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Title: Balance with logic-measuring the performance and sustainable development efforts of an NPO in rural Ethiopia

Year: 2021

Version: Accepted version (Final draft)

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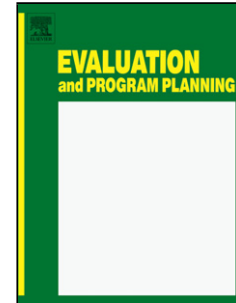
Please cite the original version:

Urquía-Grande, E., Lorain, M.-A., Rautiainen, A. I., & Cano-Montero, E. I. (2021). Balance with logic-measuring the performance and sustainable development efforts of an NPO in rural Ethiopia. *Evaluation and Program Planning*, 87, Article 101944.
<https://doi.org/10.1016/j.evalprogplan.2021.101944>

Journal Pre-proof

Balance with logic-Measuring the performance and sustainable development efforts of an NPO in rural Ethiopia

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PII: S0149-7189(21)00039-2

DOI: <https://doi.org/10.1016/j.evalprogplan.2021.101944>

Reference: EPP 101944

To appear in: *Evaluation and Program Planning*

Received Date: 2 July 2020

Revised Date: 21 September 2020

Accepted Date: 8 March 2021

Please cite this article as: Urquía-Grande E, Lorain M-Anne, Rautiainen AI, Cano-Montero EI, Balance with logic-Measuring the performance and sustainable development efforts of an NPO in rural Ethiopia, *Evaluation and Program Planning* (2021), doi: <https://doi.org/10.1016/j.evalprogplan.2021.101944>

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Balance with logic-Measuring the performance and sustainable development efforts of an NPO in rural Ethiopia

EPP-D-20-00173

Balance with logic – Measuring the performance and sustainable development efforts of an NPO in rural Ethiopia

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Highlights

- A Balanced Scorecard is designed together with a Logic Framework for a small NPO working in African context linking two management and social work philosophies.
- This model might also serve in creating legitimacy and dominance for the NPOs towards financial institutions and guide Ethiopian farmers on their long and winding road towards sustainable development.
- The small NPO is working agriculture, nutrition and economic projects in eight rural villages in the Oromiya region at around 78 km from Addis Ababa.
- Some indicators have already been calculated with data recollected through the eight rural villages the NPO is working with.
- Some of the authors researching have taught the farmers the economic part of the projects.
- The model could be replicated in other small NPOs working in the African context.

Abstract

Abstract

The analysis of performance of Not-for-profit organisations (NPOs) is difficult because there are several objectives and perspectives to NPO performance and accountability, especially if considered sustainably and in long term. This suggests that performance analysis and measurement of NPOs might also involve multiple perspectives, such as in Balanced Scorecard (BSC) or in the Logical Framework (LF) models.

This article is a case study of analysing the sustainable development and performance of an NPO in rural Ethiopia. We propose the Logic Balanced Scorecard (LBSC) model that combines elements of BSC and LF. This proposal was preliminarily used and tested in a five-year interventionist accounting case study among eight villages in rural Ethiopia. Advances in performance measurement may help improving the socioeconomic, agricultural and nutritional situation in the area. Further, an improved analysis of performance, sustainability and accountability of NPOs may make development projects easier to plan, follow and assess.

Keywords: Balanced scorecard; Logic Framework; NPOs; Africa; Sustainable development.

1. Introduction

In the field of sustainable development, there has been a considerable amount of research into rural developing areas, agriculture and the Sustainable Development Goals (SDG, see Cervantes-Godoy and Dewbre, 2010; Christiaensen and Demery, 2007; Nyamori, Abdul-Rahaman and Samkin, 2017; Ravallion and Datt, 2002; Ravallion and Chen, 2005; Thirtle et al., 2001, 2003). The development of sustainable agriculture involves social, economic and environmental issues in line with the Brundtland report (1987) and the Sustainable Development Goals (SDG) defined by the United Nations (2015) for 2030, but there has been relatively little analysis of performance evaluation of non-profit agriculture projects in the African context, and their accountability. This article aims to fill that research gap.

Accountability relations typically include legal, economic, social, technical (e.g. process), reporting and political aspects (Dhanani and Connolly, 2015; Gray and Jenkins, 1993; O'Dwyer and Boomsma, 2015). Accountability in the longer term also relates to sustainability and transparency and to performance measurement (Adams and McNicholas, 2007; Cutt and Murray, 2003; Gray 1992; Taylor, 2007). Accountability refers also to reporting and explaining actions to superiors whereas responsibility may be a more personal stance (see Connolly et al., 2012; Gray and Jenkins, 1993; O'Dwyer and Boomsma, 2015; Pellinen et al., 2018). In Not-for-Profit-Organizations (NPOs) responsibility is often organised around three perspectives: financial management, operational performance and fiduciary responsibility (Connolly et al., 2012). However in special circumstances such as during political turbulence, that is often witnessed in developing countries, accountability relations are not necessarily clear. In a changing context, the goals, organizational values and logics of operations may also be threatened (see Ramus and Vaccaro, 2017; Ramus et al., 2017). Thus there are several perspectives on accountability and responsibility in a developing country context, suggesting that performance analysis and measurement might also involve balancing the differing views in social enterprises (Ramus and Vaccaro, 2017), combining multiple perspectives, such as in the Balanced Scorecard (BSC, e.g. Kaplan and Norton, 2001), and understanding the logics and constraints of operations, such as in the Logic Framework (LF, e.g. Gasper, 2000a). This research provides a new combined model, "Logic-BSC", for analyzing NPO accountability in a developing country context, namely in rural Ethiopia, in order to pave the way for improving the NPO beneficiaries' livelihood.

A non-profit organization (NPO) is dedicated to a particular social cause advocating social and economic development. NPOs play a variety of social, economic and political roles: they offer services, educate and defend, and they involve people in civic and social life (Salamon et al,

2013). NPO areas of activity include social services, education, health, housing and economic development and international aid, and NPOs use their income to achieve their ultimate goal (see e.g. Chen, 2010; Cutt and Murray, 2003; Dhanani and Connolly, 2015). NPO income often includes donations from individual donors or foundations, corporate sponsorships, government financing and merchandise sales (Sacristan et al, 2016).

The objective of this research paper is to analyze NPO evaluation in the context of the developing country Ethiopia, and to design a model for the analysis of NPOs in order to facilitate effective projects for improving local problems in nutrition, agriculture and the economy. Our Logic-BSC model links two management and social work philosophies: the BSC and the Logic Framework. This model might also serve to create legitimacy and dominance for the NPOs over financial institutions and guide Ethiopian farmers on their long and winding road towards sustainable development. Some of the indicators proposed in the model have already been tested and followed in the eight case villages of this study.

A starting point of this research is the Resource Dependence Theory according to which the NPOs analyse different strategic alternatives to improve resource scarcity and uncertainty, with differing support from interested parties, differing power for action, and differing measures for their results (Froelich, 1999; Pfeffer and Salancik, 1978). This is important as resources in Sub-Saharan Africa are scarce, and there are multiple interest groups contesting for power, so coping with the environmental and political turbulence is a key to development project success.

The Balanced Scorecard (BSC) was a concept born in the 1990s for measuring and managing the performance of large multinational companies. In the BSC, strategy is organised in four perspectives and measured by key indicators defined within these perspectives (see Kaplan and Norton, 1993, 2000, 2001). The model has been extended for Small and Medium Enterprises (SMEs) and widely implemented also in Local and Regional Governments (Kaplan and Norton, 2001, 2004). The BSC has not been intended, however, for international NPOs or for developing countries as it typically requires a relatively complex system of indicators, activities and results linked with assumptions of causal relationships (de Villiers, Rouse and Kerr, 2016). However Alonso (2012) suggests that international cooperation should be both quantitatively and qualitatively evaluated. In Africa the Red Cross defined a BSC for their project in Kenya (Mohamed, 2013), suggesting that BSC models may have potential in the measurement of international projects. Currently research is advancing in designing BSC for developing African countries (Bobe, Mihret and Obo, 2017).

In developing country institutions, a model called the Logical Framework (LF), is typically used, for example when analysing and financing NPOs projects. The LF has some similar elements with the BSC, though it starts from inputs and outputs and is often more qualitative (Gasper, 2000a, b). Many NPOs have to define a LF for financing their projects if they want to obtain funds through public calls that focus on third world development projects.

In this paper we analyze the best aspects of BSC and LF frameworks and present a combined LBSC framework. Our research questions are:

RQ1: Are the LF and BSC frameworks complementary for NPO development projects for funding and monitoring?

RQ2: Is a combined LBSC model perceived to facilitate measuring improvements in NPO performance in the case of a developing country context?

In this paper we consider the feasibility of joining the BSC and LF approaches in an African context, in rural Ethiopia, which is an example of a country with many possibilities but with lot of NPOs and development work to be done. We apply the “Logic Balanced Scorecard” (Logic-BSC or LBSC) in a real Ethiopian NPO, especially regarding a development project, which aims to teach the farmers some new agricultural techniques, economic management, accounting and nutrition. The case empirical data was collected while working together with a local NPO for five years. After analysing the performance management problems in the area, the LBSC was designed during the project. Theoretically, we contribute to the analyses of the complexity of accountability relations (see e.g. Ahrens and Ferry, 2015; Messner, 2009) and performance measurement in an African context.

