the larvae develop into baby oysters. They are generally then moved into a separate "nursery" area of the farm. Here they are tended for around 1-2 years, until they have grown sufficiently large to be nucleated.

Nucleation: The process of nucleation is a surgical procedure, whereby a foreign object is implanted into the oyster. This object causes irritation, which the oyster counteracts by secreting nacre to surround the object; this produces the pearl. Saltwater oysters are generally nucleated using a "bead", prepared from mother-of-pearl. First, the bead is surrounded by a small piece of mantle tissue taken from a donor oyster. The bead and tissue are then implanted into the oyster's gonad. The bead serves as a mold, or nucleus, around which the pearl develops. The resulting pearl will contain the bead at its center and will tend to develop in the same general shape as the original bead. The bead can be detected in the final pearl by x-rays.

Pearl growing: After nucleating, the oysters are given a few weeks to recover from the surgery. During this time, some of the oysters may reject and expel the implanted nuclei; others may become sick or even die. Most, however, will fully recover. The oysters are then placed in cages or nets and moved into the oyster bed, where they will be tended as the pearls develop. Depending on the type of oyster, this process can require anywhere from a few additional months to several more years...

Harvesting: After the pearls have been allowed to develop fully, they must be harvested. After the pearls are extracted from the oysters, they are washed, dried, and sorted into general categories. Sometimes, the pearls are polished by tumbling in salt and water. The pearls are then sold to jewellers, manufacturers, and pearl dealers.

In view of the current situation of Tanzania being a newcomer to the industry of pearl cultivation, the production of *Mabé Pearls* (“half-pearl”) can be regarded as a suitable product. A relatively shorter time of 9 – 12 months is required before harvesting and as Haws notes, “the buyer can tell you how to prepare the mabe for harvest. In some cases, they may want you to send the entire shell without cutting out the half-pearl. However, if you can cut them out yourself it is more profitable to you because you can use the remaining parts of the shell for production of handicrafts”¹⁴. Harriman et al (2010) also note advantages which indicate the relatively easy production process that can be mastered by everyone.

OUTSTANDING VALUE OF PEARL

Around the world high quality pearls are valued. As such, pearl farming remains an attractive business. The product is light weight and non-perishable. In this industry only 5-10% of the pearls harvested are likely to be “high gem quality”¹⁵. This is therefore a highly competitive business in which the marketing of “gems” in which value added products are an advantage. Haws notes that, “although not as valuable as a round pearl, it is easier to reliably produce mabe”¹⁶. For a small start-up industry this option also seems to offer an opportunity to develop skills and special products that may help to establish a particular market presence or brand, in a location such as Zanzibar, Mafia and Kilwa. These products may well find a special place in the international market. Equally there are no doubt opportunities to be considered within the national tourist industry as well as other sectors regionally and elsewhere, in the

¹⁴ Ibid p.62

¹⁵ Ibid p.8

¹⁶ Ibid p.59

craft and jewelry markets. Haws also notes that it is possible to have “face cream made with scraps of nacre from pearl oyster shells”¹⁷, another value added product.

In a study by Tetsu Yamamoto and Hideyuki Tanaka, “Potential of Commercial Development of Mabe Pearl Farming in Vava’u Islands, Kingdom of Tonga”¹⁸, it was observed that:

“Of the total production of pearls, a ratio of the finest pearls, medium-quality pearls and poor-quality pearls would be in general 1:1:1. This ratio of quality averages apply in Japan, but the consultant estimates that almost similar ratio can be obtained in Vava’u. The poor-quality pearls must be crashed. Its powder may have some commercial value. For instance, 250,000 mother-of-pearls could produce at least 750,000 Mabe pearls. Out of these, one third, i.e. 250,000 pearls would be the best quality pearls. If these were sold at the average price of US\$30 per piece, its sale would be of US\$7.5 million. An additional revenue would be obtained from the sales of medium-quality pearls and Mabe shells as well.

These observations provide an indication of the economy of pearl farming. Deductions can be made with comparable figures and facts from the Mafia, Kilwa and Zanzibar context, as to the potential and viability of producing Mabe with favourable outcomes. As in the case of Tonga, the favourable realisation of the industry’s potential is very much linked to an appropriate “development concept and strategy”. Yamamoto and Tanaka indicate the following considerations:

- “Understanding of role of aquaculture development” in relation to the management of coastal fisheries resources.
- “Economic impact” on various sectors of the economy, and in the case of Zanzibar, Mafia and Kilwa on communities and the lives of women.

¹⁷ Ibid p.65

¹⁸ Tetsu Yamamoto and Hideyuki Tanaka (1997) SOUTH PACIFIC AQUACULTURE DEVELOPMENT PROJECT (PHASE II) FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (GCP/RAS/116/JPN), Suva, Fiji.

These are of particular relevance to Tanzania and the study also reiterates an underlying requirement that, “government should understand that pearl farming industry development requires a long-term approach. It is impossible to formulate such industry in a short period. Time is necessary to build up a base for the future development.” This includes the harnessing of investment, expertise and an appropriate business model.

GLOBAL TRENDS

Today, it can be generally agreed that even as natural pearls remain a rarity, cultured pearls have maintained the long-held fascination with pearls. Pearls remain a highly valued and very lucrative sector of the gems and jewelry market. Leading jewelers in London’s Hatton Gardens can quote regular retail prices ranging from one hundred to well over a thousand pounds sterling for an assortment of pearl items including earrings, bracelets, necklaces, cuff links, pendants, broaches, rings and pendants.

From the perspective of Tanzania, there is however the concerns of a start-up industry located in a developing country. From a location such as this, the global trends must be considered with particular reference to prevailing economic strategies. These as current policies indicate, are formulated within the framework of initiatives aimed at the alleviation of poverty and other social problems.

The UN’s “Report on the World Situation 2010”, *Rethinking Poverty* reiterates that since the World Summit for Social Development in 1995 “Poverty eradication has since become the overarching objective of development, as reflected in the internationally agreed development goals, including the Millennium Development Goals, which set the target of halving global extreme poverty by 2015”¹⁹. In reviewing these objectives it is generally agreed that poverty levels remain “stubbornly – unacceptably – high in sub-Saharan Africa”. There is a significant consensus that more critically, poverty in sub-Saharan Africa has been on the

¹⁹ *Rethinking Poverty: Report on the World Social Situation 2010*, United Nations Publication Sales No. E.09.IV.10, ISBN 978-92-1-130278-3, United Nations, 2009, p.iii

increase. These views are part of an acknowledgement that, as *Rethinking Poverty* underlines, there is a need for a “rethinking of poverty and its eradication”.

In effect, not only is there the need to rethink poverty and its eradication, but by implication the whole question of “development” and the implementation of policies and initiatives designed to serve its purpose. In arguing that “poverty reduction is not development”²⁰, Rick Rowden frames a persuasive discussion within the context of the global politics of development economics and its associated issues of “foreign aid”, “poverty reduction”, “poverty eradication” and “development assistance”. With reference to much that shapes the background of the UN report, Rowden notes that, “the record has shown that by themselves markets cannot determine the direction of development, and cannot deliver growth and redistribution, job creation and social protection”²¹. Further, the evidence also suggests that economic growth does not necessarily mean poverty reduction or the expansion of the economy into the value-added activities of manufacturing or services, dominant assumptions need to be challenged. As such, the discussion therefore indicates a need to “re-examining the definition of ‘development’ with a clearer understanding that poverty reduction is the result of successful economic development, not a replacement of it”²².

*Rethinking Poverty*²³ therefore provides a current framework for understanding global trends that would be relevant to national policies, and provide contextual references for the consideration of the benefits and viability of new initiatives such as “pearl farming in Tanzania”. The critical factors involve all aspects pertaining to the harnessing of investment, acquiring and developing expertise, and an appropriate business model. These can be identified with the considerations of “sustainable development and structural transformation involving sustained growth, employment and incomes, with inclusive development which benefits people living in poverty”²⁴ that is recommended for current policy approaches to development initiatives.

²⁰ Rick Rowden (2010) “Poverty reduction is not development” in *Review of African Political Economy*, Vol. 37 No. 126, 503 - 516.

²¹ Ibid p.505

²² Ibid p.514

²³ *Rethinking Poverty: Report on the World Social Situation 2010*, UN.

²⁴ *Executive Summary - Rethinking Poverty: Report on the World Social Situation 2010*, UN, p.6

NATIONAL FRAMEWORK ON PEARL ENTREPRENEURSHIP

In Tanzania, NSGRP II²⁵ (also known as MKUKUTA II) is an update of the earlier MKUKUTA I.

The policy framework outlined in the current document has been appropriately informed by “the global financial and economic crisis of 2008-2009 as well as studies conducted”. The changing global environment, as well as new regional developments, has also impacted on the perspective of the document.

NSGRP II/ MKUKUTA II include a reassessment “Poverty and the Challenges of income Distribution”. In addressing the identified challenges, three areas – “clusters” – of action have been delineated around: “Growth and Reduction of Income Poverty”, “Improving Quality of Life and Social Well Being”, “Good Governance and Accountability”. The interdependency of the three “clusters” across sectors, and state institutions is recognized as being essential to implementation, outcome and benefits. Overall, it is indicated that, “...initial policy should be directed towards developing Tanzania’s economic growth through the creation of a detailed long term growth and development plan and promoting private sector growth”.

With particular reference to the goal of reducing poverty, this is to be done “by promoting inclusive, sustainable, and employment enhancing growth”²⁶. As one of the areas of focus within context of “Growth and Reduction of Income Poverty” (Cluster I), agriculture and “micro, small and medium enterprises” are being given priority. “Women and youth” are also targeted as a constituency where the “creation of productive and decent employment” needs to be ensured along with other objectives designated by “Improvement of Quality of Life and Social Well-being” and “Governance and Accountability”.

²⁵ *National Strategy for Growth and Reduction of Poverty*, United republic of Tanzania, 2010

²⁶ Summary Ch. IV: The Strategy, Goal 2, *National Strategy for Growth and Reduction of Poverty*, United republic of Tanzania, 2010

All of the above are mirrored in “The Zanzibar Strategy for Growth and Reduction of Poverty: 2010 - 2015” (ZSGRP II/ MKUZA II). Similarly updating the “Zanzibar Strategy for Growth and Reduction of Poverty 2007-2010”, the specific circumstances of the Zanzibar islands inform the perspective of the document. Importantly, “Growth and Reduction of Income Poverty” has been defined around the broad objective “...to achieve and sustain pro-poor growth”, and “...(T)o this end three goals were spelt out, namely, the creation of an enabling environment for growth; the promotion of sustainable pro-poor and broad-based growth and; the reduction of income poverty and the attainment of overall food security”²⁷. Within the focus on “agriculture”, the importance of fisheries and aquacultural activity – namely “seaweed farming” - is recognised as important activity for “for economic and social development in Zanzibar”²⁸. By extension, it is also recognised that, “...(T)he coast and its resources are Zanzibar’s most valuable assets if used appropriately, could help sustain the present and future generations”²⁹.

The potential for SMEs recognises certain “constraints”³⁰ but there is an expressed commitment to address these “towards increasing Zanzibar’s industrial competitiveness and hence exports”.

Overall, it is acknowledged that, “...(B)ecause poverty is multidimensional, income alone cannot serve as an adequate measure for assessing poverty reduction interventions. Improved access to education, water and health services and reduction in maternal, child mortality and morbidity, increase in life expectancy and an expansion of democratic space are some of the other dimensions of welfare that are important”³¹.

For Zanzibar, MKUZA II is now the principle policy framework. This provides new perspectives for bring into being current initiatives for development and the reduction of poverty. With the noted inter-sectorial links and interdependency, and the need for

²⁷ MKUZA II, p, 19

²⁸ Ibid p.25

²⁹ Ibid p.26

³⁰ Ibid pp.28-29

³¹ Ibid p.35

more inclusive consideration in relation to sustainability, a new significance is being brought to bear on the role of SMEs and environmental concerns. Zanzibar already has in place a “Small and Medium Enterprises (SME) Policy” (2009). Equally, there is also in existence The United Republic of Tanzania “National Environmental Policy” (1997) and the “National Micro-Finance Policy” (2000). Even as aspects of each may resonate within MKUZA II for example, each can be considered in terms of their detail in relation to current perspectives on development and poverty reduction policy.

