



Norwegian University of
Science and Technology

Analyzing the potential effects of off-grid electrification through different funding and financing models

A case study of the LAMTIB initiative in
Singapore.

Joakim Samuelsen

Globalization

Submission date: June 2017

Supervisor: John Eilif Hermansen, IØT

Norwegian University of Science and Technology
Department of Industrial Economics and Technology Management

Problem description

In 2015, the UN announced 17 sustainable development goals setting the agenda for the developmental discourse until 2030. This study investigates one developmental initiatives financial needs in its efforts to contribute to closing the gap between the current situation and the attainment of the sustainable development goals. This will be investigated by providing a contextual framework for action through which potential SDG impact is assessed. More specifically, the objective of the study is to uncover the opportunities and limitations in acquiring the funding needed to sustainably operationalize the project and the different implications, if any, the analyzed funding sources have for the initiatives impact on the sustainable development goals.

Preface

This Master's thesis has been conducted at the Norwegian University of Science and Technology (NTNU) during the spring semester of 2017. The study is a part of the MSc in Globalization: Politics and Culture written at the Department of Industrial Economics and Technology Management (IØT). The research is conducted with an emphasis on the Sustainable development goals and their attainment through the efforts of the LAMTIB initiative in Singapore, working with a modular approach to create an ecosystem of connected activities to create development.

Acknowledgements

I would like to thank all those who contributed their time and efforts to this study by granting me interviews, Tom Preststulen, Peter Molthe, Pål Dale, Harald Birkeland, Torgeir Ulset, Allan Lee, Harry Antiporta and especially Inger Elise Iversen for not only the interview but also her help in reaching others in her network improving the empirical basis and as such the study itself.

I would also like to thank Tom and Siri Preststulen for the generosity and hospitality they showed during Julies and my stay in Singapore. Furthermore, Toms decision to allow me to come down as an intern and learn several years' worth of lessons in a matter of 6 months will be a valuable experience throughout the rest of my life.

Without the support and kind words from friends and family over the past 5 years this task would far harder and much less enjoyable.

Thank you to all my classmates for their infectious enthusiasm and drive, their insights and a shared appreciation for Café Løkka.

A huge thank you to my supervisor John Eilif Hermansen and the calming effect each of our meetings had on my frazzled nerves as well as structural inputs and helpful discussions on the topics at hand.

Finally, a thanks to my girlfriend Julie for continuing to talk to me through periods of extreme focus in which I got little of what she said and did almost nothing of what she asked throughout the past five years. I am starting to like you.

Abstract

The 17 Sustainable development goals for an inclusive and equitable future calls for collaborative efforts to reach them. The objective of this study is to explore the potential LAMTIB has to contribute to their attainment given adequate funding. As such the study first has to assess the potential impact of LAMTIBs operational framework before moving on to analyzing the likelihood of being financed. Through semi-structured interviews with several socially and environmentally focused funding sources and participant observation with the LAMTIB initiative, insights into the process and rules that govern grants and investments are analyzed against LAMTIBs financial needs, projections and plan.

The analysis showed a high convergence between DNV-GL and BSDC highlighted opportunities and LAMITB core operations, indicating a high SDG attainment potential. However, for funding to be attainable LAMITB needs to strengthen its organizational capacity as well as condense and simplify its outward communication in order to clearly and convincingly convey its intentions.

Contents

Problem description..... i

Prefaceiii

Acknowledgements v

Abstract vii

List of tables xv

List of figures xv

List of acronyms..... xvi

1 Introduction 1

 1.1 Background 1

 1.2 SDG opportunities..... 1

 1.3 LAMTIB..... 2

 1.4 Research questions 3

 1.5 Study structure..... 3

2 Contextual background 4

 2.1 UN sustainable development goals 5

 2.1.1 The Goals 6

 2.1.2 SDGs in this study..... 8

 2.2 Better business better world 9

 2.2.1 Threats and costs 9

 2.2.2 Economic opportunities..... 10

 2.2.3 Sectoral opportunities applicable for LAMTIB 11

 2.3 Global opportunity rapport..... 12

 2.3.1 The opportunities..... 13

 2.3.2 Technology..... 13

 2.3.3 Smart food production..... 14

2.3.4 Decent work & economic growth	14
2.3.5 Closing the loop & smart oceans.....	15
2.3.6 Smart farming.....	16
2.3.7 Education & closing the skills gap	16
2.4 Future of spaceship earth.....	17
2.5 Summary	18
3 Methodology	18
3.1 Research design.....	19
3.1.1 Exploratory study	21
3.1.2 Case study	22
3.2 Data collection.....	23
3.2.1 Participant observation.....	24
3.2.2 Semi structured interviews	25
3.2.3 Literature review	26
4 Theoretical framework	27
4.1 Swot analysis.....	27
4.2 sSWOT analysis	28
4.3 Funding categories	30
4.3.1 CSR	31
4.2.2 Official development aid.....	33
4.2.3 Impact investment	35
4.2.4 Socially responsible investing.....	39
4.2.5 Philanthropy	41
4.2.6 Miscellaneous other sources.....	45
4.3 Summary	46
5 Case study: The LAMTIB initiative.....	46
5.1 Mission Statement.....	47

5.2 LAMTIB modules	47
5.2.1 Education.....	48
5.2.2 Clean water & Sanitation	48
5.2.3 Health care.....	49
5.2.4 Food production	49
5.3 LAMTIBs financial needs	50
5.4 LAMTIBs internal revenue streams	52
5.4.1 Distribution of profits.....	52
5.5 LAMTIB and the SDGs	53
5.6 Summary	56
6 Analysis.....	56
6.1 sSWOT analysis of financing opportunities.....	56
6.1.1 CSR	56
6.1.2 ODA	58
6.1.3 Impact investment	59
6.1.4 SRI.....	61
6.1.5 Philanthropy	62
6.2 Funding categories and the SDGs	63
6.3 Summary	64
7 Discussion	65
8 Conclusion.....	66
9 Recommendations and further research	67
9.1 Recommendations for organizations and business.....	67
10 Limitations	68
11 References	69
11.1 Published	69
11.2 Unpublished	70

11.2.1 Interviews	70
Appendix A	71
Appendix B	72

List of tables

Table 1. Overview UN Sustainability Goals (SDG) and the key goals most relevant for this study.

Table 2. Economic opportunities in BSDC rapport relevant for this study

Table 3. Key features of the financial opportunities assessed

List of figures

Figure 1. LAMTIB operational framework

Figure 2. Pictographic representation of the SDGs

Figure 3. The research design constructed for this study

Figure 4. sSWOT analytical framework

Figure 5. SWOT analysis of Corporate social responsibility as financial source.

Figure 6. SWOT analysis of official development aid as financial source

Figure 7. SWOT analysis of impact investment as financial source

Figure 8. SWOT analysis of SRI as financial source

Figure 9. SWOT analysis of philanthropy as financial source

Figure 10. LAMTIB operational framework

Figure 11. Integrated multi-trophic aquaculture

Figure 12. LAMTIB funding plan

Figure 13. LAMTIB distribution of profits

Figure 14. SWOT analysis of Corporate social responsibility as financial source.

Figure 15. SWOT analysis of official development aid as financial source

Figure 16. SWOT analysis of impact investment as financial source

Figure 17. SWOT analysis of SRI as financial source

Figure 18. SWOT analysis of philanthropy as financial source

List of acronyms

BSDC	Business and sustainable development commission
CSR	Corporate social responsibility
ESG	Environmental, social & governance
HDI	Human development index
ICT	Information & communication technology
IMTA	Integrated multi-trophic aquaculture
LAMTIB	Leapfrogging autonomous micro technopolis in boxes
MNC	Multinational corporation
NGO	Non-governmental organization
ODA	Official development aid
REC	Renewable energy corporation
ROI	Return on investment
SDG	Sustainable development goals
SRI	Socially responsible investment

1 Introduction

There are some key moments in human history which transform the trajectory of humanity, none of them are as significant as the crossroads humanity now face and no one point in time will be judged harder by history if we fail. The sustainable development goals have provided a suggestion for a future in which we have succeeded. This case study looks at one initiative using off-grid electrification as an enabler for several developmental modules to aid in the positive transformation humanity needs to avoid the worst of the ecological and societal consequences of climate change and inequality by conducting semi structured interviews of key financial actors and participant observation working with the initiative.

The study starts by presenting some relevant background that both presents a baseline and end goal for development as well as the economic opportunities the in between represents. It then goes on to present the methodological framework and why it was selected to answer the research questions. Before moving onto the case itself the analytical framework is explored and clarified before the final analysis leads into a discussion generating a conclusion, recommendations and suggestions towards further research.

1.1 Background

The sustainable development goals (SDGs) declared by the UN in September 2015, adopted by 193 member countries signifies a broad agreement on 17 goals and 169 targets that by definition would produce an inclusive, sustainable and prosperous world if achieved. The attainment of these goals is central to the analysis of the LAMTIB initiatives potential developmental impact. The other key contribution the SDGs make to this study is to serve as a benchmark. At their announcement, they serve as a moment frozen in time in September 2015 presenting the state of humanity and highlighting the fact that these are the challenges the world face and need to meet with a united front and collaborative efforts in order for the SDGs to be met.

1.2 SDG opportunities

Achieving the SDGs represents significant economic potential for those who are adaptable, innovative and bold enough the seize the opportunities arising from transitional economies. DNV-GL and Business and sustainable development commission (BSDC) has issued reports

on the challenges and opportunities deriving from the SDG agenda. For the purposes of this study they will be used as the context within which the LAMTIB initiatives developmental potential is assessed. The BSDC rapport Better business better future (2016) and DNV-GLs Global opportunity report (2016a) highlights the sectors that has the greatest potential to be transformative in terms of the SDGs, in addition to being economically viable, making recommendations and assessing the total market potentials in terms of dollars to be earned. This serves as very tangible suggestions to business and clearly indicates the monetary gains and benefits of transforming the way humanity currently is conducting business. The DNV-GL publication Future of spaceship earth (2016b) provides additional context as it analyses how far we have come on the path to achieving the SDGs and the likelihood of the goals being reached within the 2030 timeframe given the current state of affairs. By highlighting the current trajectory of human development, it shows where efforts are needed for the SDGs to be reached.

1.3 LAMTIB

Leapfrogging autonomous micro technopolis in boxes or LAMTIB is a developmental initiative based in Singapore. The main idea driving the initiative is fitting converted shipping containers with the latest in site appropriate technology, powered by solar energy and deploying them to off-grid areas in need of assistance to kickstart locally driven development in sustainable best practice manners (LAMTIB, 2017).

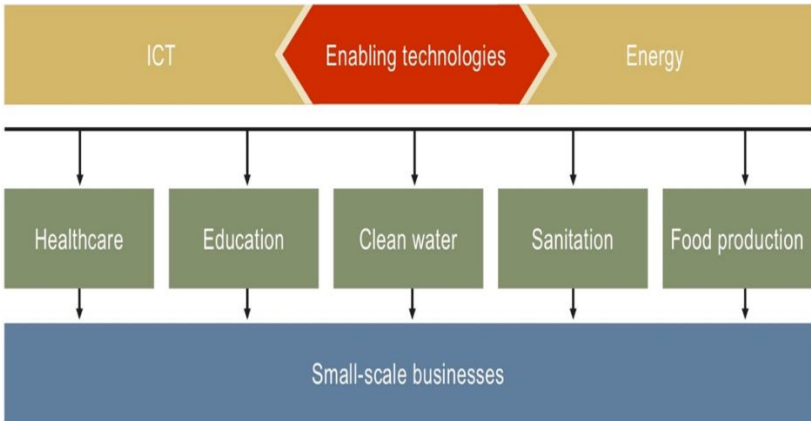


Figure 1. LAMTIB operational framework (LAMTIB, 2017)

Fig 1 shows schematically the technologies enabling the main LAMTIB modules working in concert to achieve the overarching goal of creating employment opportunities and economic activity making possible locally driven grassroots development. The modular operational

structure LAMTIB has created address most if not all of the SDGs by making job creation contingent on good health, education and proper nourishment supported by providing infrastructural improvements like electricity, Information and communication technology (ICT) and when needed clean water and sanitation.

1.4 Research questions

The research questions have evolved throughout the study process and as they stand now both implicitly answer the initial questions as well as being better suited to generate insights that would be helpful for LAMTIB and the developmental funding community alike.

How big is LAMTIBs SDG attainment potential?

Will different financial sources impact the potential in either positive or negative directions?

Which of the financial sources will allow for maximum utilization of LAMTIBs potential?

1.5 Study structure

The study starts by providing background for the analysis in form of the SDGs. They serve as both the starting and finishing line as they encompass the state of the world in 2015 as well as the desired state in 2030. For their attainment, there is a significant road to travel and the roadmaps suggested by DNV-GL and BSDC form the contextual framework for analyzing LAMTIBs potential to seize the opportunities presented in those reports. DNV-GLs Future of spaceship earth (2016) serves as additional context as it highlights the shortcomings and positive trends of the current situation indicating where increased efforts are needed both in geographical and sectoral terms.

The methodological choices and challenges that combine to inform the logic behind the empirical data created to answer the research questions follows the contextual chapters and leads in to the choices made in terms of analytical framework in chapter four.

Analytical framework in this study encompass both traditional analytical tools such as SWOT and sSWOT as well as the different financial possibilities assessed in this study. The different

financial categories are a part of the analytical framework and not the case or context as they are used to analyze the potential LAMTIB impact achieved given different financial sources. As such each of the financial avenues are evaluated with a SWOT analysis, to uncover their essence before the final analysis ties this SWOT together with the action oriented sSWOT to see how LAMTIB has to structure its organization and operations in order to be eligible for funding.

Following the analytical tools chapter is the LAMTIB case focusing on the modules that form its operational core, the internal revenue streams and redistribution mechanisms which aims at reinforcing the economic activities locally that LAMTIB core activates will create if implemented as planned.

The analysis will as mentioned deal with LAMTIB operations and organizational structure, as well as assessing which of the financial categories that would yield a sustainable business model and by so doing contribute to LAMTIB making the greatest impact.

The final chapters discuss the implications of the findings from the analysis before a conclusion is presented and some recommendations towards LAMTIB, the financial categories and further research is given.

2 Contextual background

The contextual framework chosen for this study aims at providing a broad understanding and appreciation of the challenges humanity faces as well as suggestions on how to deal with them in a profitable, sustainable and inclusive manner which lies at the core of the SDGs. For efforts such as LAMTIB to contribute to these efforts they must operate within the contextual boundaries set forth in this study by DNV-GL and BSDC, and crucially do so in a way that furthers the attainment of the overlapping and interconnected sustainability goals. DNV-GL has issued its rapport annually since 2015, amounting to 3 publications so far. The one selected for this study is the 2016 version, which highlights several opportunities emerging in light of the SDGs that provide useful insights for this study.

2.1 UN sustainable development goals

The sustainable development goals provide the background for this study and the logic guiding their formulation and the hope for a better world they encompass will be explored in the following subchapters.



Figure 2. Pictographic representation of the SDGs (United nations, 2015)

“This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognize that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind. The 17 Sustainable Development Goals and 169 targets which we are

announcing today demonstrate the scale and ambition of this new universal Agenda. They seek to build on the Millennium Development Goals and complete what these did not achieve. They seek to realize the human rights of all and to achieve gender equality and the empowerment of all women and girls. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental. The Goals and targets will stimulate action over the next fifteen years in areas of critical importance for humanity and the planet” (UN, 2015, P. 3).

This was the ambitious statement made by the UN in September of 2015 after 193 membership countries had come together to formulate a joint effort to move humanity forward in a collaborative and sustainable way. The 17 goals were designed to deal with 5 overarching categories that need to collaborate and coexist. People, planet, prosperity, peace and partnership.

