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Evaluation method of Non-profitable project - Case study of Health clinic on Rusinga island, Kenya

Bachelor thesis

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Abstract

Křížová, T.: Evaluation method of nonprofitable project – Case study of Health clinic on Rusinga island, Kenya, Bachelor thesis, Brno 2016

This bachelor thesis deals with the non-profit project and its evaluation. The work is focused on the evaluation method and its application. The goal is to select the best approach for the evaluation of this type of project and apply it to a case study in the medical centre on Rusinga island in Kenya. The theoretical part is focused on the meaning of terms associated with projects and the evaluation and understanding of evaluation methods. Methodological part theoretically describes in detail the various steps in the method selected Cost and Benefits. The practical part deals with the evaluation of the effectiveness of theabove mentioned project. Whereupon focuses on both quantifiable and non-quantifiable on costs and benefits. Quantifiable costs are quantified using indicators of criterial. Incalculable costs are explained and analysed by their importance. The overall evaluation of the effectiveness of the project involves both interpretations indicators and the impact of invaluable benefits of the project.

Keywords

Abstrakt

Křížová, T.: Evaluační metody neziskového projektu – Případová studie zdravotní kliniky na Rusinga island, Keňa, Bakalářská práce, Brno 2016

Tato práce se zabývá neziskovým projektem a jeho vyhodnocením. Práce je zaměřena na hodnotící metody a jejich aplikaci. Cílem je vybrat ten nejlepší postup pro evaluaci tohoto typu projektu a aplikovat jej na případovou studii projektu zdravotního střediska na Rusinga island v Keni. Hlavním cílem je určit všechny náklady a přínosy projektu. Teoretická část této práce je zaměřena na význam termínů spojených s projekty a vyhodnocení a pochopení metod hodnocení. Metodická část teoreticky podrobně popisuje jednotlivé kroky ve vybrané metodě nákladů a přínosů. Praktická část se již zabývá hodnocením efektivnosti výše zmíněného projektu. Při čemž se zaměřuje jak na vyčíslitelná tak na nevyčíslitelné náklady a přínosy. Vyčíslitelné náklady jsou kvantifikovány pomocí kriteriálních ukazatelů. Nevyčíslitelné náklady jsou vysvětleny a je analyzována jejich důležitost. Celkové vyhodnocení efektivnosti projektu počítá jak s interpretací ukazatelů, tak s vlivem neocenitelných přínosů projektu.

Klíčová slova

Content

List of abbreviations

CBA .... Cost-benefits analysis

CEA ....Cost-effectiveness analysis

CMA .... Cost-minimization analysis

CUA .... Cost-utility analysis

EDF..European development fund

LDC .... Less developed country

PV ....Present Value

SWOT ....Strengths, weaknesses, opportunities, threats

Introduction

In the present society a great emphasis is put on the efficient use of public resources, the practical impact of this trend is reflected in all aspects of human activity. Methodology for evaluating projects that aim to be profitable is highly sophisticated, effectiveness clearly determinable and measurable, investors such as people who devote their resources, are able clearly evaluate the success of invested funds and on that basis, additional funds expandmore effectively in the future. But then there is a whole range of other fields where we cannot expect clear financial benefits, which are uncompetitive within the market mechanisms and still absolutely necessary for this world to function. Due to the lack of public and private resources directed into this field evaluating of the effectiveness is the necessary precondition for the sustainability of the model to support these activities and assurance for providers. Currently, there are many non-profit organizations that implement a number of projects and a lot of taxpayer´s money and private funds as well are spend on their implementation. We were often informed by the public media about the abuse of funds for humanitarian purposes to enrich individuals, which can then lead and definitely leads to some caution, ending up in dislike of certain people or institutions to spend money on humanitarian purposes. In order to potential donors be able to decide for some of these projects it is essential for them to have the opportunity to evaluate their effectiveness, compare benefits and to make sure that the money really helped. Therefore, it is very important to focus on evaluating the effectiveness of non-profit projects and so I have decided to devote my thesis to this issue. So that these funds are spent effectively, we need to focus on their evaluation, particularly the evaluation of efficiency and thus ensure effective use of the funds. Because of the wide range of these activities, measuring the benefits is very difficult and highly problematic. Yet in my opinion, it is necessary. As I have already stated, predictive value of evaluation techniques is questionable, because a lot of effects are hardly measurable. I have decided to deal with the measurement of the effectiveness of non-profit projects in this thesis and point out the most suitable methods and their limits.

1   Literature Research

1.1   Project

The projects are discussed in relation to many subjects and issues. Whichmeans that, it is important to lay out the first definition of the project, which will suit the project described and investigated in this work. Of all the definitions given me on the issue complies with the most "project time, cost and resource-limited process implemented in order to produce defined outputs" (Doležal, 2012).

If we want to look for more precise and concise definition of the project, we can rely on other definitions, for example, mentioned in the publication Managing projects, that looks at the term project in detail, unlike Doležal. We can say that the project should always be definitive and should have a specified time limit. Furthermore, the project should be given a budget and must meet a specified date. The project requires the cooperation of different people and use of different sources and it is always necessary to take into account the risk that the project will might not succeed. Of course, all projects can be divided into certain stages, which it comes through from their inception until their completion (McPheat, 2010).

As essential for the project at the beginning there are the three variables, namely time, budget and costs. These three variables are linked mainly from the perspective of financing and feasibility of the project. They are usually also used as standards for control of interim goals and their actual performance during the project itself. You could say that the success of the project is also sometimes measured by the preference for the time perspective that respects lower total cost of the project, therefore depending on how much they manage to observe the deadline (time) and the cost of the project. When it manages to make these two variables meet, it is considered as a success by most managers (Larson, 2014).

1.1.1   Phases of project

When the developers already define a project and they know what they want to invest into, where and how the realization itself will happen, what services they will provide

and how investments will continue to operate, has been so clear about investment objective and may begin with its implementation. Investment plan must be characterized accurately, precisely because the subsequent evaluation is derived from it (Doležal, 2012).

The first and most important part in project management is the determination of its parts and the way of procedure. Following the procedure generally according to the general scheme in which the first phase is a pre-investment. In this phase it is judged whether investments should be implemented or not. The cost of this section is to quantify effectivity project cannot be included because they would occur anyway no matter if the project has been implemented or not. When the situation is assessed as suitable for the beginning of the project the investment phase starts. The investment plan is implemented into investment phase. This phase ends when commissioning of project (Sieber, 2004).

Picture 1 Phases of project

| Initialization phase | → | Planning phase | → | Implementation Phase | → | Termination phase |
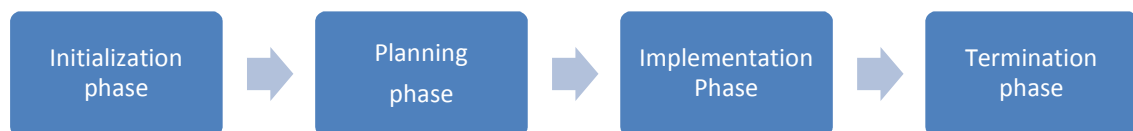
Source: own processing based on data (Doležal, 2012)

Life of the project describes the operating stage. In this part the project brings the most benefits, when there is a positive balance between the cost and the benefits.

In the operational stage there is a period from the start of operation of the project after its completion, sometimes also called the lifetime of the project. At this stage, revenues should exceed expenses resulting from the project and the resulting "net income" received during individual years of operation, the project should be covered at the same time and preferably also outweigh the expenses incurred in the investment phase. The last phase in which the project is no longer engaged in is called the liquidation phase.

Still, there may be the existence of costs and revenues, and unlike the pre-investment phase this must be included in the evaluation of investments (Doležal, 2012).

1.1.2   Issues of development project

1.1.2.1   Definition of development

The development can be defined in many ways. According to the Oxfam, British, non-governmental organization, ability to decide over a quality and conditions of people's life as well as determine their values is vital. Therefore Oxfam labels crucial element for the development as "empowerment."

Amartya Sen (1997) see this as a process in which people's options how to live their lives is expanding. Although these options can alter, new options can be discovered, or old ones can disappear, there are some options that are essential for every level of the development. For example, to live a long and healthy life or possibility to reach resources, this can ensure a dignified life and acquisition of education. These three options are essential for the development and a further advancement loses its meaning for whoever doesn't have them. Over time these options were concretized to seven levels by United Nations Development Programme. Those are as follows: economic, personal, alimentation, medical, societal, environmental and political (UNDP, 1994).

Issues of development and economic development are overlapped most of the times but the meaning of economic growth and economic development are usually swapped. Although the first impression might be that these notions seem identical, they aren't. Economic growth, therefore growth of goods and services may usually lead to development but it isn't a rule. If the economic growth targets a sector which doesn't affect quality of life or is focused only to a tight group of targeted subjects, the overall quality of life in the country won't be changed. Economical growth is measured per head or as a whole country. On the other side, it includes far wider domain, which is really difficult to measure. The Human Development Index (HDI) is most often used in the measurements (Syrovátka, 2008). Economical growth is focused on the quality of life and factors that affects it. The most important aspects that influence the quality of life are indisputably health and education (Samuelson, 1991).

1.1.2.2 Development aid

Development is complicated for many countries. Developing countries struggle with a deficiency of money sources, know-hows or material goods. Developed countries offer aid, which is commonly funded from public budgets of donor countries. These generally aren't just a random one-time-only aids but projects creating a structure of wider governmental policy. In this context we can call it as developing countries' policies (Rozvojovka, 2011).

1.1.2.3 Development projects in Kenya

Kenya has been considered as a less developed country (LDC). Less developed country is country in which a national pension per capita is much lower than in so called developed countries which for example are countries of North America and most countries of Europe (Samuelson, 1991). Recipients of aid are mostly inhabitants of agricultural areas of Kenya. Sometimes, recipients are local corporations and initiatives, although the main objective is aimed to help the population. Mostly, the development aid in Kenya is focused on two sectors: education and health. Recently there was an increase of investments to support families and prevention and spreading of know-how (Centrum Narovinu, 2015). There were also frequent technical and technological projects lately as it has been proved that effort to find and implement sources of energy as much available as possible and build water treatments, where the contaminated water is one of the reasons of the high death rate, has a huge effect in the future.

In the education, tremendous challenge is to make it accessible to as much people as possible. The problems aren't only the education level in schools and a lack of funds, even though that these are immense issues in the education in Kenya. Among other problems there is early pregnancy of girls or families which don't want to be educated as they need help in their households. Tribe society in Kenya seems to be an advantage in these cases but sometimes it cause difficulties. Mainly in areas where several tribes blend into each other it's a problem to implement some effective aid because people demand education or any other aid for their own tribes but not for others (Centrum Narovinu, 2015).

Most important development projects are connected with health of population. Health is classified among the most crucial conditions for prosperous economical and cultural development of individuals. For example HDI sees health as one of three main conditions of human life (UNDP, 2005). Common development's objectives are attempting to improve health of mothers, subsequently to decrease death of infants and battle with serious diseases such as malaria, tuberculosis or HIV/AIDS (WHO, 2014).

