Frugal is the new innovative thinking
A qualitative study of frugal innovations and sustainable development in resource-poor environments

Emmy Fredriksson och Johanna Tömmervik
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The purpose of this thesis is to explore how to innovate in resource-poor environments. We want to see what the West can learn from a frugal approach and how we can create a mutual learning regarding innovation in order to contribute to a more sustainable world. We examine frugal innovation through a participant observation of the Indian NGO Yuva Mitra where we spent two days. It is supplemented by a qualitative research with three semi-structured interviews to create a greater understanding through multiple perspectives. The empirics resulted in an analysis with three conclusions that answers our purpose. It turns out that the frugal approach is based on a people-centric approach, people participation, operating closeness and seeing opportunities in adversity. Furthermore, we concluded that it is possible to combine the traditional Western model of innovation with the frugal approach and also that it will be imperative in the future. We also believe that the Western world can learn by adopting a frugal mindset, create a platform for information sharing and transparency in the work, make Corporate Social Responsibility as part of the market strategy, create decentralized organizations and educate their leaders. We present our conclusions using a self-made model.

Keywords: frugal innovation, base of the pyramid, sustainability, social business
Preface

We want to give our warmest thanks to our supervisor Dr. Sten Ekman. Without him, we would not even have gone to India in the first place. An extra thanks for supervising us regardless of his retirement and giving good inputs during the whole process. We would like to thank Dr. Annalill Ekman for her feedback. We would also like to thank Yuva Mitra and in particular Mr. Sunil Pote and Mr. Somdutt Lad for showing us around the projects and dedicated their valuable time for our questions. Big thanks to the very kind Prof. Anuja Agarwal for spending time with us during the field study and participated in a complementary interview at Welingkar University in Mumbai. We would also like to thank Håkan Mattsson, Lecturer, for answering our curious questions and giving us excellent advice and perspectives to our bachelor thesis.
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1. Introduction

Today, organizations in the Western world spend billions of dollars, aiming to be innovative and market leaders in an increasingly competing global market. Innovation is a buzzword that a lot of organizations strive to work with. However, it is difficult to get a whole organization to be innovative and also to manage innovation successfully. We think that innovation processes needs to be examined from different perspectives, and that it is necessary to widen the western approach to innovation by looking deeper into the frugal innovation approach.

In today's globalized world where about one-third of the population lives in poverty, there are major opportunities for innovation and economic growth. If companies from the western world could learn more about this and see the opportunities for people at the Base of the Pyramid (BoP) we feel that there will be a bilateral benefit for all parts. In countries like India, China and Brazil, this frugal phenomenon has been used for a long time and corporate leaders in these countries have now started to assimilate this and have thereby succeed to create more with less (Radjou et. al 2012). The Harvard Business Review writes “Right now more than 20,000 multinationals are operating in emerging economies. According to the Economist, Western multinationals expect to find 70% of their future growth there - 40% of it in China and India alone” (Eyring et. al. 2011, p. 89). It also becomes more and more important for organizations around the world to work from a sustainable perspective. Innovation sustainability is about how innovations can contribute to sustainability in especially the environment by creating cleaner products, more effective processes and alternative technologies like renewable energy. All this to reduce the negative environmental impact (Bessant & Tidd, 2011).

This thesis discusses how frugal innovation processes works in resource-poor environments and if companies and universities in the Western, more developed part of the world, can learn from the frugal approach. Our interest in this matter was captured when we went to Mumbai, India as exchange students for three months during spring 2013. We were privileged with the opportunity to perform a participant observation at the organization Yuva Mitra for two days, along with a group of teachers and master students from Malardalen University. We became interested in the way they organize their resources and how they manage to help people with very little means available. This made us realize that we wanted our thesis to process how they work and what we can learn from them, and make this information available to more people of interest.

The background of our focus area and why this is interesting to investigate can be found below. This is followed by the theoretical framework, earlier research and what methods we used for this study. In both our background and theoretical framework, we also relate some previous and ongoing research and development relevant for our study with focus on frugal innovation and BoP. After this we present the result of the study. Finally we will analyse the empirical data and compare with the theoretical framework presented in the thesis. We want this thesis to contribute to create a value with focus on knowledge interchange for the partners involved. We will be giving our innovation contribution as a model that can be used to easier understand the frugal innovation approach and how mutual learning can happen between East and West.
2. Background

This section aims to provide the reader with a background image of what the situation is in the world and in India regarding current topic. This, because the reader will be able to assimilate new information better and thus understand the thesis topic and why this is important to investigate.

2.1 What’s the global situation?
The world’s poor consist of about one third of the population. To bring these huge amount of people into the formal economy and improve the private economy for these people, is a huge goal for governments and companies around the world (Nari Kahle et. al. 2013). Furthermore they describe frugal innovation as a comparatively new approach to development and growth and the reaction and use of resources to meet the needs of poor people. There are several research institutions globally which have started research on frugal innovation in the last five years. Some examples are Santa Clara University (The Frugal Innovation Lab), Stanford University (Entrepreneurial Design for Extreme Affordability; Stanford D-School), University of Cambridge (Inclusive Design Program) and Indian Institute of Management.

Frugal innovation is described as following: “a unique way of thinking and acting in response to challenges; it is the gutsy art of spotting opportunities in the most adverse circumstances and resourcefully improvising solutions using simple means.” (Radjou et. al. 2012 p. 5). Frugal innovations often exist in resource-poor environments and favours the growth for people and entrepreneurs in developing countries. It is also a catalyst for social entrepreneurship, where the shortage of resources makes social organisations use their creativity and the materials available to its full potential. Prahalad (2008) states there are huge opportunities in the BoP market, but for multinational companies to absorb the opportunities they need new, innovative solutions to the businesses that want to operate there. Continuously Prahalad argues that companies today must work in this huge market which represents 80% of the human population, it is no longer an option if they want to do it or not. A study made by Ernest & Young (2011) shows that one-third of the asked managers of global business answered that they already work with frugal innovation and developing markets and intended to keep doing so in the future (Nari Kahle et. al. 2013).

Horn & Brem (2012) have identified seven major fields of future innovation management and sustainability and frugality is two of them. They argue that consumers needs and how innovative they are, highly differentiate from market to market. It seems like these people are more interested in tailored products that meets their needs more spot on. Henceforth this will lead to put research and development (R&D) centres nearer to the consumer and thereby instead use their knowledge of the local market.

Information from global statistics (www.globalissues.org) tells us that for the 1.9 billion children existing in the developing part of the world, the situation is that 640 million are without adequate shelter (1 in 3), 400 million with no access to safe water (1 in 5), 270 million without access to health services (1 in 7).
Today, people all over the world have more education, live longer and have more reachable goods and services than in the past (Salunkhe, et. al. 2012). According to UNDP (2011) poor countries are catching up with more developed nations and there is a huge improvement in the world of health, education and income (UNDP, 2011).

The Swedish government's national innovation strategy assumes that it basically is the individual who contributes to society's capacity for innovation. The policy as a whole should therefore work from an innovative perspective through an active approach, claims the Minister of Industry and Trade in The Government Innovation Strategy, Annie Lööf (2012). If comparing the innovation quality internationally, Sweden does well but the competition will increase from countries undergoing rapid development such as India. Continually evolvement is needed to meet the global societal challenges.

"Sweden learn from other countries' efforts to develop innovation policies and inspires internationally, through sustained and coordinated efforts to strengthen the climate for innovation." (The Government Offices Innovation Strategy. p. 51, 2012)

The above is Sweden's vision when innovation is discussed and the strategy has been developed in collaboration with multiple stakeholders. It ultimately aims to develop the innovation climate in Sweden for the better, through continuous improvement (Lööf, 2012).

India’s Innovation Policy is called The Twelfth Five Year Plan and the broad vision seeks for a “Faster, Sustainable and more Inclusive Growth”. One highlighted focus of India’s Innovation Policy is inclusiveness as poverty reduction. It is established that proportion of the population poverty has been declining, although too slow and there are still a huge amount of people remaining below the poverty line. Thus, this will remain a focus of the policy. Another highlight is environmental sustainability and The Twelfth Plan includes composing a development strategy which connect the vision of development with the vision of protecting the environment (http://planningcommission.gov.in).
India’s Prime Minister M. Singh said in The Hindu News: “In recent times, we have made several innovations in areas such as space technology, automatic energy and automobiles. But, innovation in our country has focused mostly on the needs of the upper income groups and not adequately on solving the problems of the poor and the under-privileged. We wish and we must change this state of affairs”. (M. Singh, 15th Nov. 2011, Hindu News.)

2.2 What’s the situation in India?
When India became independent they refashioned themselves immediately into a democracy which proved to be a very successful move. Today, India is the world’s largest democracy (Dréze & Sen 2013). India now has a strong growth and has made progresses in several areas that have been acclaimed around the world. Continuously, Dréze & Sen argues that this has been accomplished in spite of problems with many a wide variety of religions, cultures and languages within the same country. There are both positive and negative effects of India’s development today, they are after all not just a symbol of poverty, and it is important to analyse both perspectives.

World development indicators (databank.worldbank.org) shows the development in India by compiling some key variables. For example, it shows that the gross national income (GNI) per capita has increased from 2.880 in 2008 to 3.840 2012. The total population rate has grown from about 1.17 billion to 1.23 billion during the same period of time. The gross national product (GDP), in current US$, has increased from approximately 1.22 billion to 1.84 billion from 2008 to 2012. During the same period, the GDP growth rates in annual per cent have risen from 4% to 11% and then dropped to 3% in 2012.

Rajan Malik (Jha & Krishnan 2013), Director of Erehwon Innovation Consulting in India is saying that India is one unique example when looking for a new innovative mindset. This, since they face unique challenges which have made them produce as much as possible with very few resources around. They have succeed to innovate in many areas only because they have worked against totally different reference points than in the more developed world. Two good examples is the €1500 Tata Nano car and a water purifier for $20. Continuously Malik argues that it is not surprising that more and more multinational corporations (MNCs) are starting to open frugal innovation centres all over India. Another good reason for settling business in India seems to be that the country is very fertile with a lot of contrasts. You can find the modern and the traditional, the rational and the emotional, and also the developed parts in contrary to the underdeveloped parts. Thus, India has more thinkable conditions because of its size, variety and different contexts than any other country (Jha & Krishnan 2013).

The eastern culture contributes to another perspective on innovation than the western and leads to a more holistic and balanced view. Wido Menhardt, Chief Executive Officer at Philips Innovation Centre describes that Philips tried to innovate in India a long time before they reached success. It only happened when they started to put the local customer’s desires in focus, meaning not only cost but place, usefulness and availability.

Further, Menhardt explains how Philips had to “invent in the area of business models” (Jha & Krishnan, p. 253, 2013). Pralahad (2012) states that innovation is not about focusing on a product, frankly it is more about the process of where a new business model is applied in a suitable ecosystem. Menhardt (Jha & Krishnan 2013) emphasise the importance for corporates to co-create with the customers in local markets. Almost all Indians use frugal innovations in
their average day life, doing more with less by using what is in the closest reach for them (Radjou et. al. 2012).

A successful initiative of the frugal approach is the Honey Bee network. Within the Honey Bee network, innovators, entrepreneurs, farmers and scholars can have a knowledge exchange. The volunteer network is available in 75 countries and through its Honey Bee newsletter it spreads out stories of local ideas in seven different languages. As the name metaphorically describes, the Honey Bee network have been the root of pollination and cross-pollination of ideas of grassroot innovators, just like a bee pollinating its flowers (http://www.sristi.org/). The network is run by Professor Anil Gupta from the Indian Institute of Management in Ahmedabad. Mitticool is an innovation originating from one of those rural entrepreneurs supported by the Honey Bee network. Mansukh Prajapati invented a fridge, which is made from clay that remains cool without any battery or electricity and is 100 per cent biodegradable. He got the idea after an earthquake, where a newspaper showed a picture of a man with a broken clay pot with an adding text saying that the poor man’s fridge was broken. (Radjou et. al. 2012). This is a good example of how grassroot entrepreneurs transform scarcity into opportunity.

Tiwari & Herstatt (2012) argue that India, in particular, is a suitable lead market for frugal innovations. In their case study they discuss five different characteristics of why this is the case. Mainly, it is because of the opportunities of volume, in the sense of addressing large segments of consumers. As well, the value proposition is an extremely important factor. The manufactures are not only competing with other manufactures, but also with non-consumption. If the prospects finds the deal to expensive, they might not consume at all. This requires a lot of value creating from the companies, which leads to frugality.

Thirdly, the robustness is important. The reason is that such a huge number of people live in rural India, where infrastructure issues is a fact. Products developed for rural India must be robust enough to cope with power-cuts, extremely high temperature and dust. Another factor is that a lot of Indians are first-time users of a product. Therefore, this require them to be simple and easy-to-use. The last characteristic is that a product should not only be suitable for the wallets of the prospects when purchased, but be cheap to fix if broken and to own in the long-term. This is why Tiwari & Herstatt states India is a great context for frugal innovation.

We will look into the frugal approach in India and have chosen the organisation Yuva Mitra (www.yuvamitra.org) as a case. The organisation operates in the rural areas of India, where the resources are very limited, and still, they are able to create value together with the villages around. To make this happen, they use frugal innovations along with structured innovations processes. We are, in this thesis, looking deeper into the key factors of their success and how they combine different innovation approaches. We study what the Western world can learn from a frugal and sustainable approach like theirs and how we can share knowledge from the better of two worlds. A description of the organisation Yuva Mitra can be found in the methodology section.
3. Purpose, principal, research questions and delimitations

Below we present the purpose and the principal of this thesis followed by three research questions which are all linked to each other. The first two are aiming to give an understanding of the frugal approach and how to compare the frugal approach with a structured innovation approach. The third questions will lead to our innovation contribution. Lastly, we present the delimitations of this thesis.

3.1 Purpose
The study intends to examine how innovation happens in resource-poor environments and how to combine the frugal innovation approach with Western innovation processes. We, the authors of this report, are of the opinion that this will create a meaningful exchange in knowledge and create bilateral value in the sense that organisations can learn more of the frugal approach to make profit and improve the economy for a lot of people at the BoP. Additionally, we will create our innovation contribution and present it as a concept model that can be used to further understand what we can learn from the frugal innovation approach. We want to emphasize the knowledge exchange between Yuva Mitra and Malardalen University in particular.

3.2 Principal
The principal for this paper is partially and indirectly Yuva Mitra and partly Malardalen University. Yuva Mitra because they actively asked for feedback on their work during the time we visited and afterwards. They also, several times, pointed out that our interest and questions regarding the organization has made them think and constructively evaluate their own activities. Malardalen University and (School of Innovation, Design and Engineering), on the other hand, are involved because they have a partnership with Welingkar Institute of Management Development and Research and Yuva Mitra in India. They are interested in finding an enhanced activity between these interests. So far two research papers has been written and presented at international conferences in collaboration (Ekman et. al. 2011, Salunkhe et. al 2012). We want to contribute by strengthening these relationships through our work and aim for further cooperation between these parties and continued, important research in the field.