The goals themselves are formulated in such a way that for them to be reached there is need for innovative ways of living, producing and conducting business. That is to say, the status quo will not yield the improvements needed for the attainment of the SDGs and as such they have to function as catalysts for innovation and change or fail.

2.1.1 The Goals

Before introducing the 17 SDGs it is fruitful to elaborate slightly on the 5 Ps underscoring the goals and their implications as they relate to efforts to meet them such as the LAMTIB initiative. People, planet, prosperity, peace and partnership as stated in the 2030 agenda for sustainable development (UN, 2015).

People

We are determined to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment (UN, 2015, p.3).

Planet

We are determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations (UN, 2015, p.3).

Prosperity

We are determined to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature (UN, 2015, p.3).

Peace

We are determined to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development (UN, 2015, p.3).

Partnership

We are determined to mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people.

The interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realized. If we realize our ambitions across the full extent of the Agenda, the lives of all will be profoundly improved and our world will be transformed for the better (UN, 2015, p.4).

The five Ps serve as a reminder that for the SDGs to be reached each of these five categories will have to be heeded to and that improvements in one the back of one or more of the others will not yield the sustainable and inclusive global society the SDGs call for.

Table 1. Overview UN Sustainability Goals (SDG) and the key goals most relevant for this study. Adapted from (UN, 2015)

2.1.2 SDGs in this study

Number	UN SDG	Key goals
Goal 1	End poverty in all its forms everywhere	X
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	X
Goal 3	Ensure healthy lives and promote well-being for all at all ages	X
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	X
Goal 5	Achieve gender equality and empower all women and girls	X
Goal 6	Ensure availability and sustainable management of water and sanitation for all	X
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all	X
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	X
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	X
Goal 10	Reduce inequality within and among countries	X
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable	-
Goal 12	Ensure sustainable consumption and production patterns	-
Goal 13	Take urgent action to combat climate change and its impacts	-
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	X
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	X
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	-
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	-

In terms of this study the SDGs serves two explicit and one implicit purpose. Explicitly they function as both the yardstick against which progress is measured as well as a freezeframe of the global realities at a specific point in time. In other words, the SDGs are a representation of the reality and the context the LAMTIB initiative devises its strategic and operational frameworks within both as a baseline to improve and as the shaper of intended outcomes of its operations.

Implicitly, by pointing out the SDGs indivisibility, the UN (2015) highlights the facts that the challenges are faced by all and the interconnectedness of the global population, emphasizing that we are all responsible for the world we live in tomorrow. Building on this formulation of the goals it is clear they require a lot of collaborative efforts working in concert to devise new and innovative ways for humanity to conduct its day to day for them to be reached. This realization influences the reports by DNV-GL and BSDC. These reports provide possible solutions and highlights opportunities and challenges arising from transforming the global society from the 2015 realities towards a sustainable and inclusive future where the SDGs are reached by 2030. Which in turn provide the contextual framework for the assessment of the LAMTIB initiatives potential to contribute to the transformative efforts suggested by the reports.

2.2 Better business better world

The Business and sustainability commission (BSDC) released its Better business better world report in January 2017 (BSDC, 2017). The report highlights the risks to existing business models failing to adapt, and the opportunities for adaptive and innovative new ones, when tackling the challenges introduced by the SDGs. Focusing on these issues it, alongside the Global opportunity report and the Future of Space ship earth report, forms the action oriented contextual framework for the analysis of the LAMTIB initiative and the selected financing options.

2.2.1 Threats and costs

Despite social improvements and technological progress signs of the failures attributed to the current model of development can be seen in natural disasters triggered by climate change having doubled since 1980s, violence and armed conflict costing 9 percent of global GDP in 2014, lost biodiversity and eco system damage costing an additional 3 percent, social inequality, youth unemployment, and women still being paid on average 75 cents on the dollar compared to men doing similar work are all consequences of the ways humanity has

been conducting its affairs up until this point (BSDC, 2017). 12 percent of global GDP available for productive means rather than the destruction of planet and communities should be a powerful incentive in and of itself. However, as the SDGs point out, it apparently is not and further incentives and opportunities should be a significant part of the SDG discourse.

2.2.2 Economic opportunities

Achieving the SDGs would by definition create a world that is sustainable, socially fair, environmentally secure, economically prosperous, inclusive and more predictable. They provide a model for long-term growth which is attainable as long as businesses move towards them together (BSDC, 2017). The enormous potential that lies within the successful completion of the SDGs by 2030, several billion new consumers of sustainably manufactured goods and services, should be welcome news. However, as the BSDC (2017) point out, business leaders do not on average feel responsible for delivering on the goals and as many as half the surveyed business community think the SDGs are a government level responsibility. This is an indicator of a resistance to change or an unwillingness to explore new opportunities that is troubling when looking at startup initiatives such as LAMTIB if framed within the SDG agenda. There are likely businesses that profit from an as is approach and therefore would display a reluctance to change, a case in point would be the tobacco industry taking nation states to court for plain packaging rules even if this goes against the intent stated by the SDGs to curtail global tobacco consumption (UN, 2016).

However, sectoral opposition to altering market realities motivated by fiduciary self-interest takes nothing away from the opportunities for economic growth working towards the goals represent. Furthermore, business needs the SDGs as they offer a compelling growth strategy for individual businesses, for business generally and for the world economy. The battle over market shares in a non-expanding marketplace is a zero-sum game that can only be overcome through the addition of new consumers or an increase in individual consumption. Adding 3-4 billion new consumers effectively represents a doubling of the potential market which seems infinitely more likely to increase shampoo consumption than a doubling of individual shampoo usage. As such even those not recognizing the need for the SDG as a moral imperative on a humanitarian level should be able to see their merits from a strictly business

perspective. One key problem may then be companies not being willing to spend to contribute but rather sit back and wait for others to create opportunities for them. Which seems likely when half see the SDGs as government responsibilities.

2.2.3 Sectoral opportunities applicable for LAMTIB

Achieving the Global Goals opens up US\$12 trillion of market opportunities in the four economic systems examined by BSDC (2017). These are food and agriculture, cities, energy and materials, and health and well-being. Three of these categories provide opportunities for LAMTIB as cities are left out from the initial mission statements made by LAMTIB.

However, if cities grow at a rate that surpasses their ability to provide infrastructure the need for LAMTIB modules like clean water, sanitation, electricity and ICT are just as needed in these settings as in the rural context stated as the primary priority. Additionally, developing rural areas, providing education, creating jobs and so on, may reduce the push factors experienced by rural under- or unemployed and by so doing relieve some of the pressure on rapidly growing cities.

Combined these 4 economic systems represent around 60 percent of the real economy and are critical to delivering the SDGs. BSDC (2017) concludes that if a critical mass of companies joins the effort they will become an unstoppable force and the attainment of the SDG seems likely. However, if they don't, the costs and uncertainty of unsustainable development could increase and there will be no viable world in which to do business. If the global discourse is successful in get this message out and adhered to, it would serve as a strong motivator for shifting capital from low to high SDG impact ventures.

The BSDC rapport (2017) highlights the 60 biggest market opportunities within the 4 economic systems of which the LAMTIB initiative directly address 17 in three of the economic systems. Economic system 2 Cities has been left out as LAMTIBs primary focus in on rural settings.

Table 2. Economic opportunities in BSDC rapport relevant for this study

Economic system 1: Food and agriculture	Economic system 3: Energy and Materials	Economic system 4: Health and Well-Being
Forest ecosystem services	Expansion of renewables	Remote patient monitoring
Low-income food markets	Nonenergy intensive industries	Telehealth
Dietary switch	Energy storage systems	Electronic medical records
Sustainable aquaculture	Resource recovery	Better maternal and child health
Technology in smallholder farms	Energy access	Healthcare training
Restoring degraded land	Shared infrastructure	

2.3 Global opportunity rapport

The Global opportunity rapport issued by DNV-GL (2016a) like BSDC identify the biggest risks to global prosperity and sustainability and how they can be transformed into opportunities. After selecting the 15 biggest opportunities of 2016 they were subsequently measured in a global survey involving more than 5,500 private and public-sector leaders from across the globe. The opportunities are as such evaluated and ranked by those in positions to act on them, which strengthens the relevance of the rapport in the context of this study as the world view of decisionmakers directly influence LAMTIBs likelihood for successfully attracting funding.

The survey looked at opportunities in the post SDG declaration era and found, somewhat contrary to the findings in the Better business better future rapport, that business is perceived by the respondents to be among the top advocates for all 15 opportunities. However, this disparity may be due to the framing of the issues. In BSDCs study (2017) they contextualize the opportunities directly in terms of attaining the SDGs which seems to give the impression of governmental responsibility among the respondents from business. This indicates an opposition to taking on the responsibilities of achieving global goals set by governments in the UN. Whereas DNV-GL (2016a) has focused on the transformative capabilities of business and civil society within facilitating or impeding legislative frameworks. The difference in framing between how can business help governments meet the goals and how capable is

business in terms of seizing opportunities and driving innovation may influence how reaching the SDGs is perceived and therefore how actively it is pursued.

2.3.1 The opportunities

Of the 15 opportunities presented in the rapport eight are relevant in the context of the LAMTIB initiative with subsequent implications for the SDGs. Those not applicable within the current strategic aims of LAMTIBs operational framework are number 2, 4, 6, 8, 9, 12, 15 has been left out the study.

1. Smart farming
3. Closing the skills gap
5. Precision treatment
7. Regenerative ocean economy
10. New diets
11. Futurepreneurs
13. Closing the loop
14. Smart ocean

2.3.2 Technology

In four out of the top five opportunities, technology will play a significant role in enabling private and public leaders to act in an effective manner. Again, DNV-GL employ a different framework compared with BSDC as they instead of dividing the opportunities into four markets they analyze the capacity to pursue all 15 opportunities across three dimensions, technology, economy, and political will. Of these three dimensions, technological capacity is perceived to be the lowest barrier to change. However, one crucial factor to bear in mind is that technology tends to be a weaker driver of positive change in lower Human Development

Index (HDI) regions, indicating that there is a need to facilitate technology transfers for a number of opportunities to be realized in those regions (DNV-GL, 2016a).

2.3.3 Smart food production

Sustainable and more efficient production of food using technology and digital solutions is DNV-GLs top opportunity of 2016. As the technology and know-how for smarter food production is available and adaptable across geographies and scale, its proliferation is blocked by access (DNV-GL, 2016a). This emphasize the fact that solutions are available, but not accessible for large numbers of people. Hence, the need to overcome the access barriers should be of utmost importance for all working towards a sustainable, inclusive and thriving global population.

2.3.4 Decent work & economic growth

Throughout all corners of the globe business leaders surveyed by DNV-GL (2016a) emphasized the urgent need for job creation. Youths between 15 and 24 are three times more likely to be unemployed than adults. Globally, this figure is an estimated 75 million or put in other terms, close to 25% of youths are neither working nor studying. Making the issue even more pressing is the billion young reaching working age over the next decade. If left jobless they will not be paying taxes nor contributing to economic growth, with the additional risk of causing social instability (DNV-GL, 2016a).

The positive is the fact that the respondents in the rapport rated decent work and economic growth the highest in terms of business potential. This combined with good health and wellbeing are the SDGs that are perceived to hold the greatest potential to direct societies onto a sustainable development track, which led DNV-GL (2016a) to conclude that what is good for business is also good for society. From which the opposite argument may also be made that business is reliant on a healthy, content and socially stabile workforce able to consume. Reversing the position makes clear the responsibilities held by business to contribute in collaboration with civil society and governments to create employment opportunities and stabile societies.

DNV-GL (2016a) further emphasize the need for jobs to grow from bottom-up allowing for youths to form their own employment opportunities. This can be done by enabling the young to be “futurepreneurs” giving them the tools to create their own jobs. For this to materialize there are some obstacles to overcome for those without an established credit history, assets, and business experience required by traditional investment models, when trying to secure funding for their entrepreneurial ventures. Of the main suggestions to overcome these challenges are funding through community-based funds with local competitions for the best start-up ideas winning access to finance. (DNV-GL, 2016a).

2.3.5 Closing the loop & smart oceans

Closing the loop is a way of doing aquaculture that stops the overfeeding of sea nutrients that are slowly killing the oceans through reuse and recycling of valuable resources instead of pouring ever more feed into it. Developing ways to use the oceans that supports biodiversity is an opportunity to create resilience and long-term value for society and business. It is the regenerative economy of the ocean (DNV-GL, 2016a). In other words, the utilization of the oceans must be done in such a way so that it strengthens ecosystems surrounding both aquaculture and wild catch by actively maintaining a natural balance in the biodiversity.

Generating ocean ecosystem value creates larger biomasses and more resilience in the environment. DNV-GL (2016a) points at two primary opportunities arising from achieving a better yielding sustainable utilization of ocean resources. For the oceans to transform to smart oceans, which will enable good decision making for sustainable development, knowledge on how to close the loop and monitoring marine life must become accessible. Through dissemination of best practice aquaculture methods, and monitoring wild catch populations with effective regulatory measures, the likelihood of oceanic pollution through overfeeding and decimation of fish stocks diminishes, allowing for maximum utilization of oceanic resources within the limits of sustainability which can be intensified through furthering smart ocean technologies and techniques.

2.3.6 Smart farming

Smart farming as defined by DNV-GL (2016a) is producing more with less. To achieve this each farmer needs to have the appropriate skills and knowledge on how to determine when to plant, water, harvest and protect the crops. ICT enables informed decision-making based on weather and climate data, both in terms of the practical matters of when and how but also allows for upskilling the decisions on which crops to prioritize. Furthermore, ICT gives an opportunity to monitor prices, and reaching new markets enabling farmers to demand a fair and correct price for their produce (DNV-GL, 2016a).

2.3.7 Education & closing the skills gap

Education for the changing labor market needs to be flexible, teaching youth to learn skills in general and learn how to learn more when needed in the process close the ever-changing skills gap. Closing the skills gap through education and encouraging lifelong learning for all is a core part of all the opportunities mentioned in the Global opportunity rapport (DNV-GL, 2016a). Access, or lack thereof, as with several of the other opportunities becomes the issue, in this context the meaning of access has several implications. First education or skill training need to be available geographically, which in the ICT age can mean both an actual or virtual learning environment. Secondly, access is also contingent on having the time and resources to pursue scholastic endeavors. Resources may be the ability to afford tuition but also sufficient clean water, firewood, food or any other short-term essential taking priority over the long-term capacity improvements skill training and education essentially is.

The development of e-learning programs by business is held by DNV-GL (2016a) as a game changer. By providing context appropriate e-learning using ICT it can be a major force in the up- and reskilling of youth globally. Furthermore, it encompasses the essence of the SDGs collaborative spirit as it requires a joint approach to education, job training, competence building, and skills development in formal institutions and the job market where feedback mechanisms informs the participants of the available and needed qualifications and skills. By doing so employers can convey what skills are needed and would be employees can make informed up- and reskilling choices. This opens according to DNV-GL (2016a) opportunities for those able to facilitate closer collaboration between business and educational institutions

on how to manage on-going adaptation of curricula in response to the shifting competences demanded by businesses.

2.4 Future of spaceship earth

The future of spaceship earth published in 2016 examined the state of the SDGs in terms of their likelihood of being achieved. The key findings in terms of this study are those looking at the geographical scope that coincides with the LAMTIB initiative which is primarily limited to the poorest countries or regions within a country. The rapport makes clear that progress towards SDG attainment is still left wanting and the following sections provide a brief summary of the current status.