1.1.3   Profit and Non-profit projects

Diferentiating of profit and non-profit project could be done in five dimensions. First of them are responsibilities. In profit project are responsible for project the shareholders and top managment, but in non-profit ones the main responsibility lies on donors, volunteers, foundations, the governemntal agencies etc. who supply funding of the project. Great difference is notable as well in next dimension which is labour base. Mostly professionals who are well paid are working on the profit projects. As far as non-profit projects generate no profit, they as well deal with the problem to pay staff. In this case are the volunteers the staff working on this type of project. Needed professionals are frequently underpaid to meet the budget constraints. Third dimension is the income of the project. When the project generate profit from its own businesses, there is no need to further financing. Non-profit project are visibly struggling with financing. In most of cases finances comes from various sources, these are for example contributions, government fundings or grants. As the fourth one is considered the time or commitment, which is in profit projects consistent. On the other hand non-profit projects commitment is variable according to volunteers. Last but not least dimension is knowledge. We can say that in profit project is knowledge focused on certain area and in non-profit ones it varies a lot according to management,volunteers, founders or financing (Dinsmore, 2011).

In the non-profit project that aims to provide social services, we can use statistical information or data collection, which we then give information about the number of the users of these services it directly affect, or to improve the living situation of the users in order to evaluate whether the project set targets successful.

The main objective of the projects in the market environment is the generation of profit. Given that non-profit organizations as its name suggests are not oriented to profit so their output is a benefit. This benefit can take many specific forms, for example as a public service or priority of market in the sector is to achieve financial gain. For non-profit organizations focused on achieving direct the utility usually in the form of public service.

1.1.3.1   Development support from public sources in Czech Republic

It is the provision of funds from public budgets, public institutions, state and local governments. This system is based on state subsidy policy and includes in addition to grants also procurement contracts for the provision of services, but also subsidies for law in church organizations, public and private schools.

There is no legal entitlement on the provision of grants and civic associations and public benefit corporations it is possible to obtain subsidies from the state budget or the budget of the municipality (Pelikánová, 2016).

First, there is need to shortly address treatment of public sources from European Union funding development projects, and then given that my thesis deals with funding project from the Czech Republic and Slovakia I would like to focus on this treatment.

The European society funds development cooperation from two sources. Out of European Union's budget is funded development aid outside the ACP countries (Africa, Caribbean, Pacific). Member states are contributing to the European Development Fund, the oldest financial instrument for development cooperation, by established quotas. Those are influenced, for example, by the size of their gross domestic product. Payment is done via grants and second instrument which is administered by the European Investment Bank and directs funds through loans to support private investments (FoRS, ©2016).

I would like to focus on the situation in the Czech Republic and the Czech legislature, because the project, which I will discuss, was funded by grants from the Ministry of Foreign Affairs of the Czech Republic.

Since 1. 1. 1999 it is already not possible to provide state subsidies to foundations and endowment funds. Financial relations with the state budget is governed by Act no. 576/1990 Coll., The law of Czech National Council on rules concerning budgetary means of the Czech Republic and municipalities in the Czech Republic (On budgetary rules of the Czech Republic).

The funding is given purposefully, and fundamentally on concrete actions, programs or predetermined areas of need. Part of the provision is to develop a project of the non-profit organization. For civic associations, it is possible to provide subsidies, which are distributed through specialized central state administration bodies, as called professional principle.

The distribution of subsidies to individual central authorities on the amount of funds for each chapter decides the Czech Parliament. Allocation of subsidies is not supported for several years, but this is already evident from the annual budget setting where you can not accept commitments for multiyear periods.

For the project to receive the required grant, a proposal must go through a selection process and meet the conditions set by the Ministry of Foreign Affairs of the Czech Republic. These criteria fall into six groups. The first relates to the data of the project and the formalities which must be complete, high quality and apparent. The second is relevance, it must be fulfilled in two levels, the project must be relevant to the specific needs of the affected country and its population as well as relevant to international principles of humanitarian assistance and humanitarian priorities of the Czech Republic. The other is to determine the benefits of the project, which must have clearly defined objectives and must be characterized how the project resources and strategies will contribute to achieve those objectives. The fourth important criteria is the effectiveness of the project. In other words this means reasonableness of the expenses to the expected outcomes, and consideration of other funding sources. The fifth criteria is sustainability, e.g. the extent to which the project will contribute to the local community, or what links to other activities may the project have or vice versa. The last criteria is concerned how well is the organizational support of the project (MZV, 2006).

1.1.3.2   Private sources

These are contributions of the private sector and individuals. Donations and contributions from the private sector can often mean a regular income of non-profit organizations and it also may often be a large amount. Unfortunately, there is often a misuse of funds or corruption. Also the motives of donors are always important, as they are often business moves and strategies of the companies to influence potential clients. Problematic is the situation where large companies can often change management and decide that donations will go to another organization or project.

On the other hand, individual contributions can be described as small but regular amounts of money. Their greatest disadvantage is precisely that they are small. We also need to take into account that individuals are as most average consumers influenced by media promotions of non-profit companies and their projects, thus contributing mostly to large organizations and are not often even interested where specifically the money is going to. Motivation of individuals is most often an effort to help either people who has it worse or for some other "good doing". Regular is also a situation where people find this as some sort of repayment of the society. Then there is a group of people who want to raise their social value in the eyes of society witch contributing. And the last case is only one-time only contributions.

1.1.3.3   Indirect sources

We understand the indirect source as tax and fee reductions to NGOs. These concessions may be NGOs, for example, in income tax. Current act on income tax of non-profit entities providing from 300 000 CZK up to 1 mil. CZK tax base significant benefits (section20, paragraph 7 of Act no. 586/1992 Coll., On Income Tax.).

1.1.3.4   Own activities as a source of financing and volunteering

Finance from own activities, tend to be smaller, however, an indispensable resource for nonprofit organizations. Under the term own activities, we can imagine the sale of goods, finances stemming from advertising or renting their own space. Own activities can be sort of a substitute for an insurance for non-profit organizations that have only

one significant source of funding which they can lose whenever. It works as the main source of financing when starting organizations or organizations with no executive management components have not yet been able to get money from outside sources, and thus tries to finance itself.

Since we're talking about non-profit organizations, we must also take into account the importance of volunteering, which is essential for many organizations and it determines their existence.

A volunteering is a person's activity which takes his/her time, his/her energy, knowledgeand skills without any financial rewards but for the benefit of others or society (Tosner, 2002).

Volunteering is limited by age, in the Czech Republic there is a basic legal limit of 15 years when volunteering in the Czech Republic and full age of consent, is 18 years, in terms of volunteering abroad. We can divide it into one-time and long-term. As its names implie long-term may take a longer period of time, even several years. Often we cannot imagine under this term that the work is completely free. In many cases the volunteers are get various advantages or minor salary. In today's society, however, dominates the market way of life and it is unimaginable for many people to do the work for free, for us it is mainly influenced by the approach in the communist era. We can speak about the longer volunteerism and its development, in Czechoslovakia or the Czech Republic only after 1989 (Novotny, 2008).

1.2   Methods of analysis and evaluation

1.2.1   Evaluation

The notion of evaluation is crucial for my work, so I decided to deal with it in detail. The word derives from the Latin verb "valere", which is to have dignity and be strong (Velfel, 2010).

For the definition of evaluation, I have chosen three following definitions.

The simplest one says that the evaluation process is the systematic collection and analysis of information according to specific criteria for further decisions (Ehlers and Pawlowski, 2006).

Similarly, evaluation was defined by Boulmetis and Dutwin, but with an emphasis on data and data collection. They say that evaluation is a "systematic process of data collection, which helps identify the strengths and weaknesses of the program or project" (Boulmetis and Dutwin, 2005).

This definition seems to me as most appropriate for the issues of my thesis, and so I will only add a view at the complexity of information and evaluation processes. According to Stufflebeam and Shinkfield it is a "*systematic process of defining, acquiring, reporting and application of descriptive and evaluative information about the benefits, value, integrity, feasibility, safety and the importance of an object*"(2007).

So we could talk about the concept of evaluation, it must cumulatively meet three requirements. It must be designed to improve the practical measures and their legitimization therefore must be oriented practically. Further**,** it must be based on solid data which will ideally as accurately describe the conditions, processes and effects of evaluated subject. Finally, the evaluation with the help of set criteria and rules expresses specific value or values (Ehlers and Pawlovski, 2006).

Development evaluation

Concept of evaluation can be subsumed with more specific term that absolutely follows the aim of this thesis. According to the OECD the Development Evaluation is "the systematic and objective assessment of an on-going or completed development intervention, ITS Design, Implementation and results. In the development context, evaluation Refers to the process of Determining the worth or significance of a development intervention" (OECD, 2010).

We can also divided evaluation into three types according to time when it is conduct.

- Ex-ante evaluation

Ex- ante is so called pre-project analysis. It includes the selection and assessment of project management strategy and consideration of effectiveness of the project while taking into account the SWOT analysis, which allows to deal with both the strengths and weaknesses of the project and its future opportunities and threats, thereby greatly facilitate decision making in early stages of the project, whether the project is worth starting with. Ex- ante analysis results can then be used in monitoring the performance of individual project phases. The subsequent evaluations are also derived from ex- ante which discover to what extent the expected outcomes of the project were filled and it is also trying to find out to what extent the project is effective (Boardman, 2001).

- In medias res evaluation

Interim or also in medias res is the evaluation of the project in progress, therefore only in its realization. It deals mainly with project management and continuous fulfillment of goals in each project phase. It is especially beneficial in improving the quality of management, so to avoid permanent time diversion, or other financial discrepancies of the project. This could in fact subsequently lead to premature termination of the project (Boardman, 2001).

- Ex-post evaluation

Ex-post evaluation isused after the termination of the project. Its intent is to recap and analyze the effectiveness of the project. It is useful for both, the managers who led the project and for the evaluation of other projects which might draw in their management from the ex- post analysis of already realized project. It is the most complete form of project analysis (Boardman, 2001).

1.2.2 Evaluation of profit investment projects

Substantial problems are associated with the still expanding number of potential applications. This rapid development in the number of planned and implemented projects faces growing needs of methodologies directly applicable in practice, which would allow a comprehensive views of the project management, and at the same time it

could find the answers to each of the specific cases occurring in the present. Great attention should be paid to the different methods, their speed and efficiency in practical use. Each investor needs to know when and what to evaluate and when to use which method. One will be meaningful counting profitability for non-profit projects and another for business investment projects. So it is always about the priorities of the particular project and the need to find a formula in the form of a system of evaluation criteria for a successful project.

The very success of project management, as written above, differ primarily in the type of project that we evaluate. For a better understanding of the project it is necessary to understand its strategy first. This can be done, for example, with SWOT analysis or by using Boston matrix (Dolezal, 2012). The success of the project can also be measured also by correctly stated goals. The so-called SMART goal should meet five requirements. It should be specific, measurable, accepted by all stakeholders, and realistic so that it can be completed, and timed. Time and setting out the terms for the project are very crucial and the others would have if it were not meaningless. Time and setting out the terms for the project are very crucial and the other things would be meaningless without it. On the principle of time itis also so-called Triple Constraint project management. It is built on the interdependence of the variables of time, resources and results. The aim is to maximize the result with the least amount of resources and time (Svozilova, 2011). Triple Constraint can be viewed as an equilateral triangle, with each vertex equaled as one variable. In this graphical display the SMART objective can be seen as a point anywhere in space triangle. Its location is dependent on the proper definition and the factors influencing the course of the project (Dolezal, 2012).

