



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

The growing piles of waste on Bali

- a problem or an opportunity to make money?

Karin Herder

Karl Larsson

Supervisor: Anders Sandoff, School of Business Economics and Law

Minor Field Study- 15 ECTS credits. Thesis submitted for the requirements of the Bachelor Programme of Environmental Social Science at the department of Economics and Statistics, School of Business, Economics and Law, University of Gothenburg.

Abstract

There is an emerging waste management problem in Bali. The government has taken actions and one of these is a joint venture biogas project at the Suwung landfill. This project is the first joint venture of its kind in Bali between the public- and the private sector. The current private company involved is PT NOEI. This project has been subject to discussion due to many difficulties surrounding it. This paper aim to explain these difficulties, by interviewing the actual company and the leading environmental NGO's in Bali. Through these interviews we have extracted information that we have analyzed. Our analysis show that the main issues regarding this project are; too large scale equipment relative to the waste coming in, corruption, problems in transferring technology and knowledge, differences in cultural between countries and problems in implementing Public Private Partnerships in an effective way.

Acknowledgement

We would like to pay our deepest gratitude to all the people who made this assignment possible. The people we met on place in Indonesia have played a big part in the making of this thesis since they welcomed us and where always willing to the share the information they had. It has been an unfolding journey and we have gained a lot of new experiences which we surely will have great use for in the future.

We would like to send our special thanks to the following people for all the information they shared and contributed with to our work. These persons are; Anders Åhman entrepreneur that lives in Bali, Bernt H. Bakken Regional Manager at Magenko, Diana Sari Scheib Sales & Science Manager at Temesi Recycling, Made Sudarma Government Employee, Made Supriatin Project Manager at PT Navigat Organic Energy Indonesia, Paola Cannucciari Manager at ecoBali and Olivier Pouillon Environmental Consultant.

We would also like to thank our tutor Anders Sandoff who has shared his knowledge and ideas with us.

Table of Contents

1. Introduction.....	4
1.1 Question formulation	5
2. Methodology	5
2.1 Before going to Bali	5
2.2 At place in Bali	6
2.3 Delimitations	6
2.4 Method of data collection	6
2.5 Methodological considerations	8
2.6 Ethical considerations	8
2.7 Limitations	9
3. Background facts and Theoretical Framework	9
3.1 Indonesia: A brief historical overview	9
3.2 Biogas	11
3.3 Biogas in Indonesia	12
3.4 Kyoto protocol and the Clean Development Mechanism	13
3.5 Introduction to Management and National Cultures	14
3.6 Corruption	16
3.6.1 Definition	16
3.6.2 Problem/Reflection	16
3.6.3 Forms of Corruption	17
3.6.4 Corruption as a threat on reducing climate impact	18
3.7 Technology and Knowledge transfer	20
3.8 Public Private Partnership	23
4. Empirical findings	24
4.1 GALFAD IPST SARBAGITA	25
4.1.1 Background	25
4.1.2 Interview	26
4.2 Interview with Bernt H. Bakken and Made Sudarma	28
4.3 ecoBali	29
4.3.1 Background	29
4.3.2 Interview	30
4.4 Temesi Recyclin	32
4.2.1 Background	32
4.2.2 Interview	32
4.5 Interview with Olivier Pouillon	35
5. Analysis	37
6. Conclusion	41
7. References.....	42
7.1 Printed sources	42
7.2 Articles.....	42
7.3 Internet sources.....	42

1. Introduction

Indonesia suffers from a serious waste management problem. In Bali, until just over a decade ago the majority of household wastes were organic and therefore people would recycle waste back to the natural environment by throwing them into rivers and/or ditches. The waste today on the other hand contains a lot of inorganic material and there is no good infrastructural solution for dealing with them. There is a lack of public awareness regarding the negative impacts of burning plastic and other toxic products in Indonesia and the result of this behavior is a number of public health- and environmental problems¹. The waste situation on Bali has already affected the most important source of income, the tourism².

Thru our Swedish contact Anders Åhman that currently lives in Bali we got aware of the big waste management issues that are causing a lot of problems on the island. Our place and subject of study was therefore quickly decided and the fact that one of us had been to Bali before and seen the problems with own eyes made the choice even easier to make. Anders gave us information regarding a company called PT Navigat Organic Energy Indonesia (PT NOEI) which among other things runs a biogas facility on the island. The project is run as a joint venture between the private- and the public sector. When starting gathering information we soon realized that the project was much-disputed and there where disagreements among the stakeholders. We therefore made contact with one of the persons involved in the company that represents the private sector in the project, the Project Director Dr. Robert Eden. Apparently he was no longer involved as the project had changed both management and ownership and there was a new company representing the private side. Dr. Eden told us that there was no easy way to explain the change in management “other than self-interest, complex manoeuvring, and generally not entirely honest

¹IDEF Foundation, www.idepfoundation.org

²Composting in Bali, Indonesia, <http://www.myclimate.org/en/carbon-offset-projects/international-projects/detail/mycproject/18.html>

practices."[...]Indonesia is a very difficult place in which to do business. The law is weak, there is a huge official bureaucracy and corruption is endemic. These factors all add up to a very difficult commercial environment in which to successfully conclude business, especially long-term projects".

Dr. Eden gave us the advice to go there ourselves to try and find out what went wrong, so we did. Before going to Bali we hoped to be able to answer the question whether it is possible to make money on garbage or not by looking at figures and numbers from PT NOEI, but after the first interview with Made Supriatin at PT NOEI we realized that it would be difficult to receive accurate information on this. We therefore decided to put focus on the difficulties surrounding waste management in Bali.

1.1 Question formulation

What are the difficulties surrounding waste management projects in Bali, and how can these be explained by existing theories?

2. Methodology

The first two parts of the methodology chapter is about the preparation for this thesis and how we decided who to interview and how we then made contact with these persons. We then go on discussing the delimitations of our study. After this we explain the method of data collecting and what we believe can be the disadvantages and risks when using our chosen method. Finally we discuss our ethical considerations.

2.1 Before going to Bali

After deciding to investigate PT NOEI we tried to contact the company but without any results. We then made contact with Mr Eden who used to be involved in the project and who gave us the advice to go to Bali to try and find out what has been problematic regarding the project. He however recommended us not to have too high hopes, since there seemed to be a lot of shenanigans surrounding PT NOEI. We followed his advice and started thinking about a plan B, if we would not get in touch with the company. We however still believed

that we would be able to write about the project in some way, even if we couldn't speak to someone directly from PT NOEI.

As part of our preparation we organised a study visit to Sobacken outside Borås where there is a biogas facility. This visit was very instructive and helped us a lot when we were at place in Bali.

Further we did research on the NGO's relevant for our study and other companies within the business of waste management in Bali. We soon felt that we had the picture clear on which organisations to contact once we got to Bali.

2.2 At place in Bali

Once in Bali it was no problem to get in touch with PT NOEI, since we now called directly to the office. We got an interview appointment the following week. Simultaneously we made contact with the other organisations that we had read about, and everyone turned out to be helpful and agreed on being interviewed. We also found out about one organisation along the way which we then made contact with.

2.3 Delimitations

The focus of this study is waste management in Bali, Indonesia. Our research is limited to organizations and companies in the waste management industry in Bali. We chose to concentrate our efforts on analyzing and interviewing a few different organizations. We chose the ones that we after some initial analyze found most relevant for our purpose. We have noticed on the way that these organizations in great extension are sharing the same picture of the problem.

2.4 Method of data collection

Our field study has been made in a comparative qualitative design. According to Esaiasson et al. a commonly used rule is that a case study is being improved by maximising the cases being compared. At the same time there are situations where this is not the most favourable alternative. One example where this rule is not applied is when the phenomenon studied

only occurs in a limited quantity³. We have focused on finding out which factors decides whether a company is successful or not. We have tried to answer the question by first finding and then comparing the advantages and disadvantages among other companies in the same business in Bali. We have studied and compared five organisations in Bali, which we believe is enough since the ones chosen we found to be the primly within the area relevant to our study. Before going to Bali we hadn't decided how many organisations to interview but pretty soon we felt we had the picture clear on which companies to contact. We find the industry limited and feel like we have been able to capture the main operators within the waste management industry in Bali.

According to Esiasson et.al there are different types of researches where we can categorize our study as an informant research. In this kind of research the interviewee is to help explain how a certain phenomenon is disposed. When having many interviewees they all contribute with parts that together give a view of the reality. Therefore it is not necessary to ask the same questions to every interviewee, instead it can be favourable to let the answers from the first interviews help formulate more specified questions for the next interviews⁴. Because of this we have conducted semi structured interviews where the interviewees have had the opportunity to steer the conversation, and we have after our first interviews received information that have formed the latter. We have however tried to ask somewhat the same questions to all interviewees when it comes to what they believe to be success factors and restraints in the waste management. By treating the companies after their different qualifications we also disclaim the problem of finding the perfect matching cases to compare that often arise in a comparing case study. We are aware of the fact that the enterprises being compared have many differences and therefore in many aspects are difficult to compare. We have settled for the fact they all operate in the waste management industry in Bali.