For the goals to be met 800 million must be moved out of poverty by 2030 which is unlikely to be achieved in the rich part of the world and will not happen in the poorest part of the world (DNV-GL, 2016b). This suggests that global inequality will persist and that more efforts targeting the poorest 800 million are needed. The rapport goes on to conclude that the world is also lagging behind the goal of eradicating hunger, and even if more food is becoming available it is likely that the increase in food production is due to an increase in negative impacts on the environment (DNV-GL, 2016b). This makes clear that, with the interconnectedness of the SDGs and the five Ps in mind, sustainable food production needs to be upscaled substantially. Reinforcing this is the fact that the oceans are also still under threat by human practices. 45 percent of marine life is gone or threatened. The oceans are warming and huge amounts of plastics is slowly disintegrating (DNV-GL, 2016b).

Education is globally becoming available to more and more people, yet there are still large numbers of un or under educated people in the poorer parts of the world and the inequalities of education is also in gender inequalities in large parts of the world, and women being barred from taking part in work (DNV-GL, 2016b).

Rural urban migration is still a strong force, and the rate of in migration to many cities is faster than cities in the poorer parts of the world can handle. Consequently, even if access to

clean water is improving it is still not universal, poor sanitary conditions and refuse management is still a major issue (DNV-GL, 2016b).

1.5 billion people do not have access to reliable energy. The costs of solar and wind energy is going down, still the proliferation of energy at the current rate is still not fast enough for the goal to be met by 2030 (DNV-GL, 2016b).

2.5 Summary

The attainment of the SDGs still remains an image of a utopian global society according to the Future of spaceship earth rapport. Globally we are not taking the steps needed to achieve the goals by 2030. However, as the Global opportunity and Better business better world rappers show, there is a significant economic potential available for those with the foresight and willingness to seize the opportunities presented in the rappers. Furthermore, the way these issues are addressed seems to have an impact on how they are perceived, as either a burden that belongs with governments and should not impede business operations or as opportunities to be seized by the savvy business leader.

3 Methodology

In this section the logic behind the choice of methods, their execution and significance for the ability to answer the research questions is presented and discussed. Methodology can be summed up as the overarching beliefs of the researcher that guides which epistemological/ontological assumptions that shapes the research, which methods are selected to collect data and how to find answers to the stated research questions, shown in the way the research is designed. These beliefs can be both explicit and implicit. After years of academic writing classes and lectures the lines between which thoughts are mine and which I have unknowingly adopted as my own are hazy at best. Furthermore, I think this is especially true as a fresh researcher writing a master study on which it appears the future depends. Seasoned researchers will through trial and error find the methods for doing research suitable for them in given situations, as well as through the participation in the academic discourse discover a more personal ontological position shaped by experience and time to reflect. The methodological choices leading to the research design in this study are shaped by both

circumstantial necessity and a personal proclivity towards the wordiness of the research methods found in the methodological toolbox of qualitative research such as participant observation and semi structured interviews.

The circumstantial limitations placed upon the research conducted in this study is both the nature of the case in question, the internship during which the participant observation took place as well as the time and geographical limitations imposed by a single semester study written half a world apart from the case in question. The choice to conduct a qualitative research is based on these circumstances and the nature of qualitative research which lends itself to the task at hand as a strategy the emphasizes words rather than quantification in collection and analysis of data. As a research method, it is broadly inductivist, constructionist and interpretivist (Bryman, 2016). Which is crucial when studying a case such as the LAMTIB initiative where quantifiable data is not available to a sufficient extent.

The inductive nature of qualitative research suggests that from the research process and the analysis of data leading to a discussion and a conclusion, some theoretical assumptions should be formed. In order to achieve this a carefully thought out research design needs to be formulated. The road from data to knowledge needs to be mapped out and framed within an appropriate context. To do so a research design has been constructed and formulated to create a background and a context in which the case exists. Furthermore, the selection of methods employed in the effort to uncover answers to the research questions needs to be well thought out and appropriate. The following sections will guide the reader through the thought processes of the researcher, so to be better equipped to judge the internal logic and reliability of the research.

3.1 Research design

For the study to be conducted in a transparent and understandable fashion a research design has been constructed which aims at being as well suited for answering the research questions as possible.

Research designs are different frameworks for the collection and analysis of data. Research design is, therefore, a framework for the generation of evidence that is chosen to answer the

research questions in which the investigator is interested. A research design also relates to the criteria that are employed when evaluating social research (Bryman, 2016, p.40).

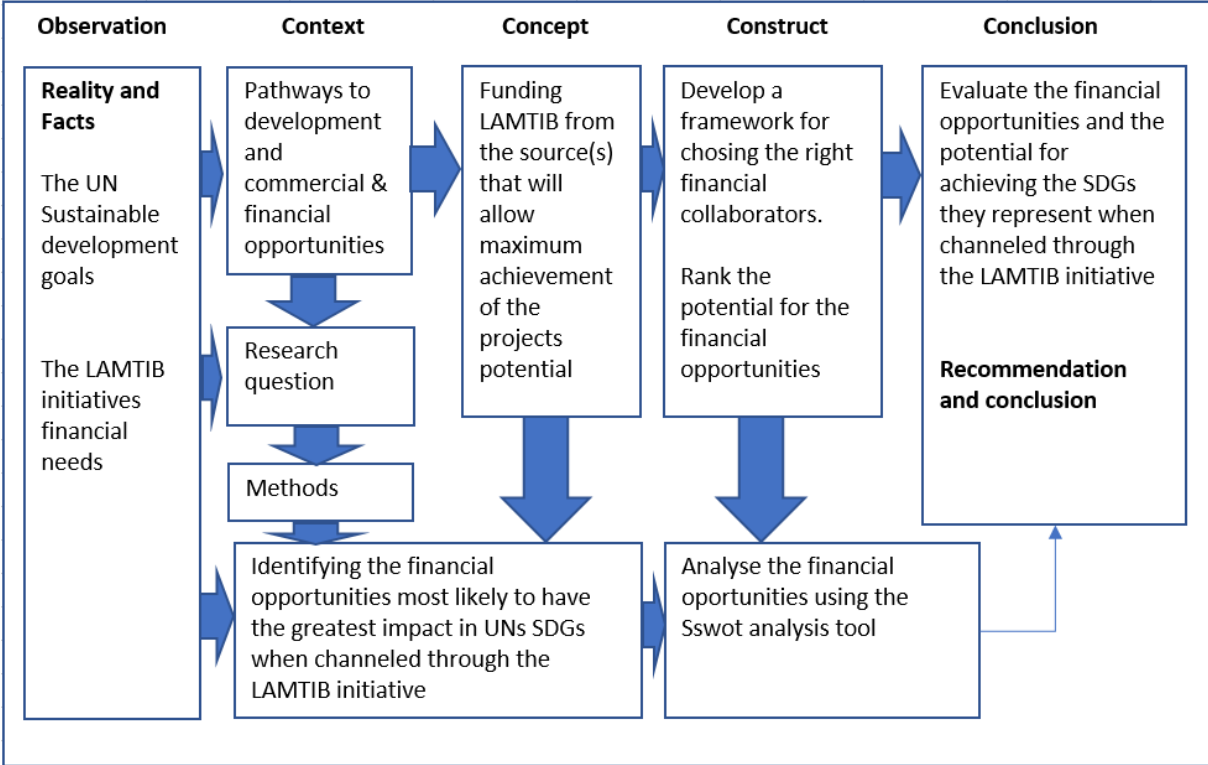


Figure 3. The research design constructed for this study (adapted from Davies, 1996:27).

The research design for this study is aimed at capturing the state of the world at a given moment in time to create a clear understanding of the conditions under which LAMTIB is developing its conceptual framework. The sustainable development goals provide such a moment, frozen in time at their publication in September of 2015. It is that reality the LAMTIB initiative is attempting to improve by taking advantage of modern technology, finding right partnerships and collaborations and the appropriate funding sources. These factors are addressed in the contextualization based on the reports by DNV-GL and The Business and sustainable development commission. They provide economically motivated roadmap forward to reach the goals set forth by the UN by highlighting the potential for business, civil society and governments to both work individually and come together to move forward in sustainable and productive ways for the betterment of all. Through the analysis of funding sources, the limitations and opportunities both they and LAMTIBs strategical and operational framework represent can be uncovered and provide answers to the research questions as well as be used to formulate improvement suggestions.

3.1.1 Exploratory study

The principal uses for exploratory case studies is to investigate distinct phenomena characterized by a lack of detailed preliminary research, in particular a hypothesis that can be tested, and/or by a specific research environment that limits the choice of methodology. Furthermore, clarifying the rational assumptions, the direction of the research and, most important, its purpose is crucial to the eventual success and outcome of a rigorous study on which subsequent research can be built (Streb, 2010). In the following sections I will address these issues in an effort to sufficiently inform the reader as to the rationale behind selecting an exploratory case study approach as part of the research design.

By doing so I hope to counter the perception held by some researchers that the degree of flexibility, for example in terms of data collection methods, and the lack of specific, theory-based prior assumptions often not considered a strength but a weakness is too simplistic, and that criteria such as reliability, which are applicable in all research methods, should serve as clear indications of the soundness of the research conducted in this study (Streb, 2010).

The decision to make this study exploratory is a combination of both a lack of a hypothesis as well as a research environment and topic ill-suited for other approaches than a qualitative exploratory case study. The lack of a hypotheses to test is in part influenced by the fact that the project is still in the final stages of its conceptual design. One could venture a hypothesis rather than a research question but the absence of any fully operational LAMTIB sites makes it very difficult to produce relevant measurable data to either confirm or falsify the hypothesis. It could be falsified or confirmed based on theoretical analysis, but that would yield mere speculations as the case would then be analyzed against selected cases that either succeeded or failed without necessarily being comparable. Furthermore, it would be unjust to dismiss or confirm an initiatives effort based purely on a theoretical basis. Therefore, the formulation of an exploratory research question is more suitable for the context of this study as this has the potential to produce new knowledge and insights on the strengths and limitations of the LAMTIB initiatives conceptual and operational framework and financial

projections. This approach may also produce recommendations towards taking action to get the project funded or adjust some aspects of the initiative.

As to the methodological restrictions placed upon the research process, this was limited by the first phase of data collection which was undertaken during an internship in Singapore, working on the LAMTIB initiative. Yet again the fact that the LAMTIB initiative is in many ways at conceptual maturity but still in its operational infancy places a few such restrictions on the research process. First, it limits the scope of relevant data to matching LAMTIBs financial strategies with those of potential contributors, collaborators and investors. However, conducting an exploratory study at this crucial junction, between concept and operationalization allows for the potential to improve the likelihoods for success by uncovering previously unknown treats and potentials, a positive contribution that would not necessarily have been the outcome of a hypothesis testing framework.

3.1.2 Case study

The basic case study design aims at the detailed and intensive analysis of a single case. Penetrating as deeply as possible in an effort to uncover the complexity and particularity of the case in question (Bryman, 2016). In this context that entails as previously mentioned the study of a single organization in conceptual maturity yet in operational infancy.

As tends to be the case with most case studies, and especially one that is exploratory it is inductive in nature. Furthermore, case studies tend to use qualitative methods such as participant observation and unstructured interviews as these methods are viewed as conducive to the generation of an intensive, detailed examination of a case. This correlates well with an undertaking such as a prolonged internship. When conducting a case study, the main concern for the researcher is to reveal the unique features of the case. In other words, an idiographic approach. The opposite research would be of a nomothetic cross-sectional nature which are concerned with generating statements that apply regardless of time and place (Bryman, 2016). However, a research study may contain elements of both. LAMTIB as a case is a very specific and particular entity, but the outcomes of the analysis may have broader implications for other initiatives and funders alike as well as other studies, or other similar

cases, which in this context would be other developmental startups, or society on a greater scale. New knowledge and insights is always another inch added to the shoulders of giants.

3.2 Data collection

The basis for the initial data collection was an internship co-hosted by Elkem Chartering AS and Preco AS in Singapore between July and December of 2016. The internship itself functioned as a prolonged data collection where the primary method of data collection was participant observation. The second stage of data collection was conducted in the period from late February until late May of 2017. The latter stage proved very challenging on several accounts. First, it proved exceedingly difficult to cold call potential informants. The list of organizations contacted that did not reply includes, but is not limited to, Doctors without borders, Asian development bank, Ferd, The Kuwaiti investment fund, Bayer AS and Export credit Norway. Second, some of the ones that did reply also proved difficult to pin down for an interview. From first correspondence with Norwegian churches Aid until the completion of this study nearly 3 months have passed without being able to conduct the interview.

The key that opened the door to good and relevant informants' lay with my mother and a friend of hers from the time she studied at NTNU in the late-80s. She is now the chief executive officer at the Kavli Foundation. After our interview, she kindly set me in contact with three organizations the Kavli foundation collaborates with. One obvious danger with getting access to the majority of my informants through one gatekeeper is homogeneity, but as became clear after the initial contact was established, the informants work with very different vantagepoints and scale via an investment fund with an impact component, to a major actor such as Norfund involved in huge investments across the globe mandated by the Norwegian government to initiate development.

The second group of informants are contacts I made in Singapore during my internship, all of whom have at least a basic knowledge and understanding of the LAMTIB initiative and two are active partners. With this group, as with the first I also conducted semi structured interview during my stay and via email after I returned to Norway, but the bulk of the data collected from them was through participant observation during my internship in Singapore.

3.2.1 Participant observation

The observations are made during a six-month internship in 2016 in Singapore with the LAMTIB initiative. It was unpaid, and apart from one work trip to the Philippines and entrance fee to project relevant seminars covered, no economic compensation was received. During these six months, I kept a field notebook chronicling the key incidents such as formal meetings and outings to sea farms for aquaculture and site visits in the Philippines. This generated some very interesting insights into some of the conditions LAMTIB is producing its conceptual framework to fit in the field. However, the bulk of the data collected from the participant observation came from the day to day work trying to comprehend the intentions, strategies and monetary needs of the project itself.

The combination of reading through pages upon pages of documents associated with LAMTIB spanning from email correspondence and minutes from meetings to the evolving project descriptions made by Mr. Preststulen and interns before me provided a longitudinal insight into what the initiative aims to be. This archeological document based studying was supplemented with informal talks with Mr. Preststulen and others associated with the project that either validated my, at any given point, feeling of understanding or explained to me why and how I was wrong in their perspective.

As Bryman (2016) points out participant observation is used so that the researcher can keep an open mind about the shape of what he or she needs to know about, so that concepts and theories can emerge out of the data. This is the inductive approach to theorizing and conceptualization that is usually geared to answering questions, but these are often expressed in a less explicit form than the research questions in more structured research.

This was very much the case with my work. I was tasked with working on funding and implementation of LAMTIB. To do so I first needed to gain a deep understanding of the

project, both in terms of financial needs and potential, the model for internal revenue streams, as well as how the moving parts of the project would function in practice once deployed into field operations. From my perspective as an intern the monetary needs were limited to figures before a dollar sign, and the potential number of sources seemed almost infinite. However, as the “on site” data collection drew to an end and the focus shifted from assisting in trying to formulate the needs and solutions for LAMTIB towards an academically relevant and useful topic the open-endedness of participant observation as a data collection tool became apparent. Through immersing myself into all aspects of the LAMTIB initiative in an attempt to be a helpful intern I had acquired deep insights into the project itself as well as an understanding of what Mr. Preststulen wants the project to become. It is based on this knowledge I could formulate the research questions for this study. With only a basic understanding of the project components the analysis of the impact various financial sources may have and the likelihood of them being a good fit would possibly be limited.

3.2.2 Semi structured interviews

The interviews were conducted in the period of mid-March until mid-June. The same basic questions were used for all interviews, which is shown in the interview guide (Appendix a).

Semi-structured interview is a term that covers a wide range of types of interview. It typically refers to a context in which the interviewer has a series of questions that are in the general form of an interview guide but is able to vary the sequence of questions. The questions are frequently somewhat more general in their frame of reference than those typically found in a structured interview schedule. Also, the interviewer usually has some latitude to ask further questions in response to what are seen as significant replies (Bryman, 2016, p.696).