Projects can be evaluated in two ways. The first viable way is a post-project evaluation (Giro, 2015). This phase takes place after the successful conclusion of the project. The main project manager makes the final analysis, to reveal how the project was delivered. The final analysis may vary from project to project. In most cases, however, it begins with the critical success factors. If we are speaking about the investment project, it is necessaryto focus on financial criteria. In view of this it is worth focusing mainly, in my

opinion, on the most suitable methods ROI, NPV and IRR or method break even point (Dolezal, 2012). As methods of evaluating the projects I presume the most appropriate are post implementation system analysis, Pareto analysis and Ishikawa diagrams (Dolezal, 2012). Another form of evaluation of the project is continuous monitoring. When tracking the project, its ongoing monitoring may lay out instruments to monitor compliance of Triple Constraint. These instruments are hierarchical structure, activities and estimated cost for each activity. The hierarchical structure of the activity is in other words a network graph which shows the entire hierarchical structure of the project. Together these instruments indicate how the project should advance. This plan allows control over the project. Any deviation from Triple Constraint must necessarily cause counteraction as a correction, thus keeping the project within the confines (Rosenau, 2000).

1.2.3   Evaluation of non-profitable projects

Table 1 Methods of evaluation of nonprofitable investment project

Method	Measuring of costs	Measuring of outputs	Criteria
Cost-minimizing analysis (CMA)	Units of value	Not measured	Lowest cost, respectively. price, subject to the required standard
Cost-benefits analysis (CBA)	Units of value	Units of value	The highest net benefit, respectively. the ratio between costs and benefits
Cost-effectivness analysis (CEA)	Units of value	Natural units	Lowest cost per monitored natural unit
Cost-utility analysis (CUA)	Units of value	Usefulness	The highest rate of benefit with respect to cost

Source: Ochrana, 2005

1.2.4   CMA-cost-minimization analysis

CMA analysis is characterized by simple minimization of costs. At first sight it does not fit next to the other four methods, because it addresses only the costs. However, according to Ochrana (2005) a practical application of CMA does directly affect the cost-utility analysis. It may be used for evaluation when there are multiple variants "reaching" to preset standard. Practical use can be found, for example in public tenders or contracts. Furthermore, this can be defined in the standards of public services. The criteria of minimum cost can be used as the ultimate criteria between variants that meet

the preset standards. Therefore, the chosen variant would have, according to this analysis, the lowest cost of all variants on the shortlist.

In practice, however, the use of this method is more difficult. Usually the costs are not the only crucial thing, but also the quality (ratio of benefits), that the variant that will bring. When we would re-invest to the selected variant with lower cost much earlier than in the other variants with higher costs, of course, this option wouldnot pay off in the end. Therefore, future plans should be taken into account.

1.2.5   CUA-cost utility analysis

Significant cost-utility method is the CUA. It can be used on a wide range of spending programs and public projects. Originated with connections with health and economic analysis and it is a method consisting of CEA and CBA which are discussed below. The result of this analysis is transferred to the quality of converted years of life (QALY). The essential difference between CUA and CEA is that there are two outputs from CUA, extra number of years and quality of life. Comparison is made through cost-effectiveness of the monetary unit as with the CEA (Ocharana, 2005).

1.2.6   CEA-cost-effectiveness analysis

CEA compares project costs and effects of interventions and assesses the extent to which investment can be regarded as beneficial and thus inform empowered authorities if resources were allocated efficiently. It is most commonly used when comparing health expenditure programs resultsof which saved human lives. This use seems to be the only possible way of determining the cost of a human life, due to the fact that the cash value, which would save human life expressed in the CBA is from ethical and social aspects impossible. Another fundamental difference between CEA and CBA is assessing externalities and costs of missed opportunities, from which the CEA disregards completely. CEA therefore doesn't solve the economic rationality of the costs incurred (Ochrana, 2005).

Factors important when considering using CEA are direct costs, costs to increase productivity, and intangible costs. Direct costs in this case may be divided into medical costs (equipment, medicines, staff time of medical equipment) and patients costs (transportation, cash outlays). Costs to increase productivity means the loss of production or other use of time. Last, intangible costs are very difficult to quantify, as they are for example pain, suffering and adverse effects (Phillips, 2009).

According to WHO CEA is most effective when there are selected several goals and their effectiveness is evaluated individually (Edejer, 2003).

While evaluating the variations, CEA examines the present value of the cost of programs measured against the effect of genuine expenditure program.

The result of the analysis is a cost-effectiveness ratio (CER). Expenses areunderwood as monetary units. Effects of the project usually means the number of lives saved or the number of years of life that the project brought (Muennig, 2016).

$$CER = \frac{Costs\ of\ the\ project}{Effects\ of\ the\ project}$$

1.2.7   Cost-benefits analysis

I am using the cost-benefit analysis in my thesis. This method relies on neoclassical economics and it is derived from the so-called social efficiency, which is then converted to the effectiveness of economics. Social efficiency is defined by welfare economics. It can be understood using many criteria. If we focus on the definition by welfare, the project is effective if it increases the welfare of at least one person, without reducing the welfare of another. The pitfall of this definition is that, in a practical sense rarely comes to a situation where the project isall simply an extension of everyone's welfare.Usually benefit of one as also reduse the welfare of another individual. This criterion is called the Pareto criterion of efficiency. It is an efforts to reach Pareto optimality, which is the condition where you cannot increase the well-being of any member of the society without compromising the well-being of any other member of society.

Kaldor-Hicks compensation criterion is one which can already be applied without difficulty of social efficiency, so the results are decisive. Thus, when we use this

criterion we can say that even the project that is based on the compensation of losses of some against the benefits and welfare of others is socially effective. The project is socially effective, if it brings benefits to more people than losses.

CBA methods can be divided into so-called "narrow" and "broad". The narrow is quantifing the direct costs and benefits. Direct costs and benefits can also be defined as those that apply straight to this investment. Broad CBA method, already includes all the social costs and benefits. Unfortunately, broader CBA is much more challenging because it is very difficult to quantify these costs and to take into account externalities, which could be or which already affect the project.

Analogy to CBA used in commercial projects is the financial analysis. When non-investment projects cannot be used for the evaluation of the economics of return of initial investment. Unlike financial analysis, which could be simply defined as cash flow monitoring and its evaluation using economic indicators, CBA is aimed at not only economic benefits, but also more difficult to quantifiable benefits, mainly for the welfare of society. The actual evaluation is based on question: When there are profits from benefits? (Vojacek, 2012). This moment can be described as a moment when we are willing to give up some alternative option, which we appreciate, for another that we appreciate more (benefit). However, it is necessary to measure some how this obtained benefit. Quantifying proceeds by transferring benefit to the cost, eg. cost comparison, we had to spend to get the benefit. For this measurement use of money or cost of missed opportunities. According to Vojacek (2015) we can measure benefits as:

- willingness to pay to obtain them

- willingness to accept compensation for us to give them up

And expenses as:

- willingness to accept compensation, for bearing the costs

- willingness to pay in order to avoid costs

2 The aim

The aim of this study is to evaluate the non-profit project health center on Rusinga island in Kenya in terms of cost-benefit analysis, and highlight the strengths and pitfalls of analysis for determining its use. The partial aim is to quantify the costs and benefits and then calculates the criterion pointer and then evaluate the overall effectiveness of the project. Performance analysis is in some years, the processing of the clinic, taking into account the costs and benefits from a broader perspective and important stakeholders.

3 Methodics

3.1 Procedure

The bachelor thesis is divided into two main parts, the theoretical and the practical one. The Introduction and Aims part stresses the ultimate goal of this thesis and explains the situation and background of the whole problem, which is essential if one wants to understand this issue. This part also contains descriptions of methodical approaches, data collection and organization of the thesis. The Literary Research part defines all crucial terms that are used in this work. It also includes comparisons of opinions of various authors and the topic is presented from the viewpoints of other theses, as well as through the prism of scientific and legislative documents.

The two methods that are most in line with my analysis are CEA and CBA. Unlike CBA, CEA is more suited for use in a medical environment – it includes calculation of non-quantifiable costs in a form of non-monetary units, and so it can appear more applicable to this case. However, it has its drawbacks – it does not quantify quantifiable benefits in the same units and it does not evaluate the economical effectiveness of costs. On the other hand, the CBA method enables to assess the crucial benefits of the project in financial units. This assessment is the baseline for the comparison of costs and benefits; in turn, current values of costs and benefits determine the economical effectiveness of the project.

Therefore, I chose the Cost-Benefits method for the analysis. As to non-quantifiable costs, I commented on them and analyzed them in evaluation questions that I posed. I calculated criterial indicators and interpreted them, and I concluded with the evaluation of the effectiveness of the whole project.

3.2 Data collection

The collected information and data presented in the theoretical part come from articles and scientific literature. All the data used in the practical part were obtained from the founding organization – the Centrum Narovinu – both from financial and project documentation, with additional information provided by the Ministry of Foreign Affairs

and SlovakAid. Secondary data from an organization that are used in my thesis, werefrom years 2009- 2015. Other data were obtained mainly from official reports and press releases of international organizations. The information on prices in nearby hospitals comes from the statistics of the Rusinga island community center; it was later verified during field surfy by contact person on the Rusinga island in Kenya. Because data in a field such as this (health care) and in a developing country such as this one (Kenya) are especially difficult to obtain, I was forced to collect them from on-line sources, press releases of international organizations and the statistics of the Centrum Narovinu. The founder of this center, Mrs. Dana Feminová, got in touch with me and provided me with important information and data on the project and on the overall situation in the region. She also explained the context of development aid to me. All the data used in the practical part come from the founding organization, from their annual reports and from their financial and project documentation; additional information was provided by the Ministry of Foreign Affairs and SlovakAid. They cooperated with me quite enthusiastically, and also commented on the data. Furthermore, I personally went to the Centrum Narovinu several times and used the free conversation method with Mrs. Feminová. Other information was obtained through electronic and phone conversations with Mrs. Feminová and with the coordinator in Kenya.

3.3   SWOT analysis

In order to truly understand a project, one also has to determine its strong and weak points and aspects. The most effective method of doing this is the SWOT analysis, which can often present the project in a new light (IJIAR, 2014). When applied to the evaluation method, it can also lead to new strategies of evaluating the project, and it can tell us (very early on) what problems we would have to face with this particular method and whether there is a solution or not. Therefore, this analysis can further our understanding of the project and show us potential pitfalls which we can then avoid (Academic journals, 2011).

This analysis was created by Albert Humphrey in the 1960s while he was teaching at Stanford University.

The method works in the following way. Strong and weak points represent the internal factors of the project, while opportunities and threats monitor the external environment and its influence on the project. If we want to find the right values, we have to pose the right questions. For example: when evaluating the strong points, we could ask what makes the project unique. It is important to look at the project both from the perspective of the interested party and from the outside. Weak points can also be defined as the most serious drawbacks. These can be defined both in relation to competition and in relation to internal findings made during the project. In this case, the question is: what we could improve upon in this project?

Opportunities can be used both to determine the future development of the project and to evaluate if it was to invest in it; therefore, it is better not to underestimate this part. Opportunities can also help us eliminate weak points of the project. The question might be something along these lines: what trends seem to beuseful for our project?

The last part – threats – is there to prepare us for all possibilities. We can take them into account in the planning phase and react to them appropriately if needed. The question heremight be, for instance: is there any planned negative legislative change that might threaten our project (IJIAR, 2014)?