Another document of relevance to environmental issues is the “Strategic Action Programme (SAP)”³², which with its “Western Indian Ocean” focus has particular significance for Zanzibar.

EXISTING SITUATION

MKUZA II, recognises that,

Zanzibar’s GDP at market price stands at TZS 878,403 Million and the per capita income is estimated to be USD 557 as of 2009. The annual GDP growth rate in 2009 was 6.7 per cent. Compared to developed countries, it is clear that Zanzibar is poor and has a relatively very small economy. The Household Budget Survey data of 2004/2005 shows that 49% of the population in Zanzibar had income that is below the basic needs poverty line. The preliminary analysis of the 2009/2010 Household Budget Survey data shows that the situation has only marginally improved², with the more significant achievement being registered in other areas of wellbeing such as education and health. As would be expected, the low per capita GDP is also broadly associated with low relative achievement in other dimensions of human welfare such as life expectancy, education and health³³.

Further detail on the current situation in Tanzania may be noted in MKUKUTA II, where it is stated for example, that;

³² SAP: Strategic Action Programme, United Nations Environment Programme (UNEP)/Nairobi Convention Secretariat, 2009).

³³ MKUZA II, p.12

The key to expanded agricultural development lies in the empowerment of small farmers by linking them to product chains, market information and access to methods for improving productivity. Providing access to high-yielding seeds, fertilizer and pest control, technological innovations, credit for purchasing modern equipment, services of specialists in hydrology, irrigation, veterinary care and agro-mechanics and the implementation of agro-processing will diminish post-harvest losses³⁴. Further within reference to the significance of SMEs, it is noted:

Unleash Micro, Small and Medium Business Enterprises (MSME's): Twenty percent of Tanzania's population is employed through small and medium enterprises, generating one third of the nation's GDP. Yet, these businesses face growth and income generation limitations. In recognition of MSME's role in job creation and economic growth, MKUKUTA II promotes the following supportive initiatives:

- Using various incentives, including MKURABITA, to ease registration and licensing requirements so that informal MSMEs become legitimate businesses;
- Creating financing resources for entrepreneurs living in rural areas;
- Implementing skills development training with technology to increase productivity and competitiveness;
- Improving infrastructure to support small business development, including access to power and water as well as office and industrial parks, development and enforcement of health standards for food service and products and marketing information; and
- Promoting supportive incubator programs for innovators and new businesses³⁵.

This set a clear priority in relation which may provide a context for the initiative to establish pearl farming cultivation in Tanzania.

³⁴ MKUKUTA II, p. 11, Ch. IV: The Strategy

³⁵ Ibid, p.13

PEARL CULTURE IN KILWA, MAFIA & ZANZIBAR

Following the adoption of Integrated Coastal Environment Strategy in 2002³⁶, national resource management in Tanzania has been decentralized as a result, interventions by local and international NGOs and other development agencies have played substantial role to identify critical local resource areas with high biodiversity in order to provide for their conservation put to sustainable use of coastal and marine resources

There is an accumulated number of over 20 groups of pearl farmers around Mafia Island Marine Park, Kilwa and Fumba peninsula most of which have been not been registered at any time during their existence. Most of them are loosely associated with government institutions concerned with management of aqua environment and heavily dependent on financial and technical support of international partners currently ReCoMaP through WWF and WIOMSA.

MAFIA

Given the physical geography of the Mafia island, aquaculture is one of the most promising area to develop new income-generating activities. Over the past four years, joint preliminary research have been undertaken to investigate the feasibility of pearl culture. The pilot phase on small scale production of cultured pearls in Mafia has been enabled through collaborative efforts in research by the Worldwide Fund for Nature (WWF) and Australia's James Cook University (JCU), in association with Mafia Island Marine Park (MIMP). The collaborative research has shown that this form of aquaculture initiative is compatible with conservation efforts and resulted in several small scale production of the cultured pearls giving jobs to over 100 artisanal farmers who cultivate oysters as alternative source of income. WWF Tanzania program office is specifically promoting pearl aqua culture around Kilwa and Mafia districts in Lindi and Pwani regions respectively.

³⁶ (Managing Marine Protected Areas, A TOOLKIT for Western Indian Ocean)



Oysters from a Raft at MIMP



Coral Reef of MIMP



Training Session for Farmers

key Issues

- *Future pearl cultivating would profit substantially if the total production double*
- *There are no solid plans for the pearl cultivators to learn skills on jewelry making out of the waste oyster shells particularly for women as this can be done even at home*
- *A need to have consensus within each group as to how responsibilities should be clearly divided*
- *It appears that none of the group members have any basic computer literacy or use of internet*
- *Pearl farmers are not well informed of the logistics and time consumed by extension agents to find buyers for pearls hence become impatient and less trusting when payments are overdue. Demand more transparency as to the logistics of these transactions for them to appreciate reasons for delay.*
- *The groups have not succeeded in attracting local market. Need link to external market*
- *Fewer cases of vandalism compared to Kilwa*
- *Very weak communication and marketing skills*
- *Inadequate working tools*
- *Good basics of farming*
- *Sell raw pearl*

- *Satisfied with price that pearls fetch.*



pearl clientele has not been tapped. So far marketing attempts are done under the goodwill of WWF. The problems associated with lack of proper diving gear, working tools and pearl business infrastructure are as grave as the software package such as skills, awareness, innovation and attitudinal.

Mafia has a growing number of resorts and visitors whose potential as prospective

KILWA

Similarly to what is implemented in Mafia, WWF through partners funding has carried out a number of programs and projects including RUMAKI sea scape program that oversees collaborative fisheries management, awareness and training, livelihood by facilitating access to market credit and mariculture and species protection among other projects.

WWF in the past years (2004-2006) received funds from WWF UK and Japanese Social Development Fund and presently Recomap to enhance livelihood among the coastal population. Pearl cultivation in Kilwa as part of mariculture occurs in several villages around Somanga and Songosongo where small group -based pearl farms have been introduced mostly in less than a year ago. Whereas the rafts at Songosongo are safer except for strong winds, most of the rafts at Somanga have been vandalized, In such situation, it is important that village government advocate for values that support responsible environmental care and discourage attitudes that are not compatible with sustainable way of livelihood. On the other side, vandalism and



accidental destruction by fishing boats can be avoided by encouraging underwater lines instead of rafts.

Key Issues

- *Bamboo traps can be swapped off by strong wind*
- *Vandalism could be reduced if groups own working boats for routine checking*
- *Training received will help to set right price but not enough to market products*
- *Practicing long line instead of rafts may reduce the destruction by fishermen*
- *User conflict in the marine environment resulting is destruction of rafts*
- *Little awareness of local and external market*
- *Lack of jewelry making skills*
- *There is a feeling that the village government is not making the right efforts to control destruction of rafts and law enforcement is not exercised.*

ZANZIBAR

The villages around Fumba and Bweleo within the Menai Bay Conservation Area (MBCA) has been implementing pearl farming since 2006, as alternative livelihood activity for the marginalized Menai bay communities. WIOMSA in partnership with IMS and UDSM has been assisting villagers in MBCA to apply underwater long lines, care of juvenile pearl oysters, pearl shells jewelry and grafting skills for inducing development of cultured pearls, maintenance of long lines and providing ongoing support for half pearl farming.

An Assistant Business Specialist who are under the Economic Growth Manager in Pwani Project - Head office at Bagamoyo Tanzania supported by USAID in coordination with WIOMSA (Western Indian Ocean Marine Science Association) in Zanzibar Office. This position held since September, 2010 pearl producers together with women who make shell craft jewelry for delivering them entrepreneurship skills. Other business skills especially in marketing activities, such as customer care, value chain in order to plan price, and promotional techniques with packaging etc.

In the interview, most of the women who make jewelry pointed out that their main customers are foreigners and that they are facing a problem of local market or central place to sell their products. There is also a problem of getting some of the equipment locally.

At the moment the groups have been mobilized to establish a cooperative as an umbrella for all pearl & jewelry makers in Fumba and Bweleo and

Collaborations have resulted in continuous training in spat collection, raft deployment to growing pearl. Pearl farming program has been developed and these institutions have continuously provided training in business, marketing Menai Bay Conservation Area IMS have been involved in conducting research and participating in community empowerment projects particularly in cultivation of half pearls and jewelry making from pearl oyster shells

The pearl farming started as a pilot project since 2006 by the CRC University of Rhode island with Maria Haws and Dr Narriman Jidawwi introducing the farming techniques. IMS have continuously provided training and supply of equipment.

Nyamanzi; and Unguja Ukuu, Kikungwi and Kizingo. Currently, these are also being processed to establish SACCOs to the above villages.



Floaters of pearl farm raft at a distance

Key Issues

- *Pearl farming have encouraged women to participate actively in income earning activities that is helping their children get education and earn daily bread*
- *There is generally improvement in standard of living*
- *Weak government support for aqua culture development*
- *Total dependence on IMS and WIOMSA to market harvested pearls which threaten growth and sustainability*
- *Increases in the water temperature*



Source: IMS

*The pearl oyster **Pinctada margaritifera***

ACQUA -CULTURE AND CONSERVATION

Tanzania an outstanding biodiversity due to diverse ecosystem, topography and climate and is one of 14 biodiversity hotspot countries in the world³⁷. Acqua culture conservation is an issue of concern as such, WWF, JCU and MIMP have done extensive collaborative research to proving that pearl farming as one form of aqua culture is compatible with conservation efforts. It is also an important component of the management plan for marine protected area. The RUMAKI project has implemented programs to undertake biodiversity actions that meet competing requirements and sustainable use of resources. Pearl farming touch environmental issues that are best handled with the participation of the communities and public as a whole at the relevant levels. At each proposed site, the water quality, bottom characteristics, coastal topography, land flora and other relevant physical elements were surveyed to assess the technical suitability of farming sites. In addition to this, a land survey was also made to assess land utilization, soil fertility, river features, etc

³⁷ National Environmental Policy 1997

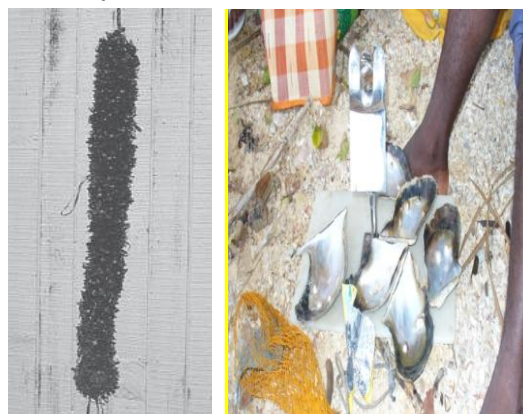
HATCHERY AND SPAT COLLECTION

The common practice of collecting spat is from wild spat collection or buying from individuals who simply collect spat from the wild for sale to pearl farms. Reliable source of pearl oysters include importing of seed oysters, cross breeding and hatchery. Oysters are dying off for various reasons thus, for sustainability and future development of pearl culture in Tanzania, reliable sources of culture stock and expansion of current spat collection activities and development of local hatchery production are part of the immediate goals for the project.

Generally, no take zones have been established as well as use of spat collection technique. There is also a hatchery from Oyster Creec Company of USA. IMS argue it to be a very environmental friendly as it doesn't add any feeds or chemicals. Collecting the oysters from the wild used now may change once the hatchery starts to function.

WWF on the part of mainland is strategically involved in making similar efforts and testing wild spat collection as well as experimenting the feasibility of small scale hatchery operations. The initiated hatchery breeding especially in Mafia might seem difficult but there is a sign of 90% success due to low mortality exhibited. In Zanzibar hatchery from Oyster Creec Company of USA have been established and

monitor no take zones. Spat collection techniques are also exercised.



