RESEARCH AND DEVELOPMENT PLANNING IN ANIMAL INDUSTRY: THE LOGICAL FRAMEWORK APPROACH

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SUMMARY

The paper discusses the role, key features and potential use of the Logical Framework Approach (LFA) for planning research, development and management within the animal industry supply chain. It is a highly effective strategic planning and project management methodology with wide application, including defining, designing, reviewing and managing R&D strategies, programs and projects within a stakeholder participatory framework. It is a coherent, participatory planning and design process capable of analysing and solving planning tasks, ranging from simple short-term problems to longer-term, complex development programs. LFA's disciplined, integrated, structured approach makes it cost-effective in achieving common understanding among competing vested interests and tailoring solutions to development problems.

It derives its effectiveness from three core features:

- A facilitated, brainstorming, participative problem-solutions analysis workshop early in the planning process; and
- Formulation of a Logical Framework matrix as a key organisational tool for implementation of the resultant Action Plan;
- Monitoring and evaluation of the outcomes of a development plan to ensure its benefits flow through to the beneficiaries.

Keywords: Logical Framework Approach, research planning, development, planning

INTRODUCTION

Logical Framework Approach (LFA) had its origin in the recognition by international development lending and technical assistance agencies that the key to improving project performance and impact lies in strengthening the planning process within a coherent management framework characterised by clearly defined objectives with achievable and measurable benefits.

LFA has evolved since 1970 from the well-known LogFrame matrix developed by USAID for improving its accountability to Congress into its present integrated, comprehensive toolbox. During the 80s and 90s the core LF matrix component was expanded by GTZ (a German Govt development aid agency) and other development agencies, including World Bank and FAO, to incorporate stakeholder participation in the planning process along with an associated suite of workshop-based problem-census-solving tools. The method is now widely used by the main international and bilateral development agencies for formulating sectoral strategies, designing regional and community development programs and investment projects, and for agricultural research project design, by IRRI, eg, *inter alia*.

As the author can testify from considerable personal experience in applying LFA, it can be readily adapted to the wide range of cultural and social development environments in the First, Second and Third worlds and to many planning applications. Curiously, even though its core tool – the logframe matrix - is a mature 30 years old, its use in the developed world has been very inconsistent and its considerable potential is still largely unrecognised.

In Australia, at federal government level AusAID has adopted LFA and Land & Water Australia has incorporated the LF matrix into its project management system, while in Queensland it is now used by (most) state government departments and by the corporate sector. Elsewhere its uptake has been negligible and promotions have for the most part been met with indifference. The author has successfully used its brainstorming workshop tool to help prepare a mutton marketing strategy for

Meat and Livestock, Australia, and to formulate an R&D funding proposal for Agriculture, Victoria (part of the Department of Natural Resources and Environment). Appendix 1 shows the Constraints Tree that was formulated during that workshop.

Because it fits so snugly into the stakeholder consultation processes, its spurning in this era of increasing governance transparency and community-oriented development is strange indeed.

THE METHOD

Key features

The method is robust and more disciplined than traditional expert-driven planning and stakeholder consultation tools, but by improving the efficacy of planning processes LFA increases the success rate of development activities. It's effectiveness is enhanced by early and intimate involvement of stakeholders in the design phase, systematic logical analysis of problems, and the application of a matrix in which development goals, activities, impact indicators and risks are all logically related in a succinct organisational framework. However, learning to use it effectively requires several days hands-on training followed by mentored experience.

It encourages a balanced solution to complex development issues through the immersion of (representative) stakeholders from early in the planning phase through to impact evaluation.

LFA replaces the conventional sequentially reactive planning process with a more interactive process, and so requires a radical change of mindset by R&D planners and administrators. However, effecting this change is well worth the effort, especially in designing and managing activities where outcomes are *soft*, or non-visible, such as:

- Strategic Planning
- Project and Program Design
- Investment Planning
- Research Planning
- Institutional Planning
- Business Planning/Benchmarking
- Strategic Alliances and Supply-chains
- Resource Planning and Management
- Facilitating Cultural Change
- Community Development Planning.

