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Project monitoring and evaluation: a method for enhancing the efficiency and effectiveness of aid project implementation

Paul Crawford*, Paul Bryce

Institute for Sustainable Futures, University of Technology, Sydney, PO Box 123 Broadway, NSW 2007, Australia

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Abstract

Aid agencies are required to conform to stringent project reporting requirements in order to satisfy the wide range of stakeholders. Project monitoring and evaluation (M&E) information systems (IS), frequently a requirement for funding, are believed to inform the reporting process. The logical framework approach (LFA) is widely used throughout the aid industry for project design and appraisal, and although much of the literature also promotes the use of the LFA for the purposes of M&E, it has proved inadequate. This article reviews the key limitations of the conventional LFA for M&E and proposes an extension to the LFA matrix (the "logframe") in order to facilitate its application beyond the design phase. This is achieved by adding a time dimension, more precisely defining the elements of the project MIS, and integrating other project management tools.

Keywords: Implementing strategy; Managing projects; Success and strategy; Design and appraisal; International projects

1. Introduction

The role that discrete project cycles may play in contributing to broader strategies is well recognised across many sectors [1]. However, while much has been published about project management in the construction and manufacturing sectors, the international development aid sector is less represented in project management literature [2] despite the fact that the project cycle is the preferred vehicle for the delivery of foreign aid to developing or newly emerging economies [3]. Aid projects are either implemented by recipient governments under a bilateral agreement with the donor country, or through an "implementing partner" of the donor—frequently a non-governmental organisation (NGO) or professional contractor. In recent years donor funding of NGO aid operations has increased [4]. This trend has corresponded with a demand by the wide range of project stakeholders for increasingly high levels of accountability and performance [5], and hence a need for increasingly sophisticated project management systems [6].

Accountability in the context of aid NGOs has been defined as "the means by which individuals and organisations report to a recognised authority, or authorities, and are held responsible for their actions" [7]. Project performance is an obvious, but amorphous concept and may be understood to involve "balancing demands for efficiency and effectiveness" [8,9]. Accountability is promoted through transparency [5]; performance is promoted by responsive project management decision-making [9]. Both these dimensions of NGO (or implementing contractor) success are enabled by flexible and appropriate management information systems. Fig. 1 depicts the above rationale.

The role of information in contributing to organisational success is well established [9,10]. A management information system (MIS) is a strategy and a set of protocols to enable people to obtain the information they need to manage. A project monitoring and evaluation information system (MEIS) is one type of MIS designed to mitigate poor project performance, demonstrate accountability and promote organisational learning for the benefit of future projects. Reporting through an organisational structure is one mechanism by which information flows, and is the basis for assigning accountability.

* Corresponding author. Tel.: +61-2-4973-1635; fax: +61-2-4973-1634.

E-mail address: paul.crawford@uts.edu.au (P. Crawford).

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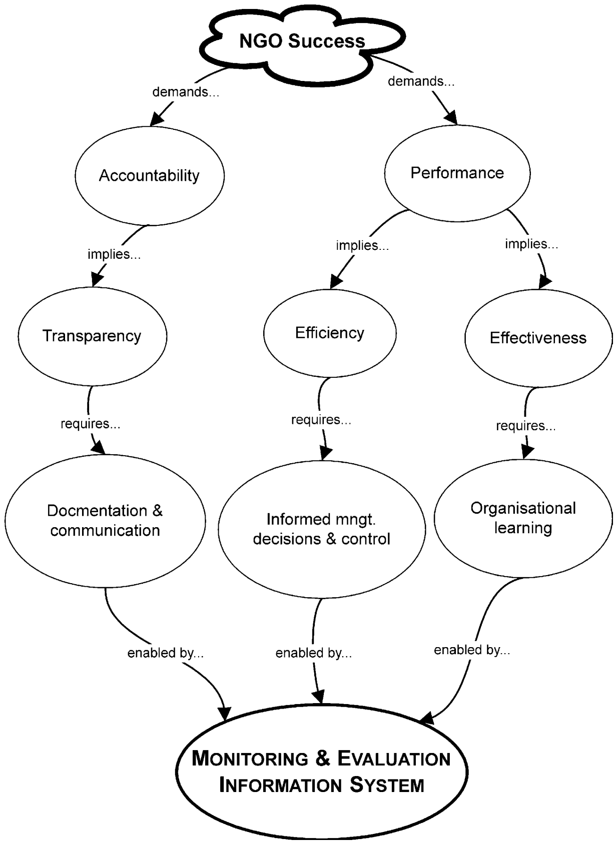

Fig. 1. Mind map of the NGO operating environment.

Most aid donor agencies now require, and in some cases fund [11], partner NGOs to install project monitoring and evaluation (M&E) systems. While there is a growing volume of literature to support the demand for knowledge about M&E, much of this either lacks the detail required to operationalise the required information system (IS), or fails to provide a framework sufficiently flexible to accommodate the range of operating environments encountered in the "developing world".