We suggest that defining the LBSC perspectives, objectives, expected results, main activities and key indicators could be a managerial focus area in new Third World projects. When helping the NPOs to design a model including both BSC and LF philosophies we expect to contribute to understanding constraints in accountability in the developing country context, understanding the effectiveness of local development work, and the usefulness of NPO reporting. In this research we focus on the LBSC model applied to the nutritional-agricultural and accounting issues in a project that our case NPO is trying to implement in eight villages in Ethiopia. Thus this paper intends first to make an academic review of the BSC and Logical Framework methodologies as used by the NPOs in order to get financial funds for their development projects. Once both methodologies are analyzed we will compare them to observe differences and similarities and propose a joint framework for a concrete NPO development project in rural Ethiopia. The proposed LBSC framework is intended to aid different stakeholders in evaluating the NPO or NPO project, perspectives of analysis, general and specific objectives, expected results and value added activities. Finally, the reliability and usefulness of the empirical indicator data and information as well as the interrelations among indicators and perspectives will be discussed.

Thus the structure of the paper will be the following: after a bibliographic review, the concept of the LBSC model will be introduced. Then the empirical case methodology, including both qualitative (e.g. author’s participation and interaction with the NPOs actors) and quantitative (e.g. survey) elements, are presented. Then the results and the empirical usefulness of the LBSC model will be discussed. Finally the conclusions will be drawn and avenues for future research proposed.

2. Balanced Scorecard and Logical Framework in the development project context

2.1. Balanced Scorecard

The BSC is a well-known tool for strategic management accounting in developed countries. However it is much less known, used or researched in developing countries. The BSC is a system for strategic management, performance measurement and a tool for communication among a company's actors. It has already been widely used in manufacturing, in the service industry and in some non-profit and governmental organizations. The BSC enables business to transform its overall organizational strategy into more measurable indicators expected to lead to effective management within four perspectives. The BSC highlights defining the vision and mission, and then defining key indicators, to facilitate the target attainment. The indicators are typically presented according to four perspectives: financial, customer, internal process, and the learning and growth perspective.

The four BSC perspectives can be adjusted to the case context or culture of the organization where profit and non-profit organizations can have relatively similar balanced scorecards. With the objective of creating profits and maintaining sustainable business operations, businesses pay more attention to their financial performance (Chen, 2010). For instance Kaplan and Norton (2004) point out that the Fulton County School System has structured a BSC including five perspectives instead of the original four, defined as: student performance, stakeholder, teaching and administration process, learning and growth, and financial performance. Further the "Strategy Map" version of the BSC tries to answer the causality questions among the measures, defining leading and lagging indicators and causal routes, typically leading to financial success at the top of the perspective list (Kaplan and Norton, 2000). Also strategy maps can be adjusted according to organizational needs; for example, in the Fulton County case the financial perspective was placed at the bottom of their strategy map.

Research on the BSC in emerging economies is rare but there are a few studies dealing with the problems with the BSC in China or Africa. For example, the BSC was introduced in China at the turn of the millennium and is widely used in profit and non-profit organizations, but it proved not to be so effective because it was not adapted to the local strategic management system (Zeng and Luo, 2013). In Africa, the Kenya Red Cross Society (KRCS) decided to implement the BSC in 2011 in order to improve its strategy implementation and enhance its operations. The main BSC principles were followed but adapted to an NPO organization which does not aim at achieving financial success, so the scorecard perspectives were reviewed and the classification was changed, by placing the beneficiaries (i.e. the customers) as the first perspective instead of the financial perspective. The implementation of BSC strategy was clarified and restated at the KRCS and the objective was defined in operations strengthened by focusing on the key projects such the livelihood improvement project and optimizing the use of resources (Mohamed, 2013; Mulu, 2010). The KRCS example shows that with some modifications the BSC scorecard perspectives can be switched and organized to provide an optimal adapted framework for NPO strategy implementation. Currently new research has appeared with proposing BSC for public sector health organizations in developing countries such as Ethiopia (Bobe, Mihret and Obo, 2017).

Since Norreklit (2000, 2003) criticized some of the assumptions of the BSC, such as the causal relationship among indicators, and its temporariness, other authors have also highlighted the unidirectional dependence among the indicators (Akkermans and Oorschot, 2006; Magnuszewski et al., 2003) and the lack of flexibility of this management tool (Micheli and

Manzoni, 2010; Voelpel et al., 2005; Molleman, 2007). Furthermore, Pessanha and Prochnik (2006) revealed that sometimes the financial stakeholders' perspective is the only one taken into account while others may be omitted. Besides, research on BSC implementation in private companies showed the failure of this device to fully incorporate social and environmental issues (Anh, 2001; Salem, Hasnan and Osman, 2012). Furthermore, properly defined measurement concepts are vital for the purpose of NPO accountability, which is not completely fulfilled because of the vagueness and openness of the targets and focus of measurements (Wong and Wing et al., 2007).

2.2. African accountability context and NPOs

Accountability refers to a duty of reporting and explaining actions to superiors or principals (e.g. funders), whereas responsibility may be a personal stance (see Connolly et al., 2012; Gray and Jenkins, 1993; O'Dwyer and Boomsma, 2015; Pellinen et al., 2018). However in special circumstances, such as during political or environmental turbulence or crises, accountability relations and the traditional logics of NPO (or other social enterprise) operations may be threatened (Fischer and Ferlie, 2013; Ramus and Vaccaro, 2017; Ramus et al., 2017). Sometimes, however, crises and turbulence may foster developments, collaboration and organizational positioning (Ramus et al., 2017; Sargiacomo, 2015). In particular, both collaboration and formalization of practices (structures and habits fostered by active managers) are typically needed to help organizations find a suitable logic for operating in turbulent circumstances, and this interplay of collaboration and formalization can be called structured collaboration (or "structured combination of formalization and collaboration", as in Ramus et al., 2017).

Seeing the views, values and logics of both the superiors and the grass-root level actors, such as local stakeholder groups, is important in understanding accountability relations and in setting lasting development targets (Ahrens and Ferry, 2015; Fischer and Ferlie, 2013; O'Dwyer and Boomsma, 2015; Ramus and Vaccaro, 2017; Ramus et al., 2017). There are limits (or constraints), however, as to how precisely accountability can be pinpointed and understood within an organization (Messner, 2009). Further, in accountability reporting, there are several indicators and results that can be linked with assumptions of causal relationships, even if they can be uncertain or varyingly important for different stakeholders, for example regarding sustainability reporting (de Villiers et al., 2016).

In our view such difficulties are highlighted in the African context by societal instability and extreme poverty, where external constraints (such as rainfall, wars etc.) may have a huge effect on developments, and may obscure the accountability relations and causal linkages among BSC measures. However a complex context sometimes allows for a lack of transparency in reporting, and shifting blame and avoiding accountability pressures, especially if there is no clear performance measure available such as the profit (e.g. Gray 1992; Pellinen et al., 2018 Adams and McNicholas, 2007; Taylor, 2007). Therefore understanding the difficulty of context or constraining factors seems vital in assessing the performance of NPOs.

2.3. Logic Framework

Instead of the BSC, the LF is typically used in many African development projects and is created to assist in collecting concrete financial funding and following up the progress of the project. The LF approach (see Bakewell and Garbutt, 2005; Gasper, 2000a,b; INTRAC, 2015; Norad, 1990; Ringhofer and Kohlweg, 2019) is a model for qualitatively considering the causal relationships between inputs, outputs, project purpose and program goal (Practical Concepts Incorporated, 1979, Wiggings and Shields, 1995). LF has been required also in non-African developing countries. For example the National Program for Strengthening Family Agriculture (Pronaf) in Brazil required LF in projects familiarizing family farmers with public policies, analyzing the trends of policies from the 90s, and democratizing the access to financial resources as well as increasing sustainability (Figuereido and Mendoza, 2014).

The LF is a device designed for international cooperation and basically organises information, identifies project weaknesses and leads to better decisions based on the project developers' insight and knowledge. The LF is built on a matrix of 4*4. One axis typically contains the development hypotheses which are defined by a causal relationship between: inputs, outputs, purpose and goal. In such a logic model (see Seear et al., 2020), inputs can be for example resources of the project, and the inputs (if correctly used) to outputs such as activities creating results or outcomes that support the purpose or the operations in reaching the general objective or goal of the whole project. Along the other axis the indicators, means of verification and assumptions of project are typically presented. The indicators and assumptions will not be useful only when defining the LF but also when implementing the project and finally when evaluating the whole project. The selection of suitable indicators may also help to clarify the project goals, design and future performance evaluation. Preferably the indicators are objectively verifiable and quantifiable so that evaluation is possible in different phases (Seear et al., 2020). Several means of verification such as reports, proceedings and photographs can be used as indicating the fulfilment of accountability relations, for example when managers and investors control the action, i.e. when donors produce action from a distance (Latour, 1987).