3.3 Research questions
RQ1: How are frugal innovations created with few resources in environments with limited conditions?

This research question is expected to give a knowledge base and understanding of the frugal concept. Research question one is more targeted to describe than to analyse.

RQ2: In what ways are traditional, Western innovation processes different from a frugal innovative approach and is it possible to combine them?

This research question is expected to examine and compare the differences and similarities and also the strengths and weaknesses between the structured, traditional Western innovation process and the frugal approach and if it can be useful to link them. By traditional Western innovation we focus on the simplified linear models.
RQ3: What can organizations working with traditional innovation processes learn from the frugal approach?

Research question number three will discuss a learning contribution and benefits of different innovation strategies for different partners and what we can learn from each other.

3.4 Restrictions/Delimitations
The time allocated for the bachelor thesis is 10 weeks. Hence it has been necessary to limit the time-consuming processes such as interviews. We have therefore decided to perform three interviews of approximately one hour each. Another important aspect is that we have chosen to focus our study on India and especially the organization Yuva Mitra. The participant observation we performed during our study in India, at Yuva Mitra’s operating areas, are limited to two days because it was the time of our visit. Additionally, there are of course many examples of Non-Governmental Organization (NGO’s), working with similar projects as the organisation Yuva Mitra, but due to time limits we have chosen to study only one NGO. We have also chosen to restrict the analysis procedure. Since we have produced a large amount of qualitative data through our semi-structured interviews and participant observations, we have chosen to focus on three themes, based on our research questions.

When we discuss the traditional Western innovation processes, we have limited our study and comparison to compare only with simplified, linear models. There are endless of other innovation models that might have been relevant to study, but due to time limits, we compare only the Western innovation processes most familiar to us. When starting this thesis we talked about doing research in a Western company as well and their innovation process to be able to compare with Yuva Mitra. All though, we realised that this would take too much time. We then chose to interview Håkan Mattsson who has 20 years’ of work experience in Western corporate business.

4. Theoretical framework

In this section, the definitions and theoretical starting points used for this thesis will be explained. The definitions used is Innovation, Structured Innovation Processes, Frugal Innovation, Social entrepreneurship/Social business, Sustainability, Bottom/Base of the pyramid, Reverse Innovation, Socially responsible distribution. Lastly, we will also include some criticism to the different approaches.

4.1 Definitions and theoretical starting points
Below we present definitions and expressions that we will avail frequently during the progress of this thesis. It is important to have a basic understanding of these in order to keep up with the reasoning that follows because they are the basis for our arguments.

4.2 Innovation
The definition of innovation is according to Michanek & Breiler (2012), the profitable implementation of strategic creativity, where creativity is the same as the discovery of a new idea, strategy is the analysis regarding the idea's uniqueness and usefulness. Implementation is
putting the unique and useful idea in motion and test it in real life. Profitability is the maximization of a unique idea’s added value.

Innovation is often defined nowadays according to OECD and The Oslo Manual, as the implementation of a new or significantly improved product (goods or services), but also as a process, a new marketing method, or a new organizational method in business practices, workplace organization and external relations (OECD, 2005).

Bessant & Tidd (2013) points out that innovation aims to create value, whether it is in monetary terms, employment, growth, sustainability, improvement or social welfare. The explanatory linear innovation models from 20th century have been replaced by integrated, open and networked models and in recent years, also with approaches for synthesizing, technological, organizational, commercial and social aspects of innovation processes (Utterback et. al, 2006).

4.3 Structured innovation processes
There are a lot of different models of structured innovation. We will introduce two models in this section. In common for the different models is that they illustrates something “new”, “value creating” and does not only apply monetary perspectives but also community benefits.

Most companies today work with innovation and sees it as a necessity to evolve and survive according to Bessant & Tidd (2011). A lot of people agree that innovation is a process that follows a series of steps. The process should you as an entrepreneur learn to manage and control in the best way possible. The entire organization should be organized in a way to support the innovation process and contribute to a beneficial innovative climate.

Bessant & Tidd describes that one can explore the innovative space from different directions. An organization can innovate in their processes to make the decision paths shorter or make a more efficient production. They can also innovate in the context of the product or service that they offer their customers. Small-enhancing innovations is called incremental innovations and it is the most common form of innovations. Great revolutionary changes is called radical innovations, they are much less frequent but often more attentive. Regardless of how extensive you want to innovate Bessant & Tidd suggest you to follow the traditional model. By approaching a structured innovation process, it is easier for a company to exploit it to its fullest potential.

A simplified model of the innovation process is described by Bessant & Tidd (2011) as a rocket divided into a number of stages: "Goals and Context, See the Opportunity, Find Resources, Develop, Create Value and Learning/feedback." These are further affected by three factors: "proactive links", "strategic vision and direction" and "innovative organization". The search and generate-part aims for the company to search for opportunities, both inside and outside the organisation itself. You shall seek a large number of ideas before proceeding to the next stage of selection. When the company have found a quantity of ideas it is time to choose which of them are realistic and viable. You also have to think about how the process will proceed, who you are going to collaborate with, how much resources can the project use etc.

As Bessant & Tidd (2013) further argues your organization will reach the implementation-phase where the idea will actually develop to something real. This is the phase of action and depending on the circumstances it will either go well or it won’t. If the project fails the company are supposed to use that experience for further learning outcomes. The most important variable when you have implemented the innovation is that it should create value of some kind. Overall
the organization also have to keep in mind to work according to their innovative strategy. Without this, an organisation will not be able to push their ideas through this process successfully. Another criteria is to shape your organization in an innovative way and keep your management open minded and not so criticizing.

Figure 2. Simplified model of the innovation process. Source: Bessant & Tidd (2013) p. 47.

Many larger companies use a traditional structured innovation process to improve its performance in innovation while minimizing project failure. This popular and often very successful form of the innovation process can be described as a thought process or roadmap that guides the concept from idea to finished product (Ottenbacher & Harrington 2009). The structured and step-based approaches are successful and presented in many different forms and variations. One example that Ottenbacher & Harrington describe is a model in six steps as follows:

1. Idea generation
2. Business Analysis
3. Corporate Analysis
4. Concept Development
5. Testing of prototype/concept
6. Launch in market

In real life this kind of innovation models are often more like loops then sequenced stages (step by step following each other), even if there are many models looking like the two above mentioned models, with a stage-gate approach.

4.4 Frugal Innovation
Frugal innovation have many different terms. In india, the word jugaad innovation or gandhianor is used for the same. Other terms is inclusive innovation, catalytic innovation, reverse innovation and BoP innovation. It is defined as an improvised solution originating from ingenuity and cleverness. Frugal is simply said, a unique way of thinking and responding to challenges. It is the courageous way to find opportunities in the most adverse environments and in a resource-efficient manner improvise solutions using very simple means. It's about doing more with less (Radjou et. al. 2012).
Frugal innovators do not find opportunity regardless to setback, they see the adversity as the opportunity. When looking closely at the concept of frugal innovation, it is something that is practiced in a lot of places, all over the world. Particularly this includes emerging markets such as China, Brazil, Kenya, Mexico and India (Radjou et. al. 2012). According to Radjou et. al. frugal innovation consists of six major points/principles:

- Finding Opportunities in adversity
- Doing more with less
- Flexible thinking and actions
- Keeping it simple
- Include the margin
- Following your heart

These principles can be an inspiration to companies and organisations that wants to adopt a more frugal innovation strategy. The first principle is about the ability to see opportunities in failure and difficult situations. In fact, the adversity is the opportunity that allows frugal innovators to see things from a different angle. To do more with less, the second principle, goes against all Western approaches about making everything bigger and better. If companies can adopt this mindset they can deliver more value to consumers without huge financial resources.

Thirdly, flexible thinking and acting emphasizes how important it is to not be restricted by a structured process, so that all options are possible. Frugal innovators tend to act more flexible as well, and since they do not follow certain steps and models they can innovate faster. To keep it simple is also an important factor for frugal innovators (Radjou et. al. 2012).

The Western innovation approach tend to go against adding more and more technology and frills to their new products instead of keeping it simple and frugal so consumers finds the products easy to use. The fifth point is to include the margin. Western firms scan for mainstream consumers while frugal innovators are looking in the marginal to find holes in the unserved markets to bring them into consumption with their cheap and simple solutions. Lastly, following your heart is basically about trusting intuition, because frugal entrepreneurs knows their customers closely (Radjou et. al. 2012).

Globalization, combined with a rapidly growing population force us to take care of the resources on Earth. Not least, we are affected by everything from climate change to economic crises. There are also a rapidly growing middle class in emerging markets who want and can consume and along with the above factors, this contributes to people even in developed countries are demanding a cheaper lifestyle. A solution that exists is frugal innovation that involves offshoring and products without redundant functions (Rao, 2013).

According to Radjou et. al. (2012) the frugal innovation approach challenge the more structured approach to innovation. In order to eventually be able to have a continued development and competitiveness, organizations must therefore, in addition to the structured model, embrace a more flexible and frugal approach. This can give organizations the ability to innovate in a cheaper and more efficient way. They stresses the importance of organizations to have a growth mindset and to be more flexible to be able to expand in emerging markets.

Organizations that goes from a centralized decision-making to a more decentralized, polycentric organization will be able to give their business leaders more power. These leaders
will learn to recognize local opportunities and challenges and share information in a peer-to-peer network. Mukerjee (2012) explains that companies must use frugal innovation to make products and services affordable to consumers at the Base of the Pyramid. The innovations must offer high value to price-conscious consumers and innovators must understand the importance of accessibility, availableness and awareness to make their innovations successful (Anderson & Billou, 2007). If companies manage this, the lives of many poor people will improve and this will contribute to strengthen the economy and have an impact on the socio-economic development through the democratizing effects in emerging markets (Nari Kahle et. al. 2013).

Not only will consumers at the base of the pyramid benefit from the frugal approach, but companies also. Since the business competition in the globalized world is increasing, companies need to rethink their business models. Instead of fulfilling the short-term demands of the shareholders, companies must think in the long-term and more sustainable approach to deliver value (Radjou et. al. 2012).

Rao (2013) claims that firms usually try to improve profitability by cutting down costs and make the production process more effective for a particular product. Unlike this approach, the cost efficiency is already a part of the initial design in a frugal innovation. Since the frugal innovations are cheaper and, with few exceptions, usually not worse in quality, frugal innovations get in a position that strongly challenges the more common solutions. Continuously, Rao mentions that a frugal innovation usually can evolve and become a more full-featured and lean product with good functionality while a traditional product rarely can evolve into a leaner product. Tiwari & Herstatt (2012) refer to India as a lead market for frugal innovations and states that companies can benefit from taking part in an emerging market such as India. Through greater knowledge of the needs of the local markets, companies can minimize the risks of market failure with new products.

But how can companies adapt a frugal innovation process to minimize risks, make profit and at the same time make life better for poor people? Rao (2013) describes a methodology for the process, in three steps wherein the first step is about using the classic analyses that is most commonly used when designing new products. This is vital to exercise, to understand how to make a product frugal and the ability to achieve the maximum efficiency of basic design for frugal innovations.

Additionally, the analysis should list possible parameters that might influence the values and functionality of a product. This is the modelling of functionality. Secondly, the analysis will lead to the study of the qualifications of whether a product is possible to make frugal and what impact it will have. Although, this might not be applicable in certain sectors, i.e. defence and healthcare. Coming to the third step, it is about the ability to make full use of something when still facing the limitations of frugality.

As the model shows below, it is about functionality, which is a fixed parameter and four other, variable parameters, quality, production, basic design and usability and robustness. For example, by optimizing the basic design to lower the cost and efficient use of resources, it can lead to a frugal innovation. To sum up, the methodology can be brought into the innovation process to consider the restrictions incessantly. Rao suggest that organisations should apply this methodology as part of their R&D budget and improve their current products and services and in the best scenarios develop new, frugal innovations and businesses.
In Sweden, the frugal approach and reverse innovation is starting to get acknowledgement. Jagtap et. al. (2013, p. 9) says in a research report partly financed by VINNOVA (Swedens Innovation Authority) that “Products originally developed for the BoP can be adapted for the markets in developed countries, and this is called reverse innovation”.

System groups is a term used in Sweden which is similar to the frugal innovation approach. The use of system groups in innovative change processes ranging from product development to service development, organizational change, and virtually all types of development. They form a system group with representatives from all the different stakeholders affected by the current change. All interested gets involved in the experience and give expertise regarding the situation and give opinions about the final solution. The benefits with system groups is that since all concerned are involved in influencing the change, the solution often finds a great acceptance when introduced to market (Andersson & Rollenhagen 2011). The method is based on the system groups that were constructed primarily for industrial systems but has spread and shown success in many other contexts.

4.5 Reverse innovation

Scientists argue that Multinational Enterprises (MNEs) should innovate for emerging markets by saying that products that are developed in emerging markets also can be applied in developed areas. Innovations that comes from underdeveloped areas are called reverse innovation (Govindarajan & Trimble, 2012). Govindarajan (2012) argues that if a company is able to develop new products in emerging markets and then export those to the West they need to reject old routines, organizational structures and focus.

Harman's project "Saras" is a successful example of reverse innovation. The project “Saras” is an integrated infotainment system for cars, including GPS, music and Internet. It was organized by function and problem solving rather than skills of the participants. They worked experimentally, flexible and cross-functional to challenge existing structures. "Saras” (means adaptable in Sanskrit) which they worked within met with much resistance from the outside world when the company did not think you could achieve good quality at such a low cost. The project reached the final stage of its reverse innovation process when its working was accepted.
by Toyota and then also recognized by luxury brands in the West (Govindarajan & Trimble, 2012).

According to Govindarajan (2012), the best way to work with reverse innovation is by setting aggressive and spectacular goals and selecting leaders for the project, whose main interest is the project. The leader in the firm must recognize the opportunities that exist in emerging markets and may need outside expertise to help. Companies also need to break out of old logic and approach innovation from the opposite direction and also realize that reverse innovation is a state of mind as much as it is a way of working.

A good example of reverse innovation is what Gopichand Katragadda, the Managing Director of General Electric India Technology Centre, explains about GE’s ECG machine (Electrocardiography, a machine that interpret the electrical activity of the heart). Firstly, their ECG machine was non-portable and with a cost of $10,000. By using reverse innovation, GE managed to manufacture a portable ECG machine for the Indian market with a cost of $500. This was not about cutting costs, but about creating value. GE works with technology-advanced printers, but they chose to put in an Indian bus-printer to create a simpler, user-friendly device. This was a big step to take for GE (Jha & Krishnan, 2013).