We have then analysed the result through our theoretical framework which we have made up during our field study. Consequently we have used a theory unfolding model for our thesis. According to Esaiasson Et al. it is far from always that a research starts with a set

³ Esiasson P, Gilljam M, Oscarsson H, Wägnerud, *Metodpraktikan*, 113

⁴ Ibid, 258

opinion on which root mechanisms that can be presumed valid. Least common is that the research effort is about finding satisfying explanations⁵. We noticed early that there are a couple of returning phenomena explaining the problems surrounding waste management in Bali. We have settled with the most obvious explanations and let them be our theoretical framework even though we are aware of the possibility of other explanations. In our analysis we have used an inductive approach which means that out of our particular empirical experiences we have tried to find a universal explanation⁶.

2.5 Methodological considerations

One concern we have regarding our thesis is the concept validity, which means the conformation between the theoretical definition and the operational indicator. According to Esaiasson Et al. a rule of thumb is that the validity problem increases with the distance between the theoretical definition and the operational indicator. When you for example study controversial concepts like “power”, “democracy” and “working societies” the validity problems get more obvious⁷. We feel like there is a big distance between our theoretical definitions and the operational indicators we used which create our concern regarding concept validity. Also in our thesis we investigate the perceived difficulties surrounding waste management in Bali which are not necessarily the real ones.

2.6 Ethical considerations

In our work with this thesis we always tried to conduct an ethical way of collecting and processing our data. In order to achieve this we have tried to be as open as possible with all the subjects of our interviews. As interviews are a setting where power balances shift between the researcher and the researched it makes both of them vulnerable at various times. But in the end, it’s the researcher who has the power because of “responsibility of how the data is analyzed and interpreted is entirely her own”⁸. Our attempt to be as open and transparent as possible includes showing all the persons interviewed a document that

⁵ Ibid, 123

⁶ Ibid, 124

⁷ Ibid, 65

⁸ Cotterill, P. (1992) Interviewing Woman: Issues of Friendship, Vulnerability, and Power, in *Women’s International Studies Forum*, 15:5/6 p. 603

explains and acknowledge our purpose with our thesis. We have also asked them for permission to use their names and the shared information in our work.

2.7 Limitations

The most obvious restraint/limitation in our study is the language barrier as neither one of us speaks Bahasa Indonesia. The culture and way of living in Indonesia is very much different from what we're used to back in Sweden and we can't expect or claim that we completely understand it. We also acknowledge the lack of transparency in some of the business and projects as a limitation.

3. Background facts and Theoretical Framework

In this chapter we will give the reader information that will help to understand the rest of the thesis. First we give background information on Indonesia to get an understanding of the country and its history which have formed today's culture. We then give a brief overview of biogas and the CDM. In our empirical findings we discuss the biogas facility of PT NOEI and the process of receiving CDM so we believe it is favorable to know about this before reading that chapter. After this our theoretical framework is presented which include the theories that we have then used in our analysis to help and explain the difficulties surrounding waste management in Bali.

3.1 Indonesia: A brief historical overview

During the Second World War Japan occupied Indonesia, which for many Indonesian was seen as liberation from the disliked Dutch ruling, which had been in power of large areas of the country since the 17th century. This quickly changed when it was clear that the Japanese drove a brutal occupational process in which the locals where treated with ruthlessness. Many of the locals were also forced to join the Japanese army during the time. But Japan capitulated in August 1945 and just two days after that, on 17 August, the nationalist leader Sukarno claimed Indonesia as an independent country, but the Allies gave the right to the country back to the Dutch. Allied forces took control of Indonesia until further notice and ordered the Japanese troops not to give their weapons away to the Indonesians. Heavy battles broke out between Indonesian nationalists and British- and Dutch forces, mainly on

the island of Java. The British took their retreat in 1946 but the war against the Dutch went on until 1949 when peace was agreed through the help of the UN. In December 1949 Indonesia became independent and the Republic of Indonesia was created with Sukarno as president.

The nationalists pushed hard on their vision “one country, one language, one people” but for the coming years there was political instability, conflicts and severe poverty (during the 60’s Indonesia was among the poorest countries in the world) in Indonesia⁹. Bali wasn’t excluded from this and therefore remained an unsettled island. In addition to all the above Bali hit a severe setback when the Mount Agung volcano had a violent eruption in 1963. The eruption killed thousands of people and destroyed large areas of land which forced a lot of Balinese’s to move from the island. During this new era of ruling Bali also had to bow for the newly instated rule to only worshiping one god¹⁰. During Sukarno’s last year as president the government and the bureaucracy was heavily poisoned by corruption, the inflation was around 1 500% and the country was close to anarchy. In 1965 six generals and one colonel were killed in an attempt to dismiss Sukarno as president. Suharto, the highest ranked general in the Indonesian army at the time, was the one who led the successful counterattack on the coup makers. Who was behind the attempt is still today not proven but the communist party, PKI, was blamed. This accusation triggered a bloody anti-communist campaign. The death numbers varied from 100 000 and up to one million communists. The PKI, who was the third biggest party at the time, was banned from politics. Sukarno’s presidency was endangered and he became dependent on the support of General Suharto. In 1965 Sukarno gave general Suharto permission to do whatever necessary to keep the country in control. Suharto took advantage of this increased power and with it he convinced Indonesia’s highest deciding organ, MPR, to unseat Sukarno as president in 1966. Suharto was crowned president of Indonesia in March 1968.

⁹ Landguiden.se, <http://www.landguiden.se.ezproxy.ub.gu.se/>

¹⁰ Travelchannel, http://www.travelchannel.com/Places_Trips/Destinations/Oceania/Indonesia/Bali/Historical_Background

General Suharto's new regime led to a lot of changes in the political agenda and in the economy. His regime continued to fight the communist for decades to come. Indonesia's foreign policy changed and their relation and cooperation with communist countries where ended. In order to establish political stability within Indonesia Suharto created and implemented a vision called "the new order". In his vision five principles where to be followed, namely: the believe in one god, humanity, a national unit, democracy, respect for authorities and to prioritize the collective before the individual. "The new order" also included a big effort to increase the economic development in the country. With help of foreign experts the economical politics where planned in 5-year periods. The regime gave some industries and companies advantages and big coalitions of companies where formed. These coalitions often included some of Suhartos relatives in their boards. Some of the advantages they got included monopoly on production and importing of certain products.

With financial aid and foreign bank loans in combination with their export of oil Indonesia's economy expanded with great speed between 1968 and 1982. However the mysterious and questionable affairs made by Suharto provoked a lot of citizens and encouraged corruption. When the Asian financial crisis reached Indonesia in 1997 Suharto turned to the International Monetary Fund (IMF) for help and a deal was signed in the beginning of 1998. The price of gasoline was raised by 70% in May that same year as a part of the deal with IMF which ignited big displeasure from the poor. Big demonstrations against the Suharto regime were starting to occur and it became clear that Suharto wouldn't be able to remain as president and therefore resigned on the 21th of May 1998.

The new president, B J Habibe issued a row of democratic reforms including the release of political prisoners and the relations with foreign investors and the IMF improved. The following years included turbulence in the relation towards East Timor, civil war at the island of Madura and heavy conflicts between Muslims and Christians in Sulawesi. Despite these disturbances Indonesia could hold their first national elections in September 2004.

3.2 Biogas

Biogas is a renewable energy source. The carbon dioxide created when biogas is burned does not contribute to global warming since carbon in the methane molecule derive from the air carbon dioxide that has been bound into plants through the photosynthesis.

Biogas is produced by the biological break down of organic matter in the absence of oxygen, a so called anaerobe digestion. In the process organic compounds, for instance protein, carbohydrate and lipids are degraded into the final-products of methane and carbon dioxide.

In a biogas facility the natural process is being used by gathering the biodegradable material in a digester where first the hydrolysis starts then the fermentation and finally the methanogenesis¹¹.

In the first phase complex organic compounds are being decomposed into smaller compounds like sugar and amino-acids. In the second phase the fermentation decomposes these compounds into for instance alcohol, fat acids and hydrogen gas. In the third and last phase the methane gas is produced with the assistance of a unique group of micro organisms.

This gas consisting of foremost methane gas and carbon dioxide is the biogas. The biogas however includes a small amount of water and different kinds of contaminants which have to be eliminated before the gas can be used as automotive fuel¹².

There are many different materials useful as substrates for digestion, for example mud from sewage disposal plants, food waste from households and restaurants and dung. A mixture of different material often gives a higher methane yield than if the materials are separated.

Some substrates used in the biogas process need pre-treatment so that the pumping, agitation and digestion work optimally. Dry material might need to be wet and to wet material needs to be drained.

The organic material is seldom completely degraded instead there is a end product consisting of water, organic material and microorganisms and various nutrients. This can be composted and used as fertilizer.