As was mentioned in the data collection chapter the respondents can be grouped into two, the ones I got in contact with after the research question and theme of the research had been formulated and those I got acquainted with during my stay in Singapore. The nature of a globalized world combined with a student economy negated the possibilities for face to face interviews which in some cases may be an issue in social research. However, this research not being sensitive in nature I feel confident that they all replied as well as they could to all my

questions. Another factor speaking to the truthfulness of the recipients is the way a semi-structured interview is conducted. I had some preliminary questions about strategic choices and financial modus operandi which were replied to and in all cases the rest of the data came more or less unsolicited as part of the conversation. Additionally, it was eluded to web pages confirming and elaborating the content of the answers or sent emails with additional documents after the interview had taken place.

Informants

The following people from organizations related to the topic and theme of this study and central in their fields were interviewed for this study using semi structured interviews.

Inger Elise Iversen, Managing director of the Kavli Foundation

Pål Dale, Managing director and co-founder of Voxtra

Peter Molthe, Senior Advisor, Information Office for Private Sector Development, Norfund

Harald Birkeland, Senior Adviser at the Department for Climate, Energy, Environment and Research, Norad

Torgeir Ulset, Vice President of Sales for Asia Pacific, REC

The following were interviewed during the participant observation period with follow up email interviews with Preststulen and Lee in April-June 2017.

Tom Preststulen, Managing partner, Elkem & founder of the LAMTIB initiative

Allan Lee, Marine biologist, Gaia Mariculture

Harry Antiporta, Fish farm operator Cebu, Philippines

3.2.3 Literature review

As was eluded to in the exploratory case study section, the research conducted in this study is if not groundbreaking at least breaking new ground. The uniqueness of the composition of modules forming the holistic approach taken by the LAMTIB initiative leaves the literature wanting. There are articles and book chapters addressing off-grid electrification, clean water,

sanitation, education and sustainable food production but searches in the NTNU database Oria yielded no hits when combining them. However, as this study is concerned with how LAMTIB can be funded in order to maximize its contribution towards the attainment of the SDGs the contextual framework selected for this study combined with the empirical input from the interviews conducted with central actors within the financial community is considered to be sufficient and appropriate to answer the research questions.

4 Theoretical framework

The fruitful analysis of any given topic requires an appropriate analytical framework. For the purposes of this study I employ a combination of two well established analytical tools as well as the financial sources. The financial sources serve as analytical tools in the sense that they provide a framework and impose unique sets of opportunities and limitations on the execution of the LAMTIB initiative in terms of financial viability.

4.1 Swot analysis

The SWOT analysis will be used as an analytical tool used to identify the strengths, weaknesses, opportunities and threats of each of the individual financing possibilities as they stand based on the empirical data, additional literature and company strategy documents. After the LAMTIB initiative case is presented the results from these SWOT analyses will be analyzed within the context provided by the case using the sSWOT framework, which will be presented in the next chapter.

SWOT analysis is most commonly used by businesses and other organizations in an effort to ensure that there is a clear objective defined for the project or venture, and that all factors related to the effort, both positive and negative, are identified and addressed. The classification of the relevant factors includes both internal and external components that could either strengthen or weaken the likelihood of achieving to desired outcome (Osita, Idoko & Nzekwe, 2014).

The key purpose of the SWOT analysis is to identify the strategies that will create a firm specific business model that will best align an organization’s resources and capabilities to the requirements of the environment in which the firm operates. By doing so you create a foundation for evaluating the internal potential and limitations and the probable/likely opportunities and threats from the external environment (Osita et al, 2014).

For the purpose of the research done in this study the use will differ slightly from this as its primary function is as a tool to highlight the differences and similarities between the different sources of financing and funding and assessing their potential compatibility as collaborative funders of the LAMTIB initiative. Furthermore, there is no project or venture to which the SWOT is being applied directly. It is merely an exploration of the nature of each of the funding sources as they stand. The qualities within each SWOT category are chosen to illuminate aspects of each of the financial sources suggested as possibilities in this study relevant for the LAMTIB initiative.

Table 2. Key features of the financial opportunities assessed

Strengths	Weaknesses	Opportunities	Treats
Solid finances	Inadequate finances	Mandate to pursue SDGs in any form	Absence of interest in SDGs
Assets (physical, human, organizational)	Lack of assets	Positive to collaborate across financial models	Negative to collaborate across financial models
Capabilities	Lack of capabilities	Startup friendly	Startup negative
Valuable know how	Lack of know how	Risk willing	Risk averse

4.2 sSWOT analysis

The sSWOT analysis builds on the SWOT by adding an action oriented emphasis on the findings the SWOT yields and is at such useful when analyzing the LAMTIB case as it moves from conceptual framework into operational initiative seeking funding.

“The sustainability Swot (Sswot) is designed to help drive action and collaboration on environmental challenges creating real business risks and opportunities. [...] The use for this

guide is to work across internal departments, as well as suppliers, customers, or other stakeholders on strategies to create and sustain long-term value”. (Metzger, E. S, Putt Del Pino, S, Prowitt, J, Goodward & A, Perera, 2012, P.1)



Figure 4. sSWOT analytical framework (Metzger et al, 2012:2)

The main purpose of this model is to evaluate a company’s strategies and translate insights about environmental challenges into risks or opportunities that the company can act on (Metzger et al, 2012). In the context of this study that is a useful approach in two ways. First it may serve as a discovery and clarification tool to uncover the true potential of the LAMTIB initiative to effect positive change, as well as the opportunities for financial actors to both assist and ideally profit from contributing in the process.

The sSWOT enables consideration of the broader connections and opportunities for collaboration inside and outside any given entity under analysis than the traditional SWOT. By developing this framework, the aim is to place focus on the likelihood that the effects of long-term environmental challenges like climate change or natural resource scarcity will be creating significant business risks and opportunities in the years to come (Metzger et al, 2012). Essentially echoing the sentiments of the DNV-GL (2016a) and BSDC (2017) but adding a tool for businesses to assess its own position and potential within the changing economic realities.

Dealing only with the risks and opportunities the aforementioned changes represent could fit into a traditional SWOT analysis which as previously discussed is an assessment of an entities internal strengths and weaknesses, in relation to the external opportunities and threats. sSWOT builds upon this and conducts a SWOT analysis with the addition of a special emphasis on sustainability (Metzger et al, 2012). Furthermore, the top of the pyramid calls for prioritizing and action. By doing so you operationalize the insights gathered from the traditional SWOT in the middle of the pyramid. The addition of big trends like the SDGs and the requirements in the final stage to analyze the need for action to mitigate risk and seize opportunity makes this an analytical tool ideally suited for initiatives such as LAMTIB, where the focus already lie with SDG attainment and standing on the threshold of action. Viewing the potential financial solutions through the sSWOT lens may provide insights identifying a need to alter strategic or operational frameworks and choose the financial partners best suited to move forward in an impactful and economically sustainable way.

4.3 Funding categories

The quantity of available capital across all the financial categories chosen for this study is enormous. The number of actors is equally daunting when faced with the need to extract the essence of a financial category to a manageable size for analysis. Consequently, dealing with all the specificities and unique requirements for eligibility across all funding sources is beyond the scope of this study, therefore the financial categorizations will be dealt with in more general terms. However, the discord within the categories is explored as this has implications for anyone seeking collaborations within a category beyond any one definition. For the sake of analytical clarity efforts have been made to grasp their characteristics and

what limitations and opportunities they represent. These generalizations are made based upon a synthesis of the empirical data from the interviews and mission statements from relevant and prominent actors within each segment.

4.3.1 CSR

Corporate social responsibility (CSR) is based on the realization that business has an impact and that the negative effects of conducting business to both ecology and society should be avoided or minimized.

CSR is the responsibility of any organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behavior that: Contributes to sustainable development, including the health and welfare of society. Takes into account the expectations of stakeholders. Is in compliance with applicable law and consistent with international norms of behavior. Is integrated throughout the organization and practiced in all its relationships (International organization for standardization, 2016, p. 3)

This is the definition the International organization for standardization (ISO) uses in ISO 26000, guidance on social responsibility (2010), aimed at helping businesses and organizations contribute to sustainable development. As such it represents a best practice operational suggestion organizations live up to in varying degrees. The emphasis is on conducting the business in a socially responsible manner and does not include, at least not explicitly, engaging in activities outside of its corporate core operations. However, as made evident by the providers of the enabling technologies to the LAMTIB initiative, Renewable Energy Corporation (REC) and Temasys, CSR can go beyond the ISO definition (LAMTIB, 2017).

CSR and the SDGs

CSR is a prerequisite for the attainment of the SDGs on several levels, from providing the employment opportunities needed, to taking part in the collaborative efforts the goals call for. Business contributions may therefore range from conscious efforts made by corporations and organizations to actively pursue the SDGs to being byproducts of seizing the financial opportunities a shifting global economy presents.

CSR as funding source

The financial benefits of being a CSR recipient may take several forms related to an initiative such as LAMTIB, from contributing human resources, technological resources to organizational capabilities and know how. The collaborators in the LATMIB initiative for instance enable its initial operations through pro bono delivery of technology and services. For a startup, this translates into lower capital needs to get off the ground and a baseline inventory to initiate activities. However, as upscaling or rising operational cost increase the need for additional capital sources may be required. One of the main partners for LAMTIB is REC whose CSR program is funded over the marketing budget and is not deemed to be a prioritized area when it does not overlap with the company's overall strategy, which means that the pro bono work will quickly reach saturation as REC has limited technical resources after the solution group which saw LAMTIB as strategically beneficial was shut down (Ulset, 2017).

The process through which projects are selected to be a REC CSR project is mainly through request rather than the company actively seeking them out. Which are chosen for action is dependent on who is asking, for instance it may be owners like Elkem, Blue Star or ChemChina wanting to use REC in their CSR projects or local authorities and organizations in Singapore that wants to showcase REC. The cases where the requests coincide with REC needs and image are often initiated (Ulset, 2017). The collaboration with LAMTIB was entered into before Mr. Ulset started working in Singapore but he believes that who approached REC was important, as well as the potential for LAMTIB to be used as a case for RECs solution group and as such collaborating with LAMTIB supported the strategy at the time (Ulset, 2017).

Another way for companies with a CSR program to contribute which is held by Mr. Preststulen (2017) as a funding source is company outreach programs, wherein LAMTIB collect a subscription fee from providing its electricity and communication infrastructure and e-learning platforms to interested parties with a desire to educate local populations on for

instance agroforestry or maternity health. However, in terms of this study this will be included as part of the internal revenue streams in LAMTIB rather than as external funding for startup or upscaling.

SWOT CSR

	Helpfull	Harmful
Internal	Strenghts	Weaknesses
	Solid finances Organizational capacity Organizational capability Technological knowhow Human resources	Not their core activity Not a prioritized activity Contingent on CSR positive leaders Financially limited by marketing budgets
External	Opportunities	Threats
	Provides company recognition Increased awareness of company Expanding market opportunities	Economic downturns Change in leadership Change in strategic focus

Figure 5. SWOT analysis of Corporate social responsibility as financial source. (Osita et al, 2014)

4.2.2 Official development aid

Official development aid (ODA) given to the countries of South East Asia totaled 5619 million USD in 2015 (World bank, 2017), out of which 104.8 was contributed by the Norwegian agency for development cooperation (Norad, 2017a).

Norad focus its efforts on the people living in the lowest strata of the pyramid (Birkeland, 2017) As such Norad administered aid represents a significant potential source of funding for LAMTIB and other initiatives alike focusing on creating developmental opportunities for the poorest segments of the population. The key features of aid as a financial source in the context

of this study is the conditions under which aid is granted, the sectoral focus and the intended outcomes of aid. Norad, being a substantial actor in ODA, is used to represent aid as a financial opportunity for LAMTIB.

Aid is risky and Norad has a lot of experience with good ideas and optimistic initiatives that has failed to get off the ground and there is often a lack of local competencies (Birkeland, 2017). There are several ways of counteracting this, among them using aid to further efforts that are already under way and can show positive results as well as selecting partners in the field with a strong organizational structure. Both measures have implications for the would-be grantees as it requires at least some degree of operational capacity before being eligible for funding. Another feature of Norad granted aid is an increase in issuing calls for proposals where an open invitation is announced and the best proposals meeting the criteria are chosen for funding (Birkeland, 2017). The calls are sorted thematically and as such it falls on the applicant to find the grants applicable for its activities and/or align its activities to fit the strategic aims governing the Norad grants as well as fulfill the criteria.

Applications

The application process in the calls for proposals may include several rounds wherein applicants are selected to go through to the next or are discarded. After the deadline for submitting proposals has passed the assessment of the viability of the projects that meet the criteria Norad has defined are evaluated with an emphasis on the quality of the concept note in relation to the priorities and the assessment criteria indicated which are the organizations management and implementation capacity, previous experience and results working in the sector in the project country/project area (Norad, 2017b). The ideal collaborator for Norad is someone with an understandable concept that is credible and is likely to be autonomous after initial funding is provided by Norad, in some cases passing the torch to Norfund for additional investment when private investment capital is insufficient or aid is no longer needed (Birkeland, 2017). Requirements vary between the different calls for proposals currently available on the Norad website and range from relatively short lists to quite exhausting including liquidity requirements and minimum annual turnover (Norad, 2017c).

Focus areas

Being an ODA actor of significant size Norad supports a wide range of activities crossing several sectors. Norad support several projects that focus on capacity building and education, teaching people to keep learning as well as teach others what they have learnt, and by doing so facilitating local capacity building (Birkeland, 2017). Another focus area is development in renewable energy and job creation. The main objective is to contribute to job creation in developing countries by stimulating to more, sustainable commercial investments. In addition, it aims to stimulate renewable energy projects that increase access to renewable energy and thereby contribute to job creation and poverty reduction (Norad, 2017d).

SWOT ODA

	Helpfull	Harmful
Internal	Strenghts	Weaknesses
	Solid finances Stabil partner Established partnerships with other actors Organizational capabilities Risk willing	Not necessarily startup friendly Bureaucratic No calls for holistic development proposals
External	Opportunities	Threats
	Focus areas Potential partner for upscaling after initial funding is secured Not startup denying	Change in political mandate Competitive bids for funding Due diligence requirements

Figure 6. SWOT analysis of official development aid as financial source (Osita et al, 2014)

4.2.3 Impact investment

Impact investment and social responsible investment are closely related with some differences. To keep them separated it is important to define and explore the nuances of these two investment narratives. The definition of what impact investment is and could be is seemingly dependent on who defines it, their philosophical inkling in the matter and what they want to achieve.

Cambridge Associates and the Global Impact Investing Network (2015) have collaborated to launch the Impact Investing Benchmark made of 51 private investment funds. Their report concludes that the impact investing industry is in an early stage of development, but is poised for growth. The main obstacle for accelerating impact investments is believed to be a lack of research on the financial performance. They define impact investments as investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return. Furthermore, they state that despite a perception among some investors that impact investing necessitates a concessionary return, this is not the case.

Brest & Borne (2013:21) provides a similar but somewhat opposing definition.

An impact investor seeks to produce beneficial social outcomes that would not occur but for his investment in a social enterprise. In international development and carbon markets, this is called additionality. With this core concept in mind, we define the practice of impact investing capaciously, as actively placing capital in enterprises that generate social or environmental goods, services, or ancillary benefits such as creating good jobs, with expected financial returns ranging from the highly concessionary to above market.

The main difference is the concessional expectations as well as the additionality Brest & Borne (2013) includes in their definition as social outcomes that would not occur but for [...]. This difference as will be made clear can be seen in the difference between private and publicly managed impact investment capital.