2. Project management in the aid industry

Several factors distinguish the aid industry as unique within project management environments. Firstly, project goals are frequently concerned with social transformation/human development as distinct from the "hard systems" focus of many other project-driven industries such as construction or manufacturing. Although aid projects frequently have a "hard" element (e.g. drilling boreholes), this is normally viewed as a "means" to some developmental "end" (e.g. improved public health). Hence, aid project performance measurement can be notionally complex. Secondly, because of the obvious social, economic and ecological impacts of aid interventions, projects are inherently political, and as such attract a wide range of stakeholders who demand high levels of accountability from implementing agencies. This is manifested in stringent reporting requirements and an industry imperative for agencies to be "learning organisations" [12]. Thirdly, the operating environment in developing and emerging economies is characterised by several issues which make traditional project management approaches and tools in the "developed world" less appropriate [13]. These issues include wide geographic and cultural separation between project actors, competing objectives between partners, technologically challenged operating conditions and unpredictable socio-political environments.

Although some "cross-pollination" of project management approaches from other industries has occurred, the tool that has emerged as closest to being an aid industry standard is the Logical Framework Approach (LFA). The LFA has become widely used by aid agencies as a project planning and appraisal tool [11,14] and is now a pre-requisite for funding from many of the major bilateral and multilateral donor agencies [3,15]. In addition to project planning and appraisal, much of the literature and rhetoric surrounding the LFA promotes the use of the approach as a framework for defining M&E systems to support project management beyond the design phase in the project cycle [3,11,15]. While this has intuitive appeal, field experience has proven this to be less straightforward than anticipated, hence necessitating modifications. A discussion of the limitations of the LFA for project management beyond the design phase follows, but first a review of the conventional LFA and the M&E concept, before describing a proposed extension to the LFA.

3. Reviewing the logical framework approach

The LFA was first developed by Practical Concepts Incorporated in 1969 for the United States Agency for International Development (USAID) to assist with project design and appraisal [11,14,16]. The origins of the concept can be traced back through "management by objectives" popularised by Peter Drucker in the 1960s [15,17] to ancient Greece where the role of the "Strategoi" was to advise military leadership on logical means to victory [18]. An outcome of using the LFA is the production of a 5×4 matrix (commonly known as the "logframe") which is a tool for analysing and presenting project strategies. A typical logframe format is presented in Fig. 2 with explanatory notes.

Although there have been numerous variations and adaptations since its conception, the fundamental structure and purpose of the logframe has remained unchanged. The vertical axis of the matrix presents a hierarchy of objectives and assumptions (or preconditions) based on cause-and-effect logic known as the "vertical logic" of the project. The horizontal axis of the

Goal/Impact (1)	**Impact Indicators (11)**	**Data Source / Means of Verification (MOV) (12)**	**Assumptions/Necessary Conditions (10)**
The sustainable development outcome expected at the end of the project. All outcomes contribute to this.	*Measures the extent to which a contribution to the goal has been made. Usually complex and difficult to measure. A function of evaluation.*	*How data on goal achievement is to be collected.*	*N/A*
Outcomes/Effect (2)	**Effective Indicators (13)**	**(14)**	**(9)**
The expected result of producing the planned outputs. The project hypothesis being that the combined effect of producing the outcomes will be the realisation of the goal.	*Measures the extent to which outcomes have been met. A function of evaluation.*	*How data on objective achievement is to be collected.*	*Assumptions concerning the outcomes-goal linkage (ie pre-conditions for the goal)*
Outputs (3)	**Output/Progress Indicators (15)**	**(16)**	**(8)**
The direct measurable results (goods and services) of carrying out the planned activities. These are partly under project management's control.	*Milestones throughout life - of-project against which progress of project can be monitored*	*How data on progress is to be collected.*	*Assumptions concerning the outputs-outcomes linkage (ie pre-conditions for outcomes)*
Activities (4)	**Activity/Process Indicators (17)**	**(18)**	**(7)**
The tasks carried out to implement the project and deliver the identified outputs. These are largely under project management's control.	*Activity schedule to monitor project progress (actual v planned)*	*How activity implementation is to be reported.*	*Assumptions concerning the activity-output linkage (ie pre-conditions for outputs)*
Inputs (5)	**Input Indicators (19)**	**(20)**	**(6)**
The financial, managerial and technical resources required to carry out activities. These are directly under project management's control.	*Budget to monitor deployment of resources throughout life -of-project.*	*How inputs are to be accounted for and reported.*	*Assumptions concerning the input-activity linkage (ie pre-conditions for activities)*

Fig. 2. Typical logframe matrix structure. N.B. The numbers indicate the usual order of completion of the cells in designing a project strategy (source: adapted from AusAid [15] and Broughton [3]).

matrix defines the means by which project progress can be verified at each level in the vertical logic and is known as the "horizontal logic" of the project.