Because the approach encourages information gathering and shared learning by stakeholders to reach consensus within a systematic and collaborative framework, it is particularly effective where development issues involve disparate stakeholder views. It is particularly effective in achieving an optimum balance between the various needs of resource conservation, sustaining the environment and increased (animal) productivity.

The transparent, non-adversarial, integrated LFA process provides an efficient development framework that is backed by stakeholder confirmation and agreement from the outset without taking planning control and decision-making away from the responsible authority. Working collaboratively with all stakeholders ensures their stewardship of a more balanced plan and helps to maintain the independence and neutrality of the planning authority.

Component Tools

LFA's main strength lies in its problem diagnosis capability. It provides a sound basis for identifying problems and for generating appropriate solutions and interventions to achieve specific objectives and goals. It derives its effectiveness from three core components:

a) brainstorming, structured stakeholder participatory problem analysis workshops at the start of a project design (or review) process;

b) formulation of a LogFrame matrix, the core organisational framework for project management, and

c) systematic benefit monitoring and evaluation using key success indicators before, during and after implementation.

These components effectively link the key elements of the project cycle, illustrated in Figure 1.

The planning process is pivotal to the whole development cycle, not only to ensure that (limited) resources are committed to appropriate and realistic outcomes, but also to facilitate a smooth implementation phase. Moreover, it ensures that appropriate and balanced planning is based on a full understanding of the nature of the problem or development objective.

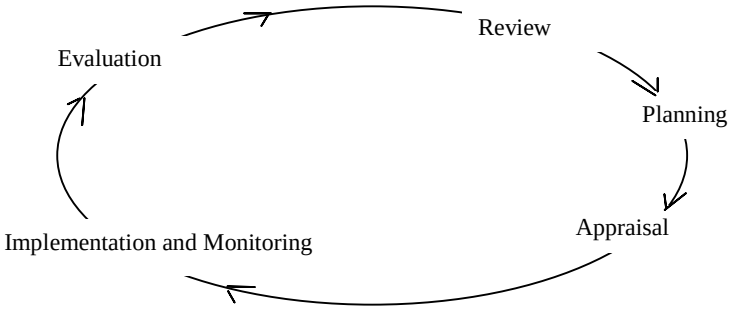

Figure 1. A typical project cycle

Problem analysis
A sound plan means not only recognising WHY something needs to be done, but also identifies WHAT actions are required, HOW they will be implemented, WHEN and by WHOM. It should also identify and monitor those factors in the wider environment – risks and assumptions –that will affect the success of a project. Preparing a well-balanced and effective plan depends fundamentally on a full and comprehensive understanding of the nature of the problem or development objective at the outset. This is best achieved by building on the collective knowledge and wisdom of all relevant stakeholder groups: beneficiaries, funding agencies, planners, technical experts, service providers, etc., when diagnosing the problem.

While the concept of community consultation and participation is now an accepted element of development planning, it still tends to be confined to listening and dialoguing with some stakeholders. LFA gives real meaning to the concept of needs-driven development by immersing them more actively in the planning (especially) process.

A problem analysis workshop involves relevant stakeholders in setting realistic development objectives, identifying constraints in a systematic, logical framework and designing relevant activities to minimise the constraints. Its strength lies in its ability to systematically explore the full range of stakeholder views and knowledge in a collaborative, non-adversarial environment and incorporate them into solutions. This analytical approach to diagnosing problems and specifying solutions ensures a balanced outcome and greater stakeholder stewardship of an agreed plan, especially when used early in the planning process. It helps to identify knowledge gaps and guides planners to key features requiring further research or information.

The disciplined and structured problem analysis component of the process is unique to this methodology and distinguishes it from other group dynamic techniques, such as SWOT (strengths, weaknesses, opportunities, threats), ORID (objective, reflective, interpretive, decisional), Force-field, and LENS (leadership, effectiveness and new strategies).