Private impact investment capital

Voxtra was founded 5 years ago as a private impact investment fund operating with a focus on the financial bottom line but with the extra condition of social improvements associated with the investment. The balance of the investments so far has been impact first but this will tilt towards a more economic ROI oriented approach (Dale, 2017). The fund goes in for a minority shareholder/ownership in companies, with the intent to scale up production capacity

through its investments and engagement in both startups and small/medium businesses with capital needs and competences to improve the business management

The requirements to get funds a company must have completed the research and development stages and ideally be done with phase one of investments. Additionally, it would be difficult to get funding from Voxtra for a project that is not immediately obvious that is extremely scalable or has a very clear profit model including how it will operate “on the ground” with proof of concept and proven ability to show scalability. Furthermore, any company seeking funds must have a good team and a dedicated organization that goes “all in” (Dale, 2017). As such Voxtra seems to balance and reduce risk by conducting a due diligence with some risk mitigating baseline requirements.

After investments in companies are made Voxtra encourage and help in the efforts to reach western standards for operations after which Voxtra looks for other institutional investors to further upscale operations. The biggest risks Voxtra face in the field relates to execution, if the leadership of the company has the capacity to get the job don and agricultural specific risk such as climate, crop disease as a drought leads to more expensive raw materials for their chicken company in Uganda (Dale, 2017).

Official impact investment capital

Norfund is Norway`s development finance institution currently managing a portfolio totaling 2.4 billion USD of which 60 million USD is via the official development aid budget. Norfund works under a 1997 mandate to reduce poverty through economic growth, energy access and synergetic effects from said efforts. This is currently manifesting itself through a focus on investing in agriculture, clean energy and finance, adding off-grid electrification to the clean energy category last year. Through their investments the intention is to create additionality and act as a catalyst for attracting private capital (Molthe, 2107). As such their mandate and activities falls within the definition presented by Brest & Borne (2013) but differs from the definition private impact investors operate under, as well it should for the condition of additionality being fulfilled. The difference between private and public impact investment can also be seen in risk and return on investment (ROI) criteria held by Norfund.

The ROI standards are set by Norfund themselves is not part of the mandate dictated by the Norwegian ministry of foreign affairs. ROI for Norfund investments may be low medium or high, the key is that they are commercially viable and economically sustainable as an investment with no ROI is not a sustainable investment (Molthe, 2017). The aim is that ODI billions may trigger trillions of private capital by taking greater risk and improving economic frameworks in less developed countries facilitating business.

The higher willingness to take risk has bounds and Norfund does not invest in startup but rather upscales existing businesses utilizing commercially tested technologies. Before the investments are made to create additionality and acts as a catalyst for private capital attraction there is a due diligence wherein potential recipients of investments must show 10 million USD in equity and an experience and competent management is required. A lot of potential investments are faulted on this requirement (Molthe, 2017) Once the decision to invest is made in sustainable and economically viable businesses the size of investments are at least 3 million USD for a minority stake of 30 percent.

SWOT Impact investment

	Helpful	Harmful
Internal	Strengths	Weaknesses
	Financially strong Organizational capaicity and know how	Not necessarily start-up friendly
External	Opportunities	Threats
	Upscaling Somewhat risk willing Organizational assitance	Equity demands Organizational requirements Impatient towards return on investment Due diligence

Figure 7. SWOT analysis of impact investment as financial source (Osita et al, 2014).

4.2.4 Socially responsible investing

Socially responsible investments (SRI) is in comparison to impact investment a more passive form of ethical investments even if the SRI focuses on ESG factors (environment, social and governance) it can range from simply excluding investments in businesses operating in what is considered unethical fields, like tobacco or the military industrial complex, to SRI at its most action oriented actively seeking those investment opportunities that operate under best practice conditions in a given segment of business not deemed unethical by the investment fund (Revelli, 2017). Matloff, Roger & Chaillou (2013) use a somewhat broader understanding of SRI as they include activist investors, trying to directly impact those business practices that they found to be unacceptable within their portfolio.

Within these definitions of SRI there is a lot of ambiguity as best practice in terms of the ESG factors could vary considerably across different sectors, from a business actively pursuing broad benefits from its activities in one, to a business doing the least amount of damage in another.

The intangibility of the concept becomes even clearer when shifting focus from academic interpretations over to SRI venture capitalist like JP Morgan, which states the following as guidelines for their 113 million USD Global socially responsible fund: the investment objective is providing long-term capital growth by investing primarily in companies, globally that the investment manager believes to be socially responsible. (JP Morgan, 2017). The phrasing allows for interpretations on several levels. First, it implies a certain number of non-socially responsible investments, secondly the definition of socially responsible is left to the believes of the investment manager, rendering SRI as an investment category fuzzy.

In terms of SRI funding potential approximately one dollar out of every eight invested through a professional investment management product is in some way involved in a SRI screening process or other means of SRI. For 2013 that signifies approximately 3.1 trillion dollars out of a total professionally managed segment of the market, estimated to be more

than \$25 trillion (Matloff et al, 2013). Consequently, it is obvious that SRI represents a significant potential source of funding for any would be socially responsible market actor.

ESG & Sustainable SRI

The most common forms of SRI applicable in this study are Environmental, Social, Governance (ESG) and sustainable investing. The ESG approach announces its intentions in the title as it seeks to avoid companies that do harm to the environment while preferring those who follow sustainable practices. As such ESG is SRI at its most basic negative screening practice with a new set of parameters guiding investments, avoiding companies with harmful business methods and rewarding those who operate responsibly.

Increasing attention is being given to sustainable investing within SRI rooted in the growing awareness and subsequent concern about the environment of our planet and what human activity is doing to it (Matloff et al, 2013). Some of the main concerns for these investors are deforestation and the use of fossil fuels, natural fertilizers, fresh water, and arable land. By using their portfolios as a tool to affect change in more and more cases investors are focusing on providing more and more investment to those companies which are taking it a step further than simply doing no harm, but are attempting to better the planet through sustainable practices which actually improve the earth's resources (Matloff et al, 2013). A change in SRI practices that moves it towards impact investment in shape and form. This indicates that two investors could fund the same entity with the same rationale but seeing themselves as two different kinds of investors.

It is important to note the ambiguities inherent in concepts such as SRI, CSR and Impact investing due to a lack of consensus as this implies several interpretations and therefore definitions of what it is, and in turn how to participate within it. For investment firms, this makes no to little difference as they in a sense initially hold all the cards. For anyone trying to get funded the lack of a unified SRI understanding and practice suggests a need to tailor make strategic frameworks, social and financial ambitions, as well as return on investment strategies to the specific entity from which they seek SRI funding.

SWOT SRI

	Helpfull	Harmful
Internal	Strengths	Weaknesses
	Financial streangth	Negative screening methods No clear channel to reach funds
External	Opportunities	Threats
	Increaed focus on ESG factors Upscaling	Financial focus Return on investment focus

Figure 8. SWOT analysis of SRI as financial source (Osita et al, 2014).

4.2.5 Philanthropy

Philanthropy literally means love of mankind, and the act of philanthropy regardless which form it takes is humanitarian in nature (Miriam-Webster, 2017) The global philanthropic landscape includes several mega wealthy donors such as Bill Gates, Michael Bloomberg and Warren Buffet who have publicly committed their energies and wealth to transforming society through philanthropy. Their foundations and approaches to philanthropy such as venture philanthropy, philanthrocapitalism, strategic philanthropy, and effective altruism are creating what is often broadly termed “the new philanthropy” (Rogers, 2015). The terms are to an extent interchangeable but to be able to deal with philanthropy as one of several financial options in the analysis requires a brief exploration of the terms and how they relate to one another.

Philanthrocapitalism

The new philanthropy sprung out of the new business models and technologies that created an economic boom in the 1990s. The context and way the emerging philanthropist made their

fortunes seems to have influence the way they see how to utilize their wealth in philanthropic endeavors, establishing foundations that emulate the experimental, innovative, technology-oriented solutions that had created the new wealth (Rogers, 2015).

To separate the new wave of philanthropic foundations from the existing business as usual ones Mathew Bishop, the Globalization Editor at the Economist, coined the term “Philanthrocapitalism” in 2006 in a special report published in The Economist (Rogers, 2015). The report emphasized the belief held by the new philanthropists that philanthropy needs to become more like the for-profit capital markets, and the transition to a functioning philanthropic marketplace hinges on three factors (Economist, 2006).

First, there must be something for philanthropists to invest in, ideally something that will be created by social entrepreneurs. Second, the market requires an infrastructure, a philanthropic equivalent of stock markets, investment banks, research houses, management consultants. Third, philanthropists themselves need to behave more like investors. This means allocating money to make the greatest possible difference to society's problems: in other words, to maximize social return on investment. Some might operate as relatively hands-off, diversified “social investors” and some as hands-on, engaged “venture philanthropists”, the counterparts of mainstream venture capitalists (Economist, 2006).

Effective altruism

Effective altruism is essentially an assessment ideal aimed at determining how to best use resources to help others the most through the use of evidence and careful analysis to find the causes that can deliver the most improvement per dollar spent. The effectiveness is still not reached through simply determining where the greatest impact can be achieved, the call for action is also an intrinsic part of effective altruism (The Centre for Effective Altruism, 2017).

Strategic Philanthropy

Strategic philanthropy is similar to effective altruism in as much as it aims at targeting areas of maximum impact potential. The method requires access to and analysis of transactional data about who is giving where and to whom, contextual data to support effective giving, and impact data on the effectiveness of the contributions (Baker, Barraket & Elmes, 2016)

As of yet the use of strategic philanthropy is limited, but if the relationship between big data and social progress associated with philanthropy and volunteering expands the role of big data in assessing social impacts of funded interventions, where research suggests data analytics can help funders learn what works and why (Baker et al, 2016). This has the potential to place all endeavors operating anywhere in the world under the magnifying glass with a likely Darwinian outcome. Favoring those that have well thought out adaptable strategies, working in high impact areas and placing the slow moving low impact

At this point it would be prudent to point out three aspects of the new philanthropy and its accompanying tools and vocabulary of particular relevance for this study. First, it aims at finding ways of using money where they have the greatest effect, with the added benefit of providing market incentives for companies to place some of their attention in those emerging consumer markets. Secondly, the utilization of technology as key component both as big data analyzing where, how and when to direct efforts, but also as a crucial tool in field operations. Thirdly, philanthropists may be as risk willing as they like with their money, making them potentially start-up friendly (Economist, 2006).

The Kavli foundation

The Kavli Foundation has, like the different financial categories, qualities that defies firm definition as they finance projects in several different ways. The Kavli foundation have a joint impact investment venture with Voxtra in Uganda where Kavli will redeem their investment after the project has become economically viable. The impact investment strategy is set to be expanded in the coming years. However, they also make donations, supply the competencies needed, give loans and provide guarantees to secure other funding (Iversen, 2017). The choice to place the Kavli foundation within philanthropy rather than in any of the other, is to

strengthen the analytical basis with the empirical data provided by Iversen (2017) on the topic.

The foundation has handed out 28 million USD over the last three years with 60 % going towards humanitarian projects in health and education projects related to people living in extreme poverty, mental health of children and young people, outsiders, dementia and other vulnerable groups. The grants are issued in stages with mandatory reporting on social impact and achieved results (Iversen, 2017).

The foundation is start-up friendly and can provide bridge funding until additional external investments are made. However, they do not accept unsolicited applications (Iversen, 2017). This implies a requirement for start-ups to have a platform to communicate its intentions and plans where the Kavli foundation can reach the information. This seems like an avenue that is left wanting as it hard for the Kavli foundation to find good projects to invest in (Iversen, 2017). Good projects in this sense are those with the potential to grow and eventually become self-financing, and as such decisions are based on traditional economic principles assessing the risk and economic potential of each project (Iversen, 2017).

Once grants have been made the key to succeed in the field is making sure that the project is locally embedded. Everyone in the village should be involved. Should also be embedded in public structures as systemic changes are important. (Iversen, 2017). Sectorally, Kavli is currently looking for good educational entrepreneurs with skills programs that enable workable skills and salaries in rural settings with the poorest people, and is increasingly looking into the impact technology can have when implemented correctly (Iversen, 2017).

Global philanthropic statistics

To clarify the enormous potential philanthropy represents in terms of being a financial source it is useful to mention a few key figures.

In 2015 the total amount given to charitable organizations was 373.25 billion USD, the majority of which came from individuals. Specifically, 264.58 billion USD, totaling 71%

of all giving. The other major contributors were foundations giving \$58.46 billion USD and corporations who donated \$18.45 billion USD (Charity navigator, 2016).

Where the money goes

When divided into sectoral contributions relevant for this study the figure drops somewhat, but philanthropy still represents significant potential.

Education 57.48 billion.

Human Services - 45.21 billion.

Health charities - 29.81 billion.

Charities that focus on the Environment / Animals - 10.68 billion.

Public-Society Benefit charities - 26.95 billion.

SWOT analysis

	Helpful	Harmful
Internal	Strenghts	Weaknesses
	Financially strong Sectoral focus Ability to act quick when the "right" idea is found Organizational capability	No clear lines of communication Diverse understanding of how philanthropy should be conducted Unclear/varied guidelines for applications Unclear/varied requirements for applicants
External	Opportunities	Threats
	Strategic philinthropy Partnerships increasing awareness	Competition to capture attention

Figure 9. SWOT analysis of philanthropy as financial source (Osita et al, 2014).

4.2.6 Miscellaneous other sources

Given the scope and methodology used for conducting this study some obvious financial sources have been left out. Key among them is grants, specifically research grants for one or more of the LAMTIB modules as they utilize new technologies in innovative pairings and

new environments. Grants as a term may be applicable in describing ways of receiving funds from the sources already discussed, it is merely dependent on the conditions under which contributions are made. Crowdfunding has also been left out even if it may be a useful way for LAMTIB to seek funds. However, crowdfunding is an intangible entity entirely dependent on LAMTIBs ability to reach and win the hearts and minds of would be donors making it difficult to analyze in a study such as this. Noteworthy in this regard is The Ocean cleanup initiative created by 23-year-old Boyan Slat raising 2.2 million USD in startup capital (The Ocean cleanup, 2017). This shows the possibilities that lies in crowdfunding a startup when reaching large numbers of people with a good and accessible idea.

4.3 Summary

There are a lot of financial opportunities available across the presented economic sources for entities pursuing positive social and economic outcomes. The categorizations do not represent clear and distinct options but are rather somewhat unclear and overlapping depending on how actors define themselves within each category. This indicates a need for capital seekers to tailor-make their requests and operations, not only by category, but also for individual actors in order to fit their strategic aims and operational requirements. The overlapping that stems from unclear definitions of the categories is reinforced by actors within each segment such as the Kavli foundation issuing its monetary support in ways that could fit into several of the categories as well as expanding into new ways of funding as they prove fruitful.

The SWOT analyses conduct for each category also show the same strengths, weaknesses, opportunities and threats across several of the financial methods explored, with some important differences that may impact the analysis of the LAMTIB initiatives likelihood of qualifying as recipient of CSR, investments, ODA or philanthropy and their potential to be a sustainable financial partner.

5 Case study: The LAMTIB initiative

LAMTIBs main objective is to initiate locally driven development through education, job creation and improved health and living conditions through off-grid solar electricity powered container based modules. The main idea behind the project is utilizing the newest technology available to create a site-specific ecosystem of activities designed to meet immediate needs as

well as facilitate longer term economic growth and development through up- and reskilling, education and job creating enterprises directly linked to LAMTIB such as aquaculture and agroforestry as well as foster entrepreneurial activities by distributing parts of the profits back to the community in the form of locally administered microloans. By providing education, job training, technology, electricity and logistical infrastructure the places left behind by the economically discriminating forces of globalization are given the tools to design their own connection and by so doing take control of their own development.

5.1 Mission Statement

The LAMTIB initiative concept description states that it aims at empowering underprivileged through sustainable leapfrogging technologies. Furthermore, the underprivileged should live in areas with unexploited natural resources. The technologies and relevant training will make it possible for populations to create jobs and products from coastal seas and agroforestry, whilst simultaneously enhancing health and education. With improvements of the standard of living and purchase power, enterprises with corporate social responsibility programs as well as NGOs benefiting from the availability of LAMTIB's technologies (Preststulen, 2017).