¹¹ Biogasportalen, *Vad är biogas, biogasprocessen*

¹²Biogasportalen, *Produktion*

3.3 Biogas in Indonesia

Energy consumption in Indonesia has been expanding at relatively high rate, with an average of 10 % during period of 1970-2002. The government of Indonesia is subsidising fossil fuels used by the households and home industries, and for transport, while the fuel price for industries is based on market prices. In the national budget 2008, a total amount of IDR 126 trillion (about USD 13.5 billion) has been allocated for subsidy on fuel¹³. Energy fossil sources mainly come from oil, natural gas and coal. These resources are thought to be depleted in between 10 and 50 years. Indonesia is blessed with abundant potential of renewable energy like geothermal, hydropower, solar energy, wind energy and biogas¹⁴. However the utilization of renewable energy in Indonesia is still low compared to its potential.

As in many other countries, the biogas technology in Indonesia was introduced in the 1970s by universities, notably the Bandung Institute of Technology (ITB). Although biogas has been known since the 1970s, dissemination of the technology until 200 was quite slow¹⁵. Some constraints found by the Indonesian Center for Agricultural Engineering Research and development (ICAERD) are availability, security of supplies, price, ease of handling and ease of use. In addition external factors like technological development, introduction of subsidies environmental constraints and legislation need to be taken into consideration before going into the biogas business¹⁶.

3.4 Kyoto protocol and the Clean Development Mechanism

The Kyoto protocol is an international agreement for countries with set targets for reducing greenhouse gases. The countries can as an additional means of meeting their targets use one of the three market based mechanisms under the Kyoto protocol:

- Emission trading
- Clean development mechanism

¹³ van Nes W. J, Tumiwa F, Setyadi I. SNV Netherlands Development Organisation, *Feasibility of a national programme on domestic biogas in Indonesia*, 12

¹⁴ Widodo T.W, Hendriadi A, Development of biogas processing for small scale cattle farm in Indonesia, 1

¹⁵ van Nes W. J, Tumiwa F, Setyadi I. SNV Netherlands Development Organisation, *Feasibility of a national programme on domestic biogas in Indonesia*, 16

¹⁶ Widodo T.W, Hendriadi A, Development of biogas processing for small scale cattle farm in Indonesia, 2

- Joint implementation

All of these mechanisms imply that an industrialized country can make profits from emission reductions achieved in developing countries. The mechanisms are built on the fact that the climate influence is a global problem and therefore it doesn't matter where on earth the reductions are achieved, as long as there is an arrangement for reduction.

Under the Clean development mechanism emission reducing projects in developing countries earn saleable certified emission reduction (CER) each equivalent to one tonne of CO₂¹⁷. These saleable credits can be used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol. The mechanism stimulates sustainable development and for a project to earn CERs there has to be an emission reduction that is additional to what would otherwise have occurred.¹⁸

To get approval the project must go through a strict process where the Designated national Authorities is the body responsible to authorise and approve participation in CDM projects¹⁹. The mechanism is then presented to the CDM Executive board. Since the start in 2006 over 1650 projects have been approved and these together have produced CERs amounting to more than 2.9 billion tonnes of CO₂²⁰.

3.5 Introduction to Management and National Cultures

Hofstede argues that the influence and understanding of nation cultures on management is a key issue in the organization science. This has emerged from a belief in Europe and the U.S. that during the 1950s and 60s that management was something that worked the same way all over the globe and that the principles that formed good management were the same regardless of national environments. If something in the national environment would diverge from that global view the only thing to do was to change the local practice. This management which dominated the 1950s and the 60s are called the "convergence hypothesis". This view came to change during the 1970s when organizations started to see

¹⁷ UNFCCC, *About CDM*. <http://cdm.unfccc.int/about/index.html>

¹⁸ UNFCCC, *Clean Development Mechanism (CDM)*
http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

¹⁹ UNFCCC, *Designated national authorities* <http://cdm.unfccc.int/DNA/index.html>

²⁰ UNFCCC, *Clean Development Mechanism (CDM)*
http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

that this way of management was naive and in conflict with the reality. It started to become very clear that national and regional differences were important to take into account in the development of management science. Multinational (and therefore multicultural) organizations saw this as “one of the most crucial problems for management”.

National belonging is important in management science for at least three reasons according to Hofstede, and these ones are: political, sociological and psychological. The first reason is political, as nations are in themselves political units with their own history and institutions, such as forms of government, legal systems, educational systems, labor and employer’s association systems. Hofstede claims that even if we could equalize the formal differences there will be an informal structure that still differ. The second reason is sociological and can be seen as the symbolic value that the nationality has to citizens. The third reason is psychological and by that Hofstede means that our thinking is in some way defined by our national culture. He further states that this is “an effect of early life experiences in the family and later educational experiences in schools and organizations, which are not the same across national borders”.

Hofstede talks about *national character* as different ways of thinking that most of the inhabitants in a nation share and that can be distinguished between different nations. The nation character is more easily identified by someone from outside the specific nation. An analysis of the characteristics of a certain nation can be seen as a rough generalization and according to Hofstede there two reasons for this. First, there is no commonly agreed language for describing a culture, much due to its complexity. The second reason is the lack of systematic studies made on national character. The studies are often based on statement which in their turn is based on impressions only, and this makes the studies easily considered as rough and false generalizations²¹.

²¹ Hofstede, Geert. *The cultural relativity of organizational practices and theories*, Hofstede

3.6 Corruption

3.6.1 Definition

The United Nations definition of corruption is “abuse of power for private gain” and is stated in their Global Programme against Corruption²². Transparency International (TI), which is responsible for publishing the Global Corruption Report each year, has their own definition, namely “Corruption is operationally defined as the abuse of entrusted power for private gain”. TI further differentiates between "according to rule" corruption and "against the rule" corruption. Facilitation payments, where a bribe is paid to receive preferential treatment for something that the bribe receiver is required to do by law, constitute the former. The latter, on the other hand, is a bribe paid to obtain services the bribe receiver is prohibited from providing²³. TI defines it even further in their Global Corruption Report on Climate Change. In that report they describe “entrusted power” as not just the power which a citizen confers to an official but also the power that the future generations have trusted us with²⁴. According to the World Bank corruption is defined as “the abuse of public power for private benefit”²⁵.

3.6.2 Problem/Reflection

A difficulty with fighting the corruption around the world is that it's hard to know what it is that actually should be battled due to the fact that corruption is floating over different working fields along with different geographic areas. In these fields and areas there are different laws and punishments on corruption and this makes a global definition of corruption imprecise. An example is the fact that the United Nations, in the writing of their Convention against Corruption, couldn't agree on a mutual definition of corruption²⁶.

²² Europa – summaries of EU legislation, http://europa.eu/legislation_summaries/fight_against_fraud/fight_against_corruption/133301_en.htm;

²³ Transparency International – the global coalition against corruption, http://www.transparency.org/news_room/faq/corruption_faq;

²⁴ Transparency International, *Global Corruption Report: Climate Change* p. 25

²⁵ Amundsen, Inge, Chr. Michelsen. *Corruption – Definitions and Concepts*, Ch. 2

²⁶ Fagrell, Andreas. *Korruption i övergångsländer*. Uppsats ”Korruption i övergångsländer”. p. 15

3.6.3 Forms of corruption

According to Dr Inge Amundsen, who is a political scientist that has specialized in among other things corruption²⁷, there are five basic forms of corruption. These forms are:

Bribery is the exchange of money (or similar) that is taken place in a corrupt relationship. Whether you are the one who pays or receive this exchange doesn't matter, its corruption both ways and it should be seen as the pure essence of corruption. A bribe is "a fixed sum, a certain percentage of a contract, or any other favour in money of kind, usually paid to a state official who can make contracts on behalf of the state or otherwise distribute benefits to companies or individuals, businessmen and clients". Bribery can also occur in a more "informal" way like when officials receive under-the-table-payments and are expecting gifts from their clients.

Embezzlement is described as theft of public resources by public officials, in other words theft of resources that the public employed official is supposed to manage on behalf of the public. Embezzlement is not regarded as corruption from a legal point of view but as theft. This is based on the legal term of corruption which states that "corruption is a transaction between two individuals, one state agent and one "civilian", where the state agent goes beyond the limits of the law and regulations in order to secure himself a personal benefit in the form of a bribe". Because no "civilians" are involved directly in embezzlement it's regarded as theft. Therefore embezzlement can occur and progress independently of the public moral in a country and with low chances of any public sanctions being made which makes this form of corruption hard to solve. The solution lies in a strong political will along with a good working legal system. This form of corruption is one of the most significant types of economic accumulation in many corrupt countries.

Fraud is a broader legal term that includes more than bribery and embezzlement and it's defined as an economic crime that involves some kind of trickery, swindle or deceit. When there is an official involvement in "illegal trade networks, counterfeit and racketing" it's called fraud. It's serious fraud when the officials have an active role in these kind of activities but it's also seen as fraud when they receive some kind of payment for "closing their eyes".