Spat Collection

Pearls from Bweleo

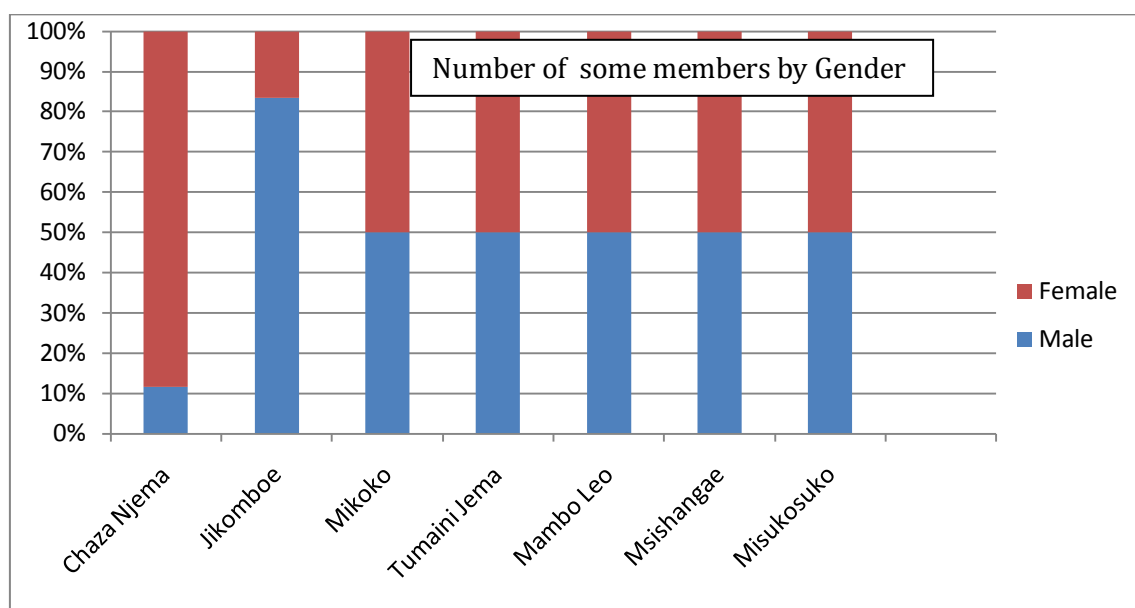
PEARL CULTURE AND WOMEN EMPOWERMENT

Within gender framework, pearl farming and jewelry making ensure poor women and men have substantial conditions for realizing their full human rights and potential to contribute to and benefit from socio economic, cultural and political development,



taking into account their similarities, differences and varying roles that they play. But besides giving focus on gender, issues of women empowerment are important because of past policies and cultural aspects that favoured men in particular. Henceforth, until men and women have equality of opportunities in sharing resources and decision making, distinction between gender issues and women issues is necessary so that resources can be set aside to meet specific needs of women.

A little less than 50% of pearl farmers within the groups are women except for one or two groups including Chaza Njema group at Fumba where women are over 70%. Women are natural resource managers in the society thus empowering them is critical not only to promote gender balance but in aqua culture and marine conservation as one significant source of poverty reduction. As far as pearl farming groups are concerned, participation of the women in pearl farming groups is impaired by disproportionate burden of house chores and production



Key Issues

- Unclear roles and responsibilities between men and women in the farming group may result in procedural questions at every corner. Some steps to take to make roles clearer is to sign Code of Conduct which also should clarify the division of roles and responsibilities.
- *Meetings* with various members of the Chaza Njema from Bweleo and Fumba revealed that opinions differ about the decision to form one big group instead of operating as



- Smaller groups under umbrella association. There is a general feeling that some of the members are not doing their jobs and wait for the others to do it for them hence do not deserve the share.
- There is no harm for women to learn how to swim and even if diving is assigned to men.

LEGAL FRAMEWORK

The current law on cooperatives is comprised of primary cooperatives, secondary cooperatives and cooperative federation³⁸. Cooperatives are looked upon as agencies through which production can be transformed and are perceived as appropriate micro financing outlet for rural and poor people. For community groups that are just beginning, primary cooperatives are of an advantage because members make all the major decisions in a democratic manner. They are also free to affiliate to any partner based on economic and non economic gains. They are self propelled and act without undue government control or external influence.³⁹

However, cooperatives unions which can be instrumental in marketing and price negotiations lack the capacity to perform their role⁴⁰. Commodities which have considerable potential within international markets could fetch handsome price under a fair trade label if the necessary initiatives are taken by the unions.

On the other side, SACCOS are seen as innovative type of grass root institutions able to secure participation of communities at local level and there is a growing interest in SACCOS as simple form of financial institution and well suited to the socio economic milieu of the rural setting and poor communities. SACCOS can use an integrated approach to support cooperation among cooperatives.

³⁸ Report on the Survey of Rural Savings and Credit Cooperatives Societies in Tanzania (2001)

³⁹ Sam Maghimbi, Cooperatives in Tanzania Mainland (2010)

⁴⁰ Ibid pg 31

STAKEHOLDERS CONSULTATIONS

Consultations with stakeholders have played an essential part in understanding better the roles, prevailing situation and possibilities. The following is a brief record of selected consultation meetings, focus group discussions and telephone conservation.

MEETINGS WITH EXTENSION AGENTS–WWF, WIOMSA AND IMS

Key Issues

- The government supports to pearl culture is limited to allowing to work in the conservation area and at times providing their personnel for some assistance
- Opted for half pearl farming instead of round pearls which is an easier technique. Round pearls should be surveyed in the near future for their potential in fetching domestic market
- Annual production for each group is about 1000 pearls
- Confident of the quality
- Pearls of Zanzibar are golden compared to silvery in the mainland
- Pearls of Mafia , Kilwa and Mtwara are brought to Zanzibar for setting
- There is no formalized collaboration among pearl farmers although the Zanzibar farmers trained people in Mbegani and Mtwara who have started to produce pearls, Also they trained the WWF person to set underwater lines and rafts for pearl farming
- Access to nucleus, implantation tools and supplies is facilitated by extension agents. Soon they will have to buy on their own
- Market to locals is a big problem but they can be sold to foreigners like tourists.

MEETINGS WITH GOVERNMENT PARTNERS

The new fishery policy is underway in mainland and it is expected that the new policy from the review of Fisheries policy of 1997 will address aqua culture adequately. In Zanzibar, following the the creation of a government of national unity (GNU) soon after the October 31, 2010 General Elections has resulted in the restructuring of key



government entities. Essentially, this has meant the renegotiation of Zanzibar's otherwise predictable government structure. As such, the components of key sectors, on the one hand, and the set up of ministries, on the other, continue to evolve. The Fisheries policy of 2000 is now owned by Ministry of Livestock and Fisheries but authority consulted is confident that wider aspects of marine culture besides sea weed farming have been included.

Key Issues

- Destruction of rafts is partly because one side of fishermen feel they will lose fishing area. Any new pearl farming initiative in other areas should involve local government continuously
- The coastal villages had no cooperatives before 2005 and the Department of Cooperative in Kilwa had to go from village to village to mobilize. It is time high time for pearl farmers to be mobilized to form cooperative and join SACCOS despite the fact that politics play big role in these villages
- In Kilwa, there are plans to establish open markets where auctioning can take place.
- The fisheries sector in recognition of the need to diversify the sector is reviewing the fisheries policy which will take into consideration of aqua culture and include a section of it.

MEETING WITH POTENTIAL CLIENTELE

▪ Jewelers

Already in some pearl farming groups, women are making jewelry but collaborations with jewelry shops particularly Gold and Silversmith in Zanzibar Stone Town, Dar es Salaam, Arusha and other potential regions are very minimum or non-existent. Communication on market demand may establish partnership to share skills and supply pearls or oyster shells as raw material. Over 70% of jewelers visited do not use pearl. About 30% know about pearls as gems and only 5% know about the existence

of pearls produced in Tanzania but have never used thus, would be not sure if they would be able to distinguish a pearl from imitation product. The few jewelers who are aware and use pearls have only round pearl stock bought in Dubai which in turn import from the Far East.

Jewelers particularly in Dar are suspicious of any vendor talking of pearls for lack of information on production in Tanzania, lack of knowledge on how pearls are valued but also due to the fact that the gem market is full of fake products. Dialogues with jewelers will need to introduce the technicalities of pearl production and to educate on how pearls are graded. Pearl are graded or valued in term of type, size, luster, inclusions, shape, matching, and nacre:

Issues

- Jewelers not sure if their tools are similar to tools used in jewelry making using pearls
- Are interested to find out more on available pearls cultivated locally
- Attracted to use of polished pearl shells
- Willing to negotiate

▪ Galleries

- Galleries do not have much information on pearl farming in Tanzania but quite willing to make special efforts to buy and explore market
- Would prefer to buy directly from the farms or appointed Marketing person rather than middlemen
- Galleries need to be educated about pearls and special efforts to be taken to advertise
- Galleries often import relatively cheaper products from Far East and Asia.

▪ Tour Operators

- Some few Tour Companies are aware of local grown pearls but never dealt with



- Agree with the idea of making excursion subject to having a consensus and mutual arrangements
- Public to be well informed on the pearl farming and pearl business.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Because most pearl farmers hope to avoid competition by keeping their methods secret, the pearl farming industry has traditionally been one of the most problematic of aquaculture businesses to start from scratch⁴¹.

This is one of the opening statements in *The Basic Methods of Pearl Farming* manual and it provides a focus for assessing the contextual circumstances and the challenges that may be considered in relation to any new pearl farming initiative in Tanzania. The issue of the secrecy of “traditional” knowledge may no longer be a major factor, but the reality of a competitive global industry exists. Equally, there is as much, the availability of skills, expertise and finance, and other specialist “management” resources that would provide the input required for producing a unique product that would gain its own value in the market place.

As well as outlining “the basic methods of pearl farming”, the manual also makes a number of cautionary statements.⁴² Firstly, “successful pearl farming requires a long-term investment of time, money and hard work”. This is qualified by the preparation time required before the first harvesting, and with the initial outlay, it is estimated that a profit will not be realised until after the second or third harvest.

Secondly, “production of high quality pearls is the key to having a profitable farm”. Here it is recognised that the simple but delicate farming process will produce no more than 10% high quality gems which would account for 90% of the profits.

And thirdly, “production of high quality pearls is only possible under certain conditions”. These conditions include the application of skills and expertise at various stages of the process. However, for the specific context of Mafia, Kilwa and Zanzibar, the ability to not only sell high quality pearls, but also the possibility of bringing added value to the

⁴¹ Maria Haws (2002) *The Basic Methods of Pearl Farming: A Layman’s Manual*, Center for Tropical and Subtropical Aquaculture, Publication No. 127, p.3

⁴² Ibid pp.7-8

produce of a pearl harvest seems to be a necessary consideration. The *Report on Technical Assistance Visit for Pearl Farming Development to Zanzibar (2010)*⁴³, addresses the prevailing domestic context and provides an invaluable assessment and recommendations with particular reference to the priorities for a sustainable pearl farming and jewelry making industry in Zanzibar but adoptable in Mafia and Kilwa. As a result of a number of activities undertaken in assessing seven objectives:

- 1) Collect baseline data on socioeconomics.
- 2) Develop a pearl farming training course to develop a core group of extension agents and farmers.
- 3) Assist villagers in the establishment of their small scale farms and individual spat collection lines demonstrating methods for establishing underwater long-lines, maintenance of farms, collecting and care of juvenile pearl oysters and grafting skills for half-pearls.
- 4) Train and provide on-going support for making half-pearl and pearl shells jewelry.
- 5) Provide support and help guide formation of business management units for women's groups.
- 6) Provide training in marketing skills.
- 7) Assist in developing policies to guide sustainable pearl farming.