If there are factors out of the manager's control they should be taken into account and the manager might not be held responsible in evaluations. The LF can be broken into the activities and each team of workers can be responsible for getting the activities done, and achieving the outputs, and the goals. The LF can be used in communication between managers, superiors and workers. An ideal team working together to design a socio-economic LF is a project manager with a long term vision, experts in accounting and strategy and experts in "grass-root" and technical issues. This way the LF will be defined from top to bottom: first the goal, and then the purpose, results and activities. The core of the model is a series of propositions connected in a logical way. Further, the LF can later be reviewed from bottom to top because this is the way it will be processed in practice. Important technical issues include for example agricultural know-how if the LF is about agriculture and farmers' efficiency (Sartorius, 1996). Local social workers who know the language and context can also be useful in the LF design. The process of building the LF is helpful for deciding which activities are necessary, especially if considering which changes are needed first and which in the longer term (see Ringhofer and

Kohlweg, 2019). Once the LF is built, it is used for evaluating the projects provided that essential data can be collected and the key indicators reliably measured.

Criticism of LF reveals its lack of uniformity in the way it is presented so there is no real comparison between two cases. Further, there may be sub-optimal behavioral effects in performance measurement of levels and sub-units, which may only be revealed after a substantial time period. Also too much information may be included in a too rigid framework, making the LF difficult to adapt to changes. Additionally, LF usefulness is also questioned as sometimes it is designed for NPOs but not for credit institutions – or vice-versa (Gasper, 1999; Bakewell and Garbutt, 2005).

2.4. Logic Framework & Balanced Scorecard = Logic Balanced Scorecard (LBSC)

Continuing with the BSC approach, the “Strategy Map” tries to answer the causality questions among measures, defining leading and lagging indicators (Kaplan and Norton, 2000). Nevertheless, causality is difficult to prove and many things can lead to financial success. Under African special conditions, external issues and the resources stated in the LF approach can better explain the conditions, assumptions or pre-requisites for causality. Some causal relations may work only in some contexts or in conditions of peace and a free market, which may not be the condition in Africa. Therefore the conditions of the project can determine its success. For example, customer satisfaction may be important but other variables may be even more important in special circumstances, such as the amount of rainfall and political stability, which might be graded on a scale of low, average or high. The LF model considers the conditions (or prerequisites) under which indicators do (or do not) at some level lead to later success regarding for example the project overall (see Practical Concepts Incorporated, 1979).

LF analysis of the conditions and levels can thus give a more nuanced view of the indications of success (leading indicators in BSC terms). For example measures of sub-projects may support the whole program but may be dependent on some condition. For instance in the BSC strategy maps, training may lead to best practices but any practice works only if there is water for agriculture. The water, peace and minimum health conditions are logical prerequisites for success. Regarding the water condition we can measure rain-collecting capacity, the wells and rainfall but political stability may need to be estimated for example on a scale of low, average or high. In African circumstances such conditions seem to be much more important than the typical causal flows of matters in a normal European context, where training probably leads to best practices and then probably to resource optimization. After collecting sufficient data, we may be able to judge whether improvements in local health for example are due to increased rainfall or changed agricultural practices.

In this paper we suggest a Logic-BSC (LBSC) where all BSC perspectives include both short-term and long-term indicators, and, importantly, conditions or prerequisites for both success and failure (see Table 1). LF is also relatively widely accepted as a tool for aid management but it is not as precise a tool as BSC for impact measuring, which is a key reflection of aid effectiveness. Further, there is a difference between monitoring and evaluating (Chirau and Blaser-Mapitsa, 2020), where monitoring focuses on efficiency in doing things, and evaluation focuses on the

effectiveness, i.e. on doing right things. Complex legislation, political situation and other conditions for aid can be seen as possible limitations of evaluation practices (ibid.). Measuring impact has been a weak step in evaluations of aid, because of its costs, methodologies, time and difficulties involved in developing countries. However we consider the analysis of the conditions and prerequisites of aid to be a necessary exercise both in financial and accountability terms. The purpose of the model proposed is to address these issues. Furthermore, the use of qualitative and quantitative methodologies and the importance of defining correctly the main objective and the conditions for achieving it are the important points for the LBSC framework to succeed in assessing NPOs or NPO development projects. The different indicators proposed in our model are “balanced” from several perspectives, based on the importance of processes and logical thinking. This way we integrate the BSC and the LF, so that there would as much logic behind the balancing of BSC and performance analyses as possible.

Here Table 1

3. Context, materials and method

3.1. Context

Ethiopia is the oldest independent country in Africa and the second largest in terms of population. It was a founder member of the United Nations and is, currently the African base for many international organizations. However Ethiopia has suffered periodic droughts and famines as well as civil wars and is currently suffering a considerable political unsteadiness. For those reasons it remains one of the world’s poorest countries. Nevertheless its economy has experienced strong and broad-based growth over the past decade. Expansion of basic services and the agricultural sector account for a large amount of this growth, while manufacturing sector performance is decreasing. This economic growth results in positive trends for poverty reduction in both urban and rural areas.

Sustained economic growth suggests poverty reduction, job creation and improved societal practices. The Ethiopian political institutions are already allocating a part of their resources to investments in the poorest areas. However these reforms are provoking political struggles between the different ethnic and political groups in the country. International donors and NPOs continue to provide their contributions in the short-term in order to finance the costs needed to meet the challenges in the area. However, the aim of using aid efficiently suggests that Ethiopia improves the accountability practices towards its citizens as well as the finance infrastructure and support for international investment. According to our experiences, there has been progress in the infrastructure and in human development indicators, such as more primary school enrollments, less child mortality and better access to clean water. These achievements, together with more recent health investments, strengthen the fight against malaria, AIDS and other diseases and improve Ethiopian citizens’ well-being. However, Ethiopia still confronts issues such as maternal mortality, nutrition, security, gender issues and education quality in different regions of the country.

Currently, despite the improvement in health, the economy and infrastructure, Ethiopia is politically unstable, with protests erupting in different ethnic groups of Ethiopia since 2016 in response to calls by opposition or revolutionary groups. Protesters have demanded social and political reforms, including an end to human rights abuses (such as government mass arrests, land seizures, and political marginalization of opposition groups). The government responses have also included restricting access to the Internet and arresting some protesters.

3.2. Material

For this investigation researchers have worked together with an NPO based in Ethiopia in the area of Muketuri (Urquía-Grande and Rubio-Alcocer, 2015). This NPO has worked for more than 20 years developing nutrition, agriculture and educational programmes. The NPO manages a community sanitation project that includes preventive medical services, community training, environmental health, continuous training in agriculture and economics, nutritional rehabilitation, an animal farm, children's day care centres, and the promotion of agriculture and new water resources. Recently they launched a new programme focused mainly on improvements in agriculture with donations for new wells (Urquía-Grande and del Campo, 2017). The NPO is building and training farmers in eight Ethiopian rural villages (Urquía-Grande et al., 2018). Approximately 80 km north of Addis Ababa, these villages are considered to be among the poorest in Ethiopia with a high risk of malnutrition. Most of this area's population live in houses made of earth and there is a poor access to main services such as water, electricity and communications. The main ethnic groups living in the area are the Oromo and Amaharas. Their main resources are agriculture and breeding cattle. Agriculture is limited to the rainy season from July to September which allows only one harvest per year. Teff (a type of local cereal) is the only plant cultivated in the area, and has low nourishment characteristics. The NPO has managed to build 89 wells in the following eight villages included in the research: 7 in Muketuri, 24 in Gimbichu, 21 in Mechela Andode, 11 in Ibu Kura, 6 in Yate, 14 in Rob Gebeya, and 4 in Jebene, which along with Arkisso has one deeper and more efficient drilled well. The NPO has provided much of the information about the empirical work and infrastructure grants. Typically the hand-dug wells are 12 metres deep at an average cost of about 1,050 USD per unit. These wells will enable farmers and their families to have access to clean water and to create small vegetable gardens. These vegetable gardens allow for the cultivation of different vegetables (potato, garlic, onion, spinach, carrots and cabbage) which are very valuable nutritionally and economically. The drilled wells are much more expensive and cannot be built in all the fields.

The researchers, after having worked in several agriculture and commercial projects together with the NPO for several years (mainly 2013-2017), designed and carried out a socio-demographic analysis with some questions about agricultural, nutritional and economic circumstances. The questionnaires were conducted randomly among the farmer households in the eight villages mentioned. The questionnaire was designed to gather some initial information about the NPO program beneficiaries. The survey was tested and validated by a panel of academic and practitioner experts. The purpose of the survey was to help designing suitable measures for the perspectives in BSC (especially the customer or beneficiary

perspective). Thus the survey was important for understanding the beneficiaries' well-being and financial status as well as their agricultural processes and practices.

The typical number of farmer family members in a household was more than 5, and the ages of the surveyed were typically between 20 and 30 years, and the standard education level was primary school. Regarding the labour status, the majority were self-employed in agriculture. The financial resources they use include credit cards and mortgage loans, though these are not common. In some villages the NPO had already given training in agriculture and nutrition to farmers, and they said it was very useful. When asked about economic training they considered managing their finances as very useful. The majority of the surveyed population answered that they worked in agriculture, although some work in the manufacturing sector (clothes, ceramics, machine tools, and leather goods). A minority of the surveyed population answered that they worked in the main services (motor repairs, hair-dressing among others). The villages do not work cooperatively in producing agricultural products or services.

The majority (65%) did not want to answer the question about monthly income and it may also be that paper money is not widely used by all the people living in the area. Of the respondents that answered, the typical farmer household income was 50 dollars per month. However 15% stated that their income was less than 200 Ethiopian birrs (about 6 dollars) per month.