²⁷ CMI CHR. MICHELSEN INSTITUTE, <http://www.cmi.no/staff/?inge-amundsen>;

Extortion is gains being made by the help of coercion, violence or the threats to use force.

Favoritisms are a type of power abuse that lies in the “natural human proclivity to favour friends, family and anybody close and trusted”. It’s related to corruption due to the fact that it’s about a corrupt way of distributing resources²⁸.

3.6.4 Corruption as a threat on reducing climate impact

“The global response to climate change will demand unprecedented international cooperation, deep economic transformation and resource transfers at a significant scale. Corruption threatens to jeopardize these efforts”. This is the introduction to Transparency International’s (TI) Global Corruption Report: Climate Change. The publication that was published in 2011 is the first effort made to explore major climate-related corruption risks²⁹.

In the publication TI argues that climate change is the biggest governance challenge the world has faced. To find a solution TI describes urgency, trust, cooperation and solidarity as key words. “A robust system of climate governance – meaning the processes and relationships at the international, national, corporate and local levels to address the causes and effects of climate change – will be essential for ensuring that the enormous political, social and financial investments by both the public sector and the private sector made in climate change mitigation and adaptation are properly and equitably managed, so that responses to climate change are successful”³⁰.

TI talks about two reasons for why they see corruption as a big threat in addressing climate change. The first reason is the enormous price tag that the efforts needed to prevent and respond to climate change will have. As huge amounts (investments in mitigation³¹ efforts

²⁸ Amundsen, Inge, Chr. Michelsen. *Corruption – Definitions and Concepts*, Ch. 2

²⁹ Transparency International, *Global Corruption Report: Climate Change*, 1

³⁰ Ibid, 25

³¹ “Mitigation efforts aim to slow climate change by reducing the amount of greenhouse gases (GHGs) emitted globally, or increasing the capacity to capture emissions in natural sinks, such as forests, or through technological innovation. Leading mitigation approaches include the establishment of carbon markets, mandated

alone is estimated to US\$700 billion by 2020³²) will flow through unexplored and untested financial markets and mechanisms there is a risk of corruption somewhere on the line. The other reason is the high level of complexity, uncertainty and novelty that is imbedded in many of the climate issues. TI presents some evidence in the report that indicates that “there are many regulatory grey zones and loopholes that are at risk of being exploited by corrupt interests”³³.

One of the clearest messages that are found in the Global Corruption report is that “a dramatic strengthening of governance mechanisms can reduce corruption risk and make climate change policy more effective and more successful”³⁴. The report lists a number of actions necessary for sustainable climate governance and states that it will require a strong commitment and cooperation of all involved stakeholders³⁵. The main focus areas for action are:

Generating and making publicly available accurate information. This action is meant to lead to a clearer mapping of responsibility when it comes to emissions, tracking of money and sized carbon footprints.³⁶

Tracking, benchmarking and comparing the capacity and performance of emitters, regulators, funders and governments. Comparing companies to each other generates an invaluable pressure on organizations accountability but also to help identify signs of corruption and priorities for governance reform³⁷.

Matching capacity at all levels to the scale of the challenge. TI talks about the potential risk of resources (such as enforcement and monitoring capacity) not being sufficient or equally

emission standards and energy efficiency policies, and voluntary initiatives to move towards a low-carbon economy Transparency International, *Global Corruption Report: Climate Change* p. 29

³² Transparency International, *Global Corruption Report: Climate Change*, 26

³³ Ibid, 26

³⁴ Ibid, 26

³⁵ Ibid, 33

³⁶ Ibid, 34

³⁷ Ibid, 34

distributed. The mismatch between financial flows and the capacity for sufficient financial management opens the door to corruption according to the report³⁸.

Anchoring climate governance firmly in existing frameworks for integrity and accountability. According to the TI the climate governance needs to use a wide range of the existing accountability mechanisms. For example they could use the support from the UN Convention against Corruption or aid the development of anti-corruption mechanisms³⁹.

3.7 Technology and knowledge transfer

According to Eric W.K. Tsang technology transfer is the transmission of knowledge which enables the recipient to either manufacture a certain product or provide a certain service. He further argues that the difficulties in technology transfer increases when the technology is to be transferred across national borders. This increase in difficulties is due to for example differences in technological infrastructure, language, level of economic development, culture and attitude between home and host countries⁴⁰.

Knowledge transfer has always been a challenge for organisations and its importance has increased in recent years due to above all three reasons. First knowledge is nowadays seen as a more important asset within a firm than it used to be. Second, organisations today are more decentralized which means a greater involvement among the employees. This leads to importance of knowledge being spread out within the company. Finally progress in information technology has given knowledge transfer a new and greater mean. Today it is possible in another way to spread knowledge because of new channels such as internet⁴¹.

According to Kumar et al technology transfer can be seen as an effective mechanism to advance the flow of technological development in a developing country's economy, and if the process is implemented successfully it increases the technological capability of an

³⁸ Ibid, 34

³⁹ Ibid, 34

⁴⁰ Tsang Eric W.K, *Choice of international technology transfer mode: a resource-based view*, 2

⁴¹ David I. Levine & April Gilbert. *Managerial Practices Underlying One Piece of the Learning Organization*

organisation or a country⁴². If not implemented properly technology transfer projects run the risk of four failures according to Kumar; failure at the emerging state, failure at the operating state, financial failure or failure in attaining the projects socioeconomic objectives⁴³.

Kumar has found four essential components that have to be taken in consideration when coming to technology transfer from an industrialised country to a developing country which are:

Understanding and selecting technology components: Technology can be seen as combination of different components, and according to Kumal et al it is favourable to divide technology into these components to more clearly understand what is to be transferred. An obvious division is physical and informational components where physical technology include for instance products, tooling and equipment and informational for instance know how, marketing and reliability⁴⁴.

Understanding the negotiation Process: Suppliers and buyers have different interests and perspectives when making a business deal and for a transaction to be successful both parties need to have an understanding for the dynamics between these. For instance suppliers have become more customer orientated lately because of competition and with that comes a pressure to offer better service than contestants. This is not only a service for the customer but also an opportunity for the supplier to make money from after sales services. Further Kumar states that cultural issues are not stressed adequately while two parties are involved in a technology transaction and as a result many transactions become unsuccessful⁴⁵. There are many obvious differences between a developing country and an industrialised country that matters in the negotiation process, where the most interesting differences that Kumar points out for this thesis are the following:

⁴²Kumar U, Kumar V, Dutta S, Fantasy K. *State sponsored large scale technology transfer projects in a developing country context*, 629

⁴³ Ibid, 631

⁴⁴ Ibid, 632

⁴⁵ Ibid, 634

Issues	Developing contry	Industrialised country
Hierarchy	Decision making process is quite hierarchical.	Less hierarchial
Attitude towards foreigners.	Not always very open.	Relatively more open towards foreigners.
Time constraints.	Takes more time to reach a conclusion.	Generally fast in making a decision.
Consulting other organizations.	Generally need to consult many local agencies before making any commitment.	Generally the process is streamlined.

In the negotiation process it is necessary to consider the direct costs at the time of purchase but it is also of major importance to take the hidden and deferred costs into account. When all the costs and prices have been gone through the stage is to actually sign the contract and it is important that the contract leaves no room for ambiguity.

Selecting Suitable Technology Transfer Mode: When making business between a developing and an industrialised country there are several options where some of the most common modes are: direct foreign investment, joint ventures, direct sale, licensing, turnkey projects, and technical agreements and cooperation. Kumar states that when the host country doesn't have enough capability a joint venture is favourable⁴⁶, and for instance a direct sale is not to recommend.

Understanding and developing technological capability: The ability to assimilate and adopt the technology is a problem in many developing countries. For the assimilation to be successful supportive capabilities are important. Supportive Capabilities are abilities and facilities existing in a country that create a conducive environment for business and

⁴⁶ Ibid 636

technological development⁴⁷. These capabilities are created and offered by different agents of the economy such as financial institutions, universities and government bodies. Kumar points out some components that are essential in creating supportive capabilities which are among others legal system and infrastructure. Infrastructure includes both financial systems and transportation system.

3.8 Public Private Partnership

Public Private Partnerships further on abbreviated PPP is a quite new phenomenon in developing countries and the main reason for PPPs being more popular lately is that many governments in developing countries today face a growing demand for better infrastructure⁴⁸. A lack of money and competence make the government turn to the private sector for help. PPP imply that public sector and private sector share responsibilities either in the whole process of a project which means implementation and then maintenance or only in one of these phases. By inviting the public sector the government can earn many benefits. Private sector can contribute with in-house-resources and competence⁴⁹. The procedure when government has decided to initiate a PPP is often that the implementation agency in the government after developing a project invites the private sector to a bidding process where different companies give proposals. Then the government body decides which company they believe will be most suitable for the task⁵⁰.