The main recommendations on this objective for results to be readily linked to the pearl farming activities are:

- Parameters such as improvement in living standards, changes in income, conservation awareness, and involvement in the activity should be considered. It will be important to also survey people not involved in the activity in the same

⁴³ Simon Ellis (2010) *Report on Technical Assistance Visit for Pearl Farming Development to Zanzibar, Tanzania. January 26-February 8, 2010*, Pearl Oyster Specialist, Pacific Aquaculture and Coastal Resources Center, University of Hawaii Hilo.

villages as a comparison. Another important factor to consider will be the effects caused by the global recession and recent power crisis in Zanzibar on tourism and consequent sales of pearl products.

- Improve pearl quality by: placing the nucleus more accurately on the inner shell to improve color; testing earlier harvest times in order to keep better nucleus definition and reduce irregularities; taking extra care to not damage the mantle tissue during seeding as this can lead to shell deformities; obtaining a source of better quality and differently shaped nuclei; use younger and healthier animals obtained through spat collection.
- Position the shellcraft and pearl products separately. Pearl products, because of their higher value and current scarcity can be placed into higher end, specialty, or niche stores that sell well made, expensive products. Packaging and display should be high quality. High end hotel gift shops would be an ideal location for these products. The shell craft pieces may be positioned in lower end stores but still those that focus on or promote locally made products. Gift shops in tourist hotels on the north and east coasts may be more suited to these products. Packaging should be simple but clean and easy to display. Neither the pearls nor the shell craft products should be marketed in competition with the majority of the other handicrafts sold on the island.
- Design and production of generic marketing materials that will promote, separately, the shell craft and pearl products. If these products could be designed and printed in Tanzania, or preferably Zanzibar, this would be beneficial as it will be easier to reprint the materials. Research in Dar es Salaam to see what packaging and display materials are available would also be beneficial. Development of brand names and logos for each set of products that can be reproduced on packaging and display materials would also help.

It would be fair to say that with the current pace of pearl farming development in the Menai Bay, Mafia and Kilwa, there is little chance of over-development in the short term. However, given the rapid rise in seaweed farming and the resource user

conflicts caused, there is the possibility that pearl farms could have a similar role in the future. Part of the project is to raise awareness of the need for sound policy on pearl farming and to hold outreach meetings with communities to discuss issues. The document should be reviewed by relevant agencies and, once accepted, disseminated to the communities for discussion.

EXTERNAL DIMENSION

The farming and marketing of pearls in the gems and jewelry global market is highly organised, with well established players already well placed and protective of their dominant positions. Entering this arena will demand, not only quality products, but skilled marketing that will be both time consuming and costly. Profit margins can prove to be relatively small over an average harvest. In view of this, value added products and a niche market may be very advantageous to the sustainability of a pearl marketing initiative.

FINANCIAL DIMENSION

The Basic Pearl Farming Methods manual offers a case study based on 2001 figures for a “small” [3,000 pearl oysters] and a “medium” farm [6,000 pearl oysters]. With an estimated initial outlay of US\$17,000, on a small farm it is shown that US\$9,000 could be potentially recovered, after an eighteen months operational period. A profit will be possible only at the third harvest after 4½ years of operation. This small farm will be required to maintain 12,000 – 15,000 pearl oysters “at various stages” to keep the farm in operation.

In an earlier study based on production in the Vava'u Islands, Kingdom of Tonga, it was found that “250,000 mother-of-pearls could produce at least 750,000 Mabe pearls. Out of these, one third, i.e. 250,000 pearls would be the best quality pearls. If these were sold at the average price of US\$30 per piece, its sale would be of US\$7.5 million. An



additional revenue would be obtained from the sales of medium-quality pearls and Mabe shells as well⁴⁴. Together these studies and the context of the Ellis report⁴⁵, may provide a framework for reasonably assessing the economic potential for pearl farming in Zanzibar, Mafia and Kilwa. However, considering the reality now for instance in Mafia, where each small group of farmers own between one 1 -2 rafts:

1 raft takes 9 lines

1 line takes 12 mother of pearl oysters

1 mother of pearl oyster is planted 4 half round nuclei

Therefore annual harvest:

12 oysters x 9 lines x 4 nuclei = 432 pearls.

Assuming one third would produce the best quality at unit price Of \$30, one raft should earn 144 x \$ 30 generating revenue of \$ 4,320 (approximately TZs 6,566,552.00)

ARTISTIC PARTNERSHIP

Because selling pearls is not enough, the marketing of value added products and establishing a specialist niche market for Tanzania pearls would be essential for its sustainability and a long-term approach. The Ellis report notes very positive prospects in view of existing skills and jewelry production in Zanzibar⁴⁶. However, a long-term perspective seems to demand a move away from short “workshops” as the main method of transferring artistic skills, to a more comprehensive arts education, where technical and design skills could be more efficiently nurtured and perfected as part of a mainstream educational programme.

⁴⁴ Tetsu Yamamoto and Hideyuki Tanaka (1997) SOUTH PACIFIC AQUACULTURE DEVELOPMENT PROJECT (PHASE II) FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (GCP/RAS/116/JPN), Suva, Fiji, p.9

⁴⁵ Simon Ellis (2010) op cit

⁴⁶ Ibid p.5



GOVERNMENT PARTNERSHIP

Pearl farmers in Tanzania are newcomers to the industry and require their government full support. Although the technology may not be as complicated particularly half pearl, production takes several years to establish. Further, the expertise of experienced technicians, and the choice of reliable buyers are vital.

The inter-sectoral approach for SME underlines the prospects for pearl farming in Mafia, Kilwa and Zanzibar. Equally, important to the desire to reduce poverty and create wealth are pertinent environmental concerns. These concerns are also critical to the factors of sustainability and the expected quality of life which wealth creation is expected to deliver.

With the Western Indian Ocean Marine Science Association and the Institute of Marine Sciences already involved in this initiative, the engagement of government agencies should therefore be pursued with awareness of these concerns, and the ways in which policies may impact upon this specific industry, both short-term and long-term.

As Ellis⁴⁷ rightly identifies, tourism is definitely a sector that offers pearl products a market opportunity. However, this has to be won, or at least fought for, in competition with other products including “the ubiquitous *Pinctada* shell jewelry made in China”. Instructively, this seems to suggest the need for a more considered partnership with government to assist pearl products establish a niche market presence in Tanzania as a whole, and beyond; noting as Ellis does, “the growing globalization of the handicraft industry”⁴⁸. This of necessity should include the encouragement and institutionalisation of product branding, and the acquiring of “Fair Trade” status.

COMMUNITY PARTNERSHIP

Within the current culture of globalised trade the “Fair Trade” label suggest a more ethically relationship between “disadvantaged” producers and consumers. The Fair

⁴⁷ Ibid p.7

⁴⁸ Ibid p.7

Trade Foundation defines its underlying focus around, “helping farmers and workers improve the quality of their lives and take more control over their futures”⁴⁹. In so doing Fair Trade assist producers in countries like Tanzania to gain a market presence and to be more actively engaged in the trading and benefits of their products. The number of Fair Trade products is increasing at a rate of “40% per year over the last five years”⁵⁰ and are rapidly being established in new markets.

Community partnerships in the broadest sense are critical to gaining a Fair Trade certificate. This could also offer benefits in critical areas such as economic sustainability, environment, and quality of life.

The Ellis report notes that “...there is now significant pearl farming knowledge on Zanzibar”⁵¹. Extending this knowledge to Mafia and Kilwa is now a priority. Equally, in terms of providing spat for the pearl farms, there is also the need to develop, expand, and promote the collection of spat among “villagers”. This suggests an important level of engagement where “community partnerships” may be established as part of an overall and comprehensive approach to pearl farming.

IT AND NETWORKING

Computer literacy and IT awareness among pearl farmers is almost non existence, thus all the more reason to use a management company or agent that would among other things develop a sale site that will host and advertise the business aspect of pearl. For the company to customize a site for potential buyers to access information and buy online, this could be an opportunity to network with good sale agents anywhere.

The study agrees that pearl farming in Mafia, Kilwa and Zanzibar is succeeding gradually to deliver on a number of its targets and even if there is still a demand to demonstrated efficiency in resource use. The many uncertainties with regards to future

⁴⁹ The Fair Trade Foundation, <http://www.fairtrade.org.uk/>

⁵⁰ *ibid*

⁵¹ Simon Ellis (2010), p.3

direction make it necessary to recommend continued future support unless fundamental changes are being made. In principle the Consultant sees three scenarios for technical support and funding options:

Option 1 (recommended): Pursue or finalise establishment of Cooperatives which will assume ownership of the farms. Each Cooperative will use the business plan as source of reference in its undertakings. For the farming groups in each district to form Cooperative or at least SACCOS will give the groups a more formalized structure to ease resource mobilisation.

Given the range of challenges at community level and weak managerial capacity within the groups, yet a number of prospects for profound changes in sight, the Consultant does not think that continued funding can be justified. The Consultant recommends that while it may be difficult to get immediate solution, but would at the same time ask ReCoMaP, WWF, IMS and WIOMSA to be open for alternative solutions through discussions with groups representatives. Discontinuation of ReCoMaP funding does not necessarily have to lead to a breakdown of groups and cooperatives under formulation. IMS, WWS and WIOMSA can continue its training, capacity building and women empowerment focus through other alternative avenues for funding.

Option 2: Make arrangements on commission basis with a professional management/marketing company to market and promote pearl farming towards commercialization and nurturing of pearl industry. It is proposed continue funding for an emergency operation through the awarded management/marketing company or agent for a specific period until Cooperatives have managed to get its acts in order. The SACCOS network can use same management, operational and accounting system hence reduce overhead shared costs on ICT, human resource, auditing, promotional etc at affordable unit cost. Inter lending between surplus and deficit spending SACCOS will assist in intra SACCOS financial needs.



Option 3: Find alternative avenues that include finding a partner from the business community to invest or buy share in the business or acquiring soft loans from rural development banks.

Option 4: The current programmes supporting mariculture activities should continue to provide extension support and to assist in mobilizing and managing resources until the business plan is well underway in its execution. There is a lot of opportunities but the demands from well presented proposal and justification is required of which the community pearl cultivators would need technical support and guidance.



BUSINESS PLAN

A 5 Year Plan

THE BUSINESS CONCEPT

Half pearl culture in Mafia, Kilwa and Zanzibar started between 2006 and 2009 with the aim of providing sustainable livelihood for the coastal inhabitants.

The following proposed business plan is looking at diversification in sales of pearls and value added products for substantial increase in income in order to sustain livelihood and decrease dependency. Now that the initial start up phase is over, the move to commercialise pearl farming should be able to generate good income.

The main purpose of the business plan is to develop a framework to base on in executing a profitable and self sustaining pearl farming on the island of Unguja in Zanzibar, Mafia Island and Kilwa in Pwani and Lindi region respectively on the mainland Tanzania. At present it is unclear how unresolved issues are going to be solved and there is no functional strategy thus, the business plan is proposed to position itself as eco friendly small scale pearl farms owned by groups in the community to be managed by village cooperatives and SACCOS. For increased sales, the business will produce pearls, pearl shells and pearl/shells related products for improved livelihood. Pearl farming in these poor communities should engage in the challenge of making it commercially successful.

The business plan model looks into 'Half Pearl Culture Cooperatives' established by synergized groups of pearl farmers that share profound interest in the pearl farming as business venture. The cooperative is backed with extension agents that have expertise in project management, corporate finance, business planning and research with combined years of experience.

There are several possible options as business models which can be established in compliance with prevailing laws of Tanzania and Zanzibar. The operating extension agents seem to approve Cooperatives as the model that suit pearl farming as enterprise in the community. Already groups in Bweleo and Fumba have completed or are in the registration process. Half Pearl Cooperative shall be privately held enterprise owned by its members who are in farming groups. It will be directly



associated with Agency/NGO/Company capable of maintaining a pool of clientele and trading partners nationally and worldwide that enable the cooperative to build local relationship with pearl industry participants.