Ideally, a problem-solving workshop involves six steps:

i) Stakeholder analysis, to identify relevant interest groups, their resources and mandates;
ii) Participation analysis, in which participants identify themselves, including their positions and responsibilities, and indicate their interests, concerns and expectations;
iii) Agreement on the objective(s)of the workshop;
iv) Identification of constraints, during which the workshop constructs a Problem Tree using cause

and effect logic;

v) Formulation of a Solutions Tree, which is usually achieved by reversing the negative tone of Problem Tree and so creating a hierarchy of objectives. This activity also provides an opportunity for prioritising and linking related interventions, and identifying feasible funding options;

vi) Identification of assumptions and risks requiring treatment to ensure the proposed interventions have optimum impact.

The outcome of this process is a clear definition of the nature of the problem and of the interventions needed to solve it, structured as strategies, programs or projects. Where project formulation is the ultimate outcome of the process, the information generated in the workshop is fed into the Logical Framework matrix, which becomes the basis for the plan of operations (work plan) for the proposed R&D activities.

Depending on the complexity of the development task, the problem-solving component involves one, two or three day workshops of up to 25 representative stakeholders, initially during the early stages of formulation, and then (if necessary) later, for review of projects during implementation. Experienced facilitators (ideally, 'substance neutral') guide the workshops to encourage active participation and synthesise the flow of ideas in a logical sequence using a large wall chart and coloured cards to construct the trees.

The LogFrame Matrix

The logical framework matrix allows R&D planners and management to define development action plans simply, logically and concisely. It does this by linking objectives and the necessary inputs and outputs with key success indicators, specifying their verification and any assumptions (risks) required for success in a simple matrix.

If the logframe matrix is formulated in isolation from the participatory phases of the planning process, its coherency with stakeholder problem analysis is diluted because it may not reflect agreed solutions. Therefore, it should not be used as the driver of the planning process, rather as its output.

The discipline imposed on R&D planners by use of the LogFrame helps them focus on achieving clearly specified purposes relating to the relevant development goal. It also helps managers monitor the progress of the project with more rigour and precision, and to evaluate its success in relation to quantified target parameters. The tool can be used effectively for reviewing projects during implementation, and modifying their direction in accord with changing circumstances. Funding agencies use the tool to help reduce fungible applications of their financial contributions.

Briefly, the LogFrame matrix systematises the hierarchy of objectives, and while there is no logical limit to the number of levels in the hierarchy, the core matrix uses four (AusAID uses a 4x5 matrix). In a 4 x 4 cell grid the columns are Narrative Summary, Key Performance Indicators, Means of Verification, and Assumptions/Risks. The vertical matrix logic is a description of the project objectives and comprises Goal; Purpose (≡ Outcomes); Outputs; and Activities, as shown in Table 1.

The logic is that a project will make its expected contribution to a goal by achieving its purposes, which in turn require the generation of certain outputs as a result of undertaking specific activities. Achievement of each level can be demonstrated by verifiable indicators, but also depends on the management of identified external conditions (Risks/Assumptions) needed to provide an enabling environment for success.

The Goal will usually be the objective used in the Constraints Tree, eg, in what state (of development) do we want animal industries to be in 10 years time?

The Purpose is a statement of why the project is being undertaken - that is, its desired result - and is usually the solution to a specific development problem or constraint.

Outputs are the results obtained from the managed application of specific Activities, or what the project is to achieve during its lifetime; the deliverables for which management can be held accountable. They will usually be quantifiable and time bound.

Activities are the main group of actions that are undertaken to implement the project.

The horizontal logic ensures that the planner can specify indicators of achievement of the various levels of the project logic, how that information will be generated and the risks (negative factors) and assumptions (favourable factors) both inside and outside the control of project management required to ensure the various levels will be reached. For example, the Purposes will be achieved if the Outputs are delivered and the Output Risks are controlled.