The researchers contacted the NPO and the training and follow-up program was organized jointly. Several meetings were prepared with each village during the time periods in which the researchers were travelling and staying in the area, mainly in the Muketuri village. The NPO informed the eight villages' farmers in different ways that this training was compulsory for all families involved in the well donation and children nourishment improvement project. Based on the work done by the NPO and the researchers locally, this investigation proposes a new holistic project planning and analysis model, which includes and complements the LF and BSC philosophies and methodologies.

3.3 Method

The methodology followed is an experimental case study research including participatory and interventionist features (Yin, 2011; Jönsson and Lukka, 2006, Ryan, Scapens and Theobald, 2002), where participation is used for addressing the research questions and producing practical implications. The exploratory case study is built on existing theories and the LBSC tool is developed using normative reasoning. The LBSC technique may assist accountants and managers to evaluate the existing projects and new proposals, and their constraints.

We analyze the design of a holistic model (LBSC) which may facilitate the NPO managers to present their projects to different financial institutions with the aim of raising funds. The LBSC model proposed is also intended to assist NPOs to define the causal relationships of operations and to find logical indicators of success or failure. The LBSC model will include the NPO's general objective together with the specific objectives, expected results and core activities. Within each of these objectives and expected results there will be empirical indicators that should represent both the activities and the results achieved, and the conditions or risks to be

taken into account. Finally, the model will be represented in a matrix that can also be used to follow the project. This matrix has been used to follow the NPOs project to improve agriculture, nutrition and the economy in the beneficiary villages.

The empirical research comprises survey, interviews, and participation, for example to find data about indicators from the four perspectives of the LBSC in the eight villages. This empirical approach also provides preliminary feedback, such as the first impressions by the manager, on the value added by the tool proposed.

3. Model proposal

This research proposes a holistic model based on the BSC and LF philosophies and methodologies. From the BSC we structure the model into objectives, initiatives and performance measures, and from the LF framework we add assumptions and constraints. Furthermore we adapt the perspectives of the BSC to the development context, in this case the creation of an LBSC for a project in rural Ethiopian villages.

The four BSC perspectives proposed by Kaplan and Norton in 1993 are: *learning and growth perspective, internal processes perspective, financial perspective, and customer perspective*. Regarding the strategy map approach (Kaplan and Norton, 2000), in an NPO context financial performance is perhaps not the top goal and the clients of the case NPO are typically non-paying project beneficiaries. Therefore the customer perspective is here called "*Beneficiaries perspective*". Further, because processes and productiveness are related in agricultural activities, we call the second perspective "*Processes and productiveness*". The financial perspective is related not to profit as such but for example to financial sustainability and this is highlighted by calling the third perspective "*Financial sustainability*". Thus in the case context we have the following perspectives for the case NPO:

- Learning and growth,
- Processes and productiveness,
- Financial sustainability,
- Beneficiaries.

This LBSC model has been approved by the NPO members who considered that the LBSC clarified objectives, initiatives, performance measures, targets and assumptions. Moreover, the LBSC tries to overcome the problems noted by Salem et al. (2012) and Norreklit (2000; 2003). The next step might be for example to present the LBSC model to stakeholders, such as funders and financial institutions, in order to obtain additional funds for these NPO projects.

During the participatory observation periods, we noticed several potential indicators of performance. For instance regarding the learning and growth perspective, these might include: the register or assistance lists (indications of the work force and the number of beneficiaries), proceedings or progress reports given about fulfilling the curricular program, and photographs. Additionally potential indicators of productiveness might include news coverage, books, certificates and awards, and the results disclosed in the quarterly and annual assessment reports (including information about resources and number of wells dug, etc.). The quarterly

and annual assessment reports also include the grades given by the lecturers to the participants working on the training courses.

The mission of the project is for the NPO to be effective and empower the villages in which it works in Ethiopia to be self-sustained. The vision of the project in this context would be to strengthen the productiveness and health of the eight rural villages to guarantee an increase in the farmers' revenues as well as in endogenous development. The specific objectives raised from the general mission and vision are to train the farmers of these villages through the program to develop better agricultural methods together with training in better nutrition techniques and also in accounting and financial management.

The strategic lines defined above can be divided into the necessary perspectives adapted to the NPO mission and vision. The first perspective is the beneficiaries (the village farmers) with the main objective being to improve the villages' livelihood. The second perspective is financial sustainability with the main objective being to optimise the resources and increase income. The third perspective is the villages' productiveness and processes in agriculture and nutrition, and in manufacturing. The fourth perspective is the learning and growth with the objective of strengthening the farmers' knowledge of agriculture, nutrition and financial management, and thus to increase the capacity for innovation and developments. The researchers had already provided some basic training for the local families. Next, Figure 1 outlines the LBSC and the project objectives. However, success in all the perspectives is largely conditioned by the amount of rainfall and by political stability. Thus, a logical decision is to react to conditions and conduct training in those villages where it works best, for example where immediate working on the field carrying water is not very critical and there is time for education.

Here Figure 1

In Figure 1, the objectives of the project are categorised in four perspectives, including the LF concepts of inputs, outputs, purpose and goals. The whole LBSC is designed in an Excel which will be filled in during the course of the project and its follow-up. A further description of the indicators in the perspectives is found in the text below and in the following tables.

a. Learning and growth perspective

The main objective of the learning and growth perspective is the agricultural, nutritional and financial training for farmers which will enable them to adopt new processes, optimize their use of resources and increase production. The main initiatives will be to recruit farmers to be trained, and to develop training facilities and materials. As an incentive, the NPO could, for example, offer a hand-dug and hand built well to the farmers who attend the full training program. Performance indicators and targets are defined within this perspective in Table 2. The assumptions defined are good weather conditions, classroom availability, minimum training resources, language translation (e.g. the Amharic language) and the availability of financial resources (some initial investment from the farmers is preferred). However, attached to each of these assumptions are some risks, such as riots or occasional heavy rain during July and August that could make it very difficult for the technical team to reach the villages.

Here Table 2

b. Processes and productiveness

The main objective for village productiveness is to implement innovative processes in agriculture, nutrition and financial management. The main initiatives for agriculture will be watering by dripping, the introduction of how to cultivate several vegetables together, the construction of storage facilities, and developing innovations in agriculture. The main initiatives for nutrition will be to establish cleaning and nutritional programs. Finally in the financial development the initiatives will be to introduce basic management accounting processes and to develop an application (App) for cell phones. These three areas will share the initiative of defining best practices. The performance indicators and their targets are summarized in Table 3. The initiatives could be implemented only if the farmers are motivated to implement these innovations, if there is no vandalism, the infrastructure is maintained in good condition and finances are available for latrine building. For the information and marketing App farmers require a cell phone and access to the Internet.

Here Table 3

c. Financial Sustainability

The objective of financial sustainability is considered to follow from the optimisation of resources and increased production. The main initiatives here will be the delivery of seeds, fruit trees and water-dripping equipment for the farmers. The performance indicators and its targets are summarized in Table 4.

Here Table 4

d. Beneficiaries (Villages/Farmers' households)

The farmers' improved capabilities and the innovations in agriculture, nutrition and economy are expected to result in improved livelihood for the villagers. The development of a model of farm production of several vegetables, a household with at least minimum sufficient nutritional standards, and a model of bookkeeping, will lead to the villages becoming empowered. The performance indicators and targets are summarized in Table 5. In the long term with this kind of data, an index (or some combined measure about health and economy) could be developed to compare the quality of life in the villages (Higgs, 2007).

Here Table 5

4. Findings

The LBSC model has been tested by the NPO during the year and some indicator data have been calculated for the four perspectives defined. The data collected proved the logical cause and effect relations among indicators. For example, in a horizon of one year, the more the farmers are trained the more they cultivate crops, have revenues and start saving and controlling their money through bookkeeping. In contrast with a classic strategy map, however, the focus is not on the improvement in the results of one organization alone but the

benefits for many families and villages through co-operation and logically coordinated efforts by the stakeholders, depending on the rainfall during the key weeks of harvest periods.

a. Learning and growth

From the learning and growth perspective two indicators were collected: the number of farmers recruited for the training and the training plan execution. This data is presented in Table 2 and Figures 2-3.

In Figure 2 (in the blue column is the target percentage of farmers to recruit and in the red column how many farmers were recruited) we can observe 65% of the farmers in all villages have attended the NPO training program. The village with the least farmers recruited is Muketuri, which is the most urban village where there is an increasing number of people working in the service sector or as civil servants. Furthermore, farmers in this village are already well trained because it was the first village where the NPO program was implemented. The three villages with the highest rate of participation are the ones that have entered the NPO training program recently, Arkiso, Rob-Gebeya and Jebene.

Here Figure 2

Figure 3 (in the blue column is the target of the training plan execution and in the red column what training plan has been executed) shows that on average 49% of the training plans were implemented. The trend is fairly similar in Gimbichu, Mechela as well as in Muketuri, which presents the minimum rate of success. This is because Muketuri experienced some political instability and conflicts with police, and because it had been working with the NPO for 20 years and no longer benefits so much from newly recruited farmers, so it was logical to move some of the resources (inputs) to other villages to obtain more benefits.