3.4   Cost and benefits analysis

When deciding which model to use for the data analysis and subsequent evaluation, it was important to consider its potential applicability to this non-profit project case study. Different evaluations can have different aims or objects, but they can also consider different stages of the evaluated object. We distinguish between them mainly on the basis of selected method of data collection and analysis. The two most basic methods are qualitative and quantitative. Generally speaking, the quantitative method is considered to be more objective because its results can be measured. However, the qualitative method offers a possibility of comparing objects that are not measurable or quantifiable. It considers the conditions and it can compare impacts on the group in question, but its evidential value is lower. This thesis benefited from a mixed evaluative model – I collected and analyzed data using techniques that represent both the

quantitative and the qualitative method. This combination offers a more complete evaluation, because both models complement each other. The qualitative method helps to explain and find links between the quantitatively collected data.

The data was analyzed via the Costs and Benefits analysis – I believe that it is the most suitable method for this non-capital project. Non-quantifiable costs, which in this case represented benefits, were objectively determined based on the literature and the calculation of costs that would arise if the companies and organizations in question were not to realize the given part of the project. I studied yearly changes in the data of both the company and international organizations, and was therefore able to come to a lot of conclusions which helped me to calculate costs and benefits. In order to illustrate and interpret the data and the facts more clearly, I created my own tables and diagrams. Later, I incorporated my own calculations into them. The steps that were crucial in carrying out the CBA will be explained and analyzed in more detail. I will focus mainly on delineating all relevant benefits and costs, determining the discount rate and calculating criterial indicators.

The CBA is structured into 11 consecutive steps (Sieber, 2004). If we want the results to be as objective and as precise as possible, we have to adhere to those steps.

1) **Defining the nature of the project**

   The first step is crucial in order to understand the project, the conditions under which it was created and the aims of a given non-profit organization. On the other hand, it also includes important information on the field and the situation in the region in question, and it should note all important variables which can influence the project. In this thesis, this step includes the SWOT analysis of the project. In case of this particular project, this analysis is crucial, as it takes into account both valuable and non-quantifiable costs.

2) **Delineating the stakeholders**

   Here, we pose the following question: who will benefit from this project and how, and who will pay the costs of the project and how? The answer should take a form of a structured list of people who are somehow involved or influenced by

the project, both in a positive and a negative way. Generally speaking, we can limit these people as:

- households
- companies
- municipal subjects
- country
- other organizations

We have to determine a meaningful criterion for distinguishing between individual subjects and their incorporation into the analysis. This criterion will limit group of people who are involved to those who are objectively tied to it. In this case, the criterion will be a hypothetical range and scope of the impact of the project.

3) Determining zero version

According to Ochrana (2005), zero version is a situation in which no investments take place. It is very important to determine it, because this zero version can then be used to calculate benefits. However, in order to calculate all the costs and benefits of the project, we need both the zero and the investment version. When choosing between these alternatives, the most important fact is whether the project investment took place or not. Therefore, the investment version is the one where it did take place, whereas the zero version is the one where it did not. If we were to fail to realize the project, there would be no investment costs. There are exceptions – operating and maintenance costs, which could theoretically arise even within the zero version situation – but these are not applicable in this case. The zero version is important for the principle of the Unit Credit Method. The Unit Credit Method is based on the comparison of consequences of costs and benefits before the investment (the zero version) and after the investment.

4) Delineating all relevant costs and benefits

These costs and benefits are very important for the decision-making process. We can say that these are such costs and benefits that would change if we were

to change the version. We have to separate these from irrelevant costs which would not be affected by such a change.

5) Separating "non-quantifiable" costs and benefits and associated commentary

Non-quantifiable costs and benefits represent a crucial part of projects such as this one. Due to their various forms, the main (and essential) function of CBA is to convert both costs and benefits into units that are directly comparable. All relevant costs are converted into cash flow in order to allow us to measure economical meaningfulness of this project. However, there might be circumstances which require not to convert all costs and benefits into cash flow in order to make the analysis more relevant. We have to work with non-quantifiable costs, then. Generally speaking, it is better to avoid converting some less significant and less calculable costs and benefits into cash flow it is not absolutely essential. It can even improve the analysis and its overall informative value. However, this should be applied to less significant costs and benefits only, and all of these should be considered and commented on.

6) Converting quantifiable costs and benefits into cash flow

Due to their nature, most costs and benefits are already in the form of monetary values. This simplifies the conversion process. However, there are also costs that are different and have to be converted into financial units. In this particular case, this will apply to the value of benefits, which will be defined as opportunity costs. In other words, it will be a difference between the zero and the investment version, which will have an impact on stakeholders. We will find out how much money stakeholders gain or lose after the investment is made. This financial value will then be converted into the same currency as our costs, or the same currency that will be used to evaluate the whole project. Cash flow can take a form of income or costs. Furthermore, there is net cash flow, which represents the difference between income and costs.

7) Determining discount rate

Discount rate can change the final criterial indicators entirely, and so it has a tremendous impact on the decision whether or not to realize the project. We can imagine it as an interest rate. It is close to opportunity costs and it is difficult to determine it precisely and correctly. It always involves a qualified judgement. However, there is a certain procedure that we can follow. The discount rate should always be higher than interest for state treasury bills or interest rate of a standard bank savings account, because, unlike the project, these can be considered a risk-free instrument.

Discount is comprised of two parts – a risk-free interest rate and a "bonus" for a risk which one undertakes by realizing the project. To be even more precise, the latter part is further divided into inflation risk and other risks (Scholleová, 2008).

8) Calculating criterial indicators

Discount rate, which was explained in the previous step, is then used for the calculation of criterial indicators. For CBA, there are three such indicators. The first and the most basic one is PV, the present value of the project. This value can be used to calculate the net present value. IRR, or internal rate of return, can also be determined at this point and used to evaluate rentability.

The present value is the sum of all future cash flow from the investment converted into their present value. Therefore, if it is an ex-post evaluation, this is calculated retrospectively. The conversion works because of the cash flow discounting. In other words, discounting means separating the alternative costs from future cash flow. These costs are represented through discount rate.

Calculating the present value of a given cash flow is carried out in the following formula:

$$PVCF_t = CF_t * discount\ factor$$

$$discount\ factor = \frac{1}{(1+r)^t}$$

where:

- PVCF$_t$ is the present value of a given cash flow in the year t

- CF$_t$ is cash flow in the year t (or the discounted variable)
- r is discount rate

Then, the formula for calculating the present value of the project in the form of a criterial indicator is:

$$PV_t = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t}$$

where:

- PV$_t$ is the present value of all cash flow from the project from period 1 to period "n"
- r is discount rate
- t is a symbol a given period
- n is the last evaluated period (the final period of the functioning of the project)

Therefore, it is crucial for net present value to determine the project lifetime right at the beginning and to take a zero-year into consideration. The zero-year investment costs can have massive impact on the whole calculation. These two factors (the zero-year and the project lifetime) have to be calculated in carefully defined units. If the project lifetime were to change, even by a few units of time, the whole analysis would shift considerably. It could transform a highly ineffective and costly project into one that would be highly profitable and effective.

If we are unable to determine the project lifetime clearly, for instance because it is not tied only to investments into devices, but also to investments into marketing, personnel etc., we should choose another approach. In this case, it is best to operate with the period of time that involves a clearly structured plan for a given activity.

Unfortunately, we cannot choose a longer period, because no plan equals no cash flow.

$$NPV = \frac{CF_0}{(1+r)^0} + \frac{CF_1}{(1+r)^1} + \cdots + \frac{CF_t}{(1+r)^t}$$

Another potential criterial indicator is internal rate of return. According to Siebr (2004), internal rate of return is a rate at which the net present value of cash flow from the investment equals zero. As I have said above, internal rate of return indicates how quickly the investment returns.

Calculating internal rate of return of the investment project:

$$0 = \sum_{t=0}^{n} \frac{CF_t}{(1 + IRR)^t}$$

or

$$0 = CF_0 + \sum_{t=0}^{n} \frac{CF_t}{(1 + IRR)^t}$$

9) **Analyzing project risks, carrying out what-if analysis**

What-if analysis is an analytical method used for determining how the various variables (and their potential changes) influence the outcome. This method aims at exploring (and, potentially, quantifying) any change in the value of entry parameters. It is more or less a study of unexpected fluctuations of cash flow and their impact on the project. The method can be described in the following fashion: determining strategic variables which influence costs and benefits, and a subsequent analysis of their changes. It is recommended to choose those variables that would, if changed, have the most profound impact. These are not always the same – they can vary depending on a project in question.

10) **Evaluating the project via the criterial indicators**

Interpreting present value

An investment project can be considered acceptable if the indicator is higher than the investment costs, or cash flow in the zero-period.

Table 2 Interpretation of PV 1

Indicators outcome	Interpretatation
$PV \geq (-CF_0)$	Project is acceptable
$PV < (-CF_0)$	Project is non-acceptable

Source: Ochrana, 2005

Ochrana (2005) presents an alternative definition:

Table 3 Interpretation of PV 2

Indicators outcome	Interpretation
$PV \geq I$	Project is acceptable
$PV < I$	Project is non-acceptable

Source: Ochrana, 2005

Where:

- I is the value of the investment carried out in the zero-period,
- CF_0 is the value of cash flow from the zero-period investment

There are projects where can not be include all costs and there is used a depreciation for calculation. This is the case with this work. In the case of these projects PV can be interpreted as follows:

Table 4 Interpretation of PV 3

Indicators outcome	Interpretation
$PV \geq 0$	Project is acceptable
$PV < 0$	Project is non-acceptable

Source: Own processing, data source: Ochrana, 2005

11) Determining whether or not the project is effective

   In the final part of CBA, the project is judged as effective or not effective based on the results of criterial indicators and the evaluation of non-quantifiable costs. It is not effective, recommendations are made, both for the project and its future. One usually also comments on all the findings from the evaluation phase.

3.5   Evaluation questions

Questions must always reflect its purpose, and it should be governed by their appearance. Before formulation of the questions, it is important to clearly identify the information that we get through. It must be clear why we do the evaluation, and from that also must be clear why we have set ourselves the question. When it is already clear what type of information is required to determine, automatically reveals what questions during the use. Two types of questions could be used. These are open and closed. Open ones are most preferable due to the width of the information to learn from them. Closed ones have the disadvantage because they determine a number of options in advance from which then answers are chosen.

4   Practical Part

Practical part is consist of steps of CBA, which defined in methodics. The first subchapter summarizes the essential information about the project and describes its location, humanitarian needs, target group and the stakeholders. In the subchapter 4.5 are defined all the costs and benefits for zero option. In next subchapters are delimited the relevant costs and benefits, described non quantifiable costs and benefits, and answered the evaluation questions. In subchapter 4.8 are all costs and benefits transfered into cash flows. The discount rate, needed to count the criterial indicator, is determined in part 4.9. Then two criterial indicators are calculated. First of them PV is used as the key indicator in determining project acceptability. The other one NPV is counted to show its disadvantages in evaluation of this kind of projects. In the end of chapter, after considering risks and sensitivity of the project, is presented the outcome of the criterial indicator. The overall effectiveness of project is decided in last subchapter.