Table 1. Structure of a typical 4x4 LogFrame matrix

Narrative Summary	Key Performance Indicators (KPI)	Means of Verification (MOV)	Assumptions/Risks
Goal: The overall development program or strategy goal.	Indicators (standardised) that measure achievement of the desired goal	*Ex-post* evaluation of the project	Key factors in the wider operating environment -- usually macro and extraneous factors to the project
Purpose (of the project) Statement of the project's outcome - its immediate impact.	Measures of enhanced development status when benefits are realised, quantified and time-bound.	Base line and *ex-post* surveys, direct observation or secondary data, reports.	Usually non-project support factors required to ensure contribution to Goal.
Output: Specific non-quantified results from managed activities – the deliverables.	Results of managed application of inputs, quantified in magnitude and time – project mgt indicators.	Direct observation of key process and implementation progress indicators	Conditions for success, usually within control of project management, required to achieve Purpose.
Activities: Components to generate the outputs.	Inputs: Quantified factors of production required to produce the outputs via the activities.	Evidence of use of inputs	Factors required to achieve Outputs, usually pre-project status and inputs availability.

Purpose KPIs are the core of the matrix. They comprise the quantified measures of program/project impact on its beneficiaries. In all cases, the KPI for a Purpose will be the expected status of benefits after adoption, including essential performance measures and should be negotiated with all stakeholders. As applied to animal industry supply chains these could include measures of productivity, producer prosperity, trade and consumer factors.

The Outputs KPIs are the deliverables specified during and at the end of the implementation phase. Again, relevant indicators will be used in the project budgets and analyses. Activity KPIs are usually the inputs of goods and services required by individual activities and comprise the personnel and operating costs, including services, equipment and materials, capital and adoption costs, to be financed by the project.

This integrated process and organisational framework assists R&D coordinators and managers in:

- Setting achievable goals with their quantified and (ideally) time-specific success indicators;
- Developing an effective, balanced, coherent Action Plan listing major activities/projects, detailing deliverables, outcomes, along with best practice performance measures, KPIs, budgets, etc;
- Identifying the external factors that must be in place to ensure success, and
- Developing strategies to minimise and monitor these risks;
- Establishing adequate management and reporting mechanisms;
- Achieving stakeholder confirmation and agreement.
- Identifying the monitoring and evaluation target indicators.

Appendix 2 illustrates a typical LF matrix prepared by the author with the management of a company as part of an application for grant funding to assist with the development of a 'greenfield' pork processing facility.

Monitoring and evaluation

Developing agencies have realised during the last decade that R&D projects are not completed until their impact on the beneficiaries is achieved. This is usually some time after funds have been dispersed and deliverables satisfied. In applied animal research activities, for example, this means ensuring that users adopt results, a process that can have a variable lag time, depending on the risks of success, their complexity, perceived incremental benefit and effectiveness of the private and public extension network.

Ideally the benefits should at least reach the levels set in the planning document/feasibility study, but they must be systematically measured to be sure of the extent of realised benefits. Sadly, the developing world in particular is littered with the bones of well-intentioned and well-executed projects that failed to achieve their expected impact. Inadequate planning and monitoring must take some of the blame for this project graveyard.

Monitoring and evaluation is thus a very necessary component of the development process and needs to be resourced appropriately. The basis of M&E activities resides in the LF matrix where the Purpose KPIs indicate the expected benefits and the Risk column highlights the external factors that need to be monitored, and corrected if necessary, during implementation to ensure success.

The instruments used in the M&E could include both qualitative and quantitative methods of measuring the benefit, regularly recorded to analyse the impact trend over time, commencing with a base-line data analysis. These include formal survey using questionnaires with Rapid/Participatory Appraisal techniques and informal methods, such as focus groups among beneficiary communities.

RESULTS

That the method is widely used by many developing agencies - even compulsory in some countries - together with its increasing usage by the corporate sector and uptake, *albeit* slow, by some Australian development funding authorities, is evidence of the value and effectiveness of LFA.