Here Figure 3

b. Processes and productiveness

Within this perspective the NPO has collected data about the farmers who are cultivating several vegetables. On average 54% of the farmers are cultivating more than two vegetables, above the target of 50% (Figure 4). Again we can observe that Yate, Rob-Gebeya and Igukura are the villages with the highest achievement score towards their objective of cultivating several vegetables. This result correlates with the percentage of farmers recruited and the execution of the training plan.

Here Figure 4

c. Financial sustainability

Within this perspective, 32% of the farmers are obtaining profits by selling vegetable surplus once they have nourished their families (Figure 5). The villages which obtain above average

profits are Rob-Gebeya, Igukura and Gimbichu. As the overall average achieved is low it could lead us to organise another training course focused on sales techniques and access to markets.

Here Figure 5

d. Beneficiaries

In this last perspective, the general well-being of beneficiaries or perceptions of their financial status were asked in the survey. In addition, for example the farmers' bookkeeping activities (related to their personal ability to plan and handle financial issues) was measured and, as it can be observed in Figure 6, Rob-Gebeya and Yate are above the subjectively stated project objective. This can be explained because Rob-Gebeya is a village with a majority of women, a fact which can explain the figure as, according to our participatory observation, women typically control more village monetary resources than men in rural Ethiopia.

Here Figure 6

Regarding the causal maps if we take Rob-Gebeya as an example we can see that this village has the highest rate in farmers who have been trained and it is the village with the highest rate of farmers cultivating several vegetables and finally obtaining revenues and profits from selling their vegetable surplus. Also most children in this village have been nourished. Here the main pre-conditions were fulfilled: there was political stability and during the period the weather was not too rainy or too dry, so the logically focused efforts in that village "fell on good soil".

5. Discussion and conclusions

This research provides a new holistic model that could help the evaluation of performance and accountability of NPOs. We suggest that linking management accounting and social work frameworks, the BSC and the LF, can be helpful for analyzing beneficiaries' livelihoods in rural Ethiopia and in analyzing the long and winding road towards sustainability, i.e. the NPO long-term sustainable development, if localization (regarding BSC perspective names and measures and the constraints of performance) can be made (RQ1). The objective of the model is both to advance our understanding of the problems of promoting sustainability in a developing-country context and to develop effective projects for solving the local problems related to nutrition, agriculture and finances.

The LBSC model is, from an organisational and managerial perspective, based on the Resource Dependence Theory. According to the Resource Dependence Theory, the NPOs in Ethiopia analyse different strategic alternatives to counter the scarcity of resources and to reduce uncertainty, so the LBSC proposed could be a tool to better analyse the strategic alternatives and constraints. Further, the LBSC can serve as a *reporting framework* towards interest groups. Also the LBSC model we propose can be a benchmark for NPOs in other contexts to follow.

Our participatory analysis of the Ethiopian NPO shows the complexity of understanding beneficiaries' well-being in the long term under the turbulent political conditions of Ethiopia.

Even if the number of wells dug may seem a simple indicator, water is not the only process or productivity factor, however. The complexities include political instability, wars, diseases, heat and drought (see also Chirau and Blaser-Mapitsa, 2020). Also the lack of agricultural knowledge or plant seeds together with wars may impede the best intentions of a project. Further, there is difficulty in measuring the impact of NPOs because there are practical and conceptual difficulties in measurement (multiple languages, even the lack of a monetary vocabulary) and understanding well-being. Generally, however, our LBSC method allows several key indicators to be defined for assessing the impact of projects and taking into account key constraints for performance.

We confirm that performance analysis and measurement involve balancing differing views, values and logics in social enterprises (Ramus and Vaccaro, 2017; Ramus et al., 2017). Further, in a developing country context, combining multiple measures and perspectives, such as in the Balanced Scorecard (BSC) and the Logic Framework (LF) seems to complement the assessment of NPO performance. We further suggest that in African conditions, taking into account the complexity of the context, is a suitable starting point for analysis and comparison. Combining the best aspects of these methodologies may help determining the suitable conditions for target attainment, and for understanding the interrelations among targets and measures. This may help managers in improving the logic and consistency of the operations. Furthermore, when the most important conditions are revealed and the links between results and resources of NPOs can be evaluated, the initiatives for development can be managed, and redefined if necessary, with decisions that are informed ones. Flexibility mechanisms, such as analyses of constraints or prerequisites of success, as well as risk analyses, may also be helpful in improving traditional BSC analyses. Therefore in this paper we elaborate the BSC and LF together in an African context and suggest a Logic Balanced Scorecard (LBSC) model as a new analytical tool for NPOs. We see BSC and LF as complementary and compatible (regarding RQ1). Further, the feedback received from managers suggests that the LBSC facilitates the measurement of NPO performance and beneficiaries' well-being in the case context (RQ2).

Over recent years, empirical knowledge of the logical cause and effect relations has been collected. For example Rob-Gebeya was a village under suitable conditions, where added focus seemed logical to obtain the most impact. So in Rob-Gebeya more farmers were trained and they increased their cultivation of several vegetables, obtaining revenues and starting savings along with bookkeeping and a better understanding of how to handle personal finances (see Urquía-Grande et al., 2018). In our model LBSC, Rob Gebeya could be a benchmark for other villages. In the more urban village Muketuri, some work had already been done, so basic agricultural knowledge already existed and less new courses were needed than in other villages. In Muketuri, political instability was present with police watching the village and with an increasing tension among the citizens, a fact which can also explain the low rate of achievement in this village. None of the eight villages works cooperatively or fully competitively in agricultural markets. As a managerial implication the NPOs might try to create practices and structures for collaboration among the villages in order to pass on best practices and new possibilities for market trade and infrastructure. Yet even this kind of small scale structured collaboration (see Ramus et al., 2017) may be impossible if the tensions escalate to conflicts (Fischer and Ferlie, 2013). Overcoming the different constraints for development is potentially a task for future NPO managers, possibly suggesting collaboration among NPOs and

several other stakeholders, in a larger scale structured collaboration (contributing to Ramus et al., 2017, with the scale of collaboration and multiple constraints involved).

A standard BSC might be relevant in many development projects since the key indicators and activity measures might explain the impacts obtained. However we added the main elements (constraints/assumptions as well as inputs, outputs, purpose and goal) from the LF tradition: see Figure 3. In our case context we found that from the four original BSC perspectives (Kaplan and Norton, 1993), the measures and activities that could be seen related to the learning and growth perspective were the most developed, and that the other three perspectives needed more focus. It is to be noted that the constraints of performance measurement in the LBSC also form constraints for accountability that typically are external (political and weather conditions), and while they are definable they are still difficult to predict at the field level (Messner, 2009). Further, understanding the grass roots level conflicts and objectives (see Ahrens and Ferry, 2015) seems particularly important in the African context with the political instability and extreme poverty. Further, having a sense of the actual difficulty of the context (weather etc.) may also prevent the external issues from being always blamed and allow for comparability and transparency in reporting and accountability relations (Gray, 1992; Cutt and Murray, 2003; Pellinen et al., 2018; Taylor, 2007). Accountability relations in Ethiopia are multifaceted, including economic, social and political aspects, and sustainability (Adams and McNicholas, 2007; Gray and Jenkins, 1993, Nyamori, Abdul-Rahman and Samkin, 2017). However, there is what we call a 'conditional accountability' so that the existence of multifaceted accountability relations (particularly legal and sustainability relations) requires conditions of peace, political stability and suitable rainfall.

The empirical research comprises interviews and other data collected in eight Ethiopian villages together with the NPO actors. The interventionist case approach (see Jönsson and Lukka, 2006) involved participant observation, development of the LBSC tool, and has provided useful feedback about the value added by the tool proposed. A deficiency that development impact assessment faces is however that the causality relations and qualitative impacts are difficult to assess. In some cases, the lack of measurement accuracy may be compensated for by a deep knowledge of the context. We suggest that it is important to include a logic analysis and a practical focus in line with Seear et al. (2020), and to consider the local constraints for performance and evaluation from the start of the project.

This research illustrates the use of the LBSC as a tool for planning and NPO management in African development projects contributing to research regarding developing countries, NPO accountability, NPO performance measurement and impact assessment literature (e.g. Cervantes-Godoy and Dewbre, 2010; Christiaensen and Demery, 2007; Nyamori et al., 2017) by highlighting the contextual constraints. We also contribute in a practical way to development country project management (e.g. Bobe et al., 2017) and to accountability reporting to stakeholders (de Villiers et al., 2016) by including both the BSC perspectives and the LF constraints for the management of aid. Further, the LBSC may be used to assess whether or not the NPOs can be said to fulfill its accountability function by having a positive effect on the target population under the circumstances in question. The LBSC model might also be good at creating legitimacy and power for the NPOs towards financial institutions and helping Ethiopian farmers towards sustainable growth. Some of the indicators proposed in the model

have already been tested, calculated and followed-up in the eight villages analyzed. We welcome more debate, however, on the impact of international development cooperation and measuring the effects of NPOs. Further quantitative research is needed to support the NPO work and evaluation of causal relations. Further, some evaluation models of NPOs might be converted to software programs such as Power BI and to mobile applications so that the stakeholders can analyze results and control the NPOs from distance (Latour, 1987). Furthermore, analysis of higher or lower performing NPOs and case villages is welcomed.