4.6 Social entrepreneurship/Social business
Burns (2011) describes social entrepreneurship as an entrepreneurship which puts social goals in the first place and using commercial capabilities to achieve them through an entrepreneurial approach.

Nobel Peace Prize winner of 2006, Muhammad Yunus explains that he believes that poverty is a threat to peace and emphasizes how social businesses can be the solution to the poverty issue in the world. He said in his Nobel lecture:

“Almost all social and economic problems of the world will be addressed through social business. The challenge is to innovate business models and apply them to produce desired social results cost-effectively and efficiently. Healthcare for the poor, financial services for the poor, information technology for the poor, education and training for the poor, marketing for the poor, renewable energy – these are all existing areas for social businesses. Social business is important because it addresses very vital concerns of mankind. It can change the lives of bottom 60 per cent of world population and help them to get out of poverty.” (Yunus, 2007, p. 272)

Yunus (2010) describes how the society is responsible for the fact that such large proportion of the population lives in poverty today. It is not the poor part of the world's fault, or the poor people's fault that they live their lives in poverty. He compares the situation with a bonsai tree, it is not the seed’s fault that it does not grow as desired but the adverse conditions that the seed is planted in. Most economic theories are based on the idea that man is a selfish creature whose highest aspiration is to make as much money as possible. Until recently, our economic theories lacked of social business based on a zero profit basis, which only seeks the satisfaction of helping other people and society. Profit is absolutely permissible in operations as long as it is invested in the company's continued development with the betterment of society. Social business along with the profit making companies are needed to create a better world.

Yunus (2010) points out that if it is possible to change the situation for five people, you can do it for 5000 and 5,000,000, just taking one step at a time and then repeat that step in a larger
scale. An inspiring example is Yunus's own company, Grameen Bank, who collaborated with Danone, Adidas and Veolia Water. When he and Veolia Water made a project, that aimed to provide a village in Bangladesh with safe drinking water at an affordable price, he stressed the importance of starting to work as soon as possible and be flexible during the work process and learn along the way. He encourages companies to focus on their core business where they make money and then develop social business accordingly. The concept of social business today has spread to universities, social investment funds and Yunus also believes in a forthcoming social stock market. Through this process, people can build a global infrastructure for social business and helping to cure poverty.

4.7 Sustainability
Sustainability and innovation sustainability is according to Bessant & Tidd (2011) about how innovation can contribute to sustainability, especially in the environment. This can be done by, among other things, creating cleaner products, more efficient processes and alternative technologies, such as renewable energy. Anything to reduce the negative environmental impact.

Rao (2013) indicates that frugal innovations can have a positive outcome on sustainability. Thus, the lower costs without extra paraphernalia in the design combined with good quality, will improve the lives of many poor despite an increasing mass-consumption along with a growing population. Therefore, because the simplicity of the frugal approach, this is a sustainable solution.

4.8 Bottom/base of the pyramid
Prahalad (2008) describes that there are huge opportunities in the BoP market, but for multinational companies to absorb these they need new innovative solutions to the businesses who want to operate there. To innovations in BoP market to be sustainable it requires that they are possible to transport, recyclable, use of new technologies are adapted for living conditions and taking into account the prevailing infrastructure.

![Figure 4. Showing the population, in millions, and their purchasing power parity, in US$. Source: Pralahad, C.K. (2008) p. 4.](image)

One problem according to Prahalad (2008) is that companies find it difficult to make money and be a profitable business in BoP markets. Work in BoP markets must be based on sustainable development where resources are already limited; water, transport and energy are clear
examples of this. Limited resources and assets, combined with an increased need forces new innovative solutions to become successful. This often requires cooperation with local organizations and outsourcing to local companies. In order to create a market-oriented ecosystem it requires close collaboration with NGOs, multinational and micro firms, combined with transparent relationships. Continuously, an example of a market-oriented ecosystem described as: Extralegal NGO Enterprises + Micro Enterprises + Small and Medium Enterprises + Cooperatives + Large Local Firms MNCs + NGOs= Market-Oriented Ecosystem.

Prahalad & Hammond (2002) argues that the new economies can serve as engines of global development. To contribute to this development, it is important that multinationals invest in BoP markets in a healthy and sustainable manner. The problem is that many companies do not think this kind of markets are profitable to operate in when the population’s income is limited. The solution is to adapt products to people's abilities and needs in order to achieve a profitable outcome. Contrary to what many believe, even the poorest part of the population is brand conscious and willing to invest in luxury products if given the opportunity (Prahalad & Hammond 2002). In Asia's largest slum "Dharawi" 85% of households own a television, 21% a gas stove, 21% a telephone and 75% a pressure cooker. Distribution to the poorer areas may be a problem for the companies, but if they manage to solve it in a sustainable way, the products are often sold more expensive because the demand is high but the availability low.

4.9 Socially Responsible Distribution

One of today’s greatest challenges is to create accessibility to the rural markets which are, as Vachani & Smith (2008) calls the "Socially Responsible Distribution". The majority of people living in the BoP have difficulties to satisfy basic needs and often lack essential components to a good life such as clean drinking water and opportunities to take care of their hygiene. Other problems may occur in the form of physical barrier or geographical, like the ability to get to school. Average length of schooling in India is five years which means that many cannot read and write properly. 30% of the population lives in poverty in 2010 according to the World Bank. They identify malnutrition and illiteracy as the two strongest factors to address in order to fight poverty. Something that contributes to the inability of outsiders to reach BoP markets is the lack of information and communication according to Vachani & Smith (2008). Continuously, the availability of mobile phones and the internet has improved in rural areas but it is still not good enough to facilitate circulation to those areas.

Below, Vachani & Smith (2008) describes three ways to assist organizations of different characters to reach BoP markets:

1. Taking cost out: availability increases on distribution costs.
2. Reinventing the distribution channel: it comes to finding new and innovative ways to reach the rural markets and at the same time get them to reach out with their own products to appropriate markets.
3. Taking the long-term view and investing for the future: to apply long-term thinking in their actions.
4.10 Criticism to the different approaches

The frugal trend has grown strong in recent times and is today considered one of the latest management trends that seem to pop up everywhere in India, states Birtchnell (2011). The term “jugaad”, which is used in India for frugal innovation, derived from the mopeds and such vehicles as the Indian population built up of very simple materials. Vehicles were created that did not meet the formal requirements for transportation, such as taxation and compulsory insurance. These solutions were forced out of extreme poverty and contributed to increased traffic uncertainty in India. Therefore frugal became synonymous with quick-fix in a negative sense. The frugal mindset has spread to other areas of interest like India’s informal economic systems where the frugal criminal solutions have increased. It is said that the mindset has been driven by poverty and Birtchnell is sceptical whether we should to spread this on to the corporate world or the global economy.

The CEO of a venture capital company condemns the frugal mindset and thinks it’s just a scam that it would be something positive and good; “venture capitalists and management gurus have praised this approach of doing more with less, but jugaad is more an outcome of limited access to capital, resources and infrastructure, than it is innovation” (Rajeev Mantri, 2010).

Birtchnell (2011) describes how the cheap car Tata Nano was developed as an evolution of the previous self-made vehicles in India. The Nano won America’s Edison award for best new product in 2010 and is manufactured as a social project at a low cost so that the common man can afford it. Tata was hoping that the development of the new cheap Nano would reduce the number of dangerous mopeds and make India’s traffic safer. Instead, to suit the BoP market, Tata developed a car that was not really suitable for the roads in Rural India and which is also difficult to repair if damaged. Continuously Birtchnell describes this type of business as a consequence of too much poverty and emphasize that it is not real innovation.

The problem with structured innovation processes is that it eats up capital and rarely give the desired outcome. According to a survey of the management consult agency Booz & Company, 1000 of the Western firms that spend most money on innovation, put in 550 billion on research and development merely in 2010 (Radjou et. al. 2012). In fact, the three companies that invested the most in R&D turned out to actually not generate more innovations. Thus, there are little correlation between the amount of capital spent on R&D and how well companies are performing through product development that generates high profit. (Radjou et. al. 2012). Criticism and difficulties of structured innovation processes are that they can be too strict, too expensive and somewhat narrow-minded.

Radjou et. al. states you can’t buy the ability to perform frugal innovation as little as you can manage the same. Hence, it is something that happens organically and is not really planned. It is a bottom-up innovation approach that companies should adopt along with their structured innovation strategies. Emerging markets can give inspirations to companies to allow a more flexible and frugal approach in their R&D strategies.
5. Methodology

This part of the report describes the approach, how our work is performed and why. We present the research methods used for this thesis, the selection of research subjects occurred, how interviews were conducted and the form of research ethics that we have taken into account. We also explain our assay procedure.

5.1 Choice of method
We have chosen to use an approach that mostly resembles a qualitative research method, which according to Bryman (2011), puts more focus on words than quantification in the collection and analysis of data. The qualitative method is also inductively interpretive and constructionist in its approach and therefore we feel that we want to work with a method that is closer to the qualitative. Furthermore, we have chosen to use a qualitative interview methodology with semi-structured form, where we use a query schedule, supplemented by open questions.

Although, the qualitative research method we have chosen to approach, can be seen as too subjective and largely based on our own observations made and the interests we have chosen to work with. We believe that the best way to present this kind of research is participant observation combined with interviews and open, flexible talks. Because of the methodology, subjectivity and difficulty to replicate, we have been careful and made a clear and wide literary base to strengthen the study’s credibility. We do this through a narrative review of the literature to get an initial picture of what we want to get a better understanding of. According to Bryman (2011), this is an unreliable method and there are no clear criteria for what to include or exclude. The alternative is a systematic review, which is more transparent and scientific. We have chosen in our work to go closer to the former method.

5.2 Validity, reliability and generalization
The validity of a qualitative research approach focuses on examining if you measure what you claim to measure (Bryman, 2011). Because qualitative research method do not measure hard facts, it means in our case to examining the validity of what we observe or identify. However, we think that the internal validity may be assessed as strong in this study since it is based on the theoretical concepts consistent with our research observations. Since we have used participant observation, we feel that we can link these clearly with the theoretical frameworks presented above.

Bryman (2011) states the external reliability is also the most difficult to satisfy in the qualitative research, where it is impossible to freeze a social environment. This makes the investigation very difficult to replicate. Research opportunities are constantly affected by the social landscape in which it is performed and other factors of change that occurs in the environment. Our interests and subjective experiences during the investigation progression also hampers opportunities to replicate the study.

To be able to replicate our study, someone can use the same words when searching for articles in the databases. In primary we used the databases “Emerald”, “ABI/Inform Global” and “Google Scholar”. The keywords used were “frugal”, “innovation”, “jugaad”,

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“sustainability”, “social entrepreneurship”, “reverse innovation” and “the bottom of the pyramid” in different combinations.

We are interested in generalization for our survey when one of our research questions based on finding out whether our different approaches are possible to combine with other and use in other areas or not. It is difficult to know whether the sample is representative of the work on innovation in resource-poor environments or not but we interpret the result we get, and then form an idea of how the working methods can be used in other contexts.

5.3 Selection of organization and interviewees
In the following section we present the organization Yuva Mitra and their work followed by brief presentations of the four people who participated in the interviews.

5.3.1 Yuva Mitra - business description
The organization Yuva Mitra was born in 1995, but was then a youth group focusing on social change. Since then, many programs have been initiated and the organization has grown. Their focus and vision today is sustainable development and to put the people at the heart of decision making and action, beyond the model of Welfare Schemes. The organisation’s campus is located in Sinnar District in Nashik, Maharashtra, India (see location in Appendix B). This is about two hours north of Mumbai. Yuva Mitra works with three thematic area as follows: To create generations of creative self-expressions and critical thinking, strengthen community assets for sustainable resources and livelihood and to support the society's actions for human rights and fair governance.

Yuva Mitra operates in 110 villages in Sinnar, 34 villages in Igatpuri and 29 villages Peth Block of Nashik District since the last 12 years. The organization focus on four parts of the society including women, farmers, children and youth. They perform different projects with these four focus groups to enhance their socio-economic status. Their understanding of people’s issues and social justice has been developed through work experience. They have always tried to challenge the traditional models that are available for development.

Many of the traditional models only promote the creation of physical infrastructure and major projects. This phenomenon has led to serious consequences that have contributed to the growing gap between rich and poor. Basic needs like health, education and livelihoods are still not satisfied to a large proportion of the population in India (www.yuvamitra.org). In Yuva Mitra’s annual report (2012-2013) they emphasise the importance of people participation, collaboration and to identify the root cause of a problem. To do this, it is vital to have leaders that understand the rural dynamic and for people in the rural villages to work as a knowledge link and understand both the rural sector and the more developed sector. Thus, they work with a proactive approach and emphasis on enhancing the skills of staff members by giving each staff member a mentor and working with Personal Growth Lab, a platform to help staff members to self-analysis and give clarity in their roles and responsibilities.

The Yuva Mitra team consists of an Advisory Committee of three people, nine trustees which include the president Sunil Pote, the Vice President Somdutt Lad, the secretary Manisha Malpathak and six members. Yuva Mitra have 21 members of staff where they have two executive directors, one director for program development, one project manager for agricultural
program, one assistant manager in admin and finance, one consultant in agricultural research, two project coordinators, four sr. field coordinators, three field coordinator, two course instructors, one junior officer, one driver and two admin assistants.

Yuva Mitra have implemented a lot of projects and some of them are very innovative. One of the projects they have worked with is called the “Five Gunthas Experiment”. There was a huge problem with the liquidity of farmers and the fact that they often face drought and limited water resources. This resulted in farmers believing that farming is no longer a profitable activity. The solution to this was a scientific and economically viable method of doing agriculture wherein farmer are linked with market every day. Their land is divided into small plots of 5000 square feet and then one crop is sowed. 15 days later, another crop is sowed with on another plot and so on. Yuva Mitra recommend the farmers to have more than three types of vegetables. Then a cropping pattern is occurring. There are less labour force required for this kind of farming and it secures the farmer to get something to sell in the market every day. Yuva Mitra has trained 200 farmers to apply this process and have led to each farmer earning 2000-5000 rupees/day (1 rupee=0,11 sek) (www.yuvamitra.org).

Another project they have undertaken is called the “Regeneration of Diversion based Irrigation on Dev River”. Devnadi River flows through Sinnar Block. British government built 20 check dams in 1870 on this river. This is divided into sub-canals that were supposed to give water to the farms. The check dams became old and got broken. Yuva Mitra saw the water shortage as a root cause for problems in the villages. They wanted to involve the locals and together solve this matter with diversion based irrigation. The project was focusing on Diversion Based Irrigation (DBI) and the start-up of Water User Associations in each village. Yuva Mitra wanted the villages to understand the problem and participate in the solution so that they would use the water cautiously. The organization managed to repair five check dams which brought 1550 hectare under irrigation (www.yuvamitra.org).