The vertical logic of a strategy is tested by starting at the top of the first column of the logframe matrix and asking the question "how is each level in the hierarchy to be achieved?" and/or by starting at the bottom of the first column and asking the question "why is this objective/action being undertaken?" [19]. The assumptions listed at each level in the vertical logic of the fourth column inject reality (preconditions) into the otherwise theoretical causality. In this way the logframe indicates the degree of control managers will have over projects: managers should have direct control over inputs, considerable control over activities and partial control over outputs. At the outcome level, project management can be expected to exert some influence, however goal achievement requires an interaction of efficient project management, effective project design and the accommodation of externalities. Another way of expressing this issue is the notion of necessary and sufficient conditions [15]:

- Meeting the project outcomes is a **necessary** but **not sufficient** condition to attain the goal since the project is but one of a number of initiatives that may be required to address complex development issues.
- Producing the outputs is **necessary** but **may not be sufficient** to achieve the outcomes since other factors beyond the project's control are likely to have an influence.
- Carrying out activities is **necessary** and **should be sufficient** to produce the required outputs, although some risks always exist.

A project description can be derived from the matrix by breaking down the chain of "conditional causality" as follows:

- **IF** inputs are provided, **AND** the input-activity assumptions hold, **THEN** the activities can be undertaken.
- **IF** the activities are undertaken, **AND** the activity-output assumptions hold, **THEN** the project outputs will be produced.
- **IF** the project outputs are produced, **AND** the output-outcome assumptions hold, **THEN** the outcomes should be realised.
- **IF** the outcomes are realised, **AND** the outcome-goal assumptions hold, **THEN** the goal is likely to be achieved.

Fig. 3 depicts the above relationships.

The middle two columns of the logframe matrix comprise the "horizontal logic". The second column requires the project planner to nominate objectively verifiable indicators (OVI) for each level in the logic to facilitate assessment of progress towards the goal. The third column identifies the means of verification (MOV) for each of the OVIs. That is, the source of indicator data. Hence the horizontal logic attempts to outline a rudimentary MEIS. The indicators in the three lowest rows in the matrix (inputs, activities and outputs) allow measurement of project efficiency (i.e. the conversion of inputs to outputs), whereas indicators assigned to the outcome and goal rows attempt to measure the effectiveness of the strategy in fostering the desired changes in beneficiary circumstances [17].

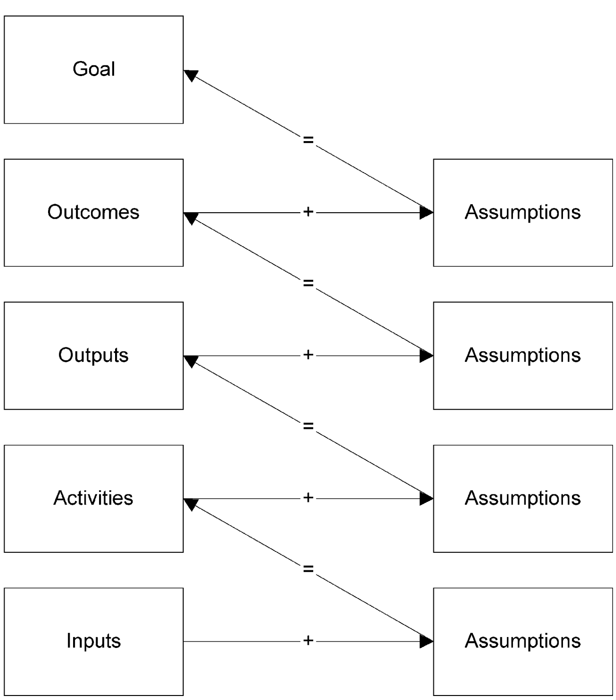

Fig. 3. The IF-AND-THEN relationships which underpin the vertical logic of the logframe (source: AusAid [15]).

4. Monitoring and evaluation information systems

The term "monitoring and evaluation" (and its concomitant label, "M&E") has come into common usage in the aid industry over the last 20 years [11]. The notion of trying to measure the performance of an aid project throughout the life of the project, as opposed to simply trying to understand what went right or wrong in hindsight, was first promoted by Herb Turner in the 1970s [11]. During the early 1980s, Casley and Lury were key exponents for the establishment of M&E Units by the World Bank throughout the world [20]. Despite the fact that Casley partially recanted[1] this position in 1986 [21], the expectation that M&E should form an important component of any aid project had already become entrenched throughout the industry.

The particular terms "monitoring" and "evaluation" are intimately linked. This has led to considerable confusion in trying to operationalise M&E systems [3,11]. According to UNDP [22] "monitoring and evaluation differ yet are closely related". Casley and Kumar [21] "disapprove of the use of the universal acronym 'M&E' as it implies that we are dealing with a single function". Hence, the first step towards operationalising a MEIS must be to disentangle the meaning behind the acronym.

Evaluation is a recognised field, particularly in the USA, and has received considerable attention in literature [11], however, monitoring tends to be more amorphous [23] and draws on the emerging management field of Organisational Performance Measurement within Organisational Effectiveness. The mainstream position is that monitoring is an ongoing process of data capture and analysis for the purpose of control; evaluation is a periodic process of assessment for the purpose of learning [24]. Further, monitoring has an internally focussed, management-driven emphasis on the *efficiency* of the project, while evaluation primarily has an externally focussed, stakeholder-driven emphasis on the *effectiveness* of the project.