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Manuscript title: Balance with logic – Measuring the performance and sustainable development efforts of an NPO in rural Ethiopia
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Corresponding author's full name: Elena Urquía-Grande

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References

Adams, C.A. and McNicholas, P. (2007) Making a difference: Sustainability reporting, accountability and organisational change. *Accounting, Auditing & Accountability Journal*, 20 (3), 382-402.

- Ahrens, T. and Ferry, L. (2015) Newcastle City Council and the grassroots: accountability and budgeting under austerity. *Accounting, Auditing & Accountability Journal*, 28 (6), 909-933.
- Akkermans, H., Oorschot van, K. (2006). Relevance assumed: a case study of BSC development using system dynamics. *Journal of Operational Research Society* 56(8), 931-941.
- Anh, H. (2001). Applying the Balanced Scorecard Concept: An Experience Report. *Long Range Planning*, 34 (4), 441-461. [https://doi.org/10.1016/S0024-6301\(01\)00057-7](https://doi.org/10.1016/S0024-6301(01)00057-7).
- Alonso, J.A. (2012). La evaluación en la cooperación internacional para el desarrollo. *Presupuesto y Gasto Público* 68/2012: 239-255.
- Bakewell, O. and Garbutt, A. (2005). The use and abuse of the logical framework approach. SIDA. Stockholm.
- Bobé, B.J., Mihret, D.G. and Obo, D.D. (2017). Public-sector reforms and Balanced Scorecard adoption: an Ethiopian case study. *Accounting, Auditing & Accountability*, 30(6), 1230-1256.
- Brundtland, G., Khalid, M., Agnelli, S., Al-Athel, S., Chidzero, B., Fadika, L., Hauff, V. and others (1987). *Our common future* ("The Brundtland Report"). United Nations Documents.
- Cervantes-Godoy, D. and Dewbre, J. (2010). *Economic importance of agriculture for poverty reduction*. OECD Food, Agriculture and Fisheries Papers, No 23.
- Chen, S-H. (2010). The establishment and comparison of the Balanced Scorecard for profit and non-profit organizations. *African Journal of Business Management*, 4 (14), 3005-3012.
- Chirau, T. and Blaser-Mapitsa, C. (2020). How performance management regulations shape evaluation practice in South African municipalities. *Evaluation and Program Planning*, 82.
- Christiaensen, L. and Demery, L. (2007). *Down to earth: Agriculture and Poverty Reduction in Africa*. World Bank Report.
- Connolly, C., Hyndman, N., McConville, D. (2012). Research in charity accounting and reporting. A fertile field for exploration. *Irish Accounting Review*, 1, 1-30.
- Cutt, J. and Murray, V. (2003). *Accountability and effectiveness evaluation in Non-Profit Organisations*. Taylor & Francis, e-library, USA and Canada.
- De Villiers, C.; Rouse, P. and Kerr, J. (2016). A new conceptual model of influences driving sustainability based on case evidence of the integration of corporate sustainability management control and reporting. *Journal of Cleaner Production*, 136 A, 78-85.
- Dhanani, A. and Connolly, C. (2015). Non-Governmental organizational accountability: Talking the talk and walking the walk? *Journal of Business Ethics*, 29 (1), 613-637.

- Figueredo Moura de Silva, E.H. and Mendoza Bernardes, E. (2014). Estructura Lógica como metodología para avaliacao de políticas públicas: una análise de Pronaf. *Revista de Administración Pública*, 48 (3), 721-743.
- Fischer, M. and Ferlie, E. (2013). Resisting hybridization between modes of clinical risk management: contradiction, contest and the production of intractable conflict. *Accounting, Organizations and Society*, Vol. 38 (1), 30-49.
- Froelich, K.A. (1999). Diversification of revenue strategies: Evolving resource dependence in Non-Profit Organizations. *Nonprofit and Voluntary Sector Quarterly*, 28 (3), 246-268.
- Gasper, D. (2000a). Evaluating the “Logical Framework Approach” towards learning-oriented development evaluation. *Public Administration and Development*, 20, 17-28.
- Gasper, D. (2000b). “Logical frameworks”: problems and potentials. http://www.petersigsgaard.dk/PDFfiler/gasper_logical_framework_problems.pdf. Institute of Social Studies. The Hague.
- Gray, A. and Jenkins, B. (1993) Codes of Accountability in the New Public Sector. *Accounting, Auditing & Accountability Journal*, 6 (3), 52-67.
- Gray, R. (1992). Accounting and environmentalism: an exploration of the challenge of gently accounting for accountability, transparency and sustainability. *Accounting, Organizations and Society*, 17(5), 399-425.
- Higgs, N.T. (2007). Measuring and understanding the well-being of South Africans: Everyday quality of life in South Africa. *Social Indicators Research*, 81 (2), 331-356. <https://doi.org/10.1007/s11205-006-9012-3>
- INTRAC. (2015) The logical framework. <https://www.intrac.org/wpcms/wp-content/uploads/2016/06/Monitoring-and-Evaluation-Series-The-logicalframework-12.pdf>, last accessed 19 January 2019.
- Jönsson, S. and Lukka, K. (2006). There and back again: doing interventionist research in management accounting. *Handbooks of Management Accounting Research*, vol. 1, p. 373-397.
- Kaplan R.S. and Norton D.P. (1993). *Putting the Balanced Scorecard to work*. *Harvard Business Review*, 71(5): 134–142.
- Kaplan, R.S. and Norton, D.P. (2000) Having trouble with your strategy? Then map it. *Harvard Business Review*, 78, 5 (September-October), 167–176.
- Kaplan, R.S., and Norton, D.P. (2001), *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive In The New Business Environment*. Boston. Harvard Business School Press, 23-41

Kaplan, R.S. and Norton, D.P. (2004). *Strategy Maps: Converting Intangible Assets into Tangible Outcomes*, Harvard Business School Press, Boston.

Latour, B. (1987) *Science in Action. How to Follow Scientists and Engineer through Society*. Harvard University Press.

Magnuszewski, R., Pietruszewski, P., Sendzimir, J. (2003). Teaching the Dynamic Balanced Scorecard. *Working Paper*. Wroclaw University of Technology.

Messner, M. (2009). The limits of accountability. *Accounting, Organizations and Society*, 34 (8), 918-938.

Micheli, P. and Manzoni, J.F. (2010). Strategic Performance Measurement: Benefits, Limitations and Paradoxes. *Long Range Planning*, 43 (4), 465-476.

Mohamed, A. (2013). *Application Of Balanced Score Card In Strategy Implementation At Kenya Red Cross*. University of Nairobi. URL: <http://hdl.handle.net/11295/72328>

Molleman, B. (2007). The challenge of implementing the Balanced Scorecard. *The proceedings of the 6th Twente Student Conference on IT*, Enschede, 2007.

Mulu, A.K. (2010). *Challenges Of The Balanced Scorecard In Strategy Implementation In Ernst And Young- Kenya*, (Unpublished MBA Project). University Of Nairobi, Kenya.

Norad (1990). *The logical framework approach – Handbook for objectives-oriented project planning*. NORAD. Oslo

Norreklit, H. (2003). The Balanced Scorecard: What is the score? A rhetorical analysis of the Balanced Scorecard. *Accounting, Organizations and Society*, 28, 591-619.

Norreklit, H. (2000). The Balance on the Balanced Scorecard - a critical analysis of some of its assumptions". *Management Accounting Research*, 11, 65-88.

Nyamori, R.O., Abdul-Rahman, A.S. and Samkin, G. (2017). Accounting, Auditing and Accountability research in Africa: Recent governance developments and future directions. *Accounting, Auditing & Accountability*, 30 (6), 1206-1229.

O'Dwyer, B. and Boomsma, R. (2015) . The co-construction of NGO accountability: Aligning imposed and felt accountability in NGO-funder accountability relationships. *Accounting, Auditing & Accountability Journal*, 28 (1), 36-68.

Pellinen, J., Mättö, T., Sippola, K., & Rautiainen, A. (2018). Blame game or dialogue? Financial, professional and democratic accountabilities in a complex health care setting. *Accounting, Auditing & Accountability Journal*, 31 (2), 626–650.

Pessanha, D.S. and Prochnik, V. (2006). *Practitioners' Opinions on Academics' Critics on the Balanced Scorecard*. SSRN Working Paper.

Pfeffer, J. and Salancik, G.R. (1978). The external control of organizations. *New York: Harper and Row*.

Practical Concepts Incorporated, PCI, (1979). *The Logical Framework. A Manager's guide to a scientific approach to design & evaluation*. PCI, Washington D.C., USA.

Ramus, T., and Vaccaro, A. (2017). Stakeholders matter: How social enterprises address mission drift. *Journal of Business Ethics*, 143(2), 307-322.

Ramus, T., Vaccaro, A., and Brusoni, S. (2017). Institutional complexity in turbulent times: Formalization, collaboration, and the emergence of blended logics. *Academy of Management Journal*, 60(4), 1253-1284.

Ravallion, M. and Datt, G. (2002). Why has economic growth been more pro-poor in some states of India than others?. *Journal of Development Economics*, 68(2), 381-400.

Ravallion, M. and Chen, S. (2005). Hidden impact? Household saving in response to a poor-area development project. *Journal of Public Economics*, 89(11), 2183-2204.