Because this is a new experience in many developing countries, these countries often haven't got sufficient institutional arrangements for handling these partnerships in an effective way. The biggest problem when implementing a PPP seems to be a lack of capacity in the public sector and not mainly in the private sector. Ashwin Mahalingam et al points out the following issues as significant when implementing a PPP; lack of coordination and skills within the government, inertia in procurement of capital necessary for the PPP and high

⁴⁷ Ibid 637

⁴⁸ Quium A. *A guidebook on public-private partnership in infrastructure*, s 2

⁴⁹ Ashwin Mahalingam, Ganesh A. Devkar and Satyanarayana N. Kalidindi. (2011). *Public works management & policy*, s 343

⁵⁰ Quium A. *A guidebook on public-private partnership in infrastructure*, s 20

transaction costs. He has also found that there often is a lack of trust between the public and private sector⁵¹.

For a PPP to become successful there are certain requirements from both the private and the public sector that needs to be met and also there is a request for good governance⁵².

Some core principles in good governance are accountability, transparency and decency. It is also of great importance that there has been a detailed planning and feasibility study based on recent data. There should be a cost-benefit analysis which finds the benefits for both the public and the private company, and a financial analysis to determine if the project is viable⁵³.

When decision has been taken that a PPP is to be implemented there are several modes that can be chosen. Joint venture is one option which means that the public and private sector share both risk and eventual reward. It is not necessary that both parties have the same goal for the joint venture, but the goals must be compatible so that both parties work for the same outcome. Often the government goes into a joint venture with private sector because as mentioned before they have problems in supplying the citizens with a public service and hope to secure this service by a PPP. The private sector on the other hand often sees a joint venture as an opportunity to make money⁵⁴.

4. Empirical findings

This part consists of the materia we collected from the interviews in Bali. We have separated the interviews in terms of which company/organisation the interviewee is or has been active in. We start with the joint partnership between PT NOEI and the public sector which has the official name GALFAD IPST SARBAGITA. First comes the interview with the current project manager at PT NOEI. Thereafter comes the interview with Bernt Bakken who used to be project manager at PT NOEI followed by an interview with Bernt Bakken again together with Made Sudarma who is a government employee and represents the public sector in the joint partnership. After this comes the rest of the interviews. The interviews are focused on the

⁵¹ Ashwin Mahalingam, Ganesh A. Devkar and Satyanarayana N. Kalidindi. (2011). *Public works management & policy*, s 342

⁵²Quium A. *A guidebook on public-private partnership in infrastructure*, s 25

⁵³Ibid, 36

⁵⁴ Ibid, 37

general problems surrounding waste management in Bali, and then particular focus has been on the problems surrounding PT NOEI.

4.1 GALFAD IPST SARBAGITA

4.1.1 Background

In 2001 the city of Denpasar and the regencies Badung, Gianyar and Tabanan established an agency called SARBAGITA to administer Municipal Solid Waste (MSW) within these areas⁵⁵.

The company PT. NOEI was established 2002 in Indonesia to introduce “Sustainable Waste Management” by producing biogas from the municipal solid waste.

In 2004 SARBAGITA invited the private sector to practise waste management at the location of TPA Suwung (TPA stands for Tempat Pembuang Akhir whichs means the final landfill site). There was a bidding process and PT. NOEI in cooperation with Organics (UK) was selected for their project plan which was to set up a GALFAD (Gasification, landfill gas and anaerobic digestion) facility on the landfill.

PT.NOEI then made a topographic mapping of the TPA Suwung and based on this the project was given 10 ha. Of these 10 ha the gasification facility seize upon 6.7 ha.

To be able to design the most efficient systems for producing biogas there had to be an investigation made on the waste composition. This was done during the period of April-July 2005. The project started operating in 2007 and in the project design document from 2007 you can find a description of the project’s activities. Back then there were approximately 800 tons of waste coming in to the landfill every day and this amount was expected to increase annually. Further the document states that the project will derive energy from municipal solid waste through;

1. The recovery of landfill gas extracted from the landfill
2. The recovery of biogas extracted from the anaerobic digester, fed with high moisture content

⁵⁵ Workshop on landfill gas development and the cdm, Bernt Bakken.
<http://siteresources.worldbank.org/INTINDONESIA/Resources/226271-1125376763288/1607524-1125376945368/NOEI-Bernt.doc>

organic waste;

3. The pyrolysis-gasification of dry organic waste⁵⁶.

The implementation of the project was split up into four phases:

Phase I: installation of a landfill gas (LFG) collection system, where recovered LFG is flared.

Phase II: installation of a 2.0MW power generator to produce energy using the recovered LFG.

Phase III: installation of a pyrolysis gasification plant to process the dry portion of the organic waste.

Phase IV: involves the installation of the second line of the pyrolysis gasification plant It will also add an

anaerobic digester. In doing so, Phase IV doubles the waste processing capacity of the entire facility. The electricity generation capacity will reach 9.6MW after the completion of this phase, in May 2012⁵⁷.

In 2008 ARGO took over the project. ARGO is a big industry group from Jakarta who has former mainly been operating in the garment industry. Paning bank then took over when ARGO got financial problems, and they are the owners at the time of this thesis being written.

4.1.2 Interview

We interviewed Made Supriatin who is Project Manager at PT Navigat Organic Energy Indonesia (PT NOEI) and the information below is obtained from that interview.

Made Suriatin started with an introduction about the project which started four years ago. The facility was under construction at the time of the interview. There is between 500-1000 tons of waste coming to the landfill every day and of this approximately 60% is organic. Most of the organic waste consists of garden waste. The second biggest component is food. The

⁵⁶ CDM – Executive Board. Clean development mechanism project design document form (CDM-PDD)

⁵⁷ Ibid, s 2

waste comes from an area of 30 km in diameter. It takes approximately one month to fill one box where the waste ferments. There is room for 3000 tons of waste in every box. The total produced gas can give electricity to 5000 households.

Made says waste management is a profitable business since the raw material is free and they get payed for every ton waste that they take care of at the landfill. PT NOEI doesn't have to pay any rent since the government lends the land for free in return for 20 % of the profit. This is however just the number on the paper. There is a lot of bargaining and bribery when it comes to co-operation with the government. The company that can offer the most money in return to the government gets their financial support. PT NOEI has to pay 20 % of the revenues that are projected for each year regardless if they don't produce as much as planned. If they produce more they have to pay 20 % of that higher revenue. In 2023 the project is finished. The future plan is a production of:

2011	2012	2013	2014	2015
1 Mw	2 Mw	4 Mw	8 Mw	10 Mw

We interviewed Bernt H. Bakken who is currently Regional Manager at Magenko but used to be Project Manager at PT NOEI and the information below is obtained from that interview.

Bernt was the project manager when PT NOEI started their facility in Jakarta. When it was decided to start a facility in Bali Bernt was sent there for mapping the area where the project was planned to be situated. Since the Suwung landfill was already established and the local people didn't want another landfill Suwung was the place chosen for the project. The next step after mapping was to find financing which PT NOEI didn't succeed in doing. Bernt believes that if there had been a reference project it would be easier for them to find financiers for the project. There was a German bank interested in staking money but the lack of an adequate reference project made them decide not to finance the project. In 2005 Indonesia ratified to the Kyoto Protocol which gave new hope on getting finances from the CDM. PT NOEI hired a consultant from a company in Japan to help them in the process of applying for a CDM. The project was registered in 2007, so the process took just over two years. The fourth phase in the implementation of the project which is the phase where the

waste is actually reduced hasn't started yet and before it do they will not get full financial support from CDM. However they could get some money by just running and monitoring the first phase properly according to the Project Design Document, but this can't be done because of lack of funding. To be able to receive money from phase I a CDM-validator from UNFCCC has to come and evaluate if the rules and obligations are being complied with. This audit however costs money and therefore PT NOEI have chosen not to apply for an audit until all phases are up and running. According to Bernt only as much as approximately 10 % of the registered CDM projects earn CER's which they can sell on the open market and thereby earn money

Bernt believes there is a great opportunity in making money out of waste. He sees the prospects for the project as favourable. One reason is the increased price on electricity and when it comes to biogas the circumstances in Indonesia are good because of the high ratio of organic waste. But there are also several problems surrounding waste management and Bernt believes that a main problem in Denpasar is the limitation of land. There is no more land to take into use around the Suwung landfill and the piles of garbage keeps growing. Another problem is the cultural differences and because of this Bernt finds it necessary to work with local people when doing business in Indonesia. There is a lot going on under the table which is difficult for expats to know how to deal with. Processes also tend to overrun which has been a problem for PT NOEI, and one reason for the slowness is that when something in the facility breaks there often has to be someone sent from Austria to solve the problem from where the facility is first bought.

4.2 Interview with Bernt H. Bakken and Made Sudarma

We interviewed Bernt H. Bakken and Made Sudarma a Government Employee at SARBAGITA and the information below is obtained from that interview.