Effectiveness ("doing the right thing") is concerned with the philosophical/developmental worthiness or appropriateness of the chosen project goal. That is, the validity of the "development hypothesis"[2] [17]. Ultimately this can be defined by the ecological, social and economic sustainability of the initiative. Efficiency ("doing the thing right") is concerned with cost and process management (i.e. the efficient conversion of inputs to outputs within budget and on schedule) and wise use of human, financial and natural capital. A

[1] The recantation was not to do with the philosophical merit of monitoring and evaluation per se, but the cost of setting up and operating large M&E units throughout the world.

[2] All projects are, to a greater or lesser degree, social experiments within which a hypothesis is tested. That is, there is normally a belief that if the project can produce certain outputs, these will result in some kind of change or effect in the target community's circumstances.

project may be efficient (i.e. implemented on or ahead of time and cost schedules) but may be ineffective if the internal logic of the project is not grounded in reality (i.e. the development hypothesis is invalid) or if the goal of the project does not address what are in fact the core vulnerabilities of the target community (i.e. the initial development problem analysis was weak). Hence an important role of a MEIS is to supply information to project stakeholders to ensure project efficiency and effectiveness.

In designing a MEIS the following what/who/why elements must be addressed:

- **What** type of data does the IS need to capture, analyse and disseminate?
- **Who** are the clients (stakeholders) of the IS?
- **Why** are the key stakeholders interested in the data? That is, what purpose does it serve the various "IS clients"?

First, with regard to the "**what**": presumably the rhetoric about using the logframe to design a MEIS stems from the fact that the matter of what data to capture is pre-defined in the middle two columns of the logframe when the LFA is used in the project design phase. The validity of this notion is supported in research by CSIRO [25] who identified alignment of the performance measures with strategy as an important principle. Whereas a business performance measurement system can simply focus on outcomes, aid industry stakeholders are frequently just as interested in the process (i.e. the chain of causality) as they are in the eventual outcomes. Hence the hierarchy of data provided by the logframe should facilitate tracking of performance as well as the laying of an information trail for accountability and organisational learning purposes.

The second element in defining a MEIS involves understanding "**who**" the key information stakeholders are. A well-recognised construct in management literature is that of the "three zones of management" [26]. CSIRO [25] in developing an organisational performance measurement system has adopted the terms operational, tactical and strategic to denote the zones. In the case of a typical aid NGO, these zones (respectively) relate to the projects (located in the field); the program coordination office (normally located in the host country capital city); and the agency international headquarters. Examples of key IS stakeholders in each zone respectively are the Project Manager (and technical personnel); the Program Director (and in-country implementing agency administration staff); the Desk Officers and Programme Advisors in both the implementing agency headquarters and the donor agency headquarters.

The third element of MEIS design, the "**why**", has been inferred above. That is,

- To ensure project **performance** (efficiency and effectiveness) through informed management decision-making and control.
- To demonstrate **accountability** through transparency and documentation.
- To promote organisational **learning** through the testing of development hypotheses and the capture of lessons learned.

The challenge for an aid project MEIS is to satisfy the diverse information needs of the wide range of stakeholders[3] along the aid project information-chain. Stakeholders at the "strategic" end of the information-chain (e.g. donor agency desk officers) tend to have greater responsibility for the effectiveness of the project; whereas stakeholders at the "operational" end of the information chain (e.g. project field staff) tend to have greater responsibility for the efficiency of the project. This is not to say that operations personnel are uninterested in effectiveness, or that strategy personnel are uninterested in efficiency. It is more to do with efficiency being entwined with accountability for donor resources (primarily an implementation issue), and effectiveness being entwined with lesson learning (primarily a policy and strategy issue). The relationship between the three MEIS design elements outlined above is depicted in Fig. 4.

Hence, for most NGOs, "monitoring" is the regular internal reporting and assessing of project efficiency metrics (measures of the extent to which actual implementation matches planned implementation) primarily to enhance management decision-making. "Evaluation" is the periodic (typically at mid-term and end-of-project) examination of the project in its entirety that utilises information from the monitoring IS and triangulates

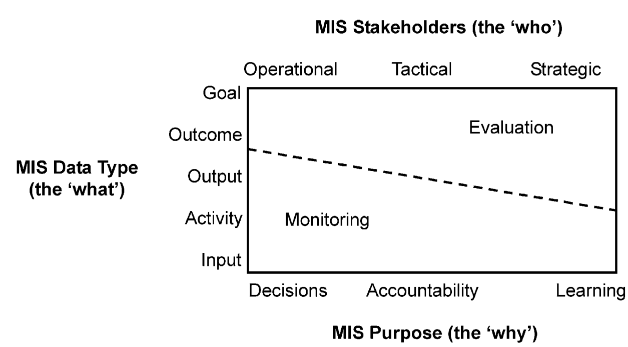

Fig. 4. A conceptual model which integrates the three MEIS design elements.