Ringhofer, L. and Kohlweg, K. (2019). Has the Theory of Change established itself as the better alternative to the Logical Framework Approach in development cooperation programmes?. *Progress in Development Studies*, 19(2), 112-122.

Ryan, R., Scapens, R.W. and Theobald, M. (2002). *Research Method and Methodology in Finance and Accounting*. 2nd ed. Thompson. London.

Salamon, L.M., Sokolowski, S.W., Haddock, M.A., & Tice, H.S. (2013). The state of the global civil society and volunteering: latest findings from the implementation of the UN Nonprofit Handbook, The Johns Hopkins Center for Civil Society Studies. ISBN 1 -886333-63-7

Salem, M.A., Hasnan, N. and Osman, N.H. (2012). Balanced Scorecard: Weaknesses, strengths, and its ability as performance management system versus other performance management systems. *Journal of Environment and Earth Science*, 2 (9), 1-10.

Sargiacomo, M. (2015). Earthquakes, exceptional government and extraordinary accounting. *Accounting, Organizations and Society*, 42, pp. 67-89.

Sartorius, R. (1996). The third generation logical framework approach: dynamic management for agricultural research projects. *The Journal of Agriculture Education and Extension*, 2 (4), 49-62.

Seear, K., Atkinson, D., Henderson-Yates, L., Lelievre, M. and Marley, J. (2020). Maboo wirriya, be healthy: Community-directed development of an evidence-based diabetes prevention program for young Aboriginal people in a remote Australian town. *Evaluation and Program Planning*, 81.

Taylor, J. (2007). The usefulness of key performance indicators to public accountability authorities in East Asia. *Public Administration and Development*, 27, 341–352.

Thirtle, C., Irz, X., Lin, L., McKenzie-Hill, V. and Wiggins, S. (2001). Relationship between changes in agricultural productivity and the incidence of poverty in developing countries. Report commissioned by the Department for International Development, London.

Urquía-Grande, E. and Rubio-Alcocer, A. (2015). Agricultural infrastructure donation performance: Empirical evidence in rural Ethiopia. *Agricultural Water Management*, 158, 245-254.

Urquía-Grande, E. and del Campo, C. (2017). Socio-Economic factor determining the commitment to participate in an agricultural development Project in rural Ethiopia. *Iberoamerican Journal of Development Studies*, 6 (2), 4-27.

Urquía-Grande, E., Pérez-Estébanez, R., Cano-Montero, E. and Chamizo-González, J. (2018). Agriculture, nutrition and economics through training: A virtuous cycle in rural Ethiopia. *Land Use Policy*, 79,707-716.

Voelpel, S.C., Leibold, M., Eckhoff, R.A., and Davenport, T.H. (2005). The Tyranny of the Balanced Scorecard in the Innovation Economy. *Proceedings of the 4th International Critical Management Studies Conference, Intellectual Capital Stream Cambridge University, United Kingdom*.

Wiggins, S. and Shields, D. (1995). Clarifying the «logical framework» as a tool for planning and managing development projects. *Project appraisal*, 10 (1): 2-10.

Wong-On-Wing, B., Guo, L., Li, W. and Yang, D. (2007). Reducing conflict in balanced scorecard evaluations. *Accounting, Organizations and Society*, 32 (4-5), 363-377.

Zheng, K. and Luo, X. (2013). The Balanced Scorecard in China: Does it work? *Business Horizons*, 56, 611-620.

Yin, R.K. (2011). *Applications of case study research*. Sage.

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Figures

Figure 1: The Logic Balanced Scorecard based on the Strategy Map approach.

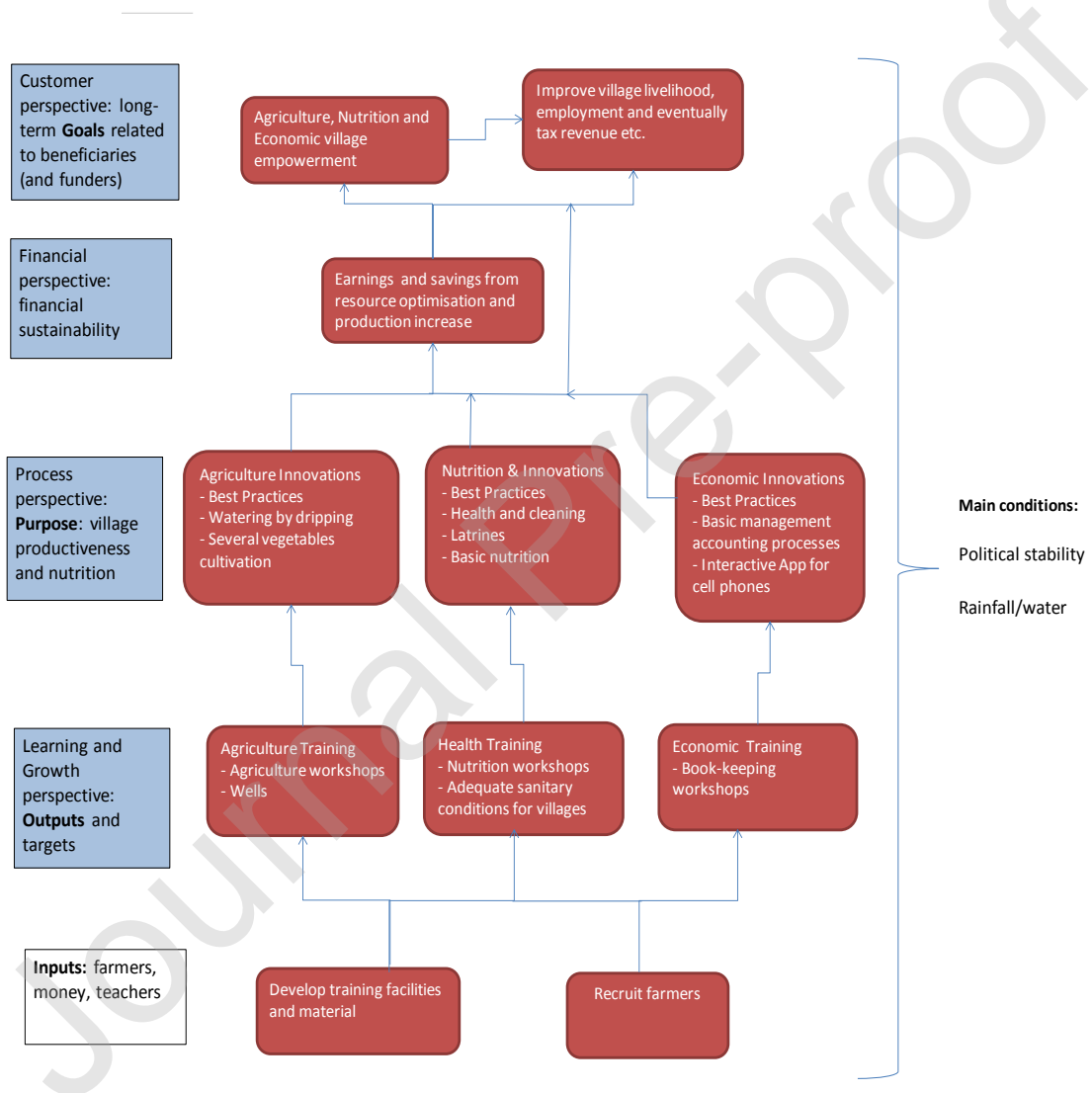


Figure 2: Percentage of farmers' recruited compared by villages (blue column target percentage and red column percentage achieved)

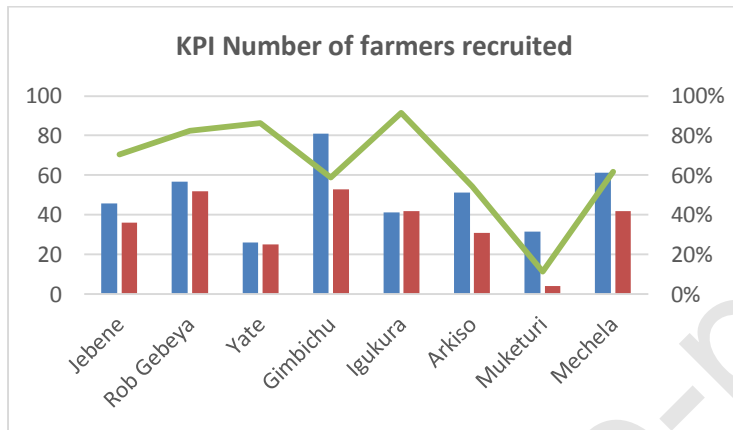


Figure 3: Training plan execution compared by villages (blue column target percentage and red column percentage achieved)

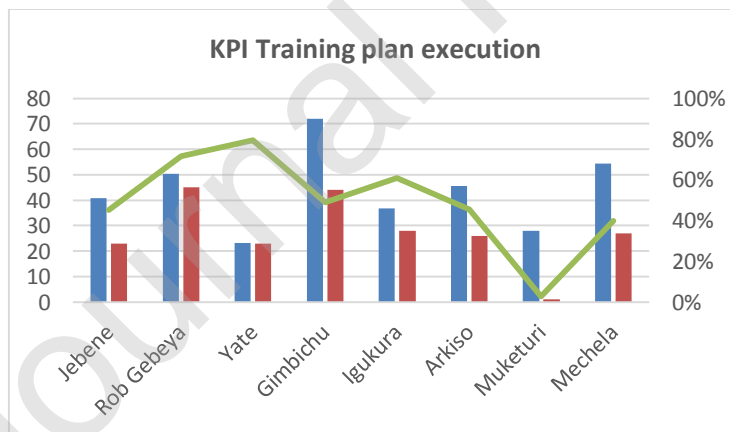


Figure 4: Farmers cultivating several vegetables
(blue column target percentage and red column percentage achieved)