The other possible option is to go into partnership but this should best be considered after at least several years of operation when competition locally is high.

Each community cooperative is to construct a small building to serve a workshop/showroom/gift shop. In the best scenario, it will also serve as resource centre as well as providing space for agency work.

MISSION

Cooperatives on half pearl culture seek to provide premium pearl farming and services to the industry; while creating livelihood and employment in the coastal pearl farming localities, developing communities, empower women and stimulating local and national economy.

VISION

Cultivation of Half Pearl through Cooperatives envision to be a benchmark in the pearl enterprise within the next five years dedicating to set industry trend for a socially, economically, and environmentally responsible and profitable business.

CORE VALUES

A Cooperative foremost believes in members well being through sustainable livelihood. It believes in supporting the communities they serves and delivering long-term value generation.

A Cooperative believes in integrity as the guiding principle of doing business, delivery of high quality pearl and pearl products and strives to make sound profit out of the business.



Members of the farming groups forming the Cooperative are responsible to ensure marine conservation and preservation of natural resources while recognizing members' merits.

Recognize the importance of leadership and business management capacity to engage in confidence, promote talent and market innovation while respecting provision of fair return on equity for continued long term investment.

SCOPE OF THE ACTIVITIES

Pearl farming has a lot of potential for becoming a success story if realistic objectives are set and activities formulated on sound strategies, plans and budgets and with the right financial control and supervision. Unfortunately, plans need to be less sporadic to identify and address common obstacles and develop strategies to overcome them. Currently there is lack of a shared vision and strategy to move forward within the farming groups. There is no doubt, however, that pearl farming remains very important alternative livelihood in coastal daily life and for maintaining marine and aqua culture identity and that continued possibilities for commercialization would be central to the development of the islands.

The pearl farmers or individuals from the surrounding community may enter the industry at a number of levels to produce oyster shells, half-pearls, or pearl cultivation provides opportunity for the involvement of women and provides the raw materials for local handicraft manufacture, which may include lower grade pearls or pearl shell.

The pearl farmers particularly women or women from the surrounding villages may use the oyster shells, half-pearls, pearl shell to make jewelry or the raw materials for local handicraft manufacture including lower grade pearls. The use of pearl oyster shells in cosmetics and other value addition is an area that extension agents can research on for the business community to come in.

The business encompasses:

1. Small scale pearl farm for each group to produce and sell pearls to

individuals. (Retail outlets)

2. Selling pearls and products to resorts and high end hotels
3. Workshop/showroom/gift shop
4. Selling of pearls to jewelers for the local market.
5. Retailing through craft marketing and cooperatives outlets
6. Sell of oyster shells and related products to galleries
7. Selling oyster shells jewelry
8. Retailing and wholesaling abroad directly and via internet
9. Excursions
10. Auctioning
11. Selling pearls and pearl shells as raw material to craft makers.

By breeding good quality half pearls, Tanzania like Japan, Fuji, Mynamar need to secure local market just as much as the foreign market.

- **Retail Outlets**

Retail sales can take place at the farm site, or direct sales to jewelers, galleries, crafts makers or tourists.

- **Tourist Resorts**

Pearls, pearl jewelry, and souvenir out of sea shells can be sold to the tourist resorts in Mafia, Kilwa and Zanzibar and in the case of excess stock, these can be diverted to resorts elsewhere in Tanzania.

- **Workshop/Showroom/Gift Shop**

A simple but well designed house to occupy a workshop, a showroom and gift/souvenir shop is most ideal to attend to various visitors particularly the tourists for increased sales. The workshop with adequate tools will be for live demonstration in jewelry making by the women groups as well as exchanging ideas, skills and craftsmanship with other crafts persons in the islands. Jewelry

and other related souvenir or merchandice will be put for sale and the showroom exhibiting these local talents. The Cooperative whose role in the building is to facilitate and coordinate the sale of pearls and jewelry items to the targeted markets. The Cooperative operates a workshop, showroom and a gift shop but also link with management company/agent to promote selling, marketing and promotion.

For the Bweleo and Fumba community, part of their pipeline project through IMS and WIOMSA is getting support to construct a Community **Resource Centre**. Normally a Resource Centre is not conceived as a business, rather as a community initiative, or even a club. However, it will stand much more chance of success if it adopts the Business Planning process. As a new small business should, it will need to combine that process with the proposed use of a workshop and a gift shop to compliment the usual good practice of community development.

- **Use of Professional Marketing Person/Management Agency**

Pearl farmers in the coastal areas of Mafia, Kilwa and Unguja have very limited accessibility to market. The use of a professional person or agency to market pearls need to be considered. The agent should facilitate market promotion and sale of pearl and pearl products to target market.

- **Selling Pearl Oyster Shells Jewelry**

In general the jewelry makers of the Fumba peninsula are making good progress. Some individuals are selling high quality products to tourists at Kwale Island and also in Stone Town. The major recommendation at this point is to work with jewelry makers who are already making pieces (communities of Nyamanzi, Fumba and Bweleo) to improve their quality through accurate cutting and finishing using fine grade sand papers and buffing compounds. One problem is the additional cost of

the polishing compounds and fine grade sandpapers. Once jewelry makers see the extra revenue and increased sales.



Pearl Oyster shell earrings by women at Fumba

At Unguja Ukuu and some part of Kilwa or Mafia, where jewelry making is just getting started some more extensive training is necessary. There are now community members who have more than adequate skills to conduct this training and it is recommended to use these individuals in conjunction with the extension agents to conduct trainings in the future, rather than expatriates. Quality control can always be provided during routine visits, by expert team members from overseas. There is adequate shell available in Unguja Ukuu for jewelry making as women collect the oysters to sell on a daily basis.

As shell craft jewelry becomes more integrated in daily life of communities and income increases it may be beneficial to consider introduction of carving techniques into the jewelry making. Produce a poster or brochure on local jewelry making techniques, using the written text provided as a template. Use photographs taken during the training sessions to illustrate methods.

The jewelry and pearl farming initiatives in the Menai Bay area have the potential to greatly improve the lives of rural communities. The success of the these projects will rely on a smooth transition to the private sector and training that provides the communities with the skills to make, value and market their own products. Without

this the communities will fall into the poverty trap, which was evident in the low prices currently being paid for such high priced commodities as sea cucumbers and Pinctada shell. The formation of groups will play a large role in providing training and support for starting these activities but it is likely that the success of the industry will eventually be more dependent on individual businesses run by families or small groups of individuals.

In looking at lessons learned from other parts of the world, and also in most successful sustainable industry, it is unrealistic to imagine that every person who makes jewelry will be a successful entrepreneur who can market their own product. Many people prefer to work for a daily wage and to paid less for their product than to worry about marketing their own products.

- **Wholesaling**

Increasing sales by wholesaling require establishment of links with wholesalers as this will create a market presence which if strategically implemented will create a brand recognition of pearls. The approach will as well reduce logistics of retailing

- **Excursions**

As the main targeted consumers remain to be tourists, there should be designated tour to increase self worth and awareness to tourists. Organized tours will assist to bring visitors to the farm sites by liasing with tour operators to organize tours at reasonable fee.

- **Auctioning**

Auction is another strategy that could expand on sales. It may take some time to produce enough pearls to hold an auction, so newcomers will probably have to deal with a buyer on a private settlement basis. The choice of the buyers is most important, because buyers can take advantage of a newcomer's inexperience. Producers should have an established organization to control the total harvest and to act as liaison to avoid any unnecessary loss to the

producers. In this approach, it is important to get all the producers' cooperation, gather the total harvest, and hold one unified, controlled auction. When auction is held on an open basis, producers are certainly able to gain higher returns. If, however, the producers deal directly with the buyers, they would be limited in making saleable lots, and any lack of experience would surely be disadvantageous.

- **Selling pearls and pearl shells as raw material to craft makers.**

Retailing through craft marketing and cooperatives outlets enhance sales as well as creativity.

SWOT ANALYSIS

Pearl farming has a valuable inventory of strengths that will help it succeed. These strengths include knowledgeable members' clear vision of the market needs.

Strengths are valuable, but it is also important to realize the weaknesses. These weaknesses include a dependence on quickly changing technology.

The SWOT analysis provides us with an opportunity to examine the internal strengths and weaknesses. It also allows us to examine the opportunities presented to pearl farming and marketing services as well as potential threats.

❖ Strengths

- Reliable and good farming handling and post harvest technologies
- Good quality pearls
- First mover advantage with no direct competition
- Relatively fair pearl farming experience and knowledge
- Good Location
- Affordable Price to encourage expansion
- Cultural sensitive
- High quality professional support.
- Good alternative income opportunity



- Quality sea water
- Enthusiasm to expand revenue earning opportunities
- Ideal marine and terrestrial habitat
- High value of final products

❖ **Weaknesses**

- A dependence on fast information outlets and changing technology demand a balance technology needs with the other needs of the business.
- Financials weakness
- Competitive weaknesses
- Inadequate resources to invest in high keep up
- Small volume of production to fulfill international market demands
- Lack of unique selling point.
- Weak communication skills
- Information gap between what is happening at the field and what is known by potential customers
- Absence of pearl processing techniques and other value addition facilities
- Inadequate organized marketing system by farmers
- No strong association for pearl farmers
- Weak coordination among pearl farming groups
- Weak mariculture infrastructure

❖ **Opportunities**

- Growing market developments
- Technology development and innovation
- Increased usage of processed pearls
- Global influences
- World market demand for high quality pearls
- Connection and contact to markets



- Favorable government policies to support sub sector
- Value addition to jewelry, souvenir
- Availability of information and data
- Harmonization with other sectors and businesses
- Modernization of pearls and jewelry making industry
- Intent to improve the livelihood of poor pearl farmers
- Growing population of daily internet users and web based services
- Social bonds fostered by new internet communities
- Alternative business opportunity for coastal zone
- Growing technical and extension capacity
- Job creation
- Pearls are gaining recognition as assets

❖ **Threats.**

- Vandalism of rafts by fishermen in some of the villages
- High competition from producers in the rest of the world including India, Indonesia, China, Australia, USA and Japan
- Changing technologies.
- High transaction costs
- Very little usage of IT facility
- Little market information
- Emerging local competitors
- No specific aqua culture policy
- Heavy winds

SOME KEY SUCCESS FACTORS

POLICY FRAMEWORK

In utilizing the water effectively, WWF and WIOMSA have settled pearl farming zones in MIMP and Menai bay where fishing is restricted in these areas. The marine sub sector as natural resource sector can go steps to improve resource management by putting appropriate policies in place. Extension Agents have expressed concern over the fact that the sub sector is without explicit national policy, whereas the market now demand effective administration and regulatory arrangements. Sectoral development plans particularly in support of small scale community based mariculture for income generating activities are crucial for the sector to evolve in a systematic and sustainable way.

Progressing towards pearl industry necessitate further arrangements that would provide exclusive rights in the marked zones which can only be legalized through cabinet. More collaboration should be settled with departments of fisheries on coordination of pearl farming zones and licensing.

ECONOMIC IMPACT

Pearl farming industry would benefit and contribute to economy by earning foreign currency besides improving the livelihood of people and promoting aquaculture development in the coastal zones. As part of the fisheries sector, pearl has potential to add to fisheries export commodity of the country. The pearl farming industry will have an impact on the other activities such as tourism and craft making.

STRATEGY FOR FINANCIAL SUPPORT

It is assumed that out of total investment fund of TZSh 40,000,000 is required by each farm, members are required to contribute a share capital of TZSh 5,000,000.00 and seek support to raise the rest. A number of strategies should be applied to raise financial assistance including:



- Seeking grants from existing donor schemes
- Securing soft loans
- Intervention from government poverty reduction projects and programmes
- Financial support from development partners
- Raising share capital from business community

Whereas farmers from Somanga and surrounding villages at Kilwa started late compared to Zanzibar and Mafia and most of their rafts were vandalised thus did not harvest nor earned any revenue, the groups of farmers from other areas hardly managed to do any savings for investment hence all groups need to raise finance.