GALFAD IPST SARBAGITA is the first joint partnership between government and private sector regarding waste management in Bali. Made says there are a lot of obstacles and constraints blocking the advance of the project especially when it comes to CDM and instead he would like to call it complicated difficult mechanism.

Bernt emphasizes the importance of receiving CER's and says it could stand for as much as 25% of PT NOEI's total revenue. He believes that it would be difficult for PT NOEI to become profitable without the CER's unless the government gives them financial support since the only actual income right now calculated in the PDD is the received money from sold electricity. There is also a possibility in making money from recycling, but this has not been calculated within the PDD. Right now the recyclables are taken care of by the scavengers, even though it could be favourable for PT NOEI to manage the plastics themselves. The government has no responsibility for the scavengers but it is impossible for them to just cut them off since the scavengers are dependent on the money they receive from selling recyclables. In Indonesia there is no social welfare and it would be disastrous for the scavengers if they were not allowed to collect and sort garbage. There are approximately 400 scavengers on the Suwung landfill today and PT NOEI hope to be able to let at least half of them work for the company in the near future but for this they need financing.

Bernt says that a problem at the Suwung landfill is that the trucks get stuck in queues when they come to the landfill site for dumping the waste. The infrastructure at the landfill site needs to be maintained and strengthened so that it obtains capability even during the rainy season. However it seems like no one wants to spend money in making the infrastructure better at the landfill even if it would generate more money in the long run. Also the transportation to the landfill is a problem since it generates costs for the trucks. In Jakarta the government aim to establish several landfill sites in order to reduce the distance and thereby the transportation costs for the trucks.

Electricity and gas are subsidised with approximately 50%. The government want to decrease these subsidies but when they tried fishermen and people from other job types that are dependent on gas complained and a lot of the business activity in the country shut down. Therefore the government cant increase the price for electricity just over a nigh, instead it has to be done step by step. The same problem arises when it comes to emission fees. It is difficult for governments in many countries to put taxes and fees on emissions since they want to stimulate the industry. By putting fees on emission you may force companies to close down, and then you have the problem with unemployed people that needs social welfare.

4.3 ecoBali

4.3.1 Background

ecoBali is an organization established in 2005 in response to the growing waste management problems in Bali. They have listed their biggest concerns as:

- Improper disposal of waste in Bali such as illegal dumping, burning and littering
- Pollution, land degradation, water contamination and health issues due to improper waste management practices
- Lack of awareness and education on environmental issues in Bali

ecoBali is pushing hard for waste segregation at source and the practice of the 3 R's: reduce, reuse and recycle. The organization offers support both as practical tools or/and training. They actively promote the waste segregation practice at source as a key to reduce the amount of waste generated, increase the recycling and to support a more responsible disposal on Bali. They offer these services to all who are interested in the implementation of environmentally practices both at home and in the working area. ecoBali has around 700 clients today. To specify, their services include the following:

- Collection services (households & businesses)
- Composting
- Assessments(EMS) and Training

ecoBali also has a program on Bali together with TetraPak. The goal with the program is “to maximize the recycling of post-consumer beverage cartons, increase awareness and disseminate information on waste disposal, recycling and renewable resources”. Two of ecoBalis facilities have installed equipment which helps them separate paper from the aluminum and plastics in different types of packages, this with help from TetraPak. In the

period of 2007-2008 up to 31 tons of packages have been collected and sent to the facilities⁵⁸.

4.3.2 Interview

We interviewed Paola Cannucciari who is Manager at ecoBali and the information below was obtained from this interview.

Paola says that the number one problem at Suwung is the fact that there isn't a sufficient waste stream coming into the landfill to produce electricity at the rate the project is calculated for. This is probably due to the fact that waste isn't obtained from all the regions that were intended from the beginning and this is probably because of the distance to the landfill which in some cases causes too high costs for transportation. She thinks that these kinds of large scale biogas projects are very difficult to make successful in Bali, at least at the moment.

Paola acknowledges the big problems regarding waste management that Bali is facing and she says that the government is constantly addressing these problems and thanks to a new national regulation in 2008 improvement should be faster. She also talks about the need of a joint approach on all areas connected to the waste problem (energy issues, infrastructural development and tourism etc). One of the problems is lack of awareness and education. Recently environmental education has become part of the curriculum in schools in Bali, but a problem is that some of the teachers aren't interested enough in the waste management situation. This is at least ecoBali's experience in the past years but they hope it's going to change thanks to the fact that the subject has become compulsory. After the educational problem the biggest challenge is to make producers take a bigger responsibility for their products. Extended Producer Responsibility (EPR) is included in the waste management law from 2008 and hopefully this will turn things around. EPR is especially important for plastic products as plastic waste is a big issue on Bali and the government is pushing hard to take care of that with a Green and Clean campaign. Paola thinks that Bali is in a turning point with many difficult and important choices to be made in the near future, but she feels positive as

⁵⁸ ecoBali Recycling, <http://www.eco-bali.com/pages.php?lang=en&ID=3&subID=7>

there is a growing green movement that is working towards awareness and for a higher degree of collaboration with the government for feasible solutions.

4.4 Temesi Recycling

4.4.1 Background

Graeme MacRae, a researcher at the School of Social and Cultural Studies at the Massey University in Auckland, describes the Temesi Recycling facility in the Gianyar district as the most successful waste project on Bali to date. The project started in 2004 when a businessman from Temesi convinced the community and the district government in Temesi to accept having a pilot facility built at their existing landfill site. The pilot project included recycling part of the waste stream that was already pouring into the landfill. The pilot project was developed by the local Rotary Club in Ubud and a new NGO called Bali Fokus when they tried to solve the waste management problem in Ubud (a town in the Gianyar district). The facility is designed so that the waste finds its way into the facility by a large open area on one end and the processed waste comes out at the other end. The waste is sorted by hand inside the facility by workers from the village and they separate and package valuable recyclable garbage for sale. The government is letting Temesi Recycling use the land on which the landfill is located by free.

4.4.2 Interview

We interviewed Diana Sari Scheib who at the time was Sales & Science Manager at Temesi Recycling and the information below was obtained from this interview.

The project has worked well from the beginning, except for some minor technical and socio-cultural problems, but the project had its limitations. First, they didn't manage to process more than a small fraction of the incoming waste stream, in numbers 4 out of the 50 tons of waste that were dumped on the landfill every day. Managing the waste at this level didn't generate enough money to achieve a break-even level for the facility. Another limitation was the low percentage of recyclable waste as only about 10% of the incoming waste was recyclable while over 80% was organic (which is normal for Bali). This led to an enlargement of the whole facility and a new way of approaching the waste problem. The shift in approach

went from recycling to production of compost for hotels, public parks and private landscaping. The research and development for improving the quality of the compost was already in place and so was the waste stream but they lacked money for the expanding of the facility. In order to afford the expansion they set up a meeting with a Swiss travel agency who were interested in investing money through the CDM. The project qualified for this because their processes were emission-reducing. By taking the organic material out of the waste they prevented it from decomposing anaerobically (without oxygen) and in that way generate methane. By adding oxygen to the process the waste only generates carbon dioxide and as this is a less dangerous greenhouse gas it gave Teremesi Recycling a net reduction of emissions. Since they are a non profit company and only aiming for break-even they spend their abundance in different replication projects.

Diana tells us that the amount of waste that reaches the facility in Temesi today is 60 tons/day and that as much as 85% is organic while 5% is recyclables. They have 30 employees and 80 outsourced scavengers. They first gave the scavengers the same salary regardless of how hard they work. This didn't work out as it made all the fast and hard working scavengers lazy because the salary was independent of how much recyclable waste they collected. Instead they introduced a bonus system where the quick one got a bonus but this unfortunately led to a lot of conflicts among the scavengers. The third system they implemented is the one that have worked best. They decided to give money for how much recyclable items they could separate by weighing the organics.

Because of their status as a CDM-project they receive 77 000 ton CO₂ equivalent (CER's) which is about 1.5 million US\$ on a 10 year credit. They sell all their CER's to the same travel agency in Switzerland who helped them with the CDM application. The travel agency's name is KUONI and they buy the CER's for 20 dollar/ton which is considered a good price according to Diana. Temesi receives little money from CDM in the beginning but its increasing all the way to the end of their CDM contract in 2018. Diana hopes the UN is willing to extend the CDM work and what she has heard the UN sees CDM as a positive and successful operation and therefore she is optimistic that it will be an extension.