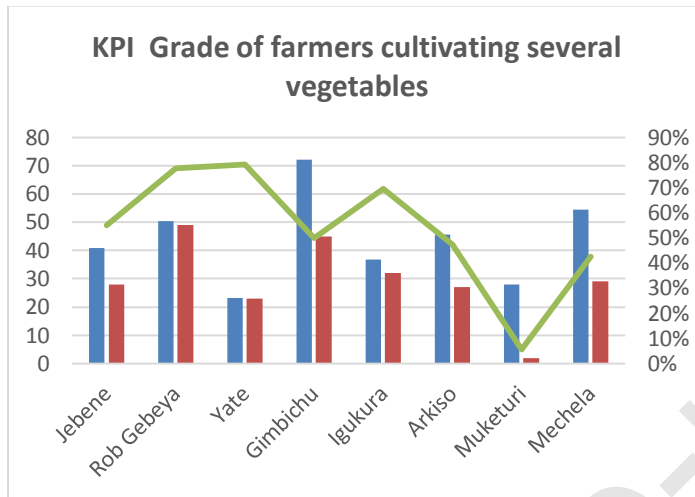


Figure 5: Revenues and savings per farmers' family
(blue column target percentage and red column percentage achieved)

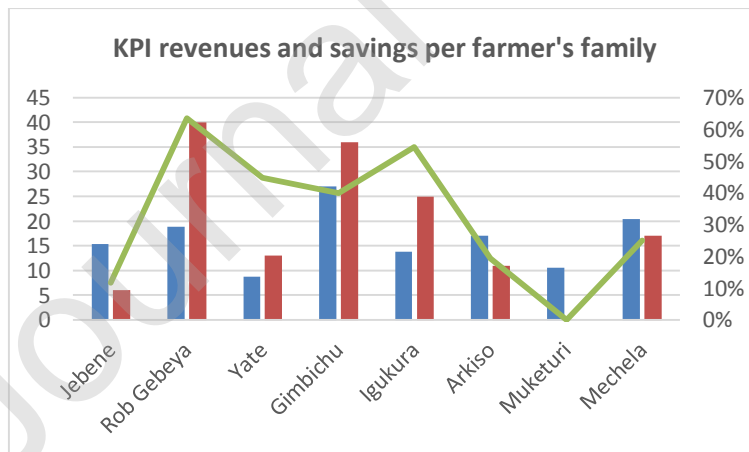


Figure 6: Farmers' bookkeeping comparison by villages

(blue column target percentage and red column percentage achieved)

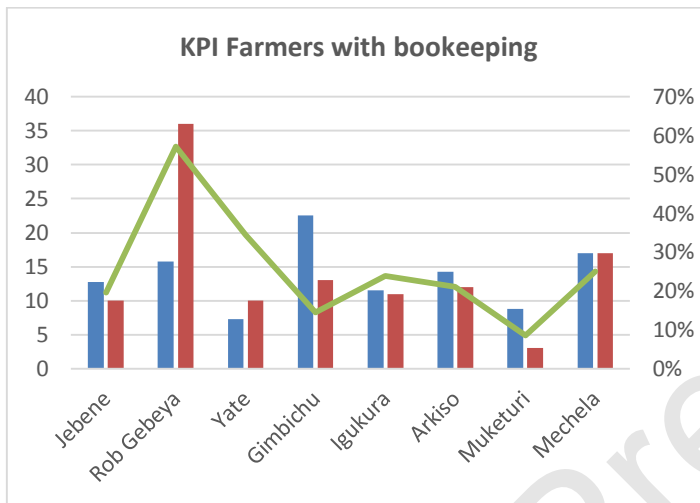


Table 1: Issues covered by the different models

Issues	Balanced Scorecard	Logical Framework	Logic Scorecard	Balanced
Strategic management	X		X	
Performance measurement	X	X	X	
Strategic maps	X		X	
KPIs	X	X	X	
Risk analysis		X	X	
Causal relationships	X	X	X	
Leading and Lagging indicators	X		X	
Means of verification		X	X	
Internal Communication tool	X		X	

Follow-up tool	X		X
Financial Funding		X	X
Adaptation to change	X		X

Table 2: Learning and Growth perspective

Perspective: Learning and Growth	Perspective: Learning and Growth			Assumptions
	Initiatives	Performance Measures	Targets	
Agriculture, Nutrition and Economic training	Recruit farmers	Number of farmers recruited	95% of the farmers recruited will attend the training courses and can be rewarded with a well	Good weather conditions so farmers can physically attend
	Develop training facilities	Infrastructure adaptation for training	95% of the villages recruited will lend a physical space for lectures if not the NPO	Classrooms available and minimum training resources
	Develop training material	Curricular program and workshop schedule (Agriculture, Nutrition, Economics)	80% lecturers can develop and complete the curricular program schedule	Available financial resources for lecturers and translators
		Training plan execution		NPO reputation and resources
	Follow-up and assessment		Official	

			language translators
		Qualitative training	Freedom of speech

Table 3: Villages' productiveness perspective

Perspective: Village productiveness in nutrition and agriculture processes				
Perspective : Village productiveness...	Initiatives	Performance Measures	Targets	Assumptions
Agriculture, Nutrition and Economic productiveness with innovative processes	Implement watering by dripping	m ² of watering by dripping	100% m ² of cultivation have the watering by dripping installed	No vandalism destroying the pipes
	Introduce how to cultivate several vegetables	Number of vegetables cultivated (onion, cabbage, beetroot, garlic, spinach, carrot..)	50% of the vegetables are currently cultivated	Farmers willing to accept new farm model and several vegetables cultivated
	Construct storage facilities	Number of storage facilities built	50% of storage facilities built	
	Agriculture innovations	Number of new ideas proposed by the farmers	At least one idea per village	Farmers' motivation
	Establish health and cleaning programs	Number of latrines installed	60% latrines built per village	Financial lending for latrines building and best practices for diseases decrease
	Basic nutrition program	Number of kitchen tools	90% households with kitchen tools	Financial fundings for kitchen tools
	Implement basic management accounts	Number of farmers trained in basic accounting processes	40 % of attending farmers should have a savings book-keeping	Book-keeping model simple and understand

	ng processes			able
	Develop App for cell phones	Number of farmers using the App	10% of farmers using the App	10% of farmers have cell phone with access to Internet
	Share Best Practices in agriculture, nutrition and economics	Number of best practices identified	100% of best practices implemented	There is one village at least which is performing better and can be considered as a reference

Table 4: Financial sustainability perspective

Perspective: Financial sustainability				
Perspective: Financial sustainability	Initiatives	Performance Measures	Targets	Assumptions
Resource optimisation and Production Increase	Agriculture resources management	Number of seeds given	2 kgs of seeds distributed per village	Financial availability of seeds and trees
		Number of trees given	10 trees distributed per village	
		Water dripping installations	At least one farmer per village with water dripping installed	The well built by the NPO is working correctly
		Well capacity (m3)	Well capacity at 80% - Maintainance at 70%	
		Agriculture activities cost (preparation of land, ploughing, harvesting..)	70% activities performed	
			Land preparation, Fertilisers, Ploughing, Weeding, Harvesting... optimisation	

		Increase vegetable production (onion, beetroot, spinach, garlic, carrot..)	50% increase in vegetable harvesting	Market absorbs total increase production
Nutrition resources management		Investment in health & nutrition	500 birrs/ month per family	Financial funding for latrines building
		Health activities cost	20-25% of family diseases decrease	Financial funding for kitchen tools
		Health cost per beneficiary	20 birrs/ month per beneficiary	
Strengthen the system for capturing and reporting costs per beneficiary		Time spent per beneficiary	2h/month spent per farmer	
		Revenues per family	5% revenue increase per family	Price of vegetables cultivated remains stable
		Savings per family	1% increase per family - bank account	

Table 5: Beneficiaries' perspective

Perspective: Beneficiaries (Villages/Farmers' households)	Perspective: Beneficiaries (Villages/Farmers' households)			Assumptions
	Initiatives	Performance Measures	Targets	
Agriculture, Nutrition and Economic village empowerment	Develop model of farm with several vegetables	Number of farmers with own farm with several cultivated vegetables	70% of attending farmers should have a farm with several vegetables	Farmers willing to accept new farm model and several vegetable cultivation

	Develop model household with minimum standards in nutrition	Number of families following the model	60% of attending farmers should have minimum nutrition standards	Families willing to negotiate minimum standards of nutrition
	Develop model book keeping for savings	Number of farmers with savings account	40% of attending farmers should have a savings book keeping	Book-keeping model simple and understandable
	Develop commitment for children's education	Number of children registered in school	80% of farmers' children attending primary school	Farmers' commitment to educate their children