As mentioned during the narrative above, LFA can be an effective method for planning and managing a range of development tasks within the animal industries' supply chain. It can reduce competition between vested interests for use of scarce resources in R&D prioritising and planning, and for achieving coherency of purpose and means of achievement among conflicting factions. It facilitates the resolution of differences in focus among interest groups concerned with environment protection, food safety, production and processing. It minimises objections and appeals, and accelerates the planning process by diffusing tensions and establishing common agreement. LFA also has application in reviewing and preparing strategic plans by the institutions involved with the industry, such as the ASAP and the ISAH. A basic condition for its success is a clear objective and the goodwill to reach it.

The method can also be used in a problem-solving framework where a problem and its causes may not be readily apparent. Used in that situation the problem diagnosis process is aimed at identifying the 'focal-problem(s)', but the same cause-and-effect logic is used to 'process' the stakeholders' information to identify needed interventions.

DISCUSSION

With these powerful credentials, it is perplexing that its adoption has not been more enthusiastic. Possible reasons for incomplete and non-adoption of the LFA methodology by R&D agencies, certainly in Australia, may include:

- A shortage of experienced LFA practitioners and the cost of training;
- Complacency among mainstream community consultation practitioners and strategic planners who appear content with less robust participatory consultation tools. While useful for community consultation, these techniques of stakeholder involvement do not have the power of LFA to solve problems and manage the solutions to achieve optimum impact.

- Miserly (project) budgets that are used as excuses for confining project expenditure to implementation activities supported by low-cost planning and minimum M&E, which are seen as less important project elements especially, in the author's experience, by producer-led R&D agencies.
- The comfort zone syndrome among administrators who are content with the status quo;
- In addition, while community consultation and stakeholder participation in development planning are more widely accepted by planners and resource administrators, these are still at arms length and tend to be used after the drawing board stage. That is, a draft plan is designed by experts for discussion and feedback by affected communities with the hope of instilling a sense of ownership and commitment to development.

  This limited application of participatory development – known as participatory short-circuiting - derives from the technical 'experts' (researchers, planners, etc.,) confidence in their own ability to understand and solve development problems and manage the solutions. Moreover, some administrators still resist the transparency and accountability inherent in a more 'intimate' participatory approach to development.

While there are various collaborative workshop methods to draw on, as well as various community-based group dynamic and social analysis tools, each of which can have a role in R&D planning and management, for project planning purposes the Logical Framework stakeholder participatory approach is the most effective.

LFA's main strength is its power to unite stakeholders with different viewpoints in striving for a common (development) planning objective. Its effectiveness is achieved primarily through its ability to pull together the various views of all relevant stakeholders in a non-adversarial and collaborative consultation process developed around a facilitated participatory workshop held early in the planning process.

Linking the stakeholder problem-diagnosis workshop with the LogFrame matrix project summary as an integrated process ensures effective stakeholder participation and a balanced and targeted project definition. The LogFrame matrix establishes a firm impact-oriented basis for project appraisal, which is made transparent by the explicit assumptions underlying the analysis. It thereby provides the necessary framework to evaluate the impact of the project on its development goal.