We feel that we stick to good scientific practice when our participant observations are randomly selected from the field trip to Yuva Mitra and once we visited, we decided to investigate their activities more closely. We chose to interview people who were active in the organization and we also complemented the research with one person from Yuva Mitra’s partner Welingkar Institute who has good knowledge of the rural market and Yuva Mitra’s work. The selection was limited as for who had opportunity for an interview.

The distance has influenced our choice when we found ourselves partly on location in India to gather empirical data and later, when we were in Sweden, we did additional interviews through Skype and e-mail correspondence. To support our research, we chose to interview people that are involved in Yuva Mitra, frugal development and frugal and sustainable innovation. Below will follow a brief presentation of the people that participated in the interviews.

5.3.2 Selection of interviewees
Mr. Sonil Pote: President of Yuva Mitra. He has 20 years’ experience in social field. He has done Master in Social Work, he used to work in GlaxoSmithKline in Corporate Social Responsibility (CSR) Department for a few years and then started Yuva Mitra. Sonil has great knowledge of the organisation as the founder so he was an obvious choice to interview.
Mr. Somdutt Lad: Vice president of the organization Yuva Mitra, work in the construction business for five years and is involved in helping farmers to build their own businesses. We met Somdutt Lad during our visit in Yuva Mitra and because he has a great knowledge about the organization's work he is used to represent Yuva Mitra in different situations.

Mrs. Anuja Agarwal: Associate Dean - Rural Management Program. She has a Computer Science Graduate from Delhi University and Post Graduate in Computer Applications and is currently pursuing her research in the area of "Creativity, Design Thinking and Innovation in Management Education" at the University of Mumbai. She is Professor-in-Charge of the Business Design and Innovation program at Welingkar Institute of Management in Mumbai, India. (www.welingkar.org).

Mr. Håkan Mattsson: Lecturer at Malardalen University at the School of Innovation, Design and Engineering. Mattsson is a teacher of innovation technology and has been for some years and also teaches entrepreneurship-related courses and intellectual property law and has extensive experience in the Western industry. He was participating in the study visit at the Yuva Mitra and is therefore suitable as an interview respondent. We think he can contribute to an additional perspective of Yuva Mitra and the differences between Western and frugal innovations.

5.4 Interviews
We have performed three interviews of the semi-structured form which, according to Bryman (2011), includes a wide variety of interviews. We chose to start with a question schedule with 25 questions which were supplemented with follow-up questions after what we thought was appropriate and interesting.

The first questions were written in India, right after our study trip to Yuva Mitra. They have, during the entire research process functioned as a kind of template that we have used when we developed new questions. When we wrote them, we did not know exactly what we wanted to investigate and therefore formulated the questions quite generally. Gradually, they have become more specific, some have become more important, and some have fallen away. This is a sample of questions that we asked during the interviews: 1. In what ways do you think the frugal approach and the structured innovation approach differs from each other? 2. How does the innovation happen, describe the process and what tools do you use? 3. How do you create great value with small financial resources? All questions can be found in Appendix A.

Qualitative research does not strive to be objective (Bryman 2012), but we consciously wanted to create an understanding of the respondent's subjective perception of the subject. We wanted to create a deep understanding of the frugal approach and rural development through our interviews. This is a time-consuming process. Therefore, we chose to interview relatively few people but thoroughly explore their subjective experience. We wanted the interview to seem like a relaxed conversation, to get the respondent to have confidence, but with control from our side so that the respondents could answer the questions we asked.

Given that one interview had to be held via Skype, because of the distance, there was a lot of interference. The Internet connection was broken several times, so we were forced to give priority to ask the questions we felt were more important and left out some that seemed less important. Berg & Lune (2012) explains that web-based interviews may occur as both synchronized and unsynchronized. Our Skype interview counts as synchronized as it was
performed in real time with the opportunity for follow-up questions and discussion as in a
physical interview. Our one hour interview became two and a half hours. Sometimes it was
difficult to hear the full sentence since the line was disrupted. We had to have a flexible
approach to the questions we had prepared but managed to ask and get answers to the most
prioritized questions. Everything was recorded.

We have used limited amount of not synchronized communication when we have needed
supplementation via email. The benefits with correspondence through e-mail are that the
respondent can take the time to think through their answers before responding, which was also
the reason that we sent the questions for the Skype interview in advance to Lad and Pote. One
more interview that was meant to take place was cancelled at the last minute because of one
respondent’s problems with Skype. Communication becomes harder to maintain when including
factors like the distance and the time difference along with several cultural feasts occurring in
India.

5.5 Participant observation

We received, through an exchange term, the opportunity to study the organization Yuva Mitra
in India. We spent two days with them to get an insight into their daily work in the countryside.
During that time our interest grew in their line of work and commitment, and then the idea was
born to write our thesis concerning their work. During the field study, we were accompanied
by a student group of about 15 people and two Lecturers from Malardalen University.
Spontaneous questions and discussions were asked by the whole group during the participation
observations and recorded randomly when possible.

Our roles in our study of the organization Yuva Mitra was what Bryman (2011) describes as
an observer-as-participant. We interviewed, observed and acted interested in the business but
we did not participate in the daily projects. Through this method, we got a realistic picture of
the real situations and environments where the organization operates. We also got to meet and
talk to the farmers who have been helped by Yuva Mitra and thus get their view of the business.
The approach case study is common with many other ways to examine empirical data and is a
multi-step process. According to Yin (2003) there are some parts that are particularly important
when working with case studies. This include the study questions, its propositions, units of
analysis, the logic which relates the data to the propositions and the criteria for interpreting the
empirics.

According to Fangen (2005) it is hard to keep a balance between participation and analytical
distance. If you are too involved in the participant observation, you might not see the patterns
of what you are investigating, but if you on the other hand, act to much as an observer on the
outside, without participating, it might be difficult to understand the patterns of the
observations. Moreover, a partially participating observer socially interacts with the
participants of the field of observation, but does not get involved in the specific activities.

During our two-day visit in Yuva Mitra we were trying to approach the partly participant
observing. It should be added that our interest of thesis work was born during this visit, so we
had little preparation time to plan our observation methodology. Therefore, we felt that it was
important to record as much as possible of the discussions occurring during the observation, so
that we could have transparency during the whole work procedure. Overall, the field study gave
us a better understanding of the context, and without this opportunity, it would have been very
difficult to implement this study.

5.6 Course of action
First we attended Yuva Mitra as observer-as-participant for two days. During that time,
presentations and questions and answers were recorded by applications on our mobile phones.
We even took notes during the day over what we thought was particularly interesting. During
the visit the idea of working with this topic at a deeper level was born and around twenty
questions were formulated as a base. We also started an e-mail contact and exchange of ideas
with the prospective supervisor. The questions were initially more general since we were new
to the field but then we developed more specific questions about the organization's work.

The interviews we conducted was recorded with the respondents consent. We were also
careful to inform what we wanted to use it for so that there were no doubt. The interviews were
semi structured with follow-up questions, customized to the situation and were approximately
one hour each. They were performed at the respondents' workplaces, with the exception of an
additional interview that was conducted via Skype because of the distance.

5.7 Ethical considerations
There may be some ethical problems in research which we have chosen to take in consideration
in several ways. The common aspects that affect privacy, anonymity, confidentiality and
voluntariness described by Bryman (2011), we met. The people whom our research has
concerned have participated by choice and were informed of what the material will be used for.
It made it easier for our study that both Yuva Mitra and Welingkar already work and have good
relations with Malardalen University.

Our vision is to create value for all involved in this research so that we can give something
back to those who contributed with information to this report. With respect to conditions in
different countries and as a tool to minimize the "us and them" way of thinking, we believe it
is important not to use derogatory expressions against a resource poor population, or the way
they work. The research is intended as a learning process, and therefore, we entered this
research with a neutral and open mind.

5.8 Assay procedure
When we were still in place in India, we worked with the analysis process through ongoing
notes after interviews and site visits. We did this in the moment, to capture thoughts and feelings
that we thought might be interesting in the future. Although we did not know exactly then what
we were looking for and wanted to emphasize in our work, we felt that it was important to
capture the emotions, connections and associations to work on them later in the process.

Each interview was transcribed, which according to Bryman (2011) is an effective way to
analyse data. Transcription is a working method that is both central and necessary in qualitative
studies (Davidson 2009). This method helps the researcher to highlight features in the collected
material as pauses in speech, hesitations or reinforcement of certain things that is important,
which is not noticed in the speech. It becomes a tool for further analysis. As Davidson (2009)
emphasizes, it is important to be aware that transcription is a selective method where it is
impossible to record and transcribe accurately all material collected during a research process which leads to being forced to make a selection of what is consider most relevant.

The researcher may be looking for confirmatory information to answer his question while ignoring other information. Furthermore Davidson explains that the quality of a transcription always depends on the quality of the technical equipment you have at your disposal at the moment. We noticed during our process that recordings made during field studies could be harder to work with when background noise or simultaneous calls disrupted our focus. We have nevertheless chosen to transcribe all of our recorded material as we believe that it contributes to a more credible analysis than if we had not.

Once the interviews were transcribed, we used what Bryman (2011) name thematic analysis by different disciplines. After the transcription and thematic analysis of our collected data was finished, we presented the result. This can be found below, under Empirical findings/Results.

The empirical data from each interview/research situation are divided and presented one by one. Since we have 38 computer written pages of empirical data, we have picked out data that resulted in 13 pages relevant to our research questions. This means that we got a better view of what was said and how well the collected data could be used for further discussions and conclusions. In this way we also saw what parts we needed to ask more about, in later planned interviews. The data we picked out was on one hand summarized and on the other hand presented with direct citation to give the reader a literally glimpse of what was said in the interviews and field study.

The two of us have worked integrated during the whole process. We have both been equally participating during the field study, interviews, transcription and report writing. Because of this working procedure, we have manage to get two quite different point of views.

Our aim is to conclude the work and present a form of visualized concept model that is our expected innovation contribution. That is why we have used a few models in our report, to provide a basis for our conclusions. The model should provide the reader with a clear overview of our research and can be seen as an aspiration from us to explain our results in an additional dimension beyond the text.

6. Result/empirics

In the following section we present the empirical data collected from the participant observations and the interviews. Firstly, we repeat the research questions and then we present each interview/research situation one by one.

6.1 Research questions

RQ1: How are frugal innovations created with few resources in environments with limited conditions?

RQ2: In what ways are traditional, western innovation processes different from a frugal innovative approach and is it possible to combine them?

RQ3: What can organizations working with traditional innovation processes learn from the frugal approach?
The empirical data will be presented below, divided into four sections consisting of the participant observation in Yuva Mitra, two face-to-face interviews and one Skype interview. Hence, each section is presented in different themes according to interview questions and spontaneous discussions regarding our areas of interest. The questions are in some places interlaced in the conversations, and we have sometimes chosen to summarize the data, where a lot of data was collected. To have transparency, we have a lot of quotes directly taken from the transcriptions.

6.2 Participant observation at Yuva Mitra
During our two days of field studies in March 2013 at Yuva Mitra we recorded many of the discussions that took place in the group that consisted of teachers and students from Malardalen University, professors from Welingkar Institute and Yuva Mitra staff. Some photos of our visit in Yuva Mitra can be found appendix B. The photos is taken with consensus of the people in the pictures. We chose to attach photos to get a visual understanding of the environment, if never been to India.

We went to one of their project called Farmers Mall and Somdutt Lad held a presentation where the group were able to ask spontaneous questions. He describes their business model of the farmer company and the fact that the company charges 7% margin (e.g. if the company purchase a product at 100 rupees (1 rupee≈0.11 sek) then with 7% margin it sells at 107 rupees). On that amount they run their entire operating cost that is salary, travel and other administration costs. He explains that the farmers get 20-25% of the purchases, compared to other shops. The idea is that a farmer pays 1500 rupees to join as members and after 2-3 purchases the farmer has recovered that money. Mattsson, member of the group asks if anyone, like a non-member can make a purchase in the Farmers mall. Lad replies:

“*We can sell it for a higher price but this is a farmers company. If the farmers makes more business with the company, the company is going to grow, at the same time, the profit is again distributed with the farmers. We also want the farmers to own this company, ultimately. Until they are not stakeholders of this company, that sense of ownership won’t reveal. We don’t want to be like any other mall.*”

Continuously Lad tells us about the Hubb and spoke-model, which means that the company is not only in that area, but for the whole Sinnar Block. They have their main brand and a service centre. He tells us that this mall particularly, is serving around 5-10 villages surrounding the area. They have another mall located 25 kilometres from that mall, which serves 4-5 villages around that area. As the demand increases, the membership increases. He emphasises that the idea of the mall can be applied in other places but says that these malls has to be managed centrally:

“As for our financial plan, our work is that for any mall to sustain, you shall have a minimum of 200 members. Then only, the profit can start generating. If any, say 50 kilometres from this place, there is enough potential, there are enough people; say 500 people that are ready to become members, then we can open a different mall for these people. But that has to be managed centrally, whatever the purchase requirements are there, those are bought out centrally and then given to them. That are the mall, and again the profit comes to the main brand and that is divided among the farmers.”
Continuously Lad tells us everything is computerized now days, and some of the village people have had to learn how to work with computers. Now they have the Farmers mall’s entire data on it and they check differences in the stock market. But he tells us that they want to develop this further with different activities. He shows us the member card, similar to an ID-card which he tells us is very important because it makes the farmers proud and give them ownership. Furthermore, Yuva Mitra give good inputs to the farmers and have agronomists at Yuva Mitra campus. If any farmer has a problem in the field, they can get help from them. They are providing all services under one roof. Lad talks about the strength they have gained since the farmers started coming together. If companies come to them and want to sell certain products then they can choose to enter into their contract but on their terms, because they are 850 people in the Farmer Company.

We asked how Yuva Mitra managed to come up with this idea. Lad answers that they had been traveling to a lot of places all over India and that the concept started in India in 2002. He tells us that there was no successful model so far, so they wanted to learn how they can do it. They read about it and then started to study about it. He says every company has its own model. They tried to get a lot of inputs and they also hired consultants in how to do this business. He adds following:

“But the first step was, since we did the work of water. The regeneration of the water. The check dams [...] that the British government had built. Because of that people started to believe and trust in us. The people started come together and we found water users, small small groups. And then those, we matured into this company.”

The above mentioned project of the check dams will be presented further down. The group is later standing in a farming field where they show us another project that Yuva Mitra has started. We ask how they succeed in implementing their ideas and Lad answers:

“It is a difficult process. Someone has to start it then only, the farmers believe it. Since the initiative, we motivated these guys. Once they started developing all these models, they started earning. That’s when other farmers they realized, okay this can be done. Then they started to apply this.”