[3] For the purposes of this paper, "stakeholders" refers to internal clients of the M&E system. Much has been written about the need to promote participation and ownership of development projects by "external stakeholders"—particularly project beneficiaries. While the need for information sharing with external stakeholders is taken as given, this paper focuses on the need for information systems to allow project teams to ensure management control, demonstrate accountability and promote organisational learning—i.e. an internally focussed agenda.

this with other information such as beneficiary community feedback in order to determine the effectiveness of the strategy [24], primarily to promote organisational learning. Both processes demonstrate accountability.

5. Limitations of the logframe

Although the wide acceptance of the logframe by numerous implementing and donor agencies lends support to the underlying strength of the concept, the operationalisation of a MEIS based on the LFA to support project implementation beyond the design phase has proved difficult. Numerous commentators have identified the potential role that the logframe can play in defining a framework for project M&E [3,11,15], however, it is typically used only as a design tool, and abandoned after project financing.

The problems with LFA-based MEIS design stem from four main issues:

1. The absence of a time dimension;
2. The inappropriateness of assigning efficiency-level OVIs;
3. The inadequacy of the MOV column;
4. The static nature of the logframe.

5.1. Absence of a time dimension

The conventional logframe matrix does not communicate the time allocated to strategy implementation. This is despite the fact that most definitions of "project" in literature identify a fixed timeframe for goal achievement as a defining characteristic [27]. The impact of this is that although the tool has proved useful for project design and appraisal, the absence of the time dimension renders the tool ineffective for project management during the life-of-project, especially for monitoring purposes. For example, fundamental to activity monitoring is the ability to schedule tasks along a project timeline, as in the use of Gantt charts.

5.2. Inappropriateness of efficiency-level OVIs

The conventional logframe matrix requires the project planner to nominate OVIs for both the efficiency levels (inputs, activities, outputs) and the effectiveness levels (outcome, impact) of the vertical logic. While at first consideration the assigning of indicators to measure performance at each level of logic is appealing, in practice the selection of efficiency indicators is both conceptually difficult and meaningless since these factors are by definition measurable in themselves, and hence do not benefit from discrete measurable indicators.[4] In requiring efficiency-OVIs, the conventional logframe actually complicates the MEIS unnecessarily. Arguably, data that highlights variance between planned and actual implementation at any given point in the life-of-project is of more value for performance management and organisational learning purposes. For example, a MEIS that highlights a shortfall in project outputs can provoke a project manager to initiate corrective action. (N.B. The selection of OVIs of effectiveness—i.e. at the outcome and goal levels of the matrix—is appropriate and meaningful since these can signify changes which may otherwise be intangible, such as changes in beneficiary knowledge, attitude or practices. Even at this level, however, for M&E purposes variance between planned and actual progress is of more value than just the raw indicator data.)

5.3. Inadequate MOV column

The MOV column tends to foster poor IS design since it does not force the project planner to think through the practicalities of the indicators selected. The simplicity of the OVI and MOV columns in the conventional logframe masks the complexity that underpins a working IS. Such factors as who will be accountable for the data capture, how it will be collected and analysed, in what form and to whom it will be reported and the schedule for its collection are all frequently left undefined. Such constructs as "SMART" (Specific-Measurable-Attainable-Reliable-Timely) [28] and "AIMS" (Action Oriented-Important-Measurable-Simple) [29] have been proposed to ensure the selection of appropriate and realistic indicators but while these are helpful there is need for a more comprehensive framework to guide the definition of a functional MIS.

5.4. Static nature of the logframe

The conventional logframe is fundamentally a static tool. That is, it presents a 'snapshot' of the project strategy—typically as foreseen during the design phase. This compounds a structural problem within the aid industry that different groups of people tend to be involved at different stages of the project cycle. Project planners, the implementation/monitoring team, and project evaluators all tend to be separate actors, use a different language set and apply different tools. This inhibits organisational learning and negatively affects the efficiency and effectiveness of projects. If the logframe could be conceived as a dynamic tool to capture the reality of evolving implementation strategy and lessons learned, it could serve to unify the three main groups of project actors fostering consistent language and smooth transition between the project cycle phases.

[4] For exmaple, one output of a village water and sanitation project could be "20 boreholes drilled". The OVI for this output in a conventional logframe would be "number of boreholes drilled". Clearly no value is added.

6. A three-dimensional logframe

The wide adoption of the LFA combined with the need to integrate several project management tools into one framework provided the stimulus for one of the authors to modify the conventional logframe matrix to facilitate ongoing management functions (particularly M&E) beyond the design phase. An action learning approach with several aid project teams resulted in the extension of the conventional two-dimensional logframe matrix along a third dimension and the inclusion of additional detail to address the earlier issues. Essentially the vertical logic driving the conventional logframe was retained as the central tenet but the indicator column in the conventional logframe was substituted for a project timeline[5] along which the elements of the vertical logic could be monitored. The "3D-Logframe" may be visualised as a triangular prism as depicted in Figs. 5 and 6.

The vertical logic of the project strategy is displayed on the front face of the 3D-Logframe. One-to-many relationships between the levels of logic form a triangle. For example, the achievement of a single project goal may require the pursuit of two or three outcomes. In turn, each outcome may require the delivery of several outputs. Each output is produced through the coordination of a range of activities. A given activity may require several inputs. The use of one-to many relationships reinforces the causality that underpins the LFA.