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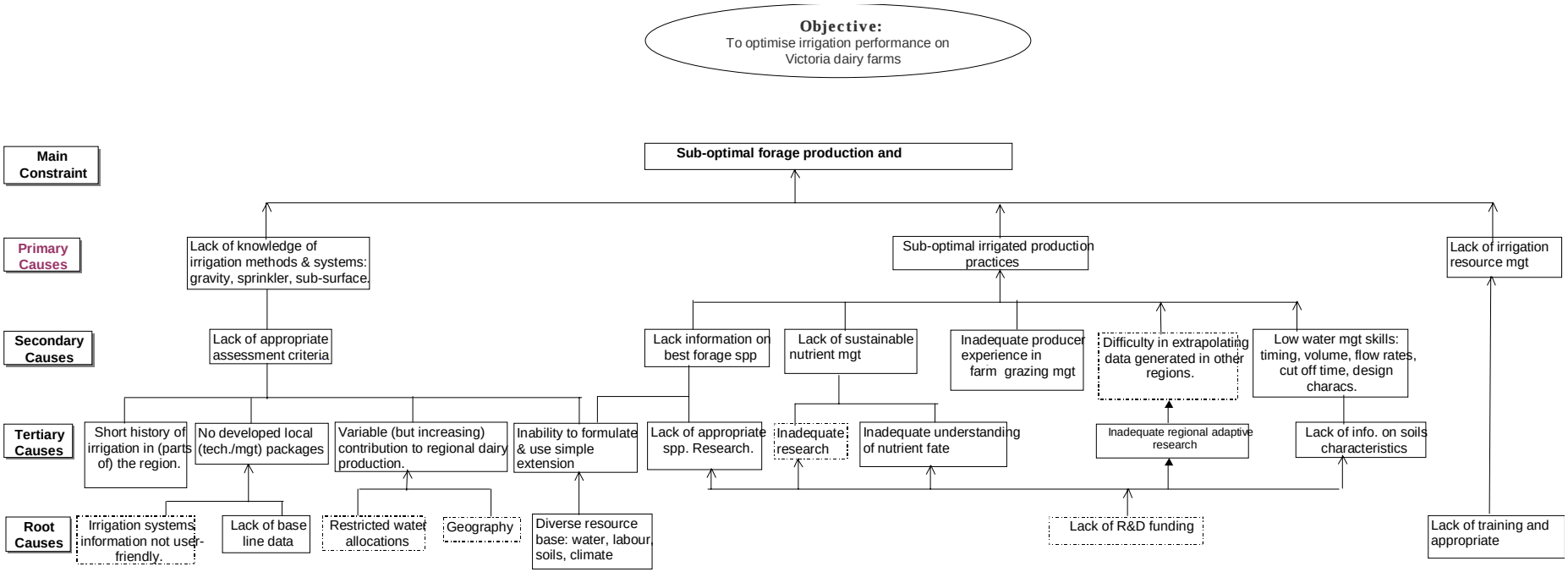
Appendix 1. An R&D planning constraints tree (arrows indicate the direction of the cause-effect logic)



Appendix 2. An example of a LogFrame Matrix for a Greenfields Pork Processing Investment

Summary Statement	Targets or Indicators	Verification	Assumptions/Risks
Program Goal: To improve international competitiveness of the national pork industry	Significant increase in national pork export trade	Export trade figures	• Favourable exchange rate continues; • Continued Govt and industry support.
Project Purpose: To increase pork market share in Asia as well as in the domestic markets, and extend the range of pork products destined for the food supply chain.	• 80% of output (20,000t) exported by year 4, mainly to Japan;	Company reports and balance sheets	• Funding is sufficient • Marketing alliances are successful • Australian reputation for meat hygiene and quality is maintained • Asian economic uncertainty
Project Outputs: • Increased slaughter capacity; • Establish boning capacity; • Reduced cost of processing; • Increased export sales • Increased employment	• Increase slaughter from 50,000 pigs /annum at present to 650,000 in 2 shifts by 2004; • Market 130,000 as whole carcasses and 520,000 cut/deboned; • Employ additional 350 staff by 2004; • Estimated slaughter cost $8.00/hd • Estimated boning cost $16/hd	On-site visits by evaluation team; Company reports	• Personnel with basic skills and experience available • Producer alliances able to supply pigs; • QA is upgraded and maintained • Environmental protection standard is maintained • Operational efficiency targets achieved • (Foreign) eq'ment service reliability
Project Activities: Construct and fit new abattoir and boning room: land building equipment fitout	**Inputs:** $1.0M; $16.84M; $11.0M; $7.164M Total $36.0 M	On-site visits by evaluation team; Company reports.	• Funding application is successful