Diana's opinion about the project in Suwung is that the lack of success is heavily dependent on the fact that corruption is involved, and the CDM is very strict when it comes to

corruption. She gives us an example of this when she tells us that from the beginning the project was supposed to start with two generators. For some reasons four generators were bought at once and there are rumours going on that this is because someone got paid under the table to buy four generators instead of just two. The two “extra” generators have now apparently been sold. Diana told us about a similar project that is now running in Jakarta with success. She can’t really point out the reasons why this project has been more successful than the one in Suwung except that there is more garbage coming in to that landfill and it seems like the lack of waste is a problem at Suwung. The problem here is due to the fact that many of the garbage trucks that are supposed to come to the landfill dump the waste at illegal dumpsites instead. By doing this they save gasoline as they don’t have to drive all the way to the dumpsite at Suwung and at the same time they get rid of their waste without paying any tipping fee. The problem with the illegal dumping of waste is getting bigger as people and trucks dump waste where there is no one living at the moment and reactions from the government are necessary according to Diana. One reaction could already be in place, namely a new law coming up (called nr 18 2008) that forces every region to have a sanitary landfill by 2013. A sanitary landfill is when you cover up the garbage with a 20 cm of soil every day. The only way around this is to have a controlled landfill which means you cover up the garbage with soil every second or third day. If not followed it could lead to maximum 40 years in prison. Diana has hope in the green culture that the Balinese government is working on – but she means that there needs to be more education in the campaign to make it effective.

Diana says that the economic balance in Suwung is not positive, and that there need to be a tipping fee for all trucks that dumps garbage at the landfill. Another problem for the project in Suwung is the amount of methane gas that is being extracted from the landfill. According to Diana the amount isn’t as high as the PT Navigat calculated for. One reason to this could be the sea level at the landfill. As it rises it makes the garbage wet which affects the methane gas process.

One other problem she mentions about the project at Suwung is that the technology used is too advanced she believes that the foreign investors weren’t aware of the fact that everything takes time in Indonesia. The investors didn’t have a clear picture of the culture

and Diana says you have to understand that the people, the culture and even the waste is different here. She says that the technology has to fit Indonesia and therefore Temesi Recycling try to make their project easy to replicate. They do this by keeping it a low cost, with low tech and low risk.

Diana has the view that it's theoretically possible to make money out of garbage but in practise you have to have some kind of cooperation with the government which in Indonesia makes it complicated. Diana believes that the Indonesian government didn't have a clear picture of CDM before and it took them about 1 year only to get the papers right from the host company in Switzerland. Despite this Diana has a positive picture of the government and talks about the help and good feedback they've received. Her opinion is that there has to be cooperation between the government and private sector to make a waste management project successful. The government are the ones controlling the trucks and responsible for making that part of the chain work.

Diana holds hope for the future of Bali and their waste management problems and talks about new regulations that the government is working on. She also see a bright future for Tremasi Recycling and they hope to get subsidies from the government in the future since Bali now is working hard on their green and clean campaign. There is accordingly a similar company which are getting subsidies from the government already, but Diana tells us that the company in question have to pay money "under-the-table" to get a hold of these subsidies. This makes it both complicated and questionable and Diana says it's a tricky game that Temesi Recycling doesn't want to play.

4.5 Interview with Olivier Pouillon

We interviewed Olivier Pouillon who is a Environmental Consultant and the information below is obtained from that interview.

Olivier is today working as environmental consultant, social entrepreneur and garbage man. He was doing a school related project in Indonesia 1991 and after that he went back to America to work for a NGO in New York. He found the work in an office quite boring so he went back to Indonesia and was hired by a local NGO, the Wisnu Foundation. The Wisnu Foundation had at that time recently been contacted by a large hotel complex in Jimbaran

that had severe problem with an illegal dumpsite right outside their hotel. The smoke from burning the garbage went straight through their hotel reception which led to complaints from the guests and the number of guests started to decline. The hotel had contacted the government for help but the government told them that the one responsible for burning the garbage should be the one who puts a stop to it. The hotel therefore contacted the Wisnu Foundation and asked them to take a look at the problem. The Wisnu Foundation did some research and came to the conclusion that the garbage that were burnt were actually the hotels own garbage. They had a man who collected their waste for free and he sorted out the valuable garbage and then dumped the rest in front of the hotel, because there was no “fee” for dumping at that place. This project was the first for Wisnu where they charged a client and since Wisnu is a non-profit making organization they started Jimbaran Lestari as a commercial enterprise.

Olivier says that the government is like the mafia, if you put in money to a governmental related project they do what they want with the money. Once there were 200 million IDR (approximately 16 400 €⁵⁹) invested in a sorting project but when it got down to the actual project there was only 20 million IDR left and because not many foreign company wants to invest in projects here according to Olivier. The current president have tried to fight the corruption to a certain point, but as he can't be elected again in the next election and due to the defaulted success these attempts have become fewer. As an example of the problems and obstacles the work against fighting corruption the former Indonesian corruption chief Antasari Azhar has been jailed for 18 years for a murder which many people believe is a set-up as a revenge for his work unveiling corruption among officials.

Indonesia is broken up to provinces, where every province is a small kingdom. This has led to the corruption being decentralized. Now the middlemen see their chance of getting a bit of what they couldn't before the decentralisation. Everyone tries to find ways to earn money – the competition forces you to do that, otherwise you will not be able to feed your family says Olivier. There have been hundreds of years of corruption so Olivier doesn't believe its going to change in a long time. Olivier describes the degree of corruption by saying:

⁵⁹ Valutaomräknare. <http://www.calculaterix.com/valutaomvandlare> (2011-12-03)

“If they would have put as much money in cancer research as there is money distemporing within the Indonesian government they would have found a cure”

Another problem regarding waste management in Bali is the infrastructure. There are plans on building more and better roads and tunnels and overall improving the infrastructure. At the time a project is finished there are going to be more people and many more mopeds and cars so the improvements won't be sufficient according to Olivier. A decline in the amount of motor vehicles is not likely since most people need a moped for transport to and from work and now that more people can afford one there will probably be an instant increase. The mopeds are even generating income for the government and are one of the biggest if not even the biggest income source. The tax earnings coming from vehicle registration and the penalties coming from delayed payments are of big financial importance for them.

Olivier has many reflections and opinions regarding the project at Suwung. According to Olivier the idea of collecting waste and then bringing it to a landfill is deeply rooted in people's minds, which makes them blind for other ways of managing garbage. One example is a project up in the mountains where a landfill was situated. The allocation was strategically stupid but probably someone working within the governments saw this as a good place. Olivier said it is common that when a project is being investigated there is someone involved who contacts relatives that thereafter buy the land that is prospected in the calculations. The government thereafter has to buy the land from these people who then have made a really good deal. The system is not open and transparent. It's common among workers to steal from projects where controls and oversight are weak.

Olivier says that the ones making money on the landfill are the officials working in the grey zone. All governmental workers are paid a monthly salary but it is too little to support a family, so they find ways to make 'extra money' informally. This has been given the American expression of working in the 'grey zone' since it is not black or white but in the middle. For example the workers get payments from the scavengers and others who want access to landfill. These payments aren't official and so the money goes straight into their own pockets. The governmental workers don't want things to be more formalized because that will give them less opportunities to earn money under the table. The officials at the landfill

work for the government but in an informal way. They don't want changes as right now they know what they have.

Olivier says that Jimbaran Lestari where he used to work before does enough but not more. He means that many companies that enter the environmental management business only touch the top layers which are not the lucrative part. Waste management is not lucrative in Indonesia if you compare to other countries. There are many issues to overcome from governmental corruption to poor waste infrastructure that undermine any large scale waste systems. Also, Bali is too small to be considered lucrative. Jakarta and Surabaya have more potential to be lucrative since they are very large but then the obstacles there are larger as well.

5. Analysis

We have found that the main reasons for PT NOEI not being as successful as planned according to us are; too large scale equipment relative to the waste coming in, corruption, problems in transferring technology and knowledge, differences in cultural between countries and problems in implementing Public Private Partnerships in an effective way. These reasons often coordinate and therefore we have made the choice to discuss them simultaneously, i.e. we haven't made a clear distinction between them.

According to Kumar a project like this run the risk of failure in four different stages and for us it seems to be that PT NOEI has failed in the operating state much due to a poor implementation. Implementation needs supportive capabilities like working infrastructure and legal systems says Kumar, and we can see that the lack of a proper infrastructure has had negative effects on the project. The weak infrastructure is according to Diana the most obvious reason for the insufficient stream of waste. The trucks coming to the landfill often have to stand in line for several hours and therefore many of them instead dump their waste illegally somewhere else. This problem seems to have been neglected when it comes to the choice and adaption of technology. The technology that PT NOEI uses is bought from Austria and is set to operate effectively at a certain rate of waste. Kumar thinks it's good to divide the technology transfer in to different components, where the most obvious are physical and informational. The technology problems that we already have mentioned are of the

physical character, but we've also found issues when it comes to the informational part. These issues regard lack of knowledge transfer and Bernt Bakken gave us a good example of that when he said that if something were to break down at the facility it could take a long time to get the problem repaired as mechanics has to be sent from the company in Austria. There is obviously a lack of an adequate plan for transfer of technology in the contract. Like mentioned before Kumar points out legal systems as another important supportive capability, and we see that also this component is lacking and leads to the problem of corruption.