He continues to talk about the strength they have when together. This means that they have a larger quantity to offer buyers. He is saying that together they can suffice whatever the demand is and that the strength lies within their ability to bargain.

Later, Yuva Mitra staff takes the observer group to the above mentioned water project. Lad gives us a presentation about the check dams that the British built, long ago. The new tunnels that Yuva Mitra constructed now suffice water for villages along the canal. From the start, the water was not getting diverted there which resulted in that the land and aggregates didn’t get enough water. They completed five construction works of check dams and the result was that 1500 hectares of land got irrigated. And when the rain period comes, water will flow through the sub tunnels again and provide the villages with water. Lad explains about the Water User Association:

“This was our major work, when people started to come together. We have something called a Water User Association. Each village has one Water User Association and they have this responsibility of rightful use of water. If any guy brakes a wall or if something happens, it is their responsibility to reconstruct it. We gave it to them once but the maintaining of the check
dams, everything, they have to do it in the future. They contributed say 200-300 rupees each. Then they have some purpose of which they maintain throughout the year.”

Then this Water User Association came together and it matured to the producer/farmer company. Lad emphasises that the water project was very important and that it happened first. Yuva Mitra managed to provide water to many of the villages and which resulted in them starting to believe and trust the organisation, and started coming together. Later on their other ideas, like the producer company could take off. They also mention the effect of solving water problems, which in rural areas will make people talk to you.

Yuva Mitra staff takes the group to visit some farmers in a village. It is now possible for us to ask some questions direct to the farmers and Lad will translate. Firstly, Lad gives us a brief presentation and explains about the older farmers in this village.

“Around they have 25 acres of agricultural land. And they have been with us since beginning of our producer company, so he is a senior guy. We require some senior people also. Especially to build trust of farmers. Each village has influential people who can create an impact on other people. So he is one of those.”

Tömmervik asks how the farmers work. Lad translates and gives us the farmers reply that the most important thing is that they want people to come together and share information, because each and every farmer aggregate in a different way and have their own expertise:

“They have some kind of knowledge, like if he is growing onion but in a different way like using molting paper or in a closer environment then they create a platform wherein all the farmers come together and they brainstorm. Then they find out ways in how they can still improve the aggregate further. That’s the main purpose they do.”

Later on, in the evening, the group from Malardalen University sits together with Lad and Pote to discuss what we have seen and ask further questions. We also talk about how we, as visitors, can contribute and create value to their organization. Lad explains that android devices are very common and he thinks that those are very cost effective also. He says in India you can get it for around 5000-6000 rupees (1 rupee≈0,11 sek) and almost anybody can afford it. We discuss how Yuva Mitra could use mobile applications. The subject of malnourished girls comes up and Lad tells us they want to track malnutrition.

“The idea behind it is that we want to intervene preventing methods. Other than curative methods. Because everyone is working on curative methods. But if he knows at for instance that there is a problem, so we can immediately go for some physical solutions. But most of the time it happens that we like there are grades of malnutrition and nourishment. Grade 1, grade 2, grade 3, grade 4. By the time we come to know about the instances, already the child, or the woman has reach the last grades whereas she is into acute malnutrition.”

We sit in the group for a long time and talk about our experiences and thoughts of their projects and their organization. We ask more about their organization and Lad tells us that they do things in a different way. Firstly, they get people to stay with them and work, then later it becomes sustainable so that the community takes ahead of whatever they are doing. They have to be with the people until they get funds and maybe for another 3-5 years. He also indicates that the Yuva Mitra staff require energy to sustain. To make this happened they have a people participation approach. They emphasize on a community building and keeping people in the core of decision making. This, he mentions, is the reason why all the approaches of a project differs in the sense.
“Then the process start so we also have to keep on conducting baseline survey because probably, the area of the profile changes. Because every area has a life cycle. Like each person or each living thing has a life cycle. Each area also has a life cycle. It is going through different transition faces. Unless you are aware of those faces, you can’t develop a project. We really have to look on at which face this particular target area is. Then you have to develop interventions.”

Tömmervik asks if there is any project that has failed. Pote and Lad is discussing in Hindi before they answer. Lad explains it has not been any failure as such, from Yuva Mitra’s part. But he emphasises that they always face limitations. Especially if they work with government institutions. He tells us about a project where they want to empower the women in a village in Panchayat. But what happens when you are working with government organization, the body or the trustees or the board always changes. He reckons this does not just depend on Yuva Mitra’s mindset, but on the new person involved. It is unsure how this new person will deal with their project. Another limitation he mentions is the approach of funding partners where corporates give funds but they do not fund for the labour cost. In those cases, if it is a very good project, Yuva Mitra has to manage their labour cost, but it is important for the team to retain their energy. They do not accept funds from such partners now, where the labour is very intense. Pote says:

“Differences is that Yuva Mitra and other engine or another organisation is basically we are not implementing any project. We have our own programme. And that programme, we plan in the project term. We have long term plan, we have short term plan. Programme is ours. And every funding partner wanted to run their agenda. Their agenda. And that’s the big challenge for us.”

When Yuva Mitra started, their campus was far away from the villages. Lad tells the group how people used to say that the founders were fools. They wondered how this is going to work if not located in the village and neither in the city. He explains that Yuva Mitra is a countryside thing and that they always believed in learning processes. He explains how they are also learning from us (the group from Malardalen University). He says:

“We are also learning from you. We don’t keep knowledge with us. Because if you are to grow you keep on sharing. We had a vision that Yuva Mitra has to become a learning centre. And today, you guys are coming here and sharing your thoughts. We are completing, one way or another our visions in what we had intended when we started Yuva Mitra.”

Continuously, Lad apprise that someone had asked him where they are looking Yuva Mitra to be. The organization is definitely looking at themselves as a resource organization wherein they are developing social innovative projects where it will be more people involvement. He tells us they want to sell a social product. Because everyone is selling their different products but through our resources they want to sell their social product. And he says there will be a lot of challenges. To round off, Lad and Pote thanks us for sharing our thoughts and knowledge.

6.3 Interview with Anuja Agarwal

The interview with Anuja Agarwal is held in her office at Welingkar Institute of Management in Mumbai, India. She begins by telling us a little about herself and reveals that she has a degree in computer science and teaches design thinking. Currently, her main job to lead the Rural
Management program, which aims to train new leaders and corporate managers who have deep insights about the rural sector. In India today, the growth is envisaged to come from the rural sector as is already evident from the growth analysis of various industry verticals like Banks, Manufacturing, Consumer goods, telecommunications and Information technology. It is therefore necessary for every future manager or leader to develop understanding of the rural milieu.

Agarwal says that since she started with the development project in the rural sector, she has noticed that conditions change very quickly and there are many problems still to be solved. Moreover, the challenges are very local, what works for a village doesn’t have to work for another. The most important thing is that the villages will agree on a solution and stick to it.

“Therefore small, small solutions are important. And the thought is not to focus so much on finding one big solution for the entire problem but the thought is: right now this is the problem so how will we solve it?”

Fredriksson wonders if they also implement more organized projects with Yuva Mitra, which identify problems in advance and then develop a solution to it. Agarwal explains that Welingkars relationship with Yuva Mitra has been in existence for two years and aimed for their students to work together with Yuva Mitra to learn about development projects. Yuva Mitra has 12 years of experience in this type of work and it is a good experience for the students.

Fredriksson asks how to create solutions in rural villages and wonder if the villages just get together and come up with something, or how does it actually happen?

“There needs to be one person at least in that village who has a passion to make a difference [...] and they first, take the first step. Still the people don’t join him. That person has to work for a couple of years and only when he starts showing some results or only once he starts gaining the trust of the others like this guy is really doing something good for us. That’s when people join him. That’s how it progresses and some development happens.”

Fredriksson asks if she knows anything about how this person, wanting to make a difference, finances projects and Agarwal explains that his type of project does not need much money to start with.

“One has to start doing some development work. Even if it’s with a small group of people or for a small problem. And now he represents this development work to the government authority.”

Agrawal explains that when the person who is leading the project can convince the local government that he can accomplish more development if he gets sponsored he often gets money. The local government is receiving money from the central government, and they have quite a lot of money set aside for development projects in rural villages.

“If he convinces the local government that I can do something if they give me money they are easy to pass on this money [...]and every six months they will revive what he has promised and the money that we are giving is it putting to good use or not. If it is, then more and more money is pouring in. Later on, after initial money has put in by the government that’s when the private sector is starting looking at the same guy being able to do even larger projects.”

In India, companies are eager to get their corporate social responsibility (CSR). The company Bosch saw the development Yuva Mitra achieved and decided to contribute with money so that it would be even better. Fredriksson wonders what the private sector have to gain from getting involved in such development projects. Agarwal says that they do it for their CSR
and for that they earn good will. It becomes part of their market strategy to help the development of the villages and if they finance one project in a village it is a great possibility that they continue with others in the same village.

“The reason why CSR already has become so important is also because these NGOs (non-governmental organization) and people like this. Because now they have seen that there is an easier channel to go. In companies themselves is trying to get into the rural villages and trying to do something from scratch then they will not even get the trust of the local people. They found it much easier and much more organized to actually transfer the money to a person who is already doing development. That's why it has grown like a trend. In a big way.”

Agarwal explains that one cannot consider Mr. Somdutt Lad or Mr. Sonil Pote as a “middle man” during the development work. The villages they work in is like their family, they are the core. Probably that's why they have such a high success rate.

Fredriksson wonders what their biggest problems are, that they encounter during their development work. Agarwal says that it is common that the other villagers are questioning them and their motivations of their work. Therefore it is very important to always have high transparency and integrity in the work. Another problem is that it may be easy to establish development but much more difficult to sustain. Villagers might believe that he who started the project will maintain it forever but it's only sustainable if the villagers can learn to operate it themselves. Tömmervik is wondering how they solve that problem today and she replies:

“One of the things that Yuva Mitra is trying to do is showing that one model is successful. They are training more and more people. While they were doing this in their own village they created a producer company they are now training other people from other villages to come and see this model and learn about it. So they in their village set it up on their own. I think that is a very good way of doing it.”

Tömmervik asks what the innovation process looks like in Yuva Mitra and Agarwal explains that it proceeds roughly as follows:

1. Look at the local problem and understand it
2. Make a plan of how it can be solved
3. Talk to the villages and try to get them involved
4. Several attempts might fail but don’t give up!
5. Speak to the government or some experts and bring different people together
6. Everybody have to agree on the solution and work together to solve it

Tömmervik: How does the brainstorming work?

“They have this concept of evening meetings. In villages it’s usually in the evening when people don’t have so much other entertainment to do. They would sit around a tree and start a conversation and spread the word around. Word to mouth is very quick in villages.”

“I have seen here they are open to criticize also. They will ask several questions. The more they question the more involvement it brings and a shared responsibility. What can be the potential problems if I go ahead and he finds a solution the next time?”

We wonder what Agarwal thinks other organizations and other countries can learn from Yuva Mitra's way of working. She replies:

“Yuva Mitra is very organized and clear in what they are willing to do. They were very open with sharing their experiences. They always have a presentation ready.”
“Companies want to put their money on something that will be revolutionary. In developed countries innovation means ‘we should be known for it’. We should be in next leap of the technology. YM is not doing it because they want to make something big. They are doing it because they wish to solve a problem. They would rather do 1+2+3 to reach 100 steps rather than thinking of the 100. They are not waiting for resources to start they start and along the way they keep collaborate. They started a weekend school for street children. Only two or three kids came at first but they started and that’s important. […] They have many projects parallel, not only one thing at a time. Whatever the opportunity they find they will grab it!”

Agarwal also emphasizes that Yuva Mitra grows very slowly, making it easy for them to switch work focus if needed. They are very flexible. Projects that you invested a lot of money in is harder to change the circumstances around because there are more expectations on them. Continuously Agarwal explains why the program she leads is so important and what purpose it fills in business.

“The companies need managers who understand the psyche of these people to position the products so that they will buy. Right now there are potential users and consumers but how to convert them to customers? The company needs managers who understand the rural people. That is what the rural program attempts to do. They become a bridge between the private sector and the rural market!” She continues:

“In the past companies tried to reach the rural area because there is money there but it became exploitative. People sold refrigerators to the villages which have no electricity! You need the link and the communication.”

6.4 Interview with Håkan Mattsson (our interpreted translation)
We met Håkan Mattsson for an interview at Malardalens University in Eskilstuna. He has been to India twice, one in work-related assignments and one in private matters. He joined us at the organization Yuva Mitra on field trips. Mattsson is a teacher of innovation technology and has been for some years and also teaches entrepreneurship-related courses and intellectual property law and has extensive experience in the Western industry. The interview was performed in Swedish, and the transcript is in retrospect translated to English.

Tömmervik starts by asking if Mattsson could give any examples of frugal innovation that he have seen. He says that it is quite common that the West donates incubators to countries in need of them. This will cause a problem when these break down because they do not locally know how to repair those. A company built an incubator of the spare parts of a standard Toyota model that was easy for any mechanic to repair.

When we asked what Mattsson see as the biggest differences between the traditional processes of innovation of his experience and the frugal approach he says that money is the biggest difference. Large companies can sometimes get access to a lot of capital, any time while the frugal innovations must be “stingy smart”. Tömmervik asks: What do you think universities/organizations in the Western part of the world can learn from the frugal approach?

“What the West often have trouble with, I’m not talking about business problems but problems in general. That is this short-sighted way of thinking, speaking of quarterly economies and they have very short periods of time. Months or maybe a year or for a single year to recoup the money and you talk about return on investment and there are bonuses that might build on your achievement during a year or so. It is a short-term economic thinking that can both be sub
optimized for businesses because they do not think long-term. It might be sub optimized for the environment and especially for the environment to that which gives good bonus for a person or group may be disastrous for the environment. Everyone thinks of their interests and there will be bad overall solutions. While the frugal, where one thinks that it is done in a good way and based on long-term thinking but frugal can have negative environmental consequences. It is not obvious that the frugal is more environmentally friendly."

Additionally, he says that it is not obvious that the frugal approach contributes to sustainable development in a better way, but his opinion is that it does most of the time. Tömmervik asks if he thinks that the frugal approach is applicable in the Western world.

Mattsson responds that his opinion is that the West has much to learn from the frugal way to work, especially since we live so much over our own assets. Moreover, he does not believe that it is only a specific branch that would have been better advantage of this than any other but that any kind of business should study the frugal approach.

Tömmervik: Together we visited different places and organizations in India that work with frugal innovation, what do you think people in the West can give back to them in the form of knowledge?

"We can sometimes be aware of the solutions that they do not have or do not know. It can be anything from organizational to technical and whatever. I think there's a mutual give and take and learning so I would not say that we have more to teach them or that they have more to teach us. Together we have various experiences and knowledge that is greater than each one separately. One plus one is more than two."