The right-hand side of the 3D-Logframe presents the "Planner's View" of the project. That is, the baseline for each layer in the vertical logic distributed along the project timeline (Fig. 5). The left-hand side of the 3D-Logframe presents a mirror image which is the "Project Manager's View" of the project (Fig. 6—180° view) and tracks the actual implementation of the planned strategy. Analysing variance between the Planner's View and the Project Manager's view is essentially what underpins M&E.[6] Applying the various layers in the vertical logic to a time dimension allows the incorporation of a range of useful project management tools. For example:

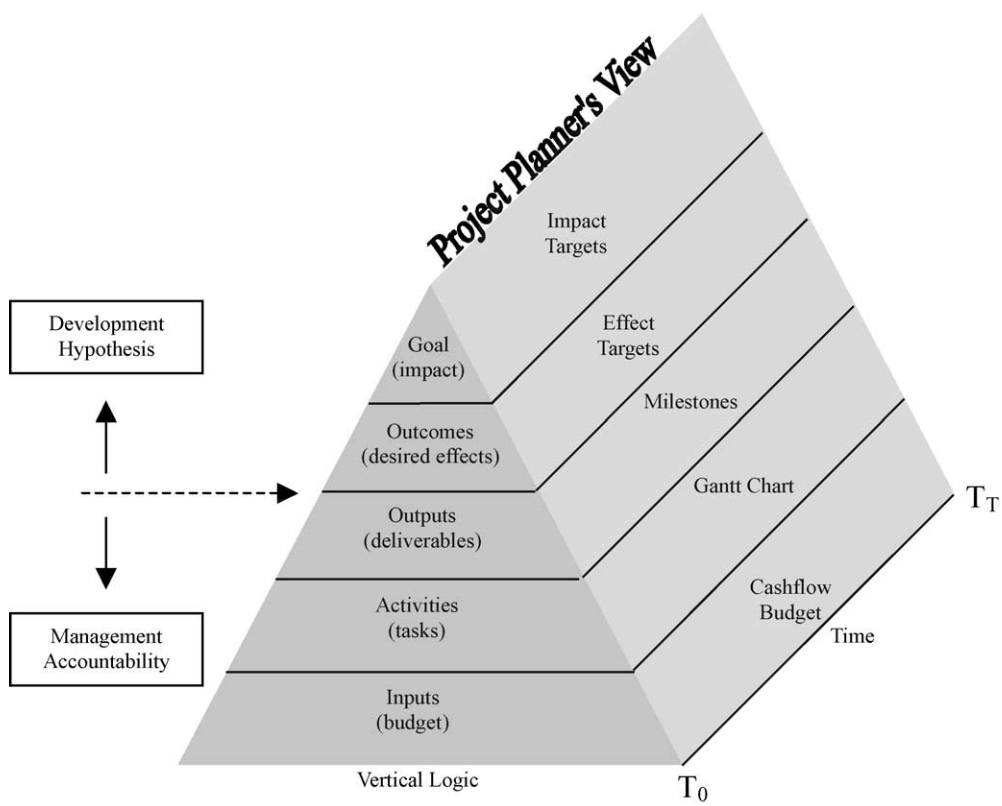

Fig. 5. The frontal perspective of the 3D-Logframe showing the "Project Planner's View". The extension allows the incorporation time and hence facilitates the use of the logframe beyond the design phase.

[5] The project teams found the selection of indicators in the conventional two-dimensional logframe superfluous; particularly for inputs, activities and outputs, since these elements are by definition measurable and are already stated in the vertical logic. Hence the distribution of the vertical logic elements along the project timeline was determined to be more useful for monitoring purposes.

[6] Imagine that the sides of the triangular prism are translucent, thereby allowing the 'Planners View' to be superimposed over the "Manager's View' to facilitate identification of significant variance.