4.1   Defining the nature of the project

Table 4 Basic informations about project

Basic informations	
Original name of the project	„Ostrov naděje" - zdravotní středisko pro 10.000 obyvatel oblasti Rusinga island v Keni
Commencement of the project	September 2009
Partner country	Kenya
Place of realisation	Suba district, province Nyanza, Rusinga island
Organisation	Centrum Narovinu
Partner organizations	Humanist Centre of Kenya,
	Rusinga island Self-Help Group
Financing	Grant Ministry of foreign affairs of the Czech Republic
	Grant Slovakaid
	Donations
Grant Ministry of foreign affairs of the Czech Republic a-building	2.500.000,- Kč / 96 993,2 Eur
Grant Slovakaid- operation of the clinic	In average 30 799 EUR/Year
Target group	Local people (at about 10 000)
Main goal	Providing sustainable and accessible healthcare
Number of local (paid) employees	5
Other employees	Internships of doctors from europe (Volunteers)
	Specialists from Kenyan organisations (paid by other organisation)

Source:own processing based on data Centrum Narovinu, 2009

This project is a non-profit non-governmental organization that aims to build first aid and basic health care centers to Rusinga island (hereinafter „comunity center clinic" or „clinic"). This project has elaborated project documentation but has never been evaluated. Therefore there is no evaluation report. The project was created through Humanist Centrum Narovinu with grants and the partial funding from the Ministry of Foreign Affairs of the Czech Republic. The Ministry granted the center a 2.5 million crowns (MZV, 2010). The total cost for the construction of clinics is 2,851,665 CZK. The rest was financed by the Centrum Narovinu's resources.

The location, which is marked in appendices 1, was chosen with concern to the estimated maximum effectiveness of funds spent. Given that it is difficult to measure objectively the effectiveness, which is aggravated even more with the lack of statistical data and its credibility in developing countries, decisions about choosing effective locations are rather subjective.

Kenya is a country with a Human Development Index HDI = 0.474 – low. The report from 2005 shows that the human development index increases, with two exceptions: States of the former Soviet Union and sub-Saharan region, which have a long-term decline(UNDP, 2005). The deterioration of education, economic situation and mortality contributed to decline in the first group of countries. The main reason for the decline in the latter case, the incidence of HIV / AIDS and the associated death rate. HDI below 0.5 is referred to as 'low development'. Of the 32 countries in this category, most of them are in Africa (Human development report, 2015).

Kenya has been struggling with tropical diseases for a long time. Besides malaria and tuberculosis, HIV virus has appeared in the recent decades. In 2004, it was reported by Kenyan Ministry of Health that number of people dead because of HIV, exceeded number of that who died ofmalaria and tuberculosis. Mainly because of that the average life expectancy in country dropped by ten years. The number of HIV positive women is almost double than that of men. This ledto increase in number of orphans. In 2007 it was almost 11% (Library of Congress, 2007). Report from 2006 ranked Kenya at 152nd place out of a total of 177 countries and indicated that Kenya is one of the countries with the highest child mortality (UNDP, 2006). Kenya's health infrastructure suffers

from an imbalance between the different areas, differences between towns and villages, lack of investments and personnel, where there is 1 doctor for every 10,150 people (Library of Congress, 2007).

4.2   Identification of humanitarian needs on the Rusinga island

The island is heavily affected by malaria, typhoid and other water-borne diseases and especially HIV / AIDS (In 2008, 26% of the island's population was HIV positive). As a result of malnutrition, poor hygiene, diseases, HIV / AIDS and lack of health care island has one of the highest infant, childhood and adulthood mortality rate in the world, and consequently there are large numbers of orphans, high level of illiteracy and poverty, spread of prostitution and other problems. For example, according to official statistics the average life expectancy was 36.5 years for men and 42 years for women in 2008 in Suba district, where the island belongs (The livelihood Foundation, 2011).

Mortality of children under 5 years reached 247 deaths per 1,000 live births and the mortality rate of women in childbirth was 77 deaths per 1,000 live births (Official statistics from the report of the District Development Office SubaDistrict, 2008).

Health care is nearly inaccessible for inhabitants of the island, partly because financial reasons and partly for geographical reasons. There are only two small health centers running, staffed by a nurses, with no qualified doctors. One is in Kamasengre and is supported by the Baptist church. Health center Tom Mboya is funded by the government. The nearest hospital is more than 20 km away, in the Mbita, which is with the local condition of roads and the financial situation of the inhabitants almost insurmountable distance, especially during the rain season. The result of the current situation is the fact that women give birth at home without professional assistance, ill people seek professional help in extreme cases where treatment is difficult and often impossible. There is no health education on the island at all. The project aims to ensure access to basic professional qualified health care and health education for residents of Rusinga island, specifically in the areas Kamasengre West, Kamasengre East and Kaswanga. The specific objective is to build a medical center on the island with outpatient and inpatient area, equipped with apparatuses, furniture and medical

equipment, trained basic staff and start operating (ie. the provision of health care and organizing programs of health education and prevention).

4.3 Target group

The targeted group consists of approximately 10,000 people, that is approx. 50% of the total population of the island. Project of health center in Rusinga island is the first project of its kind, there is no risk of duplication. The incentive for the formulation of the project was an initiative by the partner organizations - Rusinga island self-help group, which is urgently pressing for solutions to intolerable health situation of the local population. Renting of another building and it's use for health purposes in local conditions is not possible, there is no such building with the necessary technical facilities near the community center. Investments in existing facilities is also disadvantageous because they are located far away from the community center which we operate, and especially the layout is not satisfying the requirements of hospital - it is not possible to extend a inpatient ward for hospitalized patients, the technical condition of the buildings of both facilities is poor, with no sanitary facilities. Construction of a new health clinic on an existing plot, after analyzing the situation on the ground appears to be the only way to improve the health situation of the local people (Information provided Dana Feminová Founder of the Centrum Narovinu. Praha 9. 12. 2015).

Demand for health care far exceeds the capabilities of the proposed center. Both local facilities will benefit from the newly built center where they will be able to send patients requiring specialized medical care. Reciprocally, facilities in Kamasengre will then provide support to nurses employed at the new center. Both facilities will participate in educational and preventive programs, organized by the new center, thereby increasing their effectiveness (MZV, 2009).

4.3.1   SWOT analysis of the project

I have done a SWOT analysis to identify the strenghts and weaknesses of the project to understand the project better for further evaluation.

The results show that the project is mainly facing, lack of money, corruption and trust of the locals. Funding of a project like this is very difficult, because the costs cannot be calculated in advance. The estimate is therefore different from the actual number each month. The main problem is with medications, given and provided for free which is quaranteed by Kenya´s government, people then expect that. Of course, the very common situation occurs even though the government sends medication, they usually, due to high corruption in the country, it ends up at either the local government or the private distributor who will then forward only a fraction of themedication and sells the rest (Transparency International, 2014). As a result at the clinic there is the situation when there is not enough guaranteed medication and thus new must be bought, but which operators need to pay for with the money that was originally intended for a completely different purpose.

When the clinic contacts thelocal government to ask for more medicines because they did not get enough, they are told that there is no more available. The whole situation is very complex and complicates the whole process of running clinics. It is necessary to add that similar projects throughout Kenya faced the same problem.

As it is evident from the CPI (Corruption Perception Index) Kenya is one of the countries with the highest rate of corruption. The CPI measures the level of corruption on a scale from 100 to 0 where 100 is very clean and 0 is highly corrupt. Development of CPI in Kenya since 2012, when the corruption rate was 27, which in 2014 dropped to 25, is more than alarming (Transparency International, 2014). Across the efforts of many organizations and major global politicians situation in the country deteriorate, and the question is how long the situation is sustainable in order to avoid deepening financial crisis.

What is on the other hand positive is, mentioned in other chapters, that Centrum Narovinu has a knowledge from previous project how to managed them, local people trust the organisation and they are involved. What more, the clinic was really needed in the area, because there were just long distance health centres.

Table 5 SWOT analysis of project

Strengths	No similar service in area	**Weaknesses**	Lack of finances
	Knowledge of project leading		Complicated procurement of medicines
	Involvement of local people		Low awareness of local residents about treatment
	Trust among people and Organisation		End of income in the form of a grant from Slovakaid
Opportunities	Offer of new financial resources	**Threats**	Long drought- famine
	Technology development – faster diagnosis		Reduction of limit for compulsory vaccination
	Anti-corruption steps by government		Deepening Corruption in local government - Insufficient supply of drugs organized by the Government
	The discovery of more effective treatments		Economic crisis

Source: Own processing based on data Centrum Narovinu 2009

4.4 Identification of the stakeholders of project

Stakeholders:

Stakeholder in this case is everyone, who will have some benefit from this particular project. In order to evaluate objectively the entire project, it is necessary to determine the costs for everyone who will have associated his own costs with the project.

In table 6 all parties affected by the project are determined, both in the negative and the positive way. They are divided into six groups. For each groupit is determined which costs and benefits they have from the project. The aim is briefly but clearly describe what the project brings to the stakeholders. The thesis is devoted mainly to the largest

group who residents of the island are, from which I realize the value of their benefits, both quantifiable and non-quantifiable. In this chapter below in Table 8 salaries of employees of clinic with average salaries in the same fields throughout Kenya are compared.

Table 6 Stakeholders

Subject	Benefits	Costs
Employees of clinic from Europe	Acquired experience with care in developing countries, know-how in the treatment of patients with fatal tropical diseases	No salary from the organisation or project budget, the risk of infection diseases
Trained local employees	Trained local staff as nurses, know-how (experience of european staff)	Partly volunteer work
Residents of Rusinga island	Disease prevention, lectures on hygiene and safety, better access to treatment, reducing mortality	Not identified
Government of Kenya	Reduction in mortality, More jobs for people, GDP	Partial loss of clients in state hospital, you must pay for medical services
Organisation Centrum Narovinu	Leadership experience humanities projects and documents / proposals for further pro-jects (health insurance)	Operation costs, the risk of silure
Surrounding Clinics	Cooperation, less patients who have legally free treatment	Loss of clients who must pay for treatment

Source: Own processing based on sources(project documentation, 2009)

Target group of project:

The project is valuable firstly because it focus on the risk groups, which have low protection before establishment of clinic. These groups are four: children, HIV patients, women and sick with malaria. There are at about 10, 000 recipients for which is the clinic easily accessible (it is not long distance for them).

In table below it is shown how many patients clinic were treated according to categories and years of operation of the clinic. This table will be needed in next subchapters of my thesis to count the quantifiable benefits for the stakeholders.

Table 7 Number of treated patients of clinic by year

	2010	2011	2012	2013	2014	2015	Total
Malaria	2531	2613	2316	2245	3508	3297	16510
Livebirths	109	141	92	118	50	86	596
An initial medical examination	5822	6567	6153	7275	8778	7939	42534
Total	8462	9321	8561	9638	12336	11322	59640

Source: Own processing, data source: Centrum Narovinu statistics, 2016

Although the project may have various stable funding sources, even then it is important to monitor their usage. As a prime example, I chose the employees' salaries, which can be compared not only with the national average, but also it can focus on how many people would be in so-called zero option, which would otherwise occur with no project, without income.

Based on my knowledge the employees of the clinic are well- paid. I had to combine several statistics to be able to compare the salary for all positions at the clinic. I found out that their salaries are at national average. What is very important for the clinic is that doctors and specialists are not funded by the clinic and even the rest of the staff would continue to work at a lower salary or partially voluntarily. It all stems from the fact that the community center on the island helped the families a lot, gave them a job or food for their children. Therefore those people do this service, more or less, for themselves, for their tribe and family, they do not mind making compromises on demands for payment evaluation.