Tömmervik: We visited the organization Yuva Mitra which operates in rural India in resource-poor environments. What do you think is the cause of their success and innovation capacity?

"Holistic thinking. They think strategically in a very good way I think. They think in long term perspective, they think scalable. One example that they were talking about and they showed us was this irrigation facility that was built, I think it was a hundred years ago, or very very long time ago out of English colonial power. Now when Yuva Mitra was repairing it they positioned it so the first step was that the identified villages, it was quite a number of villages affected by this river and irrigation system." He continues:

"They identified the person that people in the villages are listening to, that village elders or people that villagers had faith in. It's really smart to first convince them instead of going out wide with information. Then they teach the villages about how important it was that this worked, and it provides the motivation to solve the problems. The fact that this river, dams and irrigation canals running through many villages also gave each village a distributed responsibility to care for their own pond. A village cannot take all the water, but must keep in mind that this is of benefit to many so we'll take the right amount of water. They showed how they would repair it all, they created solutions that worked when they themselves have left the project."

Mattsson adds that because these projects are scalable you can apply the same principles and structure of it and apply in any degree whatsoever which is very positive. They have a very well developed strategic thinking. Sometimes you could see signs of ignorance which could be improved by mutual learning. He saw a small wind turbine next to the building he was staying in at Yuva Mitra who covered the village's total energy needs by about 70%. They used regular
bulbs and not the most efficient low energy which could have made the wind turbine cover larger parts of the total energy consumption.

A difference that Mattsson wants to mention is the mindset among large Western companies and organizations like Yuva Mitra. He argues that large companies often work to make their shareholders happy in the short term while Yuva Mitra lets humanity and utility control their activities.

Mattsson about Yuva Mitra's work from an innovative perspective:

"You can have innovation in politics, religion, organization, food, whatever. New and useful, something that's new and makes use to one or a few. That's innovation for me. I think they were good at innovation, they think innovatively in a way that makes a difference."

Fredriksson: What is our biggest problem in the West, what is our Achilles heel?

"As I see it, it's the short-term way of thinking. Businesses think in the short-term time horizons and what is good for their own proceeds. Sometimes the individual and sometimes for the group."

Håkan Mattsson talks about his own frugal solution that he invented as a child and rounds of the interview with: "Necessity is the mother of all inventions".

6.5 Skype interview with Sunil Pote and Somdutt Lad

Important to mention about this interview is that it was performed in November, eight month after the participant observation in March 2013. We wanted to complement the data from the field study with a semi structured interview with the Yuva Mitra staff.

We sit down for an interview over Skype. When the interview starts, we greet Mr. Somdutt Lad and Mr Sunil Pote. Lad is talking while Pote is pitching in when necessary. We have already sent the questions to Yuva Mitra over e-mail for their convenience, so they are prepared.

We ask Pote and Lad to tell us about Yuva Mitra’s development projects in rural villages. They are making a model of marketing where they are setting up a project association centre. They focus on improving the productivity and marketing of farmers. This is called the Onion Valley project. Secondly, they are working on a project called Producer Company with 808 farmers. They are developing this business model and tells us they will have three service centres in March 2014.

Continuously, Lad explains that since they started this Producer Company, farmers from the area around and from the entire India came to Yuva Mitra campus for exposure. They are also working with a development model project in villages. Lad states this is the major areas they work with at the moment in the villages. But apart from that, they are doing different social projects throughout the year. We ask how they finance these projects. Lad answers the following:

“Before coming to that question, whatever projects we are doing we are not looking for a finance of a project, that is what is unique with Yuva Mitra. When we do a project we start and see what is the need of India, looking what resources are available and then we go to the corporates looking for funding. Basically, we have funding partners.”

Hence, they have different funding partners that funds different projects. But Lad emphasises that every corporate has their different criteria, for example; a major of banks have a focus of funding education projects. Some other corporate are maybe focusing on funding water
projects. So, depending of their criteria and what Yuva Mitra have in the basket, they will try to match that and make a proposal to the matching corporate.

Lad adds that Yuva Mitra have annual meetings in the end of a year, and have meetings where they sit down together to develop a three year plan that they will work according to. And depending on the objectives, Yuva Mitra try to develop the projects and then go to the corporates looking to fund the object they are working for. Lad adds in the end of his answer:

“Are you aware there is a new corporate bill who mandates company to spend two per cent of average profits of last three years on CSR?”

When we ask who is in charge during these projects, the respondent explains that they have an organization structure for Yuva Mitra. Briefly, Lad tells us they have a president and a vice president. A program director and program manager and then they have project coordinators. For their agriculture projects Yuva Mitra have a team of different expertise. Some concentrates on value projects for agriculture, some are gender specialists and that team will perform programs according to that. Hence, they have allocated the different expertise, and those people are in charge of this program or project in particular. Further, they have a project structure depending upon the kind of activities to implement in that project which is in sync with their staff resources and organizational structure.

For their skill development program supported by Bosch, they had to hire expertise for delivering lectures to students. Depending upon project they employ expertise from outside, only for that project and duration. The program manager or the project manager is responsible for the entire management and the implementation of the project. The vice coordinators actually work on the field, talking to the people who are there and then they report to the manager. So it is a simple operation structure and then the project manager is simply in charge of the entire project. The manager has a managing task working with the partners and with the project coordinators who is in charge of the actual implementation, Lad explains.

We ask which the projects are in particular, that states a good example. Lad tells us the example of is the project of the check dams and water irrigation. Yuva Mitra are also doing life skill development of adolescent girls as a program. Compared with different countries, India have a strong culture, especially in Rural India. The girls are not very open to their parents and guys are not very open to girls. The villagers meet a lot of challenges physically and mentally and perhaps the girl is not able to find solutions to those questions. Lad explains that some of the schools in India provide sexual education but in rural areas this does not work. Yuva Mitra conducts one day workshop in each school wherein approximately 100 girls are participant and they have covered 11000 adolescent girls through this program over a period of one year through different schools/junior colleges.

They have identified the most important areas of what they should have in the questions they should bring up in the programme like pregnancy, love and sex. They have also tried to create a platform which society also recognizes and Lad adds that they think transparency plays an important role. The respondent also mentions a water project as a good example in one village that provides 150 000 litres of water every day.

We ask how Yuva Mitra create innovative solutions in rural villages. And can you give an example of innovation in rural villages? Lad answers:

“We work on two principles. One is people participation model and secondly is whatever decisions we make we approach people separate and develop that model. Secondly we work in
rural with experience; we identify the needs and whatever the resources are in different villages.”

He mentions jugaad innovation and tell us that Yuva Mitra operates in an unorganized sector. What they do is depending on the needs and resources applicable to them and what is applicable in a certain village. He gives an example:

“We have this beautiful innovation of 5000 square feet. [...] This started with a need at the liquidity problem of farmers because farmers are depending on seasonal income. He is not able to control that and we wanted to break that. We spoke to the farmers and we came up with a fee that is 30000 rupees, that is 1000 rupees a day he shall earn, so he is able to always give and also his family is able to satisfy. A farmer have to earn a 1000 rupees every day. So how we should manage the cropping pattern as well as the cropping cycle? To give an example of 20000 square feet of land in north India, we divide the crop into four parts, 5000 each and we develop different possibilities of the cropping pattern. [...] One crop in the first land and secondly cultivates of different crop and third it will be doing some other crop.”

Continuously, he explains that this minimize the risks and each day, some crop are ready for harvesting. Then Lad describes that when they think of innovation they have to develop a model first, it can be an improvisation model also, wherein they combine their resources and then try to develop the model. Another criteria for Yuva Mitra is that the model has to be replicable. He adds:

“If we could find the problem and if we could implementing it in this village and give it some water it can be replicable in other villages to. When we started to do this project, maybe the funds was not there, finance was not there, but we used the people participation model, we have talked to the people about this project and who was giving the orders. The major problem, which was the labour cost was safe, and the government tried to do a similar project by spending 38 lakh rupees (1 lakh=100 000 rupees) for a different model and not a single drop was available to the villages. But the same model we developed through people participation, we could do the project for only in 1 lakh 60 000 rupees.”

He reckons the major problems in some projects are labour cost. Getting labour in the villages and reaching that kind of activity would have been difficult. They motivated the villagers to work by emphasizing them about the ownership and responsibility of managing the resources which are actually their resources. He states that is the reason, because of people participation, of this one project of the check dams, they could initially connect the people. So these are some of the examples in how Yuva Mitra create innovation in rural areas.

We ask: What do you think other organisations can learn from Yuva Mitra? Lad answers that it is important to learn how to manage with limited resources and explains that Yuva Mitra have learned this by experience. He continues:

“Secondly it is about mobilizing the community because community mobilization is not the cup of tea for any organization. But here when you mobilize a community the major thing is you have to be very vocal and transparent right from day one when you are talking to the people because you have to make them understand that we are here for the benefit of the community. We are here to make them realize about their responsibilities of most of the work which we are doing, otherwise you have not made the community mature enough.”
He tells us that because of restrictions from the government, the people are not able to conduct and develop stuff of their own which basically makes the community mobilization technique another important thing which other organizations can learn from Yuva Mitra. Thirdly is to put up a people centred approach of development.

“I mean whatever project we do we focus on people. What are the concerns? What are their needs? It is not that our organization has to survive so that we have to develop any project, no. We don’t really want that. For Diversion based irrigation project, we found a lot of difficulty getting funds for our projects. That is a throwback also but we live with that because we know what implications we have taken to make the decisions. We adopt this people centric develop approach which I think other organizations should learn from us.”

We ask how organizations in developed countries can learn from Yuva Mitra. Lad explains that he thinks that the reason that developed countries are called developed countries is because of the pace of the actual development. As a result of this, over a period of time the western companies don’t take and audit or a measurement of what resources are available within their reach. As a result of it most of the resources get depleted over a period of time. This includes water and in case of agriculture; the soil, and of course the consumption. As a result of their developing pace, he thinks they do not have the time to look back in what resources that are left and they also forget their human resources. This is some of the things that other organizations can learn. He explains further:

“In a developed country, as the pace of development happens, even in rural areas are also development is happening in their own pace. Their development patterns changes over a period of time. It becomes important for any organization, for any government to understand or to develop the skills as for requirement of any particular area. There two-three things happen: either the government doesn’t realize, doesn’t recognize the changes also happening in the rural areas, secondly whatever the schemes are there, they have not been designed after understanding the grass-root level needs and even if some of them are, then quality of delivery is low and hence the impact of such scheme is absent.”

He continues; “In that case I think that for a development it is very important to understand that community driven model is very important [...] because as we say in a business, there is a cycle of ups and downs and in the same way for a country there is a cycle, reaching to the top is very easy but I think sustaining at the top is very difficult. If any country has to sustain at a top level and maybe any organization has to sustain there or it has to recognize in the community as an interpreter between the people and the government.”

Another thing, Lad explains, is a sharing platform. He thinks as Yuva Mitra works in a way that they are developing a lot of projects and they invite people to our campus to get exposure, and to have exposure to the models they use. Because what happens is not only these people are learning from Yuva Mitra but they are sharing their thoughts to Yuva Mitra’s projects. The sharing happens and as Malardalen University came to their campus, they have learned a lot of things from them in how they approach problems and what research methodology Malardalen uses. A sharing platform that gives the opportunity to share knowledge is something very important that Lad thinks organizations in developed countries should learn from them. 

How does innovation happen, describe the process and what tools do you use?

Lad tells us that Yuva Mitra has a core team that actually sits together and think about the innovations. Now, the beauty of innovation is that the ideas are generated from different people.
Because there are very few people who actually generate the ideas, he explains. But normally the people who generate the ideas are also again not good implementers.

"Most of the places we find same things and that is the reason we have developed a core team wherein we have thinkers, we have experts from different backgrounds and the implementers because the implementers know the grass root level challenges, they know the limitations and that’s the reason we have the core team. We develop the ideas and we chose the ideas which are feasible with whatever resources are available. The financial resources, the physical resources which are there with Yuva Mitra."

Further, there are four things included in their mission for implementation and the ability of ideas; that is innovation plus scalability plus sustainability plus “replicability”

"From one place to another, if I do any one model in one village it should be replicable in other villages also right? That’s the reason we have the simple formula of innovation plus sustainability plus scalability plus replicability. Reaching for a change. That is how we use this typical tools, basically, for our innovation process."

Yuva Mitra plan for three or five year’s period of time since the eco system around is changing very fast. The organisation also works with their vision and to make it better. So maybe after three years they have to think about whether they want to change that vision and if they want to have a different approach.

"Basically, we work with two environments. One is internal environment and one is external environment. Internal environment is the people that is Yuva Mitra’s staff plus what financial resources are around, the physical resources that are developed, the experts available with us, the thinkers available with us. External environment is basically the eco system where we work, the community with who we want to work, the people, the stakeholders in that. When looking at the internal and the external environment we try to develop innovation or the ideas that we get."

That is, he explains only for macro level. For the micro level, in each of the projects Yuva Mitra try to create some or try to give something different. When they work with adulcent girls they are working since last year through schools and colleges, and this year they are trying to give something different by creating some safe spaces in the villages itself. Here the girls can go to this safe space which can be in the villages, in the schools. They are also developing certain software where a girl can just log in and get access to the frequently asked questions. He is explaining this because they are, in every project trying to innovate at micro level and macro level.

We also would like to know how Yuva Mitra build their network. Lad says it took them two or three years to build a network and it was a very difficult task. He gives us a little background. When Yuva Mitra started it was more recognized as an organization working with children, so at that time they had two individuals who had given certain funds and they were a few organizations who wanted to work in certain environment. So they were to develop a platform, but as over a period of time people started to trust them as they developed and their projects benefitted them. Then, Yuva Mitra started talking to people so how they build the network were in two ways.

"Initially the Yuva Mitra started with few people then on the board and our trustee started to invite different people who had the network potential and would connect us to our funding partners, who could be able to mobilize funds for the projects also [...] Second is currently we
are working in the age of technology, we are working in the age of sharing so there are lot of platforms which are applicable for our networking, and physically we try to be there and we try to do networking with other organizations and participate in conferences where a lot of networking has been developed.”

He explains further that the most important thing was when people started recognizing Yuva Mitra’s work. Then only, it was that work was talking for itself and they started to get funds and it was more of word-of-mouth publicity rather than to actually aggressively look for other publications.

“Because a social development organization works a more of a word-of-mouth publicity and your work speaks more for the organization, than any other places.”

We ask Lad what he thinks about jugaad innovation. He reckons he has read the book “Jugaad Innovation” and it really talks about frugal innovation and how different people, whatever the resources are available they start doing innovation. He says that frugal innovation is about how to mobilize the resources.