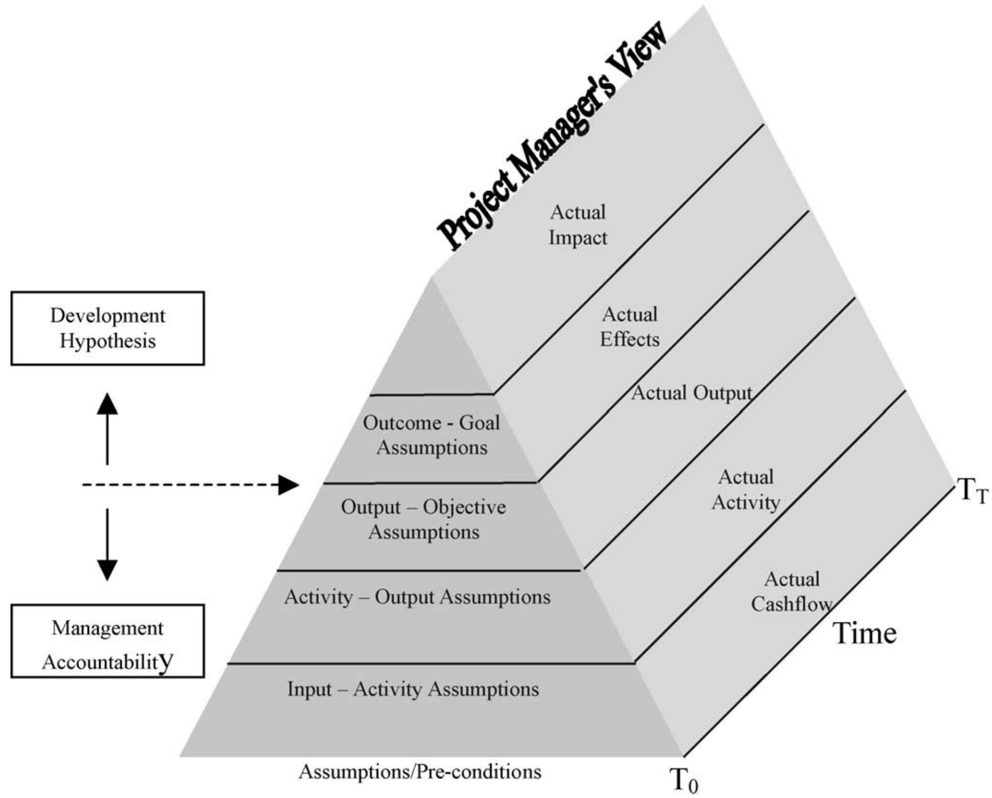

Fig. 6. The rear perspective (180°) of the 3D-Logframe showing the logical assumptions and the ‘‘Project Manager's View''.

- The project inputs (typically presented as project budget line items) disbursed over the project timeline essentially becomes a cashflow budget which is used by project management to monitor resource efficiency (planned vs. actual expenditure);
- The project activities required to deliver each respective output distributed over the life of the project essentially becomes a Gantt chart which is used by project management to monitor process efficiency (planned vs. actual implementation) and ensure accountable use of inputs;
- The fractions of end-of-project output targets distributed along the project timeline become milestones (i.e. percent of end-of-project targets achieved at key points in the life-of-project);
- Changes in indicators of effect and impact (i.e. the outcome and goal level) are evaluated periodically (based on the agreed reporting plan with the donor and beneficiary stakeholders) throughout the project and compared with the baseline data recorded at Time $= T_0$.

The logical assumptions/pre-conditions are presented on the rear face of the 3D-Logframe as depicted in Fig. 6. The IF-AND-THEN logic of the conventional logframe is applied in the normal way in moving up the vertical logic. A strength of this model, however, is that when monitoring identifies variance between planned and actual performance, this can immediately be attributed to the relevant logical assumption. Hence, risk management initiatives by project management tend to be more responsive and the opportunity to capture and institutionalise lessons learned is enhanced.[7]

The base of the 3D-Logframe provides a table which defines the ‘‘business rules'' for the capture and analysis of the data defined in the vertical logic. In particular, the methodology for data capture; who within the project organisation is responsible for data capture; the methodology for data analysis; the schedule for reporting.[8] This is defined for each layer in the logic prism (Fig. 7). In essence this is an amplified version of the MOV column in the conventional logframe.

[7] Arguably, the reasons for variance between planned and actual implementation (i.e. the attributed assumptions/preconditions) provide the most relevant ingredient for organisational learning.

[8] N.B It may also be useful to make explicit the hypothesis or expectation of each indicator measured as this could help to ensure relevance and clarity. E.g. in a water and sanitation project the hypothesis implicit within the indicator ‘‘average distance between potable water sources'' is that this measure will reduce within the target area as the project progresses.