As mentioned before corruption is a very hard issue to define, but we have tried to distinguish what forms of corruption that have been involved in this project and other similar projects in Bali. Dr. Amundsen discusses five different types of corruption and we have identified three out of these as involved somewhere along the lifespan of this project. These are bribery, embezzlement and favouritism. As we see it the most obvious example of bribery in this project is the "under-the-table"-money that goes back and forth between the public – and private sector. The project manager Made gave the example of one fixed sum on the paper which in reality is different because of a lot of bargaining and bribery. It seems to be a certain degree ambiguity when it comes to the relation between the public- and private sector. Olivier gave an example of where embezzlement seems to have been involved, namely a project where a huge sum of money were put into a public project. When it came down to the actual project much of the money had disappeared. Olivier also gave an example of what we want to define as favouritism. When a new landfill was build in north Bali the location chosen afterwards has shown to be a result of someone within the government favouring own interests. The location was in fact not suitable for the purpose but was rather a result of official favouring relatives. It seems obvious to us that corruption is a problem in Bali as we have received clear examples of when it occurs but at the same time we find it difficult to map the full consequences of corruption. We find the two latest examples of corruption (embezzlement and favouritism) to have direct negative consequences where as the example of bribery is not only a corruption issue but also highlight the complexity regarding Public Private Partnership.

Since PPP are a quite new phenomena in developing countries they run the risk of failure due to lacking institutional functions according to Mr. Abdul Quium. One criterion for a good PPP is good governance which includes accountability, transparency and decency, and we believe that the Indonesian government does not fulfil these requirements. If there were greater transparency we believe that the corruption would most likely decrease. With a greater accountability comes a responsibility from the government to not only act in the implementing phase but to also do follow ups. We feel that a problem is that the government puts money into environmental projects but then leaves the private sector responsible for running the projects. Even though many of our interviewees mentions the complexity regarding PPP they all have some trust for the government and seem to be positive for these kinds of co-operations in the future. Thereby it seems to be an opinion that the governance despite shortages still has some degree of decency. Diana says that governmental involvement is necessary when it comes to running these kinds of environmental projects with profit but at the same time she feels that it becomes more complicated when the government is involved. This doesn't mean that the private sector is all out of guilt, as they also need to pay more respect to certain aspects when going in to these kinds of projects, especially if the company is from another country. One of the most important aspects to take into considerations must be cultural differences according to us.

Hofstede agrees with us and states that the understanding of cultural differences is a key issue in management. Even if the earlier mentioned issues were to be solved there will still be an informal structure that you have to be aware of, namely the culture. The main issues regarding cultural differences that we found are time constraints due to bureaucratically processes, the situation at the landfill and corruption. Bernt said that one reason for him leaving the project was the time constraints which he wasn't prepared for when starting the project. This is also one of the differences that Kumar has found between a developing and an industrialised country. Bernt also points out the situation with the scavengers at the landfill as a problematic feature. When PT NOEI came to Suwung landfill there were already scavengers there and their role at the landfill as a natural part of it seems to be deeply rooted in the culture. Because of the insufficient social welfare it is not possible to exclude them from the landfill since gathering plastics is their way of living.

6. Conclusion

Our conclusion is that if a project like PT NOEI should be successful there has to be a lot of preparation and preliminary investigation before implementation of a biogas facility in Bali. There has to be an understanding of the cultural differences which are often more significant between a developing and an industrialised country. One big difference that we found which is especially important to take into account between the countries we investigated is corruption. Corruption gets even more significant when the project is a PPP, since corruption is abuse of public power for private benefit. At the same time we found the cooperation between public- and private sector to be useful and according to many people necessary when it comes to solving the waste management issues. Maybe the problems surrounding PPP in Indonesia is mostly due to the lack of experience so far. This is a new phenomena in many developing countries and hopefully time will make both parties more experienced and thereby it is more likely that the projects will be effective in the future. It is difficult to take technology from an industrialized country and implement it successfully in a developing country. There has to be time and money spent on the transfer of technology and knowledge on how to run the technology. We found that it is important to work with and educate the indigenous people which are the ones to run the facility after the investors left. As seen there are many problems surrounding waste management in Bali but after our field study we still believe that there is a possibility to make money out of garbage. The circumstances for biogas are good in Bali because of the high rate of organic waste and the hurry to do something about the waste problem.

7. References

7.1 Printed sources

Esiasson P, Gilljam M, Oscarsson H, Wägnerud L (2007) *Metodpraktikan*, Vällingby, Norstedts Juridik AB

7.2 Articles

Amundsen, Inge. Chr. Michelsen. (2000). *Corruption – Definitions and Concepts*. Report commissioned by NORAD. (Chapter 2)

Ashwin Mahalingam, Ganesh A. Devkar and Satyanarayana N. Kalidindi. (2011). *A Comparative Analysis of Public- Private Partnership (PPP) Coordination Agencies in India : What Works and What Doesn't*. Public works management & policy 2011 16: 341 (Page 342)

Fagrell, Andreas. (2004). *Korruption i övergångsländer*. Report by student at Lunds Universitet. (Page 15)

Hofstede, Geert. (1983). *The cultural relativity of organizational practices and theories*. (Page 75-89)

Kumar U, Kumar V, Dutta S, Fantasy K. (2006). *State sponsored large scale technology transfer projects in a developing country context*. J Technol Transfer (2007) 32:629–644 (Page 629-637)

Transparency International. (2011). *Global Corruption Report: Climate Change*. (Page 1-34)

van Nes W. J, Tumiwa F, Setyadi I. SNV Netherlands Development Organisation. (2009) *Feasibility of a national programme on domestic biogas in Indonesia* (Page 12-16)

Quium A. (2011). *A guidebook on public-private partnership in infrastructure*, ESCAP (Page 2-25)

7.3 Internet sources

Biogasportalen, *Produktion*, Available online: <<http://www.biogasportalen.se/sv-SE/FranRavaraTillAnvandning/Produktion.aspx>> (2011-04-15)

Biogasportalen, *Vad är biogas, biogasprocessen*. Available online: <<http://www.biogasportalen.se/sv-SE/FranRavaraTillAnvandning/VadArBiogas.aspx>> (2011-04-15)

Bernt Bakken, Workshop on landfill gas development and the cdm. Available online: <<http://siteresources.worldbank.org/INTINDONESIA/Resources/226271-1125376763288/1607524-1125376945368/NOEI-Bernt.doc>> (2011-04-18)

CDM – Executive Board. (2006). Clean development mechanism project design document form CDM-PDD), version 03. Available online: <http://cdm.unfccc.int/filestorage/E/B/D/EBDNBGP2F7QV9CJHR6PI3678XIOZB4/NOEI%20PDD.pdf?t=Y1Z8bHd4MGJ5fDAhiHC3EKubjulQ_xykEew3> (2011-04-13)

CMI CHR. MICHELSEN INSTITUTE. Available online: <<http://www.cmi.no/staff/?inge-amundsen>> (2011-05-23)

ecoBali Recycling. Available online: <<http://www.eco-bali.com/pages.php?lang=en&ID=3&subID=7>> (2011-09-27)

Europa – summaries of EU legislation. Available online: <http://europa.eu/legislation_summaries/fight_against_fraud/fight_against_corruption/l33301_en.htm> (2011-05-20)

IDEP Foundation – local NGO in Bali. Available online: <<http://www.idepfoundation.org/>> (2010-10-11)

Landguiden.se. Available online: <<http://www.landguiden.se.ezproxy.ub.gu.se/>> (2011-02-16)

Levine D, Gilberthttp A. (1999). *Managerial Practices Underlying One Piece of the Learning Organization*. Available online: <www.irle.berkeley.edu/cohre/knowledge.html> (2011-04-20)

My Climate – protect our planet. Available online: <<http://www.myclimate.org/en/carbon-offset-projects/international-projects/detail/mycproject/18.html>> (2010-10-11)

Transparency International – the global coalition against corruption. Available online: <http://www.transparency.org/news_room/faq/corruption_faq> (2011-05-20)

Travel Channel. Available online: <http://www.travelchannel.com/Places_Trips/Destinations/Oceania/Indonesia/Bali/Historical_Background> (2011-09-27)

Tsang Eric W.K. (1997). *Choice of international technology transfer mode: a resource-based view* Available online: <http://findarticles.com/p/articles/mi_hb3265/is_n2_v37/ai_n28690205/> (2011-10-12)

UNFCCC, *Clean development mechanism (CDM)*. Available online: <http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php> (2011-04-09)

UNFCCC, *About CDM*. Available online: <<http://cdm.unfccc.int/about/index.html>> (2011-04-09)

UNFCCC, *Designated national authorities*. Available online: <<http://cdm.unfccc.int/DNA/index.html>> (2011-04-09)

Valutaomvandlare <<http://www.calculaterix.com/valutaomvandlare>> (2011-12-03)

Widodo T.W, Hendriadi A. *Development of biogas processing for small scale cattle farm in Indonesia*. Available online: <<http://unapcaem.org/Activities%20Files/A01/Development%20of%20Biogas%20Processing%20for%20Small%20Scale%20Cattle%20Farm.pdf>> (2011-05-15)