“I think Yuva Mitra is also related to that, the idea of that. We take whatever experience and whatever the resources, small or major or minor, whatever can be provided. We try to collect all those things and we have tried to develop those kinds of innovations. The most important thing is we have always been people centric, so our approach has always been bottom-top, not top-bottom. That’s the reason we have always been close to the society and community. It was in fact very easy for us to innovate because any corporate has to innovate whatever is their corporate approach, but since we were close to the community, close to society, people understand that very easily.”

Pote adds something in Hindi that Lad explains further. Basically the solutions to all the problems are there in the community, they already have the solutions for their own problems, but they want someone to listen to their problems. The listening platform has been made basically through Yuva Mitra, so they listen to them, being good listeners and identify what they want to say and even what solutions they have. But there has to be someone who provide them handholding support and someone has to facilitate that activity. For those solutions which they have given and once Yuva Mitra recognize that they are feasible solutions then the organization goes out to the world, to the external environment to mobilize the funds. Pote adds that being a good listener actually helps Yuva Mitra to enhance their innovative processes also.

We ask what they think is important to bring in our thesis and what they would like the work to bring.

“I guess one thing that is very important is that in India especially the environment place a very important role in our entire human life and the second is the approach, I mean the way and the concern is very different, even we’ll also like to see how the cultural impact happens and how managing the resources in the western countries as well as in India so I think that it is one of the things which probably you can think about.”

Pote is saying that another important thing that we need to look at is especially in India or anywhere for that matter, what is happening is that everyone is basically looking at profits directly. So the funds that they provide could create some resources that only are there for the beneficiaries, but the corporate have to stop looking at investment model. He explains that Yuva Mitra sees it as if you take something from the nature you also need to give back something to the nature. He says:
“Then only can the ecology gets maintained. In that way the corporates shouldn’t look at it as a charity event but they should look at it in a way that is investing into the future of India and into the future of what an assets will be created and any environment in the village that would be created. That ultimately is going to be used by the industry only because those human resources ultimately that goes into the industry, that villages economy improves then that economic again is going to get better for the company only. They have to change themselves from the approach of being a charity driven activity towards any investment and development activity.”

Lad adds: “Especially in India the inclusive model has got a bit developed in just a primitive state and even for a developed country they have to sustain at the top of the pyramid. They can only sustain if they realize this inclusive model. That’s the reason inclusive model plays a very important part for managing the resources [...] not only you are trying to tear the pie for revenue, basically you are also reducing the cost and secondly you are co-managing the resources and creating a different situation, I think inclusive-all model will be the only model around all success around any developed, for any future developed country or developing country.”

Lad sum up by saying that he thinks that the inclusive growth model also should be studied “as it is practiced in” developed nations and comparing with developing nations “as it is practiced there” for finding out the different approaches, stage of work and results achieved in different countries. So that is what he suggest for further studies. The interview is rounded off by us showing them gratefulness for giving us their valuable time.

7. Analysis and discussion

In this section, we aim to make our own judgments and express our opinions about whether our research questions was supported by empirical data or not. We will analyse the results of the investigation as well as critically examine our own work.

7.1 Analysis and discussion of the result/empirics

We will analyse and discuss the research questions below, one by one.

RQ1: How are frugal innovations created with few resources in environments with limited conditions?

Agarwal explains that Yuva Mitra’s innovation process roughly has six steps as follows:
1. Look at the local problem and understand it
2. Make a plan of how it can be solved
3. Talk to the villages and try to get them involved
4. Several attempts might fail but don’t give up!
5. Speak to the government or some experts and bring different people together
6. Everybody have to agree on the solution and work together to solve it
In the second step, when people have to make a plan for solving the problem Agarwal tells us that they come together and brainstorm in evening meetings around a tree. The villagers are open to criticise and asks many questions which creates a solution and a plan regarding the problem, which the villagers feel a shared responsibility towards. Lad gave us a great example of how that works in reality when Yuva Mitra did the regeneration of water. They were repairing dams that the British government had built and then they started the Water User Association where each village has one association with shared responsibilities to construct the dam if anything brake. Initially, they founded small groups of water users, that later matured into a company. People started to come together and trust Yuva Mitra, because of this first project.

The empirical studies shows us that a lot of Yuva Mitra’s work is about trust and transparency and this is supported by Lads comment on how they implement their innovative ideas and that it is a difficult process. They have to get one person to start, and then only, people start believing in them. Another key factor for their success seems to be the sharing of information.

As Yunus (2010) points out that if you can change the situation for five people, you can do it for 5000 and 5,000,000, just taking one step at a time and then repeat that step in a larger scale and people have to come together to help themselves out of poverty. We see that Yuva Mitra is working as Yunus (2010) describes a social business with the core satisfaction of helping others and themselves to a better life with a zero profit thinking.

According to Radjou et. al. (2012) frugal innovation consists of six major points/principles:

- Finding Opportunities in adversity
- Doing more with less
- Flexible thinking and actions
- Keeping it simple
- Include the margin
- Following your heart

Almost all of the above principles of frugal innovation is applicable when summing up the work of Yuva Mitra. They manage to find opportunity in adversity, when they came up with the innovative cropping model that made farmers get a better liquidity called “Five Gunthas Experiment”. Yuva Mitra does more with less when they gather people and involve them in the process. Then they don’t have to think too much about the labour cost and people are also more satisfied with the solutions when being part of it. The organisation have to be flexible in their actions and the way they approach problems because Agarwal explained that the conditions in India can change very quickly. Additionally, the challenges are very local and what works for one village might not be suitable for another. Agarwal emphasizes that Yuva Mitra grows very slowly, making it easy for them to switch work focus if needed. They are very flexible.

Fourthly, Yuva Mitra keep their solutions very simple and a good example is their sharing platform. Yuva Mitra works in a way that they are developing a lot of projects and they invite people to their campus to have exposure to the models they use. Because these people are not only learning from Yuva Mitra but they are sharing their thoughts to Yuva Mitra’s projects as well. Lastly, the organisation follow their heart in their projects and the staff trust their intuition.
Since the founder Sunil Pote is a “son of soil”, he has a great understanding of the villagers’ needs and thoughts and knows what the pain areas of development is.

Mattsson said that necessity is the mother of all inventions when he talks about frugal innovation. Radjou et. al. (2012) explains this in a similar way as frugal innovators see the adversity as the opportunity. Mattsson mentions that he thinks the success factors and how Yuva Mitra create frugal innovations is holistic thinking, strategic thinking that is scalable in the long term. Also, they identify the most trusted person in the village, and then convince that person instead of going out wide.

**RQ2: In what ways are traditional, western innovation processes different from a frugal innovative approach and is it possible to combine them?**

When we analyse the six steps from Agarwal in the section above, we see a lot of similarities with Bessant & Tidd’s (2013) model of a structured innovation process. However, Agarwal’s mentioned model is more adapted for a NGO. We find that the sixth step is almost identical to the System Group approach discussed by Andersson & Rollenhagen (2011), where different stakeholders that will be affected by a certain change form a group and contribute with their knowledge and expertise. Then they all have opinions about the final solution, and since all concerned are involved in the solution, it often finds great acceptance. In order to establish this, Lad says that Yuva Mitra work with a people centred approach and a people participation model, where people are part of the development of models and solutions. Lad also stresses that they work in rural areas with experience, where they identify what needs and whatever resources are there, in different villages.

We can also see some similarities between Agarwals model and Ottenbacher & Harrington (2009)’s model according to the different steps that follows each other in a structured way: 1. Idea generation, 2. Business Analysis, 3. Corporate Analysis, 4. Concept Development, 5. Testing of prototype/concept and 6. Launch in market.

As we can see, Ottenbacher & Harrington (2009) describe the process more in general and Agarwal more precise for the rural environment. She also stresses that the people come together agreeing and working together is very important for the success of the project which is a difference according to Ottenbacher & Harrington (2009).

Agarwal emphasizes that Yuva Mitra grows very slowly, making it easy for them to switch work focus if needed. Projects that companies invests a lot of money in is harder to change the circumstances around because there are more expectations to them. As Agarwal explains that the small solutions are the most important and there are one person who takes the initiative to do something about the problem. When the leader of the project can convince the local government that he can accomplish more development if he gets sponsored he often gets money. The local government is receiving money from the central government which have quite a lot of money set aside for development projects in rural villages. In the Western approach, companies tend to do the corporate analysis and the concept development within the company and investing capital in its own interests.

We see clear differences between the Western and the frugal approach in the meaning of handling the finances. Western innovation processes like Bessant & Tidd (2013) and Ottenbacher & Harrington (2009) claims money to be able to start working. Without money the Western companies have no resources and definitely no labour but the frugal approach that
Yuva Mitra uses works differently in the way that they start working directly and then applies for funds. We see that as a major difference between the two approaches to innovation and also think that Yuva Mitra’s way of working get more things done, faster than the Western processes which often is very slow.

Agarwal and Lad say that under these circumstances it is very important to always have high transparency and integrity in the development work. A problem is that it may be easy to establish development but much more difficult to sustain at the top. It is easy for villagers to believe that the project leader will maintain there forever but it's only sustainable if the villagers can learn to operate themselves. We feel that this is a great example of structured innovation in the form as Bessant and Tidd (2013) points out that innovation aims to create value, whether it is in monetary terms, employment, growth, sustainability, improvement or social welfare. When the villagers together work on a solution and then learn to sustain and develop, they have created a great value in employment, sustainability and social welfare. In contrast, we think that the Western innovation approach is more about monetary winnings and growth and not so much about sustainability as the frugal approach.

An interesting angle that Mattsson mentions of how the two different approaches differs is that large companies often work to make their shareholders happy in the short term while Yuva Mitra lets humanity and utility control their activities. Yuva Mitra’s approach has always been bottom-top, not top-bottom. They have always been close to the society and community. Lad says it very easy for Yuva Mitra to innovate because any corporate has to innovate whatever is their corporate approach, but since Yuva Mitra are close to the community, that is where they innovate.

Govindarajan (2012) argues that if a company is able to develop new products in emerging markets and then export those to the West they need to reject old routines, organizational structures and focus. We think that the different approaches of frugal and structured innovation can be combined in the way that western companies can save capital if doing more with less and a “no-frill” strategy to their products. To only follow a structured model of innovation can be very expensive and time consuming, therefore, a more flexible mindset can be useful to increase profits. Rao (2013) claims organisations should apply a frugal methodology as part of their R&D strategies, both to improve current products but also to create new frugal innovations. For example, by optimizing the basic design to lower the cost and efficient use of resources, it can lead to a frugal innovation. Also, Jagtap et. al. (2013) argues in a Swedish article that products that are developed for the base of the pyramid can be suitable even in markets in developed countries.

After seeing what Yuva Mitra is capable of with very little resources, we argue that this is just the beginning of frugal era. We believe that it is possible for Western companies to have a frugal approach and that is absolutely necessary if they work in emerging markets. Additionally, we believe that companies in the future must, in order to survive in a globalized world with dwindling natural resources, apply a frugal approach and weave sustainability into their visions. We support this with Horn & Brem’s (2012) article where they have identified seven major fields of future innovation management, where sustainability and frugality is two of them. Radjou et. al. (2012) claims frugal is a bottom-up innovation approach that companies should adopt along with their structured innovation strategies. Emerging markets can give inspirations to companies to allow a more flexible and frugal approach in their R&D strategies.
Rao (2013) argues that frugal innovations can have a positive outcome on sustainability. Thus, the lower costs without extra paraphernalia in the design combined with good quality, will improve the lives of many poor despite an increasing mass-consumption along with a growing population. Therefore, because the simplicity of the frugal approach, this is a sustainable solution. Mattsson says that the western world often have problems with short-sighted way of thinking, speaking of quarterly economies and that return on investment are so important. But what is good for one person or a group may be disastrous for the environment. Everyone thinks of their own interests and there will be bad overall solutions. He compares this with the frugal approach where it is often based on long-term thinking. But he emphasize that frugal innovation can have negative environmental consequence. It is not obvious to him that the frugal approach is more environmentally friendly, but he thinks that it contribute to sustainable development most of the time. Additionally, Mattsson still think that the Western world has a lot to learn from the frugal way to work, especially since the west live so much over their own assets.

We conclude that short-term solutions is bad for the environment in terms of both Western and frugal approaches. Birtchnell (2011) give criticism to the frugal approach and claims it has become synonymous with quick-fix in a negative sense. We argue that nothing is black or white and that not all development is good, but companies and entrepreneurs still have to keep on working with development and aim for a sustainable and frugal approach even if it fails, and to keep trying even if failing.

**RQ3: What can organizations working with traditional innovation processes learn from the frugal approach?**

Agarwal says that companies give funds for their corporate social responsibility (CSR) and because of this they earn goodwill. It becomes part of their marketing strategy to help the development of the villages and if they finance one project in a village it is a great possibility that they continue with other projects in the same village. The reason why CSR has become so important is also because the work of NGOs and people like the Yuva Mitra staff. Because now they have seen that there is an easier channel to go through than companies themselves trying to work with the rural villages from scratch. It is easier and much more organized to transfer the money to a person who is already doing development work in villages and that’s how it has grown as a trend.

Based on above, we think that if Western companies can learn from the Indian companies regarding the CSR-thinking and develop a more sustainable way of working with innovation. Innovation sustainability is according to Bessant & Tidd (2011) how innovation can contribute to sustainability, especially in the environment. Yuva Mitra presents a great way of working with sustainable innovation when using few and environment friendly resources during their development work.

Lad told us that in India, the environment plays a very important role in their entire human life and that the concern is very different from other parts of the world. Yuva Mitra would like to see how managing the resources in Western countries as well as in India works. What would happen if everyone is basically looking at profits directly? The funds that corporates provide could create some resources that only are there for the beneficiaries and the corporate have to stop looking at investment model. He explains that Yuva Mitra see it as if you take something
from the nature you also need to give back something to the nature and that is the only way to maintain the ecology balance. We argue that if companies all over the world gave more thought to give back to the nature and society, and actually reflect over what is the resources around along with less frills to their innovations, they will have a sustainable approach. Rao (2013) claims the cost efficiency is already a part of the initial design of a frugal innovation. Since the frugal innovations are cheaper and, with few exceptions, usually not worse in quality, frugal innovations get in a position that strongly challenges the more common solutions.

Mattsson says the Achilles heel of the West sometimes is the short-way of thinking. Vachani & Smith (2008) describes three ways to reach BoP markets. By taking cost out, reinventing distributions channels, having the long-term view and investing in the future. We believe that organisations can contribute more to a sustainable world if they apply a more long-term strategy.