Table 8 Comparison of the average clinics and average Kenyan selaries

Salary	Average per year	Average in Kenya	Difference
ClinicalOfficer	6 394	7 169,02	-775
Nurse 1	4 040	4 480,64	-441
Nurse 2	4 040	4 480,64	-441
Laborant	4 040	4 719,12	-679
Receptionist	839	1 480,51	-641
Total	**19 354**	**22 329,94**	**-2 976**

Source: Salary Survey,2009

This chart compares the average annual salary of the profession in Kenya and at the community clinic. The difference is in fact negligible. When evaluating the data we have to consider two factors. The first is a partial voluntarity of workers and the other one is poor region, where wages of workers in any sector are below the national average. Overall, we can assess the salaries of the workers as proportional. Amounts are converted to Euro by 1. 1. 2015.

4.5   Determining zero option

Determination of the zero option is based on the objectively anticipated expenditures which would appear in case of non-investment variant. In this thesis it means expenditures of population from the attraction zone of the clinic. By these are meant about 10,000 inhabitants, whom is clinic able to treat. To determined zero variant precisely, is necessary to count with all the opportunity costs of local residents.

If the clinic was not in operation, local people would have to seek treatment in another health facility. The first cost for them in addition to the zero option is thefare. We expect that patients would be treated by the two closest facilities. One is the state and other is private. The private clinic with only one doctor is called Kageno. It was established by Americans. The nearest state hospital is in Mbita town situated over 20 kilometres up on the mainland. Determination of zero variant was carried out according to data from the statistics of community centre. I obtained the data from my own source and they were verified in hospitals. In order to compare of the zero option to be the most accurate, I divided the items into three groups. I assessed the prices of live births, prices for treating malaria and then the minimum prices for other treatments.

Being given the available data, I could not compare prices in more detail, since that would undermine their explanatory power and verity. It is very important to count in non-investment action with costs of the fare, because it represents almost one third of their costs.

I discussed these issues with several staff of humanitarian organizations in developing countries. Their experience shows that, when there is not a medical facility in the residence area of local people and people must take a bus to get to the nearest facility, i.e. they must pay more for transportation, on control visit will arrive only 70% of patients.

Under the same circumstances, it is expected that some of the patients will not return and some of them would never go to the doctor. Unfortunately, this group of people is poorly possible to quantify. To be as accurate as possible I counted that only with the above 70% of the patients will go to medical check- up.

The following tables list prices for single patient treatment and compare them in different facilities.

Table 9 Prices of malaria tratment in different health centres

Health service	Price of malaria treatment	Price is included	Total
Comunity center clinic	200 KSH	All care, drugs, one control examination	200 KSH
Kageno	200 KSH + 100 KSH transportation cost for, next examination (only 70%) 200 KSH + transportation	All care, drugs	600 KSH
Stateclinic, Mbita	200 KSH + 50 KSH laboratory tests + transportation 200 KSH,next examination(only 70%) 200 KSH + transportation	All care,drugs + laboratory tests	850 KSH

Source: Own processing, data source: Centrum Narovinu statistics, 2016

Table 10 Prices of Live births in different health centres

Healthservice	Price	Total
Comunity center clinic	300 KSH	300 KSH
Kageno	500 KSH + transportation (100 KSH)	600 KSH
State clinic, Mbita	250-300 KSH + transportation (200 KSH) + complications(min. 300 KSH)	450 – 500 KSH + complications

Source: Own processing, data source: Centrum Narovinu statistics, 2016

I counted the price for initial medical examinations with the lowest possible price for any initial medical examinations. Of course, the prices are very different, treatment from the treatment. Some diseases may also be tenfold more expensive than others. Another difference in group of other treatments compared to other categories is age. Due to the Kenyan law children under 5 years have free care. In community clinic there is also discount for children from the age 5 to 15.

Table 11 Price for an initial medical examinations

Health service	Untill 5 yearsold	5-15 yearsold	Adults	Note
Comunity center clinic	Free of charge	100 KSH	200 KSH	Next examination (for free), free drugs
Kageno	Free of charge	100 KSH + laboratory test (50 KSH) + transportation (100 KSH)		Next examination 100 KSH + transportation (Necessary to count with participation of 70%)
Stateclinic, Mbita	Free of charge	200 KSH + transportation(200 KSH) + laboratory test 50 KSH		Next examination 200 KSH + transportation (Necessary to count with participation of 70%)

Source: Own processing, data source: Centrum Narovinu statistics, 2016

For subsequent counting in chapters below, I calculated the number of children from the Population and Housing Census in Kenya from 2009. It is listed in the appendices 3 (EAC, 2009).

The following table 12 shows the calculation of costs for treatment of stakeholders in each different years at the Clinic for the community center.

Table 12 How much spent the patients on the treatment in community centre clinic

Price of tratment	2010	2011	2012	2013	2014	2015
Malaria	506 200	522 600	463 200	449 000	701 600	659 400
Live births	32 700	42 300	27 600	35 400	15 000	25 800
An initial medical examination	803 436	906 246	849 114	1 003 950	1 211 364	1 095 582
Total (KSH)	1 342 336	1 471 146	1 339 914	1 488 350	1 927 964	1 780 782
Total (Euro)	12 347,63	13 363,52	11 847,93	12 527,42	17 599,92	16 032,96

Source: Own processing, data source: Centrum Narovinu financial report, 2016

The table 13 shows the calculation of costs of stakeholders in the event that they attended the Kageno private clinic instead of community center's clinic.

Table 13 How much would spent the patients on the treatment in zero option in Kageno

Price Kageno	2010	2011	2012	2013	2014	2015
Malaria	1 290 810	1 332 630	1 181 160	1 144 950	1 789 080	1 681 470
Live births	65 400	84 600	55 200	70 800	30 000	51 600
An initial medical examination	1 907 287	2 151 349	2 015 723	2 383 290	2 875 673	2 600 816
Total (KSH)	3 263 497	3 568 579	3 252 083	3 599 040	4 694 753	4 333 886
Total (Euro)	30 019,66	32 416,08	28 755,92	30 293,07	42 857,27	39 019,38

Source: Own processing, data source: Centrum Narovinu financial report, 2016

The table 14 below shows the calculation of costs of stakeholders in the event that they attended the Mbita state clinic instead of a community center clinic. I counted the difficult deliveries according to the national average and assigned them the lowest

possible cost for complications. In fact, the costs are certainly higher but to have the benefit quantified only from verifiable data, it is calculated with the lowest costs.

Table 14 How much would spent the patients on the treatment in zero option in Mbita

Price state clinic, Mbita	2010	2011	2012	2013	2014	2015
Malaria	1 847 630	1 907 490	1 690 680	1 638 850	2 560 840	2 406 810
Live births	54 020,4	69 879,6	45 595,2	58 480,8	24 780	42 621,6
An initial medical examination	3 570 050,4	4 026 884	3 773 020	4 461 030	5 382 670	4 868 195
Total(KSH)	5 471 700,8	6 004 254	5509295	6158361	7968290	7 317 626
Total (Euro)	50 332,073	54 541,14	48 714,88	51 834,84	72 740,6	65 882,96

Source: Own processing, data source: Centrum Narovinu financial report, 2016

4.6   Definition of all relevant costs and benefits of the clinic

Project costs could be divided into three basic groups. These are the cost of medicines and medical equipment, of the operation of clinics and the cost of staff salaries.

The second biggest cost item, but the most important for the operation of clinics, is costof drugs and medical equipment. It is clear that due to the tropical region and the high incidence of serious diseases, also the price of drugs climbs very high. Great influence on the cost of drugs has also corruption in the country. Vaccinations for children under five years of age and some medications especially for malaria and AIDS are distributed free of charge by the state. The state receives these drugs from non-profit organizations around the world and through reallocation drugs should be sent to all medical facilities in Kenya. The problem is the corruption, which I have already spoken about. Some necessary medicines never get to final facility which often happens. Normally the situation is following: the clinic reports to the authority in the country, how many drugs they need and then it gets them. However, this situation, has never happened before at the clinic. There are also months when the clinic does not get any medication, although the number of patients is growing. This situation must be addressed by the clinic. For additional financing of drugs the clinic uses the money, which originally meant to be for different objectives. The same is valid for vaccines.

The clinic never knows in advance how much of the drugs will get and it is also very difficult to estimate in advance what the cost of drugs will be.

Costs of medical equipment during different months are almost the same, because there are not large fluctuations in treatments. All expensive medical devices and equipment are included in the costs or were mostly donated and purchased by money from public collections.

The biggest cost item is the money on staff salaries. At the clinic two nurses, clinical officer, lab technician and part-time receptionistare permanently employed. Their salaries are included in the costs. At the clinic there are always one to three doctors from the Czech Republic and Slovakia on scholarship. Since 2014 two HIV specialists who are provided free of charge within the program RCTP[1] have been involved. Part-time receptionist and occasional cleaning services are provided by local residents, i.e. people from the community, for which the establishment of a community centre and clinic have the great importance. Many locals are involved in running of the whole centre volunteering or partly paid. No wonder, the centre provides education for both children and orphanage and also it is able to take care of their basic needs in an emergency. Although salaries of employees rose slightly over the years, there was not any significant fluctuation.

Last and least cost item is the cost of running the clinic. These are mainly oil and detergents. Annual changes in this category can be considered as completely insignificant.

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[1]RCTP is The Research Care and Training Program which is within the Centre of Microbiology Research at the Kenya Medical Research Institute. The main objective of RCTP is to provide care and supporting treatment to people with infectious diseases, especially sexually transmitted diseases.

The following table shows average costs of running of clinic, drugs etc. and average salaries of clinic staff during the period of its operation.

Table 15 Operating costs of clinic in euros

Cost of operation of clinic in euros	Average per year
Drugs and medical equipement	12 106,83
Running of Clinic – diesel, clearing	4 522,50
Clinical Officer	6 394,33
Nurse 1	4 040,00
Nurse 2	4 040,00
Laborant	4 040,00
Receptionist	839,33
Total	36 654,50

Source: Own processing, data source: Centrum Narovinu statistics, 2016

The benefit, which can be appreciated in this project is the saved costs of treatment forthe locals. In a poor country like Kenya especially, in rural areas. What's more, some families save thank to the location of hospital the amount, which iscrucial for them. Quantification of these benefits is shown below in the chapter 4.8.

4.7 Earmarking of „non-quantifiable" costs and benefits and their verbal evaluation

Briefly, the invaluable benefits of this project consists primarily of human health, the cost of human life, suffering and pain. As it is obvious, these variables cannot in any way be converted into a financial unit, because it would be unethical and immoral. Yet there are precisely the benefits in terms of human lives saved and to help pain or suffering, the greatest benefits of the project. And so they should also have the greatest value in the assessment of its effectiveness.

When we were speaking about stakeholders, the most important ones of them are residents of the island. Most of their benefits are possible to quantify. But there are the rest of their benefits and benefits of other stakeholders which are non-quantifiable.