5.2 LAMTIB modules

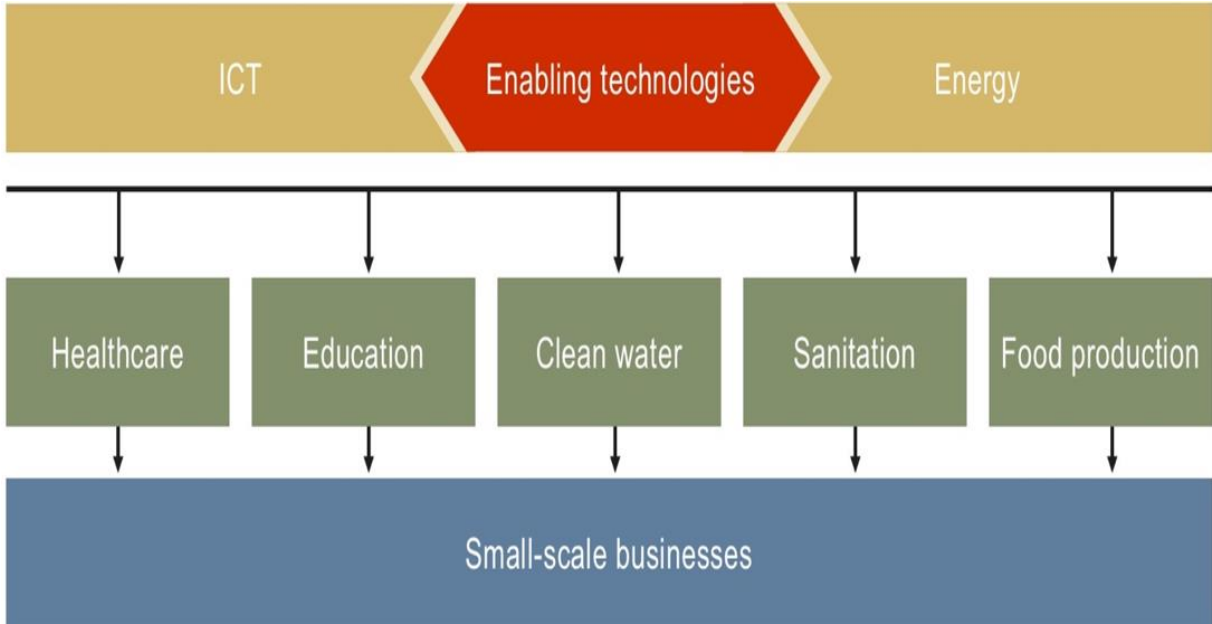


FIG 10. LAMTIB operational framework (LAMTIB, 2017).

The figure describing LAMTIB is deceptively straight forward, but it serves well as an illustration of the key components and what the intentions and underlying ideas supporting the initiative are. However, it warrants some further exploration as the links between healthcare, education, clean water, sanitation, food production and small-scale businesses are not necessarily immediately clear and linear. Categories like clean water, satisfactory sanitary conditions, health care and education in the context of small-scale business serve primarily as enablers rather than being directly linked to local employment. That being said, each of the categories will provide some employment opportunities in for instance operating and maintenance. The key to the success of LAMTIB as a concept lies in the synergetic outcomes of them working in concert to facilitate sustainable bottom up development by producing opportunities for locals to seize.

LAMTIB will provide the different sites with the OUTPUT of the technologies, including education and training. It is LAMTIB's responsibility that the technologies work, that adequate improvements are made when better technologies become available, and that amendments in the structure of the technologies, being composition or scale, will be taken care of so that what each site will have is in harmony with the need (Preststulen, 2017).

5.2.1 Education

Education in this context encompasses both regular schooling from primary to tertiary level as well as training programs aimed at up and reskilling relevant to the existing, and LAMTIB facilitated, economic opportunities at each individual site. By doing so the local population will both be better equipped to perform existing tasks as well as closing the educational gap in addition to up and reskilling them to perform new jobs.

5.2.2 Clean water & Sanitation

Providing clean water at each site will eliminate diseases from water borne pathogens as well as removing the burden of collecting water from existing sources, often far away and contaminated, a task commonly performed by women and children. Improving sanitary conditions, like clean water, has a significant health benefit (LAMTIB, 2017).

The time and costs associated with illness will be removed as will the time spent going back and forth to the pre-existing water source allowing women and children to pursue more productive activities with their time, like education and skill training. More and better

education and practical skills is assumed to improve individual capacities to seize opportunities, better equipping the coming generations to pursue economic opportunities as well as empowering women to do the same.

5.2.3 Health care

Health care in the ICT age has the potential to decentralize the availability of quality services through the use of telehealth and by converting containers to examination rooms making it available for far greater numbers and eliminating costs related to travel and stay in centralized health facilities like hospitals and clinics. In essences using technology to make the doctor virtually come to them rather than the more expensive and time consuming other way around.

5.2.4 Food production

Food production has the biggest job creation potential among the main pillars as well as serving along the other modules as an enabling factor as it is only when basic needs like proper nourishment are met, improvement efforts looking further than today and tomorrow are likely to be pursued. By fitting a hatchery in a container LAMTIB (2017) will supply local fish farmers with locally produced high-quality juveniles for outgrow, reducing dead loss from transport and eliminating emissions using algae and copepods cultivated on site as feed. The same will be done for land based farming activities through nurseries in containers (NIC), cultivating locally adapted agricultural products for improved yields and climate resistance. In terms of jobs and economic potential the food production activities represent 95 of 130 initial jobs projected to be directly linked to LAMTIB activities at each site (Appendix b).

Integrated multi-trophic aquaculture

Integrated multi-trophic aquaculture (IMTA) is designed to replicate ecosystems by using the waste from each level in the aquaculture system to feed another species and thereby reducing the amount of pollution, producing proteins and marine byproducts in an eco-friendly sustainable fashion (LAMTIB, 2016). Additionally, algae and kelp production as a part of the IMTA module has carbon sequestration potential at scale (Lee, 2016). LAMTIB has a test site developing this method in Cebu in the Philippines, which is showing promise having started to attract schools of sardines around it, previously not there (Antiporta, 2016).

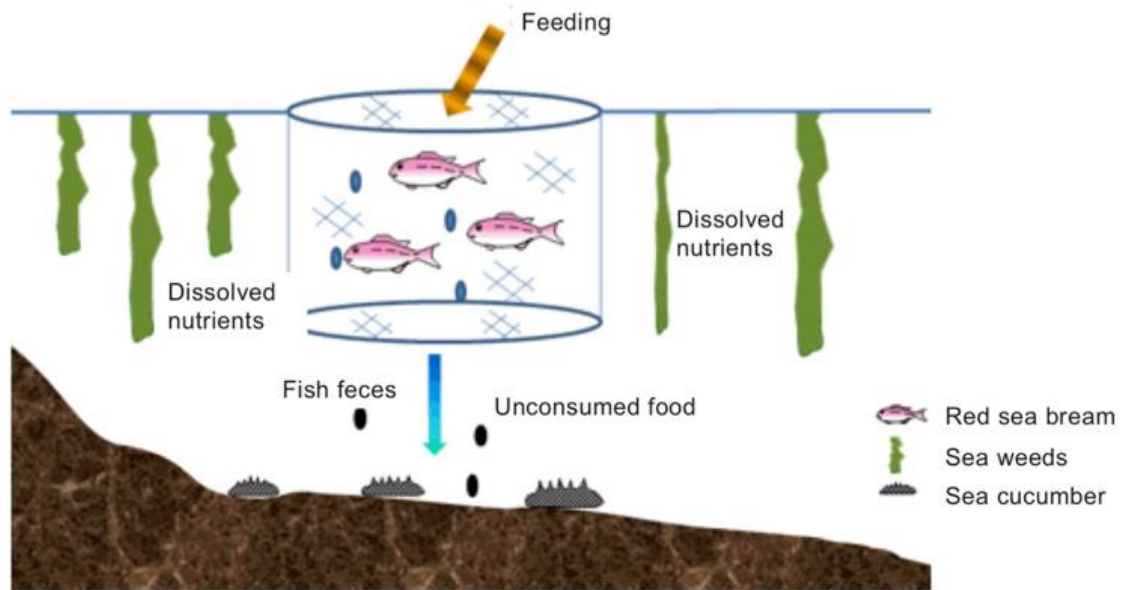


Figure 11. Integrated multi-trophic aquaculture (LAMTIB, 2017)

Agroforestry

Using the solar energy and ICT platform, Nursery in container (NIC) LAMTIB (2017) seeks to produce locally appropriate seedlings and improve knowledge and build skills in agroforestry, combining traditional and modern land-use systems where trees are managed together with crops and animal production systems. The aim is to produce dynamic, ecological, natural resource management systems that diversify and sustain production in order to increase social, economic and environmental benefits (FAO, 2016) and increase yields from agricultural activities.

5.3 LAMTIBs financial needs

The LAMTIB initiative has created a chart for its financial needs to move from the individual modular R&D and proof of concepts to complete site operations wherein proof of concept for the LAMTIB initiative as whole is the desired outcome.

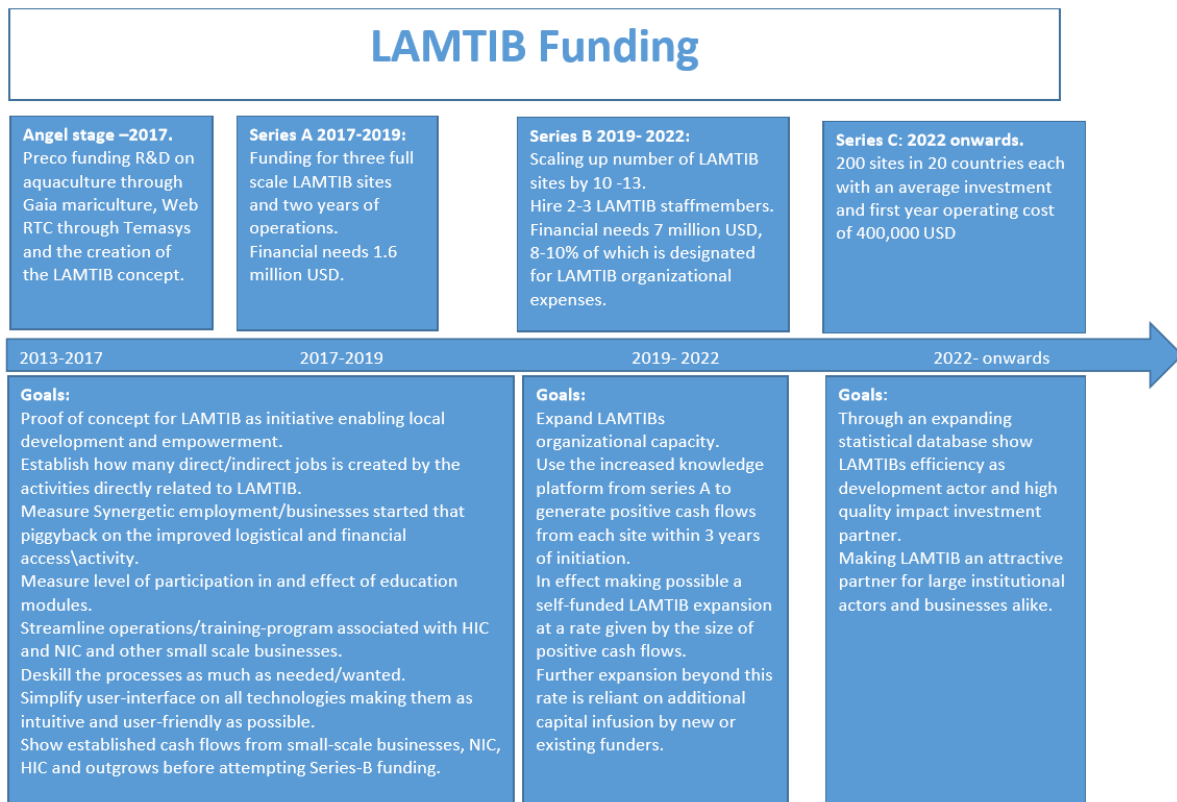


Figure 12. LAMTIB funding plan (LAMTIB, 2016)

LAMTIB has set up a financial plan going through 4 stages, currently looking to make the transition from angel stage into series A. The initial financial needs of 1.6 million USD is needed to set up three sites in order to establish proof of concept for LAMTIB as a whole and in so doing unifying the modules and measuring their impact working in concert. As LAMTIB moves from concept into operations the viability of the financial sources used as analytical tools in this study change, and by the time it has reached series C LAMTIB is projecting eligibility for several. What may impede its chances at that stage is the organizational form it has adopted to secure funding at stage A. Another noteworthy aspect of its financial plans is that the procurement of 1.6 million USD in startup capital may be sufficient for LAMTIB to be a viable development actor through organic growth if the financial projections are correct.

5.4 LAMTIBs internal revenue streams

The LAMTIB concept includes several economically oriented ventures, most important in economic terms is aquaculture with projected yearly earnings of 310000 USD per site after two years. When including all LAMTIB initiated ventures a total of 475000 USD and 130 jobs is projected at each site. This suggests that set up and operational costs LAMTIB will start to show positive cashflows after three to four years at each site (Appendix, 2).

Revenue generating ventures

The LAMTIB initiative has several ventures connected to its core operations that aims at generating a profit. Aquaculture and agroforestry has already been mentioned, a third main avenue is CSR and NGOs piggybacking on LAMTIBs infrastructure at each site, as Mr. Preststulen (2017) sees it *“Although each NGO and MNC is normally very focused on their core values, missions and objectives, there should be no constraints by any supporter to accept using the same infrastructure/technology in any given LAMTIB site”*. In other words, the infrastructure is there for anyone to use that has a wish to be a positive force and contribute to the effort. This may for instance be a multinational corporation or NGO paying LAMTIB for the ICT platform for its company outreach programs to educate local farmers on seeds, intercropping opportunities or maternal health. This implies that each site may be a platform for several entities wanting to educate and/or have a positive social impact. In remote settings as well as in cases of emergency where basic infrastructure is either nonexistent or has been disabled by natural disasters, LAMTIB may serve as a reliable partner providing, electricity, ICT and “office space” for NGOs and relief organizations working in the field.

5.4.1 Distribution of profits

Once positive cashflows has been established the LAMTIB initiative has set up a distributional framework for the profits generated, making available some of the profits for locally administered investment boards operating under the supervision of LAMTIB. The remaining profits goes towards upscaling LAMTIBs operations i.e. setting up new sites.