EFFICIENCY

Support and control of resource use has been quite effective through extension agents. As the programme under ReCoMaP support end, and farms would be operating in a kind of state of emergency, expenses should not go out of hand leading to the further financial gap, it will take time for the farms or cooperatives to stand firm and to build the right capacity to implement activities efficiently. Skills are required for planned activities to be budgeted correctly without making oversight of the necessary expenses.

MANAGING REVENUE

Earning money from product require proper way of managing revenue. Formalizing business will require the services of a Company dedicated to advice on managing revenue and pricing to give way to the many opportunities that a growing business is likely fare on the many levels of services ranging from local to regional and international set. There have been literally very little attempts to keep financial records and monitor financial effects of activities and thus few lessons to be learned to guide investment.

EFFECTIVENESS



Each farm as an institution in itself should have clear goals that would be merged in the cooperative or SACCOS. The farms have not been able to set clear goals from the beginning to effectively promote business. One problem related to effectiveness is that goals for various sub-activities have been set without the necessary realism in strategies and clarity in how to reach them. On the capacity side, lack of effectiveness can largely be attributed to absence of the right roles with the right knowledge or skills. The various trainings provided to the groups have to give lessons with regards to effective management, sales techniques and savings for reinvestment.

PARTNERSHIP

The question of broadening the funding base should continue to be on the agenda for now. There are several attempts to attract new donors in connection with the proposed building to occupy the workshop/showroom/gift shop for each village cluster or cooperative. A number of good partnerships and interrelationships can be sought with the communities and outside. Opportunities within MKUZA and MKUKUTA framework have not been explored to its full potential. As pearl farming requires a long term approach and high level of investment to develop into pearl sustainable industry, the government should be aware of the necessity to support in building a stronger base for its future development. Small farms by small entrepreneurs require additional capital investment for expansion and refining technology.

QUALITY OF RESULTS MANAGEMENT

Unless the farms as business start keeping records and archive valuable information themselves based on plans, progress monitoring will be weak or not possible thus affecting the quality and management of results. The business plan may be ambitious and will take several years for results to be realized but most of it nevertheless is obtainable.

CAPACITY BUILDING/COACHING



There is absolute necessity to exercise a bottom up approach in problem identification, planning, implementation and monitoring. Capacity building through training, coaching and study circles where groups share skills will help to develop some degree of professionalism to deliver competitively. a number of technical training have taken place for quality farming and future training has to focus more business related skills so that groups can start applying proper ways of pricing, innovation, product differentiation and market pearls. Skills to manage revenue should also be introduced to give way to the opportunities for the business to operate on the many levels of services.

SUSTAINABILITY

Sustainability can be measured along three dimensions: economic, cultural, and educational. Economically speaking pearl farming is a long way from being able to expand based on its own resources. The sources of income have to be expanded and revenue reinvested instead of becoming increasingly more dependence upon ReCoMaP or other partner. Donors may be willing to fund pearl production on a project-to project base e.g. a particular workshop or exhibition. Few are willing to provide funds for salaries and other running costs. Funding opportunities for exchange programmes are shrinking.

Economic sustainability without donor support to start with is very difficult for such cultural organisation. The administrative cost is considerably high compare to the revenue they can generate from the existing sources of income. There should be efforts to look at different avenues of income.

Community involvement is an important element of cultural sustainability as it is through the interaction with communities the interest is sustained and will live on. In creating products particularly gifts or styles, Mafia, Kilwa and Zanzibar each cherishes their own culture and is a strong part of their identity apart all being Tanzanians. More needs to be done to cultivate and expand the communities' own interest and create



products that will reflect their cultures or things unique in their places of origin. These are issues that would also be good to be consider in trademarks or branding.

The educational or knowledge part of sustainability is critical, given that pearl farming demand specific techniques in farming, harvesting and presentation.

RISK MANAGEMENT

The risks associated with possible closing down of the farms have not been assessed. One of the critical issues in this regard is ownership of assets which has been given by donors such as tools and equipment.

LEADERSHIP

The business would not progress save in the presence of strong and good leadership to keep track. Conflict of interests between the management and governance of farms with regards to money earned, work responsibilities and the like may result in a somewhat awkward position among members thus affecting production.

TRAINING AND DEVELOPMENT

There is now significant pearl farming knowledge with the main extension agents. Some other local farmers are acting as para extension agents and are also very knowledgeable. For the purposes of the ReCoMaP project, this objective could be considered complete with the exception of the production of the pearl farm training curriculum. However, there is always a need for further training and expertise and recommendations as per Elis report:

- Increase the number of para-extension agents in pearl farming so that there in one in each village and include them in cross-site visits so they can see and learn new techniques in a hands on manner.

- Jewelry making skills were not a major focus of this visit but further training on making simple mabe jewelry would be useful to Mafia and Kilwa too. Ensure that the women para-extension agents also know these techniques.
- See if there are any existing pearl farm training curricula available that can be used as a guide for developing the one for East Africa.
- Facilitate the para-extension agents through cross-site visits where possible so that they gain a thorough understanding of the processes, especially seeding and harvest.
- Spat collection still needs to be promoted more vigorously. Without this, the industry will be limited by lack of animals and use of older animals that produce poorer pearls.
- Establish a better source of nuclei for the farmers than the buttons being used. While there is a need to source material as much as possible locally, the mabe nuclei available overseas produce better pearls. A better solution would be to work with one of the local jewelers who sell jewelry making equipment to stock and sell mabe nuclei thereby transferring the process into the private sector.
- Finding or establishing an ethical broker, who will guarantee producers a fair price, in these situations can help to establish markets and maximize returns to the community members. This can be as simple as finding a local business person who wants to support the product or as complex as establishing a corporation or business to support the marketing of the product. Case studies have shown that the closer these models come to an actual business, influenced by free market factors, the more economically sustainable it is likely to be in the long run. One scenario to consider is that the hiring of a TCMP extension agent based at WIOMSA presents an ideal opportunity to promote marketing of pearls and shell products through an ethical broker. The marketing agent could consolidate product, ensure proper quality control, apply appropriate packaging and distribute products to various retailers around the island. Payment could be made immediately to producers using a revolving



fund and the organization would be allowed to put a reasonable mark up on the product to cover the cost of marketing materials, distribution costs and reasonable expected losses of product. This model could be used for a period of time with a view to spinning it off to a private sector entity once marketing channels are properly established. Producers would remain free to market their own products also.

Also, during the first visit to Zanzibar in January-February 2009 the following three recommendations that are still appropriate were made:

- Both shellcraft and pearl products should be differentiated from other handicrafts and sold as a “Made in Zanzibar” and “Fair Trade” products. This can be done using point of sales displays such as descriptive tags, brochures and stand up displays. These materials should describe that these products are made in Zanzibar using sustainable methods that promote alternative livelihoods for rural communities. Mafia and Kilwa to adopt the same.
- Placing products in stores that focus on local products will also help to differentiate them from the mass handicraft market. Taking note that most of the jewelry made by the women are very limited in style and use. Most jewelry are earrings and therefore should explore also on bangles, necklace, chokers in the case of jewelry and bags, shell purse and beads in the case of souvenir.

TOURISM VALUE

Tourism and visitors are one key consumer/client group. Not surprisingly, many businesses in the historic towns of Zanzibar, Mafia and to some extent Kilwa are tourist favorite destinations. Tourists have access to a growing number of souvenir shops, resorts, cultural spots, galleries and the like. This is reflected in increasing number of tourists arrival in the islands and the demand for services and consumables. Henceforth, tourism is a key way to promote sale of pearls and pearl products and a response to diversify tourism products and the need to increase efforts to market programs that directly touch people’s lives like eco tourism.

MARKET ANALYSIS AND STRATEGY

The market analysis looks into the target market, proximity to the customers and the assumptions upon which to base sales forecasts.

MARKETING STRATEGY

The marketing strategy ideally focuses on promotional efforts that generate consumer interest for its products for the purpose of earning revenue and other forms of support for its sustainability. The 3 Cs of marketing – Customer, Costs and Competition should be key aspects in coming with the marketing strategy.

In order to market cost effectively, the marketing strategy is designed in such a way that direct marketing tool are reliant on the publicity and public relations efforts the Managing Company. Some of the marketing tools to include:

- An up to date home page that bear all important information on pearls from Zanzibar, Mafia and Kilwa
- Regular and targeted mailings to communicate to potential clientele and multipliers
- Press relations and managing publicity in the media
- Advertising for events and programs where necessary

PRODUCT DIFFERENTIATION

All products of pearl culture should differentiate its services to satisfy the needs of its customers through a sustainable competitive advantage. Production of high quality pearls will allow products to focus on value that fetches comparatively good price and a better margin but still need to be different. The benefit of this strategy is partly because pearl production can also give focus on its special segment of women



entrepreneurs in jewelry making or other related crafts as souvenir in order to target its services and products. A disadvantage will be the extra cost that will be incurred to create this competitive edge, but that will be offset by the increased revenues generated by projected sale volumes. At this juncture, the Consultant would like to urge on the need to start thinking of pearl processing in the country. Processing of pearls is not yet developed hence product presentation is affected. As the techniques are lacking, it would be necessary to send pearls out of the country for processing or selling them without processing as is the case now. Ongoing efforts by WWF that will enable pearls to be processed overseas possibly Indonesia and re-imported to Tanzania for marketing is a move worth pursuing.

▪ **COMPETITION**

For pearls to compete, the products will have to differentiate its services to satisfy the needs of its customers through a sustainable competitive advantage. This will allow the business to focus on value that generates comparatively good price and better margin. The benefit of this strategy is partly because the business can focus on its special segment of women entrepreneurs and small business producers in order to target its services and products. A disadvantage will be the extra cost that will be incurred to create this competitive edge, but that will be offset by the increased revenues generated by projected sale volumes. For the business to be successful, it will depend on how you approach and follow –up. It is very important to deliver these services in a clear, no non-sense method. Detail of the internet and web are still unknown by many small women business owners, giving it the tendency to confuse and intimidate easily. Creative and homemade products (heritage) which are of good quality have the export potential.

▪ **PRESENTATION**

First impressions matters a lot and it is this context that product presentation is considered an important part of selling a product to a prospective customer. It is first introduction to the business and potentially the product. Good presentation require proper preparation in the best light possible. Display of products sell more and the



quality of sell presentation will determine whether prospective buyers would buy from your business.

Pearls and pearl products demand unique technology to positioning such that they stand apart from other products on the market. Henceforth, merchandising of the pearls and related products should target to maximize sales by enhancing creativity in designing, packaging and appearance to entice consumers to buy.

The person selected to be the sale person of the cooperative need to be trained on how to present a product not only in terms of finishing and package but how he/she introduce and present the products to visitors and potential buyers.

SALES STRATEGY

Pearls farming groups particularly from Mafia and Kilwa face logistical challenges with distribution and sales as they are positioned at remote locations. They have limited distribution and outlets options. However for business to prosper and grow, they have to strategise and make most use of sales channels.

- **Sales Channels**

- **Direct Sales**

Direct sales are potentially most profitable as the costs of for commission, agent fee and transaction costs are avoided. In reality of their location, direct sales are limited due to time required to go door to door and it is in this context that excursions are encourage.

- **Internet Site**

With growing opportunities and developments, on the internet, new sales venues have been created for pearls around the globe. The online market may require annual subscription fee to sell but opportunity to sell directly to consumers. Classified ads on the net are relatively expensive whereas if shipping is required, there would be



additional costs for shipping or other means of transportation. These costs can however be minimized if the transactions are carried out by a representing agent/company.

➤ **Whole saling**

Wholesaling may be organized directly from the farm, through the Cooperative and Internet by Managing Company.