Centrum Narovinu gain further benfits in knowledge of non-profit project leading and negoatiating with Kenyan government. Centrum Narovinu, namely its employees, deal with the main social cost, which consist of lack of free time and stress. Employees working in centre could be devided into two groups. These paid for their work by organisation and these who are on internship paid by sending organisation or volunteering. Benefits of employees working for free or internship ones are the knowledge of working in area of tropical diseases spread and of being on AIDS risq workplace. The last point could be as well the cost of the project. These employees paid from the organisation are the locals who were unemployed before, so opportunity to work in Clinic is great benefit for them, not only in terms of money, but also in terms of stress how to take care of own family. According to fact, that in the area are much more potential patients than the other local clinics can treated, the project means as well benefit for these clinics and their patients. The cost and benefits for Kenyan government could be seen in higher GDP etc. but it is quit insignificant as far as the region is really small.

To understand the project and facilitate the allocation of "invaluable" costs and benefits first the evaluation questions are identified and answered. Subsequently verbally describe costs that cannot otherwise be quantified and evaluated their impact on the overall effectiveness of the project.

4.7.1   Evaluation questions

The evaluation questions were set so as to cover the most basic facts and circumstances related to the project. It is always explained why a critical evaluation question was chosen. Then the question is answered.

Is the project sustainable in the future?

Sustainability of the project, is one of the fundamental questions that must be asked. To find out whether the funds were invested properly. Because it makes no sense to invest in something that is short term, because the incurred costs would not be returned, as well as time spent on the preparation and operation of the project. This evaluation question is largely assessed by the organizations themselves and governmental bodies

that provide grants for specific projects. It is only in the donor's interest, that the money will be used for as the longest term as possible. Another important point of the project is called time sustainability. This is the time after which the project must be at least self-sufficient.

The project is being funded with a SlovakAid grant for six years already. Estimated aid is pledged so far by 2017, but it is very likely that cooperation will continue in the following years. Kenya is a priority country for Slovakia, hence the grant was requested by the Slovak branch of the center and succeeded. Community center, however, tries to earn as well with fish breeding, selling eggs, coffee and tea cultivation or soapstone workshop whose products are then sold in the context of charitable events in the Czech Republic and Slovakia. The goal of the center is over time, to stop being dependent on funding from government projects and limited ability to finance it fromits own resources. Earnings from this activity are higher year by year, but because these funds are not earmarked entirely for the clinic but also run in different areas around the center, it is not completely possible to estimate when they will be able to fund the clinic. It is not possible to save anything from patient fees for the future, due to fluctuations in the supply of free medicines, so the clinic is already trying to find a replacement source of main financing, in case of future problems with a grant from Slovakia. The big advantage is the participation of the locals, who often help for free, but for the project as a clinic, specially qualified personnel, who are missing on the island,are needed. Centre also plans to start the project of health insurance, but it is now just in its infancy, and so insurance is offered only to children from remote adoption project (Secondary data Centrum Narovinu).

Is the hospital conveniently located?

The area where the project is implemented is also very important and key points to determine how strategic it is, are very different from case to case. It is the best to focus on what the region offers but also on whether the specific services are needed there. And ask questions whether a gap in the market is to be covered by the project. Amount of competition and its ability to spread in the region is also important. Other factors that may determine whether the clinic was well placed is the degree of urbanization and

infrastructure development chances. In this particular case, the availability is the key for locals.

Due to the bad availability of health care in Kenya, as already mentioned, where about 10,000 patients go toone doctor, there is no location where it appropriate to construct medical institutions (Library of Congress, 2007). The island of Rusinga is a poor part of Kenya where agriculture predominates. Another factor that advocates location on the island is that the locals develop long-term initiative in the expansion of infrastructure, which is very bad. Now poor infrastructure was a reason that before building the clinic many people did not even try to get to another hospital and part of them died as a result of this. The nearest state clinic in Mbita and the nearest private one Kageno are accessible only by bus. The price of one way ticket to Kageno is 50 KSH and to Mbita is price even twice higher. For example 50 KSH is the price of one laboratory test. From this is also visible how important for the locals, who need every shilink, to have some nearest health clinic (Information provided Dana Feminová Founder of the Centrum Narovinu. Praha 9. 12. 2015).

Are numbers of treated people adequate to catchment area?

This question is important as the basic definition of efficiency of the project. Capacity of the clinic must correspond to the potential number of patients, optionally be lower. In order to have a future the project must be wholly utilized. The best way to determine a catchment area is to find out how many patients of the total population is treated by the competition. Our clinic should therefore be able to treat the rest, or it should seek to adjust its capacity so that it was financially able to cover the largest possible number of patients.

The hospital is able to treat about 10,000 patients each year (Centrum Narovinu, 2015). The numbers of thetreated depends on the type of treatment and surgeries. As already mentioned there (Rusinga island) is about 20,000 inhabitants, with the hospital being able to treat approximately half of them. As already mentioned this agricultural area is poorer, and therefore the number of patients is higher than in urban areas. The closest medical facility on the island the private Kageno facitility with one doctor, does not fit nearly as many patients as clinic community center. And although it is trying to

accommodate as many people as possible, then it rapidly reflects in the quality. To summarize, the investment options managed more or less to even the average number of Kenyan patients per doctor.

Does the clinic educate awareness against diseases, how many people came to it and how it affected the quality of life and rates of illness?

This evaluation question follows the question of effectiveness. The project aims to help solve the situation. So that the treatment was effective, it must also come with some education. It should be noted, in what area the subjects are applied, focus on quality of life in the country and education of local people.

Raising health awareness at the clinic takes place in several areas. The center together with the clinic organizes prevention seminars for locals. It seeks to prevent the spread of serious infectious diseases, prepare mothers for childbirth and explain postnatal child care to them. Seminars are held several times a month, according to the orientation and number of participants. Meanwhile enlightenment can be summarized as successful, but this is only organizations review, since the number of patients is increasing in the annual statistics. That is probably due to two factors. The first is the growing confidence of people from the neighbourhood and their willingness to get treated at the clinic, which they often prefer to other institutions. The second factor is the fact, that there is spreading awareness about the diseases, so more people who would not normally come, are treated here. Nationwide spreading of the disease also plays an important role, because it is clear that in the years when, for example, an epidemic of malaria is declared, its occurence on the island will also be higher (Centrum Narovinu, 2015).

How much do locals save on treatment compared to the prices of treatment of the same diseases in the area?

This question does not seek only to establish the status of the project among the competitors, even though it is very important for its life. The important point is also to determine the benefit for local people, which will be a large and important item. These benefits for locals are essential item for CBA. It is important to use comparisons with

different perspectives and focus therefore on the comparison of both private and state sectors.

The impact on local residents and their savings is considerable, see chapter 4.4 and 4.5. Given that the clinic is not trying to make a profit, it offers the best possible conditions for patients from its catchment area. Clinic guarantees what it offers, and patients already do not pay anything above the list price (Information provided Dana Feminová Founder of the Centrum Narovinu. Praha 9. 12. 2015). Saving varies for each of the diseases, but it is possible to say that people with HIV, malaria, and women in childbirth save the most. The situation is also partly thank to the fact that trainee doctors are on site free of charge, which applies to specialists in infectious diseases, and thus the cost of the staff is in no way reflected in the price of visit or treatment. Another great advantage is the fact that the price of one visit covers not only the laboratory tests but it also covers the next visit. This step will save them considerable money, because everywhere else each visitis paid. But what's more important is that it also has an effect that all patients come for a check- up and thus have a greater chance for rehabilitation.

What is the impact of own laboratory on the treatment, how it speeds up testing compared with the situation, when the clinic did not exist?

The last evaluation question, examines its own laboratory and testing. Trying to find out to what extent there is a difference between testing in the clinic and in other facilities. And if there is faster testing somewhere, which would be crucial for severe cases and it would also play a role for patients when choosing institution.

Since, unlike from the nearest private hospital, samples do not need to be transported and the clinic has its own lab worker, the entire process is much faster, some tests can be evaluated until the next day, and waiting time of one week for normal tests. The tests, which are free at the clinic, cost 50 Kenyan shillings in the nearest private and public facility. Transportation to other facilities is a large sum and plenty of people would not be able to pay for it again in case of repeated tests (Information provided Dana Feminová Founder of the Centrum Narovinu. Praha 9. 12. 2015). What's more, if it were an outcome associated with following treatments, there would be a large number of people who would not be able to pay for it. Testing is therefore at least 50% faster

and by 100% cheaper in all cases, compared to the previous situation where there was no other option but to commute.

4.8 Transfer of quantifiable costs and benefits to cash flows

To find out wheter is project effective according to criterial indicator is necessary to transfer quantifiable costs and benefits to cash flows.

First of all is necessary to summarize the costs and benefits. Costs for each year of operation are therefore enumerated in table 16. For the unification of calculation and possible benchmarking, the data must be converted to the same currency. I quantified the cash flow in Euros, since I already had the costs data in Euro and I converted the benefits from the Kenyan Shilling. The rate used to convert into Euros in all the following tables, is always by 1. 1. of the year.

Table 16 Costs of operation of clinic by year in euros

Costs of operation of clinic in Euros	2010	2011	2012	2013	2014	2015
Drugs and medical equipement	11 240	10 589	11 867	12 653	14 429	11 863
Running of Clinic – diesel, clearing	4 320	3 965	4 620	4 230	5 401	4 599
Clinical Officer	6 271	6 271	6 271	6 271	6 271	7 011
Nurse 1	3 991	3 991	3 991	3 991	3 991	4 285
Nurse 2	3 991	3 991	3 991	3 991	3 991	4 285
Laborant	3 991	3 991	3 991	3 991	3 991	4 285
Receptionist	829	829	829	829	829	891
Total	34 633	33 627	35 560	35 956	40 917	39 234

Source: Own processing, data source: Centrum Narovinu financial report, 2010-2015

Benefits are calculated as the total savings of stakeholders which are possible to quantifyied. Total savings are the costs of stakeholders in zero option minus the costs in investment option.

Table 17 Quantification of the benefits by years in euros

	2010	2011	2012	2013	2014	2015
Zero option costs	46 269,59	50 116,13	44 723,09	47 526,48	66 763,93	60 510,25
Investment option costs	12 347,63	13 363,52	11 847,93	12 527,42	17 599,92	16 032,96
Benefits	33 921,96	36 752,61	32 875,16	34 999,06	49 164,01	44 477,29

Source: Own processing, data source: Centrum Narovinu financial report, 2010-2015, and field survey 2016

The transfer to cash flows was count as the benefits of the project minus the costs. I sum the costs with the depreciation of the building, since it is also a cost. The building is depreciated as I set 1/50 of its costs each year, due to the expected life of the building.

Table 18 Tranfer of quantifiable costs and benefits to cash flows

	2010	2011	2012	2013	2014	2015
Benefits	33 921,96	36 752,61	32 875,16	34 999,06	49 164,01	44 477,29
Costs + depraciation	36 845,74	35 839,74	37 772,74	38 168,74	41 115,74	39 431,74
Cash flow	-2 707,20	782,64	-3 887,86	-2 329,81	5 477,52	3 179,55

Source: Own processing, data source own analysis

4.9   Determination of discount rate

The discount rate was determined as follows:

1)The risk-free interest rate of **1.5%** of the value of the term deposit for 5 years (Ing. Account and Equabank)

2)The premium for the risk that the project implementation are undergoing.