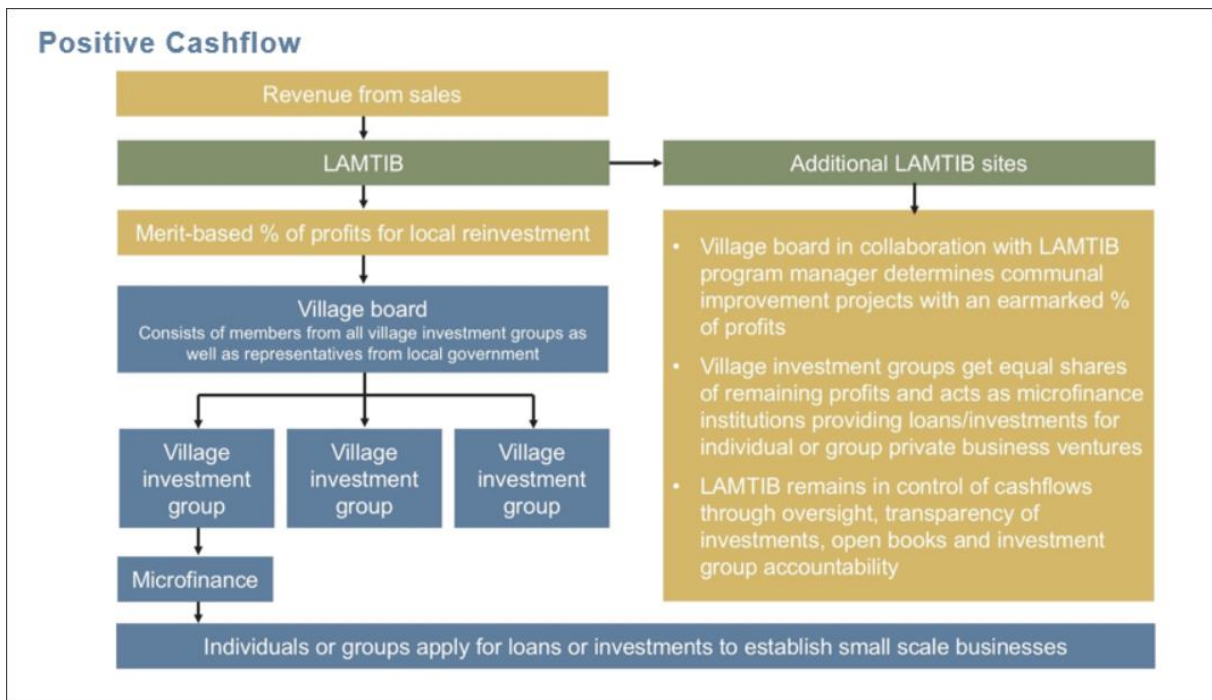


Figure 13. LAMTIB distribution of profits (LAMTIB 2017)

By channeling parts of the profits, earmarked investments, back into the community the intention is that this will facilitate locally driven bottom up development, where accountability for the investments are being held by the community at large. By doing it this way LAMTIB administrative costs are limited and oversight is locally administered with reporting requirements back to LAMTIB. It also makes available credit and financial resources outside of the wages paid for the jobs associated with each site, amounting to a transfer of responsibility, accountability and empowerment to the local population, facilitating locally driven bottom up development, decided by the perceived needs of the local population.

5.5 LAMTIB and the SDGs

LAMTIBs impact on the SDGs in this study is measured by its ability to seize the opportunities presented in the contextual framework. Combined BSDC and DNV-GL present several overlapping, adjacent and identical opportunities representing a 12 trillion USD economic potential in the effort to achieve the SDGs (BSDC, 2017).

Off grid electrification

LAMTIBs concept is contingent on off-grid solar electricity to power all the technology contained in the modules that make up the operational framework for development. As such each LAMTIB site will represent a proliferation of clean sustainable energy and help reach SDG 7.

Technology

LAMTIBs operational framework makes use of DNV-GLs (2016a) key driver for change, technology, in its efforts to contribute to lessen the gap between opportunities and their seizure. Furthermore, as pointed out in the Global opportunity rapport (2017) technology has tended to be a weaker driver of positive change in lower HDI regions and LAMTIB is looking to facilitate the technology transfers needed for a number of opportunities to be realized as well as providing the appropriate re and upskilling required whilst deskilling some of the processes associated with aquaculture and agroforestry to maximize the impacts of utilizing technology (DNV-GL, 2016a).

Health

ICT serves as enabler of several of the LAMTIB activities among them telehealth. By contributing to a healthier workforce, it both address the requirements DNV-GL (2016a) holds for business to operate as well as SDG 2.

Food production

What BSDC (2017) labels forest ecosystem services coincide in broad terms with the DNV-GL (2016a) identified opportunities of smart farming and new diets with the addition of the aquatic categories, regenerative ocean economy, closing the loop and smart ocean. The essence of all being smarter production of food, both in terms of improved techniques for higher yield and sustainable resource management as well as, in the process, improving surrounding ecosystems. Smart farming and forest ecosystems is essentially what the NIC module of the LAMTIB initiative entails while closing the loop and smart regenerative oceans opportunities are seized by the HIC module including the IMTA method of conducting

outgrow on local fish farms. Effectively overcoming the access barriers for technology and know-how for smarter food production that is available and adaptable across geographies and scale but has as of yet been unavailable for poor communities (DNV-GL, 2016a). These modules of the LAMTIB initiative are also the ones that create the largest direct employment, local income as well as improving local food security and nutritional composition. If implemented successfully the food production modules of the LAMTIB initiative would help reach SDG 1, 2, 8, 10, 14 and 15.

Education

The development of e-learning programs by business is held by DNV-GL (2016a) as a game changer. By providing context appropriate e-learning using ICT it can be a major force in the up- and reskilling of youth globally. In so doing LAMTIB aids in both laying the foundation for lifelong learning as well as increasing the potential each individual has to get a job, contributing to SDG 1, 4 and 8. LAMTIBs efforts being aimed at the poorest within a country will also help bridge the inequality gap of SDG 10.

DNV-GL (2016a) emphasize the need for jobs to grow from bottom-up allowing for youths to form their own employment opportunities. This can be done by enabling the young to be “futurepreneurs” giving them the tools to create their own jobs. For this to materialize there are some obstacles to overcome for those without an established credit history, assets, and business experience required by traditional investment models, when trying to secure funding for their entrepreneurial ventures. This would be overcome by education and LAMTIBs redistribution of profits back into communities as investment capital reinforcing the effects on SDG 8 and 10 while further incentivizing the pursuit of education.

Water and sanitation

The key contributions clean water and sanitation represents are better health for all as well as freeing up women and children to take part in the inclusive framework for development LAMTIB intends to offer. Contributing to SDG 3, 5 and 6.

5.6 Summary

The LAMTIB initiatives operational framework and key components are very well suited to address the challenges of achieving the SDGs when viewed through the contextual lens provided by the opportunities presented by DNV-GL (2016a) and BSDC (2017) as ways to do so. Furthermore, the high degree of convergence between LAMTIBs mission statement and the top opportunities presented suggest that it is formulated with a firm grasp of its contemporary challenges and technological solutions. The success of LAMTIB lies in its ability to move from conceptual framework to action, delivering on its intentions and establishing a proof of concept for its initial sites and their tailor made modular approach to initiate locally driven development. For this to be possible two prerequisites are still lacking, a strong organization and funding, the former unlikely without the latter.

6 Analysis

The analysis will unify the SWOTs conducted on the financial categories with the case study in relation to the contextual framework in order to prioritize the actions LAMTIB will have to take in order to attract the funding needed to be as impactful as possible as well as secure a sustainable economic base for operations using the sSWOT analytical tool.

6.1 sSWOT analysis of financing opportunities

The sSWOT analysis tool calls for identifying the environmental issues and prevailing big trends, conduct a SWOT and prioritize the findings in order to initiate the appropriate action (Metzger et al, 2013). The big trend in this study has been established as the SDGs focusing on combining the five Ps in order to achieve sustainable and inclusive development. The sSWOT will now be utilized to prioritize the LAMTIB initiatives actions in relation to each funding source in order to fully utilize the potential of each category as a source of funding allowing for LAMTIB to fully reach its potential in the long term.

6.1.1 CSR

CSR as a financial source for LAMTIB has as the SWOT shows primarily factors outside of LAMTIBs control which limits the number of options for prioritizing action.

	Helpful	Harmful
Internal	Strengths	Weaknesses
	Solid finances Organizational capacity Organizational capability Technological knowhow Human resources	Not their core activity Not a prioritized activity Contingent on CSR positive leaders Financially limited by marketing budgets
External	Opportunities	Threats
	Provides company recognition Increased awareness of company Expanding market opportunities	Economic downturns Change in leadership Change in strategic focus

Figure 14. SWOT analysis of Corporate social responsibility as financial source. (Osita et al, 2014)

CSR is in the initial phases of operations crucial to the LAMTIB initiative as partner companies REC and Temasys provide the enabling technologies on a pro bono basis. However, as operational costs associated with the other modules kicks in after the sites are set up, LAMTIBs equity needs rise an additional funding is required.

Prioritize

Key features for LAMTIBs financial needs are predictability, sufficient resources and longevity which a financial source vulnerable to economic downturns and contingent on CSR positive leaders may not be able to provide. Consequently, LAMTIB should prioritize securing CSR in the form of technological resources and human resources available from their corporate partners to strengthen operational capability rather than, in a bid to upscale quickly, drain the limited financial resources available over the marketing budget. Corporate financial contributions seem as of yet to be confined within the internal revenue streams and provide additionality rather than being essential to the economic foundation of the LAMTIB initiatives launch from conceptual framework to active developmental actor.

There are opportunities dormant in each of the other modules. Finding competent and engaged partners within each of these could further lower operating costs and in turn increase the positive cashflows from the internal revenue streams allowing for organic growth.

Act

Actions has already been taken by LAMTIB to secure CSR support, and as the prioritizing indicates securing continued support from partner companies providing technological know-how and equipment should be considered crucial. Additionally, finding suitable collaborators sectorally consistent with the remaining modules should be pursued wholeheartedly.

6.1.2 ODA

ODA along with the other remaining financial categories is more geared toward contributing and investing pecuniary assets without excluding other supportive measures like organizational knowhow and assistance.

	Helpfull	Harmful
	Strenghts	Weaknesses
Internal	<ul style="list-style-type: none"> Solid finances Stabil partner Established partnerships with other actors Organizational capabilities Risk willing 	<ul style="list-style-type: none"> Not necessarily startup friendly Bureaucratic No calls for holistic development proposals
	Opportunities	Threats
External	<ul style="list-style-type: none"> Focus areas Potential partner for upscaling after initial funding is secured Not startup denying 	<ul style="list-style-type: none"> Change in political mandate Competitive bids for funding Due diligence requirements

Figure 15. SWOT analysis of ODA as financial source (Osita et al, 2014).

Norad does not, despite working across several of the sectors the LAMTIB initiative has included in its operational framework, currently have any calls for proposals that encapsulates LAMTIBs unique composition.

Prioritize

Norad is a risk willing solid financial source focused on creating development through its contributions. However, this does not mean they do not try to mitigate risk when deciding which projects to fund. Three key features of Norad`s project selection process should be taken heed of by LAMTIB in this regard. First the two measures to mitigate risk by entering the process after the initial startup is complete and projects with a strong organizational capacity as well as the ideal partner for Norad being someone with a understandable concept that is credible and likely to be autonomous after initial funding is given (Birkeland, 2017).

Act

LAMTIB has, despite creating an operational framework that strongly converge with the opportunities in the contextual framework and overlap with both the sectoral and outcome focus of Norad, yet to put together a strong organizational structure able to seize opportunities and monitor operations in order to maximize likelihood for success, nor gotten the project under way to a degree that would qualify as surpassing initial startup. Taking action towards improving those two deficiencies as well as continuing to develop the concept to be as understandable and credible as possible is advisable. Furthermore, placing a greater emphasis on the projected earnings when presenting LAMTIB to potential funders would move the initiative closer to the “ideal” project for Norad funding and making LAMTIB more attractive if going in for the competitive bids for proposal issued periodically by Norad. LAMTIB may also have to pick an overarching “label” when it applies for grants as it may fit into many categories. The modules outside of the primary bid for funding should in such cases be emphasized as enabling and being part of creating the ecosystem of activities that are more likely to create successful outcomes than any one module working alone.

6.1.3 Impact investment

Impact investment as a category in this study display some internal differences that may be attributed to the divide between private and public impact investors. However, these differences are not so significant that they cannot be analyzed combined, if anything it

strengthens the analysis as it creates a “golden middle” in a category with several definitions depending on who one asks.

	Helpful	Harmful
	Strengths	Weaknesses
Internal	Financially strong Organizational capacity and know how	Not necessarily start-up friendly
	Opportunities	Threats
External	Upscaling Somewhat risk willing Organizational assistance	Equity demands Organizational requirements Impatient towards return on investment Due diligence

Figure 16. SWOT analysis of impact investment as financial source (Osita et al, 2014).

The two key features of both the private and the public impact investor in this study is financial strength and organizational knowhow combined with a desire to impart knowledge and best practice approaches to its investees.

Prioritize

As neither the private nor public impact investor in this study is eagerly pursuing startups to invest in, LAMITBs priorities should lie with preparation for the series B stage. As such every effort whilst in series A operations should be in preparation of meeting the requirements of series B funders as this may prove a better and quicker solution to upscaling than organic growth.

Act

In order to seize the upscaling potential impact investment represents the main actions that needs to be taken are, building a solid organization dedicated to making LAMTIB work, measuring impact across all applicable variables, keeping immaculate books and banking any profits to meet the equity demands and due diligence process required by impact investors.

Included in this should be a clear indication of the impact of the redistribution of some of the profits generated from LAMTIBs internal revenue streams back into the communities for local investments, as this may require some concessions on ROI or it needs to be justified as part of the operating costs creating an impact. It would also require LAMTIB to choose a corporate organizational structure, that may impact the CSR relations.

6.1.4 SRI

SRI as a financial category is wide and ill defined, analyzing its applicability for projects such as the LAMTIB initiative consequently becomes a matter of nitpicking characteristics that could influence how investments from SRI may be attracted.

	Helpful	Harmful
Internal	Strengths	Weaknesses
	Financial streangth	Negative screening methods No clear channel to reach funds
External	Opportunities	Threats
	Increaed focus on ESG factors Upscaling	Financial focus Return on investment focus

Figure 17. SWOT analysis of SRI as financial source (Osita et al, 2014).

Prioritize

As with the other categories SRI represents a substantial financial opportunity, furthermore it is increasingly concerned with ESG factors. To be eligible for SRI investments LAMTIB has to evaluate if its core operations are up to best practice standards to avoid getting cut by the negative screening process. Furthermore, as ROI requirements are likely to higher from SRI compared with the other financial categories efforts to maximize the revenue streams without

compromising the developmental aspects of LAMTIB should be made. This would be true regardless of funder, however having a stated ceiling for potential ROI would ideally prevent undue pressure to increase productions or make cuts to other modules to increase ROI.

Act

As with impact investment LAMTIBs action plan would be much the same perhaps with a stronger pressure to delivering ROI in order for the funding to be sustainable. This includes creating a strong organization, keeping orderly books and working towards maximizing the developmental impact per dollar spent without making concessions.

Unlike with impact investment wherein the torch sometimes is passed from Norad or Kavli collaborates with Voxtra there are no clear channels towards which LAMTIB could focus its actions in order to obtain SRI funding outside of running as a successful company and then seek additional investors to upscale.

6.1.5 Philanthropy

Philanthropy is changing and the new philanthropist donate within a number of different emerging sub-categories. Amidst change there is often confusion and being able to navigate

	Helpful	Harmful
	Strenghts	Weaknesses
Internal	Financially strong Sectoral focus Ability to act quick when the "right" idea is found Organizational capability	No clear lines of communication Diverse understanding of how philanthropy should be conducted Unclear/varied guidelines for applications Unclear/varied requirements for applicants
	Opportunities	Threats
External	Strategic philnthropy Partnerships increasing awareness	Competition to capture attention

Figure 18. SWOT analysis of philanthropy as financial source (Osita et al, 2014).

Prioritize

The Kavli Foundation is startup friendly but does not accept unsolicited applications so there are no clear lines of communicating ones' project for a startup that is "unknown". As such a key priority for LAMTIB should be making its existence know on a wide scale with a clear and concise message to stand out from the crowd and make clear what it does. Another key priority should be going through vast numbers of philanthropic foundations strategy documents and application criteria to untangle the webs of possibilities available. Strategic philanthropy may prove very helpful after initial operations are in motion and it progress using big data and its proliferation should be monitored as those with good measurable results will then be "caught" by big data, with the likely outcome of funds shifting from those with low impact to those initiatives with high.