➤ **Through Agents**

PRICE STRATEGY

While pearl culture is transforming, pricing should be market driven taking into account production costs, time invested, awareness level of the domestic market and targeted clientele. Pricing structure should henceforth base on survey of similar products elsewhere overseas and the potential brand value. To start with, profit margin should be lower for it is very likely to pick up as sales increase and awareness enhanced. one can always reduce production costs to cover up for increase in the percentage of profit.

TOUCH POINTS

Regular contact with potential clients will ease accessibility and responsiveness to the needs of clients. Communication to create dialogue with prospective clientele will raise awareness and better understanding of the availability of pearls in Tanzania that would save them time and resources to import abroad as raw material for souvenir and crafts or gems for the jewelry. Pearls may not be as hard or durable as some of mineral gems like tanzanite and diamond; nonetheless they are of high value for their luster and scarcity.

All touch points are not created equal. Some will naturally play a larger role in determining your company's overall customer experience. For example, if your product



is ice cream, taste is typically more important than package design. Both are touch points, but each has a different effect on our customers' experiences as a whole.

To determine the touch points driving customers' overall experience, pearl culture can use a wide array of techniques ranging from quantitative research to institutional knowledge. The methods to be used will depend on the complexity of the products, commercial processes, and existing knowledge base.

Holding dialogues and interactions with jewel shops will raise awareness and better understanding of pearls as good alternative to other gems now produced locally hence accessible for jewelry making. A lecture on pearl production to members of the Chamber of Commerce for instance, an exhibition inviting jewelers and craft makers or similar occasions with other interested parties should be ongoing efforts to boost local economy through promotion and marketing of pearls as aquaculture commodities besides seaweed.

BRANDING AND IP OF PEARL

A brand is a living memory that exists in the mind of people because it happens that users take a product or products into their lives, experience it and feel something about it. A brand therefore change the way people see things, they think, feel and act. Dominant brands are created out of powerful and often radical ideas.

Branding a product to enhance sale, results in an increase of the number of innovative packages available for the tourism sector. Branding demand special program that will create better linkages between the growing tourism industry and other sectors of the local economy such as agriculture, fisheries, arts/crafts production, and manufacturing. Should production of pearls itself brand as a network of rural and independent cooperatives? Supporting mutual trade and shared branding among members is definitely entry point for it enhances a feeling of solidarity among the producers. As for the groups of women who make jewelry from pearl shells, they need

to begin with, form a loose affiliation to produce and brand their products to become known for their high quality jewelry both in the country and abroad.

In the literature on product branding, significant attention need also to be paid to the application of building brand image that has a strong effect on consumer attitude and should therefore as much as possible highlight the origin of the product. Luckily, Zanzibar in itself capture historical image that is a brand in itself whereas Mafia and Kilwa are also growing eco tourism destinations with rare marine products like mermaid attractive enough to provide trademark. Thus, pearls grown in these coastal communities should adopt a national brand with logos or trademark that identify as Mafia, Kilwa and Zanzibar produced. Product identification will be achieved by applying the brand and logos in all advertising, merchandising and media promotion. Product protection is realized through copyright and licensing.

It is worth to note that branding efforts particularly for Zanzibar have been introduced. A study commissioned by RGoZ with the support of WIPO to brand cloves to compete in world market has been carried out recently. There is also survey commissioned by Zanzibar Commission for Tourism (ZCT) with the support of the World Bank/MACEMP to identify and brand Agro products. In mainland, Board of External Trade of Tanzania is working on branding 5 economic products with support of European Union. These are valid reasons to start thinking of branding and relevant IP and business tools as early as possible.

Further, **Branding** in reference to a legal right over the creation of the mind such as inventions, literary and artistic works, and symbols, names, images, and designs whereas **Right** is exclusive in nature and prevent third parties from exploiting the property right without consent. Intellectual property (IP) includes Copyright, Patent, Utility model, Industrial design, Trade mark , Certification & collective marks, Geographical indications etc. in this case, focus should be on elements of IP that serve as a marketing tool. There is however inadequate use and awareness of IP despite the fact that Tanzania has a Comprehensive IP law and has membership to international IP conventions. In the case of Zanzibar however, there is weak capacity



in the government to administer IP and absence of regulations to implement the 2008 IP Act despite a provision to use earlier regulations. Branding is a long process which take years to build thus pearl culture has to begin redefining a marketing personality now.

PROMOTION AND AWARENESS CREATION

There are several ways that could be developed to raise public awareness on pearl production and pearl products in Tanzania.

▪ ADVERTISING

In modern times, successful business service depends significantly on how you approach and follow –up. It is very important to deliver these services in a clear, no non-sense method. Detail of the internet and web are still unknown by many small women business owners, giving it the tendency to confuse and intimidate easily. Creative and homemade products (heritage) which are of good quality have the export potential.

During the first months, advertising efforts in the media and through other multipliers such as tourists magazine should concentrate on creative ways of minimizing costs while maintaining impact. Chartered planes operating in the coastal region may be lobbied for their social responsibility to provide space for advertising or publishing articles in their brochures /publicity material in its inbound flight.

While maintaining these strategies, other means of cost effective marketing will have to be introduced to keep pearl business on the map for public preference for quality pearls, products and oyster shells jewelry. These include popular traditional means of advertising through public radio and television whose rates are somehow affordable and their audience reach is quite large.



Further, advertising opportunities are available with the expanding mobile telephone market through cheap unlimiting text messages packages offered by companies such as tigo XTREME, Zantel MZUKA. KAMILI.

- **PUBLIC EDUCATION**

The interest action in relation to pearl culture and production must engage the interest not only of the business community but the public as a whole. The action of public as consumers and producers, as business operators and as policy makers are signified at local, regional and national levels. This could be achieved by holding awareness meetings with target population at regular interval to inform, using promotional material, adverts and brochures.

- **BROCHURES**

Special brochures containing relevant and enticing information on pearl farms in Mafia, Zanzibar and Kilwa to be developed and distributed on strategic public locations, jewelers, hotels and other hot spots where tourists frequently visits. Local companies can be approached to sponsor. Information can also be published in media outlets, articles in tourist guides like the Swahili Coast or in future when pearls are well presented, lobbying for adverts in pearl magazine to advertise globally.



FINANCIAL PLAN

The Payback period method was used to evaluate the feasibility of pearl culture in order to determine recovery period of the initial investment. It involves comparing future cash flows (5 years) to be generated by the business in comparison with the initial cash outlay. At the same time, assumptions were made based on information from pearl farmers, extension agents, published information and industry sources.

ASSUMPTIONS

- The financial projections are for the period of 5 years
- All financial figures are in Tanzania Shillings
- No depreciation on fixed assets is charged. Full year depreciation is charged in the year of sale or disposal of fixed assets
- Loans have not been assumed for the forecasted period
- Members are expected to raise equity in cash or kind of about Tsh. 5,000,000/-
- No assumptions have been made for payment of dividends. The availability of cash reserve from year 3 onwards show that there is sufficient funds for payment of dividends
- An exchange rate 1: 1.520

INITIAL OUTLAY

- Initial outlay aggregates to Tsh. 40,000,000 is allocated for business development, promotion and merchandising
- The Business Plan is more for expansion and marketing to commercialise pearl farming hence, funds can be raised step by step as and when the need arises.

PRICE

Average Price from quality and lower grade pearl stand at TZSh 30,000 was used

Excursion per week was assumed to be 3 times at TZSh 5000 per person.

BUSINESS PLAN FOR PEARL CULTURE IN KILWA, MAFIA and ZANZIBAR

Cash Flow Projections In TZ shillings

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Beginning Cash Balance	0.00	4,000.00	1,988,000.00	8,278,000.00	15,626,500.00	29,761,925.00	55,658,425.00
Cash Inflows:							
Members Equity	5,000,000.00						5,000,000.00
start up Grant/Contribution	35,000,000.00						35,000,000.00
Sales of Pearls (Retailing)		4,800,000.00	7,500,000.00	9,000,000.00	10,500,000.00	13,500,000.00	45,300,000.00
Sales of Pearls(wholesaling)		2,000,000.00	4,000,000.00	5,400,000.00	7,400,000.00	9,500,000.00	28,300,000.00
Sales of Pearl Oyster jewelry		1,600,000.00	2,500,000.00	3,000,000.00	3,400,000.00	4,000,000.00	14,500,000.00
Tours & Excursion		4,500,000.00	6,000,000.00	8,100,000.00	8,100,000.00	8,100,000.00	34,800,000.00
Sales of Pearls souvenirs + raw material		3,400,000.00	4,000,000.00	4,500,000.00	5,000,000.00	5,200,000.00	22,100,000.00
Auction		-	-	-	1,000,000.00	4,000,000.00	5,000,000.00
Sales To Resorts		2,000,000.00	2,500,000.00	3,000,000.00	3,100,000.00	3,400,000.00	14,000,000.00
Total Cash Inflows	40,000,000.00	18,300,000.00	26,500,000.00	33,000,000.00	38,500,000.00	47,700,000.00	204,000,000.00
Available Cash Balance	40,000,000.00	18,304,000.00	28,488,000.00	41,278,000.00	54,126,500.00	77,461,925.00	259,658,425.00
Cash Outflows:							
Bank Service Charges	96,000.00	96,000.00	120,000.00	120,000.00	140,000.00	140,000.00	712,000.00
Distribution Expenses	0.00	600,000.00	630,000.00	661,500.00	694,575.00	729,304.00	3,315,379.00
Farm Safety & Security	500,000.00		600,000.00	700,000.00			4,000,000.00

Feasibility Study & Business Plan for Pearl Culture in Kilwa, Mafia and Zanzibar



		500,000.00			800,000.00	900,000.00	
Agent Commission	900,000.00	770,000.00	1,400,000.00	2,000,000.00	2,350,000.00	3,100,000.00	10,520,000.00
Telephone	600,000.00	600,000.00	660,000.00	720,000.00	780,000.00	780,000.00	4,140,000.00
Repair & Maintenance	500,000.00	1,500,000.00	2,000,000.00	2,500,000.00	3,000,000.00	3,500,000.00	13,000,000.00
Utilities	800,000.00	800,000.00	1,000,000.00	1,200,000.00	1,400,000.00	1,600,000.00	6,800,000.00
Professional Fees	2,500,000.00	3,000,000.00	3,000,000.00	3,000,000.00	4,000,000.00	5,000,000.00	20,500,000.00
Transportation & Travelling	600,000.00	700,000.00	800,000.00	900,000.00	1,000,000.00	1,100,000.00	5,100,000.00
Tax & Levy	0.00	300,000.00	500,000.00	600,000.00	700,000.00	800,000.00	2,900,000.00
Training and Development	2,000,000.00	2,200,000.00	3,000,000.00	2,500,000.00	2,500,000.00	2,500,000.00	14,700,000.00
Merchandise	3,000,000.00	2,500,000.00	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00	17,500,000.00
Subtotal	11,496,000.00	13,566,000.00	16,710,000.00	17,901,500.00	20,364,575.00	23,149,304.00	103,187,379.00
Other Cash Out Flows:							
Capital Investment							
Building	20,000,000.00						20,000,000.00
Furniture & Fitting	2,000,000.00						2,000,000.00
Raft & Other Accessories	1,500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	6,000,000.00	11,500,000.00
Spat Collection	500,000.00	750,000.00	1,000,000.00	1,250,000.00	1,500,000.00	1,750,000.00	6,750,000.00
Workshop Tools & Equipment	2,000,000.00	1,000,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	9,000,000.00
Working boat	2,500,000.00			4,000,000.00		5,000,000.00	11,500,000.00

Feasibility Study & Business Plan for Pearl Culture in Kilwa, Mafia and Zanzibar



Subtotal	28,500,000.00	2,750,000.00	3,500,000.00	7,750,000.00	4,000,000.00	14,250,000.00	60,750,000.00
Total Cash Outflows	39,996,000.00	16,316,000.00	20,210,000.00	25,651,500.00	24,364,575.00	37,399,304.00	163,937,379.00
Ending Cash Balance	4,000.00	1,988,000.00	8,278,000.00	15,626,500.00	29,761,925.00	40,062,621.00	95,721,046.00