It is spread:

a) inflation risk of **2.5 %** (individual inflation estimate for the entire period)

b) Other project risks (political instability in the world today, and monitored Regions **4%**)

Total discount rate was set at **8%**

4.10 Calculation of present value as the criterial indicator

I chose the only appropriate criterial indicator, for the evaluation of the project, which is PV. Others are inappropriate and misleading because they do not account amortization, but directly count in the entire investment costs, thus implying a long life project for its effectiveness. For a given type of project it is not possible to estimate the period for which the project will be operational, apart from amortization. For this type of project it is impossible to follow the guides, who say that the period, for which the financing is 100% certain, is used for calculating. For development projects and especially medical projets a long-term financing is difficult and thus is always granted for only a few years ahead. That would totally misrepresented the effectiveness of the project in case of NPV and IRR calculation.

Amortization is calculated according to the model commonly used in the Czech Republic. Therefore, since it is a brick building, I'm going for PV calculation with 1/50 annuall depreciaion.

I have to determine cash flow when calculating PV. It consists of benefits from which the costs are deducted. I also have to adjust benefits in case of clinic due to the capacity of hospitals in the area. It is clear that the nearest private hospital would not be able to take care of all patients in the event of non-investment option. So I chose the proportion of patients who would be treated by Kageno, patients who would be treated Mbita according to the capacity of the hospitals as a 2:8. From which then the benefits came out for the population in the table below.

The table 19 below shows the calculation of present value for each year of operation of clinic. It shows costs of operation of clinic by years and quantified benefits of local people. The costs and benefits are calculated above in tables 16. and 17. The cash flows were enumerated in the table 18 above.

It is visible that PV was various among years, but in last two years it had positive values which are the highest in all period of project operation.

Table 19 Yearly calculation of PV in euros

PV	2010	2011	2012	2013	2014	2015
Benefits	33 921,96	36 752,61	32 875,16	34 999,06	49 164,01	44 477,29
Costs[2]	36 845,74	35 839,74	37 772,74	38 168,74	41 115,74	39 431,74
Cash flow	-2 923,78	912,87	-4 897,58	-3 169,67	8 048,28	5 045,55
Yearly PV	-2 707,20	782,64	-3 887,86	-2 329,81	5 477,52	3 179,55

Source: Own processing, data source own analysis

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[2] Already count as the costs plus depreciation

Calculation of criterial indicators in formula:

$$PV = \frac{-2923{,}78}{(1 + 0{,}08)^1} + \frac{912{,}87}{(1 + 0{,}08)^2} + \cdots + \frac{5045{,}51}{(1 + 0{,}08)^6}$$

$$PV =$$

$$= -2707{,}20€ + 782{,}64€ + (-3887{,}86€) + (-2329{,}81€) + 5477{,}52€ + 3179{,}55€$$

$$PV = 514{,}85\ €$$

4.10.1   Calculation of NPV

As it was mentioned before for project evaluation are used as well the NPV or IRR. Since it is not a profitable project, these calculations are inaccurate. If so be valued for-profit projects, quite certainly would not implement any of them. The following calculation of NPV, I want to demonstrate how the use of these indicators for this type of project No value and ineffective. Because the values that are analyzed aren't comparable with the values of profitable projects.

$$NPV = \frac{-110636{,}85}{(1 + 0{,}08)^0} + \frac{-711{,}04}{(1 + 0{,}08)^1} + \frac{3125{,}61}{(1 + 0{,}08)^2} + \cdots + \frac{7258{,}29}{(1 + 0{,}08)^6}$$

$$NPV = -110636{,}85€ + (-658{,}37)€ + 2679{,}70€ + (-2131{,}31€) + (-703{,}38€)$$

$$+\ 6983{,}47€ + 4573{,}95€$$

$$NPV = -99892{,}79€$$

The calculation is the same as the PV calculation with the only difference. That is calculating in the zero option with the initial investment. It was previously calculated PV deducted each year on 1/50 of its total value.

As the results shows the project would never be acceptable according to NPV. The main problem of this calculation is that time of the project, which is now only six years, so the total benefits can not exceed the total cost. If the project is assessed retrospectively, or after a longer period of time, of course, would also released NPV positive.

That is why this thesis is counting with PV indicator.

4.11   Analysis of risks and sensitivity of project

In the case of this project, there are several important variables that could significantly affect the output of the project. Unfortunately it is not possible to objectively quantify them. But it is important to verbally identify them and to be aware of them. The level of corruption in the country can be considered as the most important one, the level of corruption in the country. The reduction of coruption could lead to significant cost avoidance drugs. The big variations of the other benefits practically cannot occur. If the attendance rises, what is not yet possible for reasons of capacity, the costof medicines will also increase. In the case of capacity expansion, clinic will be able to treat more clients and thus have higher income. But also it would need to spend a lot of finance to do this expansion. Thus, both costs and benefits would be added. Another limiting factor for the expansion of the clinic is a shortage of land.

4.12   Evaluation of the project on the basis of criterial indicators

I chose PV interpretation to match the project. After calculating of indicator I am now able to decide that, according to the present value is project acceptable. The outcome is shown in table 20 where the PV vis prented in euros.

Table 20 Interpretation of PV

Indicators outcome	Interpretation
$PV \geq 0$	Project is acceptable
$PV = 51\ 48\ 5$	Project is acceptable

Source: Own processing, data based on analysis

4.13   Decision on project effectiveness

I find the project to be effective. Decisive in this case, is not only the criterial indicator, but also considering the non-quantifiable project benefits. Those in this case comprise a substantial part in deciding the effectiveness of the project. The value of a human life should always exceed the value of its economic costs. And so it is difficult to quantify the effectiveness of any of the known economic methods for projects where the subject

of evaluation is health aid in developing countries. In the case of the clinic, however, quantifiable benefits for residents exist, the non-quantifiable are so high that project is effective not only because economical returns, but also because of important social implications.

5 Discussion and conclusion

The main aim of this thesis was to evaluate the effectiveness of non-profit health clinic project in Kenya. First, it was necessary to define the issue in terms of theoretical and methodological foundations, which focus on issues of development of non-profit projects and methods of their evaluation. Consequently, it was necessary to choose the most suitable method for evaluation. As a best practice, according to many authors for this type of project appeared Cost and benefits analysis. For this analysis was needed to define all the benefits and costs of the project. All of that was done in practical part with taking in account both sides of non-profit evaluation. These are "quantifiable" and "non-quantifiable" effects.

It must be noted that non-profit projects are very specific subchapter of the projects. By having a different set of rules than other projects, given their nature and goal, it is clear that their evaluation is entirely different. However, the evaluation of even those projects is very important because, with few exceptions, the money to finance such projects come from the national budgets. And since the funds focused in the public cash funds consist mainly of taxpayers' money, projects are under pressure to be objectively compared and evaluated.

On the other hand, evaluation seemed more interesting, because for me it represented a challenge in the form of an objective analysis of the project, which can be analyzed only partially. Given that in all publications Cost and Benefits analysis is presented as the best method to deal with this evaluation, I used it. During the evaluation, I was limited by several factors. One of them is limited availability of statistical data in Kenya, which represents a problem not only in health care, and so although I planned to complete more analysis and comparison of more indicators that are available in developed countries, I had to refrain from it eventually. However, the data that I managed to gather were sufficient for achieving of the goal of my thesis. Next and a very questionable was determination of the project lifetime. It is clear that although the average brick building lifespan is 50 years, I can hardly count on that the project will have same lifespan. Lifespan is hard to estimate, not only because of hospital management, but also due to poor and often volatile political situation in the country. As an obvious variant to

determine the lifespan seemed to take a date that evident funding of the project ends, but that's not the right way either. If we limit ourselves with this lifespan, which for this project is up until 2017 so far, we entirely misrepresent explanatory power of criterial indicators. With such a short life, the project would be inefficient and unacceptable. In this type of projects funding is always received for a few years ahead, but it is certain that a project like this can work for several more decades, it would be totally misleading assumed that the lifespan of the project is only a few years, for which the funds are currently prepared. Additionally, another funding source of a non-profit project may appear any time. In this particular case, it is even certain that large part of the costs will be financed from its own resources in the future.

Besides the obvious economic indicators, I tried to verbally comment on the invaluable benefits that the project brings without getting beyond ethics. As already stated in this thesis, all attempts to directly evaluate the value of human life are unethical, and therefore it needs to be assessed separately and only verbally. There is a vital key indicated in the relevant literature sources, which I followed in the analysis. Which means the evaluation should not be outweighed by the effort to evaluate everything at any cost, because trying to evaluate all values that cannot be priced since it just distorts the whole analysis. And so I paid equal attention to valuable and directly invaluable values during the analytical part. And also when interpreting the results of the evaluation, I focused on both aspects as well because only comprehensive view on the project makes sense. I am demonstrating disadvantages of NPV indicator on its calculation, because main difference between profit and non-profit projects is in financing, and that is why is impossible to use all of the indicators of chosen method. The criterial indicator PV, which seams to be the most objective indicator, shows that project is acceptable and the non-quantifiable benefits outbalance many times the cost. Project is found as effective.

The aims that I set out to work at, have been fulfilled.This work could serve as a basis for evaluating similar non-profit projects. It is obvious that it will be necessary to standardize the methodology and focus on the opportunity to compare the effectiveness

of various non-profit projects. Only then it will be possible to ensure the effective spending of money on these projects in the future.

# List of pictures

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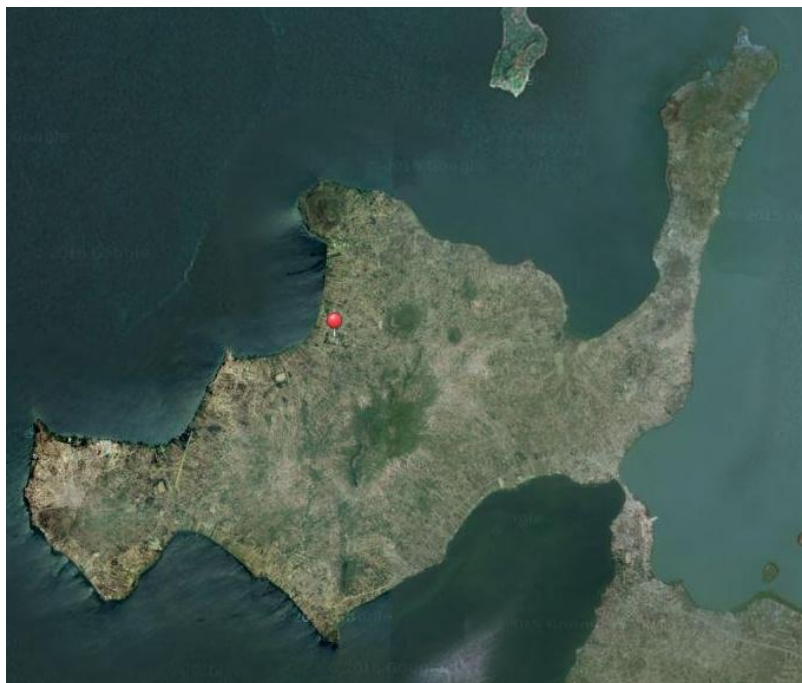
Appendices 1 Rusinga island map with community center market Source: Google maps.

Exchange	2010	2011	2012	2013	2014	2015
1 EUR to KSH	108,71201	110,0867	113,0926	118,8074	109,5439	111,0701

Appendices 2 Exchange rate EUR to KSH Source: Own, processing, data based XE

Age	Rural	Percent
0 - 4	4 200 055	16
5 – 14	7 835 215	30
15 and more	14 075 284	54
Total	26 110 554	

Appendices 3 Population of minors in rural areas Kenya Source: EAC,2009