Action

To overcome the "unknown" status and consequently not on the radar for foundations such as Kavli looking for good and qualified projects, creating a LAMTIB web presence by making a website and social media accounts detailing the project, the progress and the people involved could prove helpful. Simultaneously to making the name LAMTIB searchable online it should be trademarked to safeguard the web presence and the initiative alike. Finding partners in the NGO field to strengthen and aid LAMTIBs efforts in the field that are already funded by qualified sources would create a network of actors with the same ambitions, one or several of whom are financiers, is another strategy that could yield positive results if pursued. Finally, to take advantage of the emerging field of strategic philanthropy the same conditions apply as when planning for due diligence. Impact measurement over a wide set of appropriate variables to make clear the positive effects.

6.2 Funding categories and the SDGs

The funding sources may only have impact on the SDGs in the context of this study if they contribute funds to LAMTIB, and as such categorical impact in many ways is dependent on the likelihood of finding LAMTIB an appropriate investee. Philanthropy and ODA with the option of further upscaling through impact investment stands out as the most viable option, as they alongside CSR have the fewest initial requirements, though not without barriers, which

to some degree can be overcome by LAMTIB efforts like web presence and a clear concise and persuasive concept description. CSR as it currently stands remains an essential contributor of technology and human resources more than a likely economic source that would enable building organizational capacity and launching full scale LAMTIB sites.

SRI seemingly represents the biggest “threat” to the SDG impact focus as this would require competitive ROI for funding to be accessible over time. However, the argument that some minor concessions in SDG emphasis could be mitigated by volume can be made. The size of investment could through scale spread the SDG impacts to greater numbers as an investment for 100 sites would have a far higher impact than a grant covering 5 with subsequent organic growth within the timeframe of the SDGs 2030 as long as concessions create exclusive enclaves of the privileged within the LAMTIB program and do not benefit the community in an inclusive and non-discriminate manner. The argument could also be made that ROI would come from said volume without any concessions being necessary, as long as LAMTIB makes clear the financial projections and the intended profit-sharing model it employs.

6.3 Summary

There are hurdles associated with all the financial categories. A lack of clear guidelines within a field increase the efforts needed to keep track of all the different rules and regulations. Furthermore, apart from Norad`s calls for proposals there are no channels for communicating with potential funders. The relative reluctance towards startups is also an issue, which could be overcome by either the Kavli foundation that do not accept unsolicited proposals or creating a strong organization on a pro-bono basis. Essentially presenting two new issues as solutions to one. Making LAMTIB know and reversing the roles could be one way to overcome this issue, by creating a web presence that communicates in clear terms intentions, desired outcomes and operational framework. Once initial funding is secured, the field opens up, and given adequate documentation of financial performance and measurable impact all apart from CSR appear as viable financial sources that would enable LAMTIB operation.

7 Discussion

Efforts like LAMITB that adopts a holistic approach to development are desperately needed, if the current trajectory of development continues, to achieve the SDGs. The combination of seizing the economic opportunities presented by DNV-GL (2016a) and BSDC (2017) as stemming from filling the void on the path to reach the SDG and doing it in a bottom up fashion immediately address inequality by grabbing a piece of the pie and placing the control of with the poorest parts of the world. However, LAMTIB needs financial backing to reach its goal of being a positive force contributing to development and sustainability. Herein lies the main challenge so far for LAMTIBs operations.

LAMTIBs adaptability and a modular approach may prove a strength in operational terms but as of yet it represents a weakness when attempting to win hearts and minds as it can be difficult to grasp what it actually is. The simplicity of giving 5 dollars a week and knowing this provides water for two people is far more tangible than giving 5 dollars to a societal transformation containing many different components and that takes time to yield results even if those results may be further reaching and long lasting.

LAMTIB is at a crucial junction in its development seeking the funds needed to make the transition from a conceptual framework for development to an operational project delivering on its intentions. The organizational form LAMTIB decides to take will affect which of the financial opportunities it will be able to seize. By choosing a corporate structure it may alienate its CSR partners and as such lose their technical knowhow, at least in pro bono terms, which would lead to higher capital requirements to buy the equipment needed as well as higher operating costs. Furthermore, in the short term the CSR partnerships appears to represent LAMTIBs operational capability and as such agreements pertaining to expansion and upscaling terms should be made, and ideally include the freedom to pursue the financial opportunities that presents themselves.

ODA and philanthropy both are mandated to provide capital to initiate development with the added aim that the recipients be economically sustainable after receiving financial, technical and organizational assistance. As such they are ideal funding sources for LAMITB's initial

financial needs while also being positive to upscaling through either internal profitability or external private or public impact investments.

In the short-term impact investment and SRI seems to be out of reach given LAMITBs current organizational capacity and operational status. However, if one employs a longer horizon, opportunities arising from heightened awareness of the economic possibilities inherent in reaching the SDGs may not only incentivize additional capital transfer into SDG related business ventures, including startups, but also strengthen LAMITBs bid for investments, if measurable results are generated by initial operations. Strategic philanthropy may in this regard further highlight the benefits of a holistic developmental approach provided LAMITBs ability to both achieve and document its impact. Furthermore, by employing the big data tools of strategic philanthropy in Impact investing and SRI it could also lead to a significant shift in funds from less to more impactful investments given an acceptable ROI on a wide scale within the investment community and as such increase the efforts towards reaching the SDGs.

8 Conclusion

LAMTIB have created a modular operational framework well suited to contribute to the SDGs being reached. It has done so by combining high tech approaches to many of the business opportunities the SDGs entail. The impact LAMITB will prove to have once it is operationalized depends on its own ability to establish a proof of concept for the modular approach in the field and the size of its financial backing. The amounts of available capital is significant but seems, at this stage, to be out of reach across all categories but for CSR who contributes knowhow and technology rather than equity. However, clear financial projections, a clear and feasible plan for action combined with a web presence and a dedicated organization could prove enough to be eligible for startup funding from Norad and the Kavli foundation. Both of whom share LAMTIBs aspirations to create development through sustainable economic growth and would not only allow for, but actively aid in LAMTIB reaching its maximum developmental potential given the limits of financial backing. Additionally, both are stable and solid partners that could help LAMTIB with upscaling, posting guarantees for equity and thereby opening up for additional impact investments from impact investors and SRI. The danger when upscaling into another strata of the investment

universe is ROI demands encroaching on the core efforts of creating development. However, this can be mitigated through clear communication of economic projections and not conceding the core activities impact potential in to grow fast. The most sustainable financial source over time may prove to be LAMTIBs internal revenue streams, allowing for organic growth albeit at a slower pace than would be the case with additional capital infusion. The benefit would be autonomy and only having to deliver to local communities and not ROI to investment funds.

9 Recommendations and further research

Based on the analysis and discussion some recommendations can be made.

9.1 Recommendations for organizations and business

It is clear that more must be done for the SDGs to be reached, and the way in which the call for action is framed seems to influence the perception of who is responsible for their attainment. By emphasizing the economic opportunities and the need for business acumen to seize those opportunities it seems more likely that business will engage. Additionally, organizations actively pursuing development should strive to establish clear lines of communication between funding organizations and projects seeking those funds.

Increased use of big data like that of strategic philanthropy would strengthen the decision-making process, internally in funding agencies, without placing an additional work burden on the organization, allowing for processing of greater number of proposals, as well as aid projects in adjusting their activities to maximize their positive impact.

Startups should also be given increased focus as the aversion to failure may lead to not taking enough risk to push the boundaries of innovation and increased developmental impact which in turn run the risk of reinforcing the established practices, that obviously has not created the inclusive and equitable world described by the SDGs.

Recommendations for LAMTIB

In order for LAMTIB to attract funding two actions seems to be key. First simplifying its outward communication so as to be more impactful when presenting to would be funders as well as getting its message “out there”. Second, organizational capacity should be a main priority moving forward.

To both strengthen the concept, the operational capability and possibly its financial basis, LAMTIB should actively seek out MNC and NGO partners working on issues that match with the modules where partnerships has not yet been made.

Further research

The impacts of combining developmental efforts in a system designed to reinforce the strengths of each component through their symbiotic relationships should be given further attention. The fuzzy lines surrounding each of the financial categories should be tightened, at least in the context of academic discourse. Furthermore, the effectiveness of the, at any given time, practices guiding ODA grants should be under constant evaluation as the access to financial resources is a political decision and not merit based.

10 Limitations

The choices made in this study presents some limitations. The contextual framework and the empirical data created within each financial category selected for the study narrows the scope of each category as each is represented by a limited number of respondents and actors.

Further research should seek to explore a wider range of actors in order to expand upon the knowledge and nuances of each category.

11 References

11.1 Published

- Baker, C. J. Barraket & A. Elmes (2016) *Giving Australia 2016 Philanthropy and philanthropists*. the Australian Government Department of Social Services. Melbourne
- Brest, P. & K, Borne (2013). When Can Impact Investing Create Real Impact? *Stanford Social Innovation Review*. Fall 2013, 22-31.
- Bryman, A. (2016). *Social research methods*. Oxford University Press, Oxford
- Business and Sustainable Development Commission, (2016). *Better Business Better World*. Retrieved from <http://report.businesscommission.org/report>
- Cambridge Associates & the Global Impact Investing Network (2015). *Introducing the impact investing benchmark*. Cambridge Associates and the Global Impact Investing Network, London
- Centre For Effective Altruism (2017). *Introduction to effective altruism* Retrieved from <https://www.effectivealtruism.org/articles/introduction-to-effective-altruism/>
- Charity Navigator (2017) *Giving statistics* Retrieved from <https://www.charitynavigator.org/index.cfm/bay/content.view/cpid/42>
- Davies, D. (1996). *Business research for decision making*. Duxbury Press, Pacific Grove
- DNV-GL, (2016a). *Global opportunity rapport 2016*. Retrieved from <http://www.globalopportunitynetwork.org/report-2016/>
- DNV-GL, (2016b). *The future of spaceship earth*. Retrieved from <https://www.dnvgl.com/technology-innovation/spaceship-earth/index.html>
- Economist (2006) *The birth of philanthrocapitalism*. Retrieved from <http://www.economist.com/node/5517656>
- FAO (2016) *Agroforestry* Retrieved from <http://www.fao.org/forestry/agroforestry/en/>
- ISO (2016). *ISO 26000 and the SDGs*. ISO, Geneva
- JPMorgan (2017). *JPMorgan Funds - Global Socially Responsible Fund* Retrieved from <http://www.jpmorganassetmanagement.lu/en/showpage.aspx?pageid=44&fundid=6008&shareclassid=88>
- Matloff, R. & J. H. Chaillou (2013). *Nonprofit Investment and Development Solutions*, ProQuest Ebook Central. Retrieved from <http://ebookcentral.proquest.com/lib/ntnu/detail.action?docID=947875>
- Merriam Webster (2017) *Definition of Philanthropy* Retrieved from <https://www.merriam-webster.com/dictionary/philanthropy>
- Metzger, E. S, Putt Del Pino, S, Prowitt, J, Woodward & A, Perera, (2013) *sSWOT a sustainability SWOT*. World Resource Institute, Washington. Retrieved from <http://www.wri.org/publication/sswot>
- Norad (2017a). *Norsk bistand i tall*. Retrieved from <https://www.norad.no/om-bistand/norsk-bistand-i-tall/>
- Norad (2017b). *Call for proposals 2017-2021: Supporting civil society in education* Retrieved from <https://www.norad.no/en/front/funding/civil-society-and-education/>
- Norad (2017c) *2017 Call for Proposals - Enterprise Development for Jobs* Retrieved from <https://www.norad.no/en/front/funding/private-sector-development/enterprise-development-for-jobs/2017-call-for-proposals---enterprise-development-for-jobs/>

Norad (2017d). *Enterprise Development for Jobs - Renewable Energy* Retrieved from <https://www.norad.no/en/front/funding/private-sector-development/enterprise-development-for-jobs/enterprise-development-for-jobs-renewable-energy-2017/>

Ocean Cleanup (2017) *Road to execution* Retrieved from <https://www.theoceancleanup.com/milestones/>

Osita, C., Idoko, O., & Justina, N. (2014). Organization's stability and productivity: The role of SWOT analysis. *International Journal of Innovative and Applied Resources*, 2(9), 23-32.

Revelli, C. (2017). Socially responsible investing (SRI): From mainstream to margin? *Research in International Business and Finance*, Volume 39, Part B, January 2017, Pages 711-717, ISSN 0275-5319, <https://doi.org/10.1016/j.ribaf.2015.11.003>.

Rogers, R. (2015). Why the Social Sciences Should Take Philanthropy Seriously. *Society*, 52(6), 533-540.

Streb, C. K. (2010). Exploratory case studies. *Encyclopedia of Case Study Research*, 372-373.

United Nations (2015) *Transforming our world: The 2030 agenda for sustainable development*. Retrieved from <https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>

World bank (2017). *Net official development assistance and official aid received (current USD)* Retrieved from <http://data.worldbank.org/indicator/DT.ODA.ALLD.CD?view=map>

11.2 Unpublished

LAMTIB (2017). *LAMTIB concept presentation*. LAMTIB, Singapore

LAMTIB (2016). *LAMTIB Funding*. LAMTIB, Singapore

11.2.1 Interviews

Antiporta, Harry. Fish farm operator Cebu, Philippines (06.10.2016, personal interview)

Birkeland, Harald Senior Adviser at the Department for Climate, Energy, Environment and Research, Norad (08.06.2017, phone interview)

Dale, Pål. Managing director and co-founder of Voxtra (11.04.2017, phone interview)

Iversen, Inger Elise. Managing director, The Kavli Foundation (04.04.2017, phone interview)

Lee, Alan. Marine biologist Gaia Mariculture (09.06.2017, email interview)

Molthe, Peter. Senior Advisor, Information Office for Private Sector Development, Norfund (31.05.2017, phone interview)

Preststulen, Tom. Managing partner, Elkem & founder of the LAMTIB initiative (30.03.2017, email interview)

Ulset, Torgeir. Vice President of Sales for Asia Pacific, REC (23.04.2017, email interview)

Appendix A

How do select parterns/investment objects?

What is your organizations ideal collaborator?

What are the main challenges in the "field"

What financing/investment models do you use?

	Production	Annual revenue/municipal benefits	Employment	Impact
Enabling technologies				
Renewable solar electricity	105 mWh per year	22,000 USD savings	8 Jobs	102 ton/yearly reduction in CO2
Web RTC	Global access and communication	Telemedicine, education & communication		
LAMTIB Modules				
HIC	High quality local supply of juveniles for outgrow	70 % of aquaculture profits	10 Jobs	Provide local access to eco friendly outgrow juveniles and feed
NIC	High quality seeds and seedlings	improved yield and climate resilience	4 Jobs	Reduce risk from climate change increasing food security
Education	From primary through university level	3000 USD per year per university student	3 Jobs	Education as a driver of long term development
Water	Clean drinking water at substantially lower cost than bottled water	12000 USD savings	2 Jobs	Improved health, reduce medical expensens and freeing time for productive activities
Sanitation	Waste management system	Reduce illness and time spent searching for suitable places	2 Jobs	Improved health, reduce medical expensens and freeing time for productive activities
Businesses				
Aquaculture (IMTA)	Crabs, abelones etc (algae)	310000 USD	21 Jobs	Improved ecological conditions for wild catch
Algae	Ulvea	30000 USD	5 Jobs	x amount ton of CO2 sequestration
Agriculture	Intercropping & companion planting bamboo coconut mulangay etc	80000 USD	50 Jobs	Improved soil quality and production methods
Aquaponics	Fish and vegetables	10000 USD	5 Jobs	Access to protein and other nutrients
Subscriptions	Provides access for NGOs and companies	25000 USD		Access to info for locals, access to markets for companies, access to people, electricity and communication for NGOs
Small scale businesses	Battery doctor, Bamboo, Coconut & Mulangay products and processing	20000 USD	20 Jobs	A facilitated supportive environment for small scale entrepreneurial activities.
		487000 USD	130 Jobs	282360 USD in local salary pr year