PROJECTED PROFIT AND LOSS

Year 0 Year 1 Year 2 Year 3 Year 4 Year 5

Sales							
Sales of	pearls (Retail)		4,800,000.00	7,500,000.00	9,000,000.00	10,500,000.00	13,500,000.00
Sales of Pearls (wholesale)			2,000,000.00	4,000,000.00	5,400,000.00	7,400,000.00	9,500,000.00
Sales of Pears Oyster jewelry			1,600,000.00	2,500,000.00	3,000,000.00	3,400,000.00	4,000,000.00
Tours & Excursion			4,500,000.00	6,000,000.00	8,100,000.00	8,100,000.00	8,100,000.00
Sales of Pearls souvenir + raw material			3,400,000.00	4,000,000.00	4,500,000.00	5,000,000.00	5,200,000.00
Auction			-	-	-	1,000,000.00	4,000,000.00
Sales To Resorts			2,000,000.00	2,500,000.00	3,000,000.00	3,100,000.00	3,400,000.00
Total Sales			18,300,000.00	26,500,000.00	33,000,000.00	38,500,000.00	47,700,000.00
Less: Operational Costs							
	Agency Commission	900,000.00	770,000.00	1,400,000.00	2,000,000.00	2,350,000.00	3,100,000.00
	Bank charges	96,000.00	96,000.00	120,000.00	120,000.00	140,000.00	140,000.00
	Distribution Expenses		600,000.00	630,000.00	661,500.00	694,575.00	729,304.00
	Farm Safety Security	500,000.00	500,000.00	600,000.00	700,000.00	800,000.00	900,000.00
	Merchandise	3,000,000.00	2,500,000.00	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00
	Professional Fees	2,500,000.00	3,000,000.00	3,000,000.00	3,000,000.00	4,000,000.00	5,000,000.00

Feasibility Study & Business Plan for Pearl Culture in Kilwa, Mafia and Zanzibar



Repair and Maintenance	500,000.00	1,500,000.00	2,000,000.00	2,500,000.00	3,000,000.00	3,500,000.00
Taxes & Levies	-	300,000.00	500,000.00	600,000.00	700,000.00	800,000.00
Telephone	600,000.00	600,000.00	660,000.00	720,000.00	780,000.00	780,000.00
Transportation & Travel	600,000.00	2,200,000.00	3,000,000.00	2,500,000.00	2,500,000.00	2,500,000.00
Training and Development	2,000,000.00	700,000.00	800,000.00	900,000.00	1,000,000.00	1,100,000.00
Utilities	800,000.00	800,000.00	1,000,000.00	1,200,000.00	1,400,000.00	1,600,000.00
Total Operational Costs	11,496,000.00	13,566,000.00	16,710,000.00	17,901,500.00	20,364,575.00	23,149,304.00
Profit	(11,496,000.00)	4,734,000.00	9,790,000.00	15,098,500.00	18,135,425.00	24,550,696.00



PROJETED BALANCE SHEET

<i>Amounts in TZ Shs</i>			<i>Year 0</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>
ASSETS								
Non Current Assets								
	Building		20,000,000.00	20,000,000.00	20,000,000.00	20,000,000.00	20,000,000.00	20,000,000.00
	Furniture & Fitting		2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00
	Working boat		2,500,000.00	2,500,000.00	2,500,000.00	6,500,000.00	6,500,000.00	11,500,000.00
	Workshop Tools		2,000,000.00	3,000,000.00	4,500,000.00	6,000,000.00	7,500,000.00	9,000,000.00
	Raft & Other Accessories		1,500,000.00	2,500,000.00	3,500,000.00	4,500,000.00	5,500,000.00	11,500,000.00
	Spat collection		500,000.00	1,250,000.00	2,250,000.00	3,500,000.00	5,000,000.00	6,750,000.00
	Total Non Current Assets		28,500,000.00	31,250,000.00	34,750,000.00	42,500,000.00	46,500,000.00	60,750,000.00
Other Assets								
Current Assets								
	Current/Savings	Bank A/C	4,000.00	1,988,000.00	8,278,000.00	15,626,500.00	29,761,925.00	40,062,621.00
			4,000.00	1,988,000.00	8,278,000.00	15,626,500.00	29,761,925.00	40,062,621.00
	Total Current Assets		4,000.00	1,988,000.00	8,278,000.00	15,626,500.00	29,761,925.00	40,062,621.00
NET ASSETS								
	TOTAL ASSETS LESS CURRENT LIABILITIES		28,504,000.00	33,238,000.00	43,028,000.00	58,126,500.00	76,261,925.00	100,812,621.00
	NET ASSETS		28,504,000.00	33,238,000.00	43,028,000.00	58,126,500.00	76,261,925.00	100,812,621.00
Equity								
	Financed	Members	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00	5,000,000.00
		Grant/Other Contribution	35,000,000.00	35,000,000.00	35,000,000.00	35,000,000.00	35,000,000.00	35,000,000.00
		Total	40,000,000.00	40,000,000.00	40,000,000.00	40,000,000.00	40,000,000.00	40,000,000.00

Feasibility Study & Business Plan for Pearl Culture in Kilwa, Mafia and Zanzibar



Retained Earnings		-11,496,000.00	-6,762,000.00	3,028,000.00	18,126,500.00	36,261,925.00
Profit/Loss	<u>-11,496,000.00</u>	<u>4,734,000.00</u>	<u>9,790,000.00</u>	<u>15,098,500.00</u>	<u>18,135,425.00</u>	<u>24,550,696.00</u>
Total Equity	<u>28,504,000.00</u>	<u>33,238,000.00</u>	<u>43,028,000.00</u>	<u>58,126,500.00</u>	<u>76,261,925.00</u>	<u>100,812,621.00</u>

Sources of Fund	Yr 0
Equity to be raised by Members	5,000,000.00
Contribution /Grant	35,000,000.00
Total Inflow	40,000,000.00
Application of Funds	
	Yr 0
Civil Works (Building)	
Workshop, Office and Show room	20,000,000.00
	20,000,000.00
Furniture and Fittings	
Workshop, Office and Show room	2,000,000.00
	2,000,000.00
Rafts & other Accessories	
Juvenile oyster rearing longline	500,000.00
Pearl production long line	1,000,000.00
Spat collection	500,000.00
	2,000,000.00
Workshop Tools and Equipment	
Drill	1,000,000.00
Other tools	1,000,000.00
	2,000,000.00
Vessel	
Local work boat	2,500,000.00
	2,500,000.00
Business Development	
Training & Development	2,000,000.00
Merchandise	3,000,000.00
Professional fees	2,500,000.00
Agent Fees	900,000.00
	8,400,000.00
Administration fees	3,096,000.00
	3,096,000.00
Total Investment	39,996,000.00
Balance Remaining for Working Capital	4,000.00

CONCLUSION

The results of the planned measures outlined in the Business Plan and Marketing Strategy demonstrates the ability to generate substantial revenue to support running costs and provide share of dividend. Now that pearl culture techniques have been developed under the pilot phase as a research base, further intervention to refine techniques should be forthcoming. The pearl business in Mafia , Kilwa and Zanzibar should explore the various dimensions mentioned in the report to allow farmers to invest in low risk business and jewelry making from these areas and reintroducing as attractive returns for the members. The additional income generated through the planned diversification outlined in this report will make pearl culture business closer to the purpose of becoming less dependent. The plan also indicate that for each farm, a total financial independence is not yet possible without the initial investment funds of TZs 40,000,000 as their present revenue cannot cover all core costs. The groups therefore though their cooperatives will need to be assisted to get funding or support in kind.

Financial analysis indicate a Net returns over a 5 year farm horizon based on an 8 % discount rate indicate a positive NPV of US\$ 57,000.00 (Tsh.86,639,500/) compared to the initial costs of US \$ 26,315,789.47 (Tsh. 40,000.00/-) hence is an investment worth taking.

Given the reality, the business plan should not be looked at as something that will bring high changes with a big bang but rather a reference towards achieving goals in smaller increments or innovations business. It is more effective to work in favour of the set objectives by sharpening skills and adapt the market in a cost effective and practical way. Pearl_production has started on small scale -based pearl farms but is proving to become a significant means for income generation among coastal communities. Henceforth, in the near future, sufficient space for expansion of the farms including the diversification of species such as round pearls to be pursued and as such, ongoing research should investigate the potential for round pearl production as the prospects for jewelers to purchase are high.

Furthermore, the pearl industry provides opportunity for the involvement of women and provides the raw materials for local handicraft manufacture, which may include lower grade pearls or pearl shells. As the business grows, additional pearl cultivators are on the horizon, the existing farms will enjoy the first –move advantage in the local market. However, pearl farmers as competitors need to be prepared for their entry into the market.

It can be concluded that to date there is some significant experience on pearl culture in the coastal areas of Kilwa, Mafia and Zanzibar that we can draw on. The plan shows positive cash flow generating liquid reserve in the year 3 from sales. However there is a greater need for change in our mindset regarding the way business is operated and look at the Business Plan as an integral part of pearl farming.

There are two contexts to be working on in- each pearl farm. The Managing Agent aspect, which includes exploring opportunities for commercializing pearl cultivation while addressing competing interests, roles, required and technical inputs, and operational obstacles. And the context of umbrella association or a cooperative where pearl farms in each community are members knowing government, extension agents and development partners are interested parties in funding. Through them, a farm or group of farms would need funding in the total amount of Tzs 40,000,000/- at the start.

With minimum possible budget to execute the business plan, pearl farming should be carried out in an efficient and cost effective manner targeting both tourists and domestic market. In the process, reporting and monitoring for enhanced growth is one key way to address poverty.

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<i>Makungu Sumaila</i>	<i>Jitegemee gp, Ndagoni</i>
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<i>Hadia Ali</i>	<i>Shikamaneni Group, Utende</i>
<i>Nunu Nassor</i>	<i>Tujikomboe gp, Bwejuu</i>
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<i>Jalali Juma</i>	<i>Chaza Njema, Fumba Chalen</i>
<i>Mwasiti Moh'd</i>	<i>Chaza Njema, Fumba Chalen</i>
<i>Safia Ali Jecha</i>	<i>Nyamanzi</i>
<i>Mwanakhamis Abdulla Ali</i>	<i>Chaza Njema gp, Bweleo</i>
<i>Ali Makame Mataka</i>	<i>Ukombozi gp, Somanga</i>
<i>Maulid Mahmoud Manga</i>	<i>Umoja gp, Njia nne</i>
<i>Sijali Hemed Kipundi</i>	
<i>Yusuf Machoira</i>	
<i>Salma Ahmada Amri</i>	<i>Misukosuko gp, Songosongo</i>
<i>Njuma Khamis</i>	<i>Misukosuko, Songosongo</i>
<i>Maryam Nassor</i>	<i>Misukosuko, Songosongo</i>
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<i>Abrahman Othman</i>	
<i>Asha Mfaume</i>	



Tumaini Juma

Rehema Othman Mtumbi

Ikiwa

Husna Ali

Moh'd Ibrahim Mgeni

Mussa Ali Kombo

Mwanakhamis Salhina

Omar Bakari Nguwe

Zeinab galleries

Farouq Fashions

Kobe Tours

Memories of Zanzibar

S.D Jewelers

Gold Smith jewelers

Hanif Jewelry

Raudha jewelers

Al Jabir Jewelers

Firdaus jewelers

Aiman Jewelers

Al Hanai Jewelers

Al Qadria Jewelers

Marlo Jewelers

Mikoko gp, Somanga

Chaza Njema, Fumba

Umoja gp, Njia Nne

Mikoko gp, Somanga

Mzalendo Group, Kaanga village

Mambo Leo gp, Songosongo

Somanga