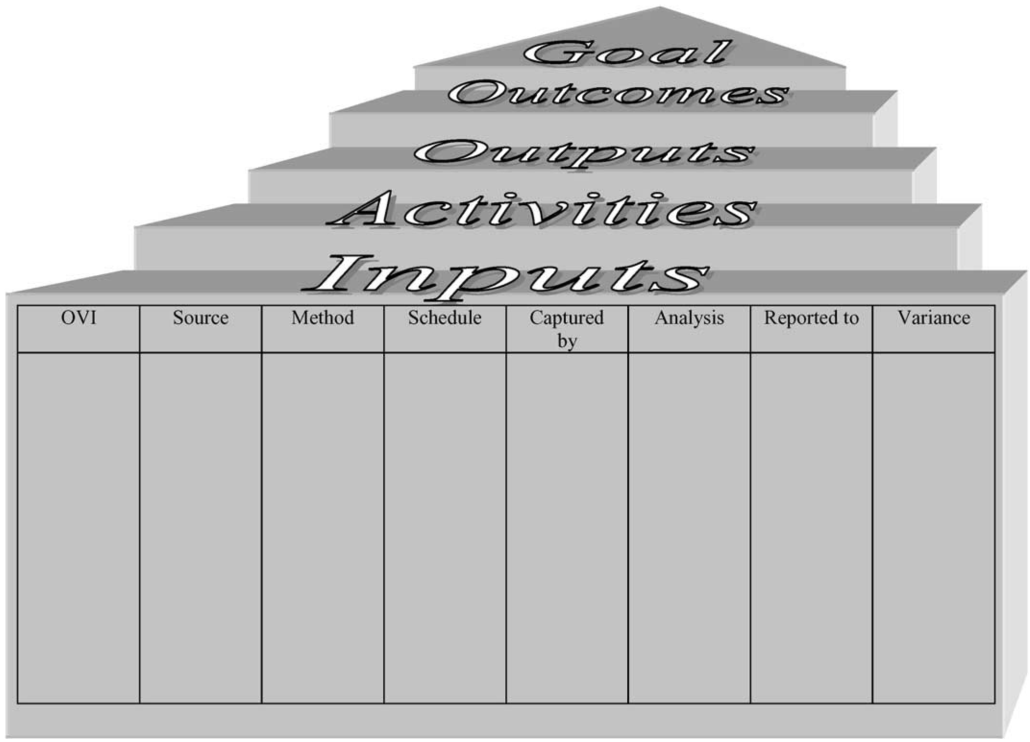

Fig. 7. The base of the 3D-Logframe showing the elements of the MEIS defined for each layer in the vertical logic.

Hence, the 3D-Logframe provides the opportunity for the conventional logframe concept, which most aid project managers and planners are familiar with, to be used beyond the project design phase as a project management tool. The 3D-Logframe offers the following benefits:

- Project performance is enhanced through the supply of relevant and timely data to support informed management decisions;
- Accountability is ensured through a defined reporting system that leaves a history of management decisions taken;
- Organisational learning is promoted through the capture of project histories and, in particular, the attribution of reasons (assumptions/pre-conditions) to variance between planned and actual implementation;
- A common language for all actors and smooth transitions between the main phases of the project cycle are fostered by the use of this dynamic unifying framework.

7. Possible barriers to use of the proposed 3D-logframe

Although the 3D-Logframe has intuitive appeal, and facilitates ongoing management functions such as M&E more readily than the conventional logframe, it is probably too conceptual to be adopted in the field context. Currently, most project planners use word processor tables to present the logframe matrix. While this has meant that the conventional logframe is a readily accessible tool, it is also perhaps a major reason why it is a static tool. However, trying to apply the dynamic 3D-Logframe model within a word processor environment may prove too cumbersome for most users. This situation could be remedied with the application of the model to computer software which could ensure seamless linkages between the various faces of the 3D structure, and also allow for the capturing and tracking of assumptions attributed to variance throughout the life-of-project. This would not only enhance the "useability" of the model, but could promote smooth transitions between the design, monitoring and evaluation phases of the project cycle. Further, monitoring data (variance) collected by such a system could be aggregated and provide a useful ingredient for organisational learning. While some may have concerns that an integrated computer-based system may reinforce the "information divide" with regard to the capacity of in-country project staff, the opposing argument is that surely an important role of development agencies is the capacity building of their own local staff.

The other main opposition to the proposed model may come from a more philosophical position. The two main schools of thought within IS study are the design school (with which the LFA is aligned), and soft systems methodologies (SSM).

The design school within IS study views organisations as goal seeking, and hence the prime organisational activity is decision-making (supported by the MIS) in pursuit of goals [30]. This essentially 'scientific' view of organisations and information is usually associated with would-be scientific methods of investigation and research based on systematic data collection aimed at hypothesis testing. These ideas constitute an intellectual stance which Walsham (1993 in [30] sums up as reflecting "a rational-economic interpretation of organisational processes, and a positivist methodology which is based on the view that the world exhibits objective cause–effect relationships which can be discovered, at least partially, by structured observation".

The opposing view is that organisations, being essentially social structures are incompatible with structured planning and management methodologies such as the LFA. Rather, SSM promote a more organic approach to planning involving iterative cycles of learning and reflection. Hence, practitioners aligned with SSM may reject any further elaboration of a structured management tool such as presented in this paper suggesting that this does not recognise the social reality within organisations.

While this view holds a pragmatic appeal, it is not compatible with the current donor–recipient paradigm which demands rigorous project plans as a basis for contracting. Further, the typically short project timelines encountered within the aid industry do not permit effective iterative learning cycles. Perhaps a balanced position is to acknowledge the reality of both perspectives. That is, while individual projects may lend themselves to structured methodologies such as the LFA, the aid programs (i.e. aid agency operations) within which individual projects are implemented may be readily described using soft systems methodologies. This position is consistent with the model proposed in this paper.

8. Conclusion

This paper has addressed a gap in project management literature covering international aid project management. The limitations of the conventional LFA when applied to MEIS design have been described and an extension to the logframe has been proposed. The 3D-Logframe proposed supports ongoing application of the LFA beyond the design phase of the project cycle, particularly for M&E. Further, it promotes smooth transition between the design, implementation and evaluation phases of the project cycle and ensures alignment of the performance measures with the project strategy. The model may have greater value if developed further as a software application in order to enhance the useability of the concept. An enterprise-wide deployment of the model could greatly enhance opportunities for organisational learning.

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