We agree when Lad says that the companies shouldn’t look at this approach as charity but a way of investing in the future. We are convinced that this is a development activity and not a kind of charity event. We think that the charity trend is just a step on the way when companies have an aim to do something good but doesn’t know how to. We think that in Western countries, the charity trend will evolve into a business activity which involves both profit-making activities, CSR, and traditional business into an interlaced context and result in taking responsibility for our environment. We build this argument on the fact that India have already statutory that 2% of the average profit should be used for CSR.

Bessant & Tidd (2013) and Ottenbacher & Harrington (2009) argues in their innovation models that a product/service should be tested on the target market before the final implementation. As Agarwal says regarding the rural management program, it is important for the companies to understand the psyche of the people you want to attract. There might be prospects but how can companies convert them into customers? She says that the rural program in Welingkar Institute is supposed to be a bridge between the private sector and the rural market by creating managers who understand their customers.

We think this is an important approach because as a company you need to understand your consumers’ needs to be successful with your offer. Lad also says that you have to make the community mature by communicate what you want to do for them and why. We think that the Western companies can learn to apply this way of thinking in order to save resources and money just by trying to get to know their customers. We argue that Western companies should put their stage of testing the product on the market earlier in the sense of getting to know their customers well and save money and labour resources.

We mentioned before in RQ1 the sharing platform that Lad told us about. A sharing platform that gives the opportunity to share knowledge is something very important that organizations in developed countries should learn from them. We think that Western organisations can learn transparency and include other organisations in their solutions. We are sure this trend of inclusiveness will be an important part in the future innovation strategies of Western organisations. Continuously Lad said that it is important for any government or organisation to understand and develop skills that are required for any particular area. If not, the quality of project is low and the organisations does not recognize the needs of the rural areas. Again, we conclude that closeness is important for organisations, and that a key for this is to put out local
R&D centres and go towards a more decentralized structure. All because most solutions and difficulties are local.

From a global perspective, we can see that innovation is an important element and that the innovative learning between countries should be of paramount interest. As Lööf, the Minister of Industry and Trade in Sweden mentions in The Government Innovation Strategy (2012) we should work on the basis of innovation to create opportunities and a good climate for individuals to innovate. Because innovations derives from individuals. From this perspective, we can argue that Sweden has a lot to learn from this approach that we investigated in Yuva Mitra. They are building innovative solutions from individuals' problems and motivations, which are well worth emulating. Furthermore, India’s new Innovation policy from 2012 focuses on innovation as a solution to poverty reduction, instead of innovating for the rich.

We conclude that there is a forthcoming global innovative trend that strives for making the life better for more people in resource-poor environments. Thus, there are more important interests involved than monetary on its own. We see this in both the private and the public sectors, as for governments. This claim is strengthened by Yunus’ (2010) statement in his Nobel Prize speech where he says social business is a growing trend and can be used to eradicate poverty.

To sum up, learnings of the frugal approach in BoP markets are organisations being close to their customers to understand their needs and thoughts. Organisations can have special employees and business leaders that have expertise in rural areas and can therefore be the bridge between rural areas and corporates. Also, having a people centred approach where the people take part during the whole process and are part of the solution. Additionally, changing the attitude about CSR as investment in the future that provides profit and being part of a market strategy instead of a charity event, will also be helpful. To use less frills and a frugal mindset to innovations can make organisations save resources already in the initial state of the innovation process. Lastly, what you take from the nature is important to give back, otherwise there will be very few business opportunities in the future due to lack of the Earth’s resources.

7.2 Discussion of methodology
To reflect what could have been done differently in this thesis work is important. We feel that the report is quite heavy to read and that the theoretical framework is long, however, this is a not widely known subject. We felt that we wanted to give the reader a good starting point, therefore, we argue that the length is necessary for this subject.

Another angle to consider is the fact that we were both very impressed in the way that Yuva Mitra operated. This resulted in us not being critical enough during our field study. We believe that we were very impressed by their work on site but also continued during our work in Sweden. We feel that it has been difficult for us to objectively examine our own work because this is a topic we strongly feel confidence about and truly believe that it is part of the future. We have searched for a critical perspective on the frugal approach and treated it in our thesis. Occasionally, it has been difficult to absorb when we disagreed with critics, but we felt it was important to include this approach in our work. Mostly to give ourselves different perspectives.

Bryman (2011) states the external reliability is also the most difficult to satisfy in the qualitative research where it is impossible to freeze a social environment which makes the investigation very difficult to replicate. Research opportunities are constantly affected by the
social landscape in which it is performed and other factors of change that occurs in the environment. Our interests and subjective experiences during the investigation progression also hampers opportunities to replicate the study. As well as Agarwal says that the conditions and opportunities in the rural environment changes very quickly it becomes very difficult for someone to do the exact same study as we did as well as meet the same people as we did.

During our two-day visit in Yuva Mitra we were trying to approach the partly participant observing. It should be stressed that our interest of thesis work was born during this visit, so we had little preparation time to plan our observation methodology. We think that is a major factor as well to our thesis because when we were in India we only developed a brief idea of what we wanted to study and not an exact subject. Maybe we had gotten better information if the process had developed further when we arrived to Yuva Mitra but we felt that we were willing to take the risk because we found the opportunity too good to not implement. Because we lived in India during three month we developed a cultural understanding, which helped us in interpreting our empirics. Three month is only a brief time, but it was still helpful to our pre understanding.

An aspect that we considered was that of the 48 sources we have used in our work is only seven performed by women. Although we searched actively for contributions written by women, it was very difficult to find because the content must always have the highest priority. We feel that this may contribute to a coloured view of the substance of the thesis.

Regarding generalization, we were not sure whether to be able to apply our study result in other contexts, but we found the working approach of Yuva Mitra interesting and afterwards, we think that other organisations actually can learn something from the way they work. Although, we emphasize that one solution might not be suitable everywhere.

### 7.3 Conclusions
The analysis and discussion above resulted in three summarized conclusions that gives answer to the research questions:

C1. Frugal innovations are created in resource poor environments through people centric approach, people participation and involvement during the whole innovation process, operating closeness in the environment which gives the opportunities to listen to the rural people and their concerns. And most importantly, to be able to see opportunities in adversity.

C2. When working with a structured innovation process, it is possible to include a frugal innovation mindset in the R&D strategy by using different steps in a frugal methodology. In the long term, it will in fact be necessary for organisations to work frugal and sustainable to conserve the earth's resources and sustain at the top of the market.

C3. Organisations in the Western world can get inspiration from the following steps from a frugal approach:
- Adopt a mindset of a people centred approach,
- A sharing platform with information sharing and transparency,
- Invest in the future by taking more CSR into the market strategy,
- Put out local R&D centres close to the people and go towards a more decentralized organisational structure where the needs of the local customers and prospects are in focus.
- Educate business leaders to understand and listen to the local people, since they often have solutions to their own problems.
7.4 Our innovation contribution

We started this thesis with the determination of creating mutual learning from West to East, but most importantly from East to West. We felt that there are all too many biases that the West should teach less developed countries how to work. We saw something fascinating in Yuva Mitra’s way of operating and we thought that more people should get the opportunity to learn from their processes. During our field study, Yuva Mitra staff mentioned how they also wanted to learn from Western organisations. Therefore, the idea was born of a mutual learning between West and East in general and Yuva Mitra and Malardalen University in particular.

To explain how this mutual learning exchange can proceed, we have created a model that is our proposal of how a learning exchange can take place between Western organizations with structured innovation processes and resource-poor environments with a frugal approach. The model stresses the most important parts of frugal and structured innovation. The idea is that these different strengths can be used together in an integrated innovation strategy and the arrows are the links between the two approaches and are affected by factors like learning exchange, transparency, sustainability and involvement. This is based on our analysis and study outcome.

The left circle represents the private sector with Western corporates and universities and lists the strengths in Western innovation processes as in idea generation, technical knowledge, structured innovation and resources. The right circle represents the rural market and NGO’s with the frugal approach and the strengths within this. The strengths of this approach is finding opportunity in adversity, frugal innovation, reverse innovation, people centred approach, closeness and sharing platforms.

All these above mentioned strengths are key factors that is advantageous to mix and adapt, depending on the core focus. The part where the circles overshadow each other shows a heart, which symbolises the importance of following your heart (intuition and passion) when aiming for sustainable innovation. Below is more concrete exhortations to apply: investment in the future, educate leaders, select, implement, learn and give feedback. The society is affected by every single part in this model, weather it is the East or the West. Through learning exchange between the two different innovation approaches we believe it can contribute to a sustainable development.

**Figure 5. Our own model of the innovative learning exchange from Fredriksson & Tömmervik (2013).**
7.5 Our own learning outcomes
During this process, we have gone through several learning loops. One is the possibility to gain knowledge about a subject we had very little prior understanding of. Secondly, how rewarding it has been to write about something that highlights global issues and solutions. We have documented the whole process in a reflecting project diary. Also, the thesis subject is quite new and unexplored, and therefore we feel that we could contribute to create value to others for a greater good, although very modestly.

We hope that we have nourished the continued relation between Welingkar, Yuva Mitra and Malardalen University, which hopefully can contribute to the future learnings of others.

7.6 Suggestions for further research
While working with this thesis we realize that this is still a new area to investigate and we have only seen the tip of the iceberg during this period. One suggestion is to investigate more thoroughly, how to make organisations adapt a sustainable mindset and if it is possible to measure the value outcome. When we started this thesis we wanted to study Western companies and compare with Yuva Mitra. Is there other innovation processes like open innovation that can be interesting to compare with a frugal mindset? Also, will people in the western world be open to products and services of frugality only to contribute to a sustainable society? This is interesting to investigate, because it will, in either way, affect the whole planet.
References

Articles


Books


Internet references


Welingkar Institute of Management (2013) Core Faculty. Retrieved 2013-12-03. Available at http://www.welingkar.org/welingkar/v1/faculty/CoreFaculty_mumbai.asp?section=Faculty


Own Sources

Transcriptions of interviews:
Interview with Anuja Agarwal 2013-04-08 at Welingkar University, Mumbai, India
Interview with Håkan Mattsson 2013-11-26 at Malardalen University, Eskilstuna, Sweden
Skype interview with Somdutt Lad 2013-11-23

Transcriptions of recordings at participant observations:
Questions asked during participant observations with Sunil Pote and Somdutt Lad 2013-03-14 at Yuva Mitra, Sinnar Block, Maharashtra, India.
Appendix A: Interview questions

Interview questions for Håkan Mattsson
1. Do you want to tell us who you are and what you do?
2. What do you know about frugal innovation/jugaad innovation?
3. Can you give some examples of frugal innovations?
4. In the Western world organizations tends to use more structured innovation. Can you describe how structured innovation works?
5. In what ways do you think the two previous approaches to innovation are different from each other?
6. What do you think organizations / institutions in the Western world can learn from the frugal approach?
7. Do you think it frugal approach is applicable in the Western world, and if so - how and in what industries?
8. We was together and visited different places and organizations in India which works with frugal innovations. What do you think we in the West can give back in the form of knowledge?
9. We visited the organization Yuva Mitra operating in the Indian countryside, in resource-poor environments. What do you think is behind their success and innovation capacity?
10. What can YM improve?
11. What can we in the West learn from Yuva Mitra specifically?
12. What are the main difference in approach between Yuva Mitra and a typical western company?
13. How do you see YM's work from an innovative perspective? Positive? Negative?
14. How do you think the difficulty of the work differs between eg Yuva Mitra and a traditional western business? Do we encounter the same type of problem/solve it the same way?

Interview questions for Lad and Pote over Skype (that we actually asked)
1. Tell us about your development projects in rural villages.
2. How do you finance these projects?
3. Who is in charge during these projects?
4. Which are the projects in particular that states a good example?
5. What do you think other organisations can learn from Yuva Mitra?
6. How can organisations in developed countries learn from Yuva Mitra?
7. How does the innovation happen, describe the process and what tools do you use?
8. We also would like to know how you build a network.
9. What do you know about jugaad innovation?
10. And we would like to know if you think we should know anything or have any suggestions for our thesis work?
11. But can I just ask you, what do you think is important to bring in our thesis? I mean what would you like the work to bring?
Questions intended to ask in the Skype interview with Sonil Pote and Somdutt Lad
1. Tell me about your development projects in rural villages.
2. How do you finance the projects?
3. Who is in charge during the projects?
4. Can you give any examples, some projects in particular that states a good example?
5. How do you create innovative solutions in rural villages?
6. Can you give any examples of innovations in rural villages?
7. How do you create great value with small financial resources?
8. What do you feel is the biggest challenge when you work with projects in rural villages?
9. How do you solve these problems?
10. When you are working with this kind of projects, what kind of structure of management do you use?
11. Who is in charge, who is helping, who handles the money?
12. What is the most important accomplishment you know about according to these projects?
13. Why is this important?
14. If you could choose one kind of resource to add to these projects, what would that be? Why?
15. Let’s talk about YM. How does innovation happen in YM? Please explain the process. What tools do they use?
16. Why do you think YM have been so successful with a lot of projects?
17. How do they build a network?
18. How do they get the resources needed?
19. How do they make the local people interested in participating in the projects?
20. What is the biggest challenge for YM?
21. What do you think other organizations can learn from them?
22. What can organizations in developed countries learn from YM?
23. What do you know about “jugaad innovation”? Do you feel that is related to the work YM is doing? How?

Questions for the interview with Anuja Agarwal at Welingkar University
1. Tell me about your development projects in rural villages.
2. How do you finance the projects?
3. Who is in charge during the projects?
4. Can you give any examples, some projects in particular that states a good example?
5. How do you create innovative solutions in rural villages?
6. Can you give any examples of innovations in rural villages?
7. How do you create great value with small financial resources?
8. What do you feel is the biggest challenge when you work with projects in rural villages?
9. How do you solve these problems?
10. When you are working with this kind of projects, what kind of structure of management do you use?
11. Who is in charge, who is helping, who handles the money?
12. What is the most important accomplishment you know about according to this projects?
13. Why is this important?
14. If you could choose one kind of resource to add to these projects, what would that be? Why?
15. Let’s talk about YM. How does innovation happen in YM? Please explain the process. What tools do they use?
16. Why do you think YM have been so successful with a lot of projects?
17. How do they build a network?
18. How do they get the resources needed?
19. How do they make the local people interested in participating in the projects?
20. What is the biggest challenge for YM?
21. What do you think other organizations can learn from them?
22. What can organizations in developed countries learn from YM?
23. Tell us about some other rural projects you have worked with other than YM.
24. What kind of methods has been used to collect data for the reports?
25. Can you give us some tips on articles and reading material about this subject?
Appendix B: Collage of photos from Yuva Mitra and their projects
(Photographer: Isabell Lindgren Stoor)

Yuva Mitra

Lad shows MDH around the projects

Farmers working in the field

Producer company’s mall

Frugal innovation in greenhouse

Yuva Mitra’s location
Lad talks about check dam project

Girls in village school

Asking questions to the older farmers of a village