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Covid-19
Safety compliance

Effective support for sustainable economic development projects

SUSTAINABLE DEVELOPMENT GOALS

SDGToolkit provides a project, framework and policy portfolio management system with an extension support

The George Boole Foundation

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Executive summary

1. Covid-19 has played havoc with people's health, leading to the likelihood of the number of deaths exceeding 400,000 worldwide. It has also disrupted the economies of all countries as a result of its impact on supply, demand and the ability of people to engage in economic activities while observing health safety constraints.

2. In the context of international economic development efforts, agriculture and rural development are vital sectors in most low income countries. However, agricultural projects, over the last 30 years, have recorded a failure rate in excess of 35% leading to wasted financial resources and lower than expected availability of food, fibre and feedstocks.

3. In 2015, the United Nations launched Agenda 2030 to establish an international collaboration to meet 17 Sustainable Development Goals (SDGs) to improve human wellbeing subject to over 230 indicators.

4. In 2019, the Sustainable Development Report, a review of Agenda 2030 progress, reported that three important SDGs were not progressing, especially in low income countries. These are sustainable production and consumption, arresting climate change and reducing inequalities. Since production and consumption represents all economic activities by encompassing all supply chains, the evolving state of affairs is a matter for grave concern.

5. Project failure rates are largely linked to inappropriate project designs. These are often characterised by over- or under-optimistic objectives as a result of inadequate analysis. An essential requirement is a closer approximation of projects to well specified national strategic sustainability priorities and policies so as to establish coherence between national objectives and practical actions on the ground.

6. Government strategies need an evidence-base consisting of national level indicators related to critical factors affecting human wellbeing and sustainability. However, the 2019 Sustainable Development Report records that, to date, over 65% of the national indicators concerning climate action, production have not been specified. As a result, many governments have lacked adequate information upon which to establish strategic priorities for project teams since the initation of Agenda 2015. As a result there has been a very low or no economic development impact and marginal environmental and climatic sustainability under Agenda 2030.

7. As a result of the economic impacts of Covid-19, for the foreseeable future, the availability of financial resources for economic development projects on the part of national governments, international, national and private donors, will fall. Combined with the crucial indicator gaps and weak bases for the identification of effective strategies there is an urgent need for practical solutions.

8. The most immediate need is ways to improve the quality of technical support for governments and project teams. Emphasis on strategic priorities for policy formulation and project team orientation is required to deliver better project designs, implementations, monitoring and evaluation. The methods adopted need to identify solutions that are robust

with implementations that satisfy performance criteria in social, technical, economic, financial, environmental and ecosystem sustainability terms.

9. At the same time, this effort to improve the quality of entry and implementation performance of projects in development portfolios needs to achieve this in a cost-effective manner so as to improve the budgetary performance of governments and international donors of all types.

10. This document describes the SDGToolkit, an Integrated Development Environment (IDE) that places cloud-based analytical tools in the hands of policy makers and project teams to generate evidence-based projections, the indentification and measurement of strategic constraints and the identification of priorities for action or needs. The on-the-ground design solutions relating to sustainable production and climatic impacts are supported through a well-developed due diligence design procedures that ensure project teams can identify and give due consideration to all relevant factors.

11. This system can contribute to a major advance in the professional capabilities of policy makers and project design personnel in the identification of improved national strategies and successful actions. Beside the importance of training in the use of advanced analytical procedures, there will be a need for a close collaboration with extension services to externalise and disseminate the knowledge of successful implementations for use by others.

12. SDGToolkit raises the standards of strategic analysis, policy and project design quality to secure an improved developent impact while reducing the costs of technical support required to achieve this.

13. The SDGToolkit is a service that can support the management efforts of all who seek practical solutions to the sustainable development challenge facing the world. Potential beneficiaries include economic development project portfolio managers linked to donors, development institutions, national executing agencies, research and extension services, rural cooperatives, and community mutual organizatons, non-government organizations, consultants and any groups wishing to develop feasible and sustainable evidence-based project proposalsand manage operations successfully.

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Covid-19

The Corona virus Covid-19 has caused extensive hardship in the form of the deaths of many people and in a sharp decline in global economic activity, production and access to essential supplies such as food. The risks associated with international travel have impacted the normal modes of technical support activities associated with economic development initiatives including project, programme framework and policy cycle design[1] and management.

Before the Covid-19 crisis the failure rate of agricultural projects exceeded 35% of funded projects. However, in the follow up period of recovery of agricultural sectors, there is a need to reduce this figure by avoiding over-ambitious or under-ambitious projects and to identify optimised projects that are feasible and sustainable. The objective is to maximise cost-effective operations as the world enters an economic regime of limited financial resources, especially in low income countries.

Therefore, in order to combine economy and effectiveness of project identification and design, there is a need to improve the quality of technical support. To achieve this, it is necessary to deploy improved means of the transfer information and knowhow in a way that augments the professional operational competence of project teams. The objective has to be that of enhancing the capacity of in-country executing agencies to manage their project cycles and reduce their reliance on external support. Technical support needs to transition to become a dedicated system promoting professional advancement based on well-structured procedures and methods.

SDGToolkit.com

SDGToolkit.com provides a large number of cloud-based tools to support the design and management of projects, programmes and policies in support of Agenda 2030 Sustainable Development Goals.

The conception, design and implementation of the toolkit has been shaped by some 50 years professional experience in international agricultural development projects[2] and policy making and a range of analysis on the shortcomings of conventional project cycle methods.

The resulting product is a leading-edge cloud application that provides all of the analytical tools necessary for:

- Project and policy identification and design
- Project and policy implementation
- Whole cycle oversight
- Monitoring and evaluation

[1] Projects or multi-project programmes or frameworks need to be coherent. Coherence with policies objectives is an important criterion across all levels of support to avoid actions with cross-purposes reducing the effectiveness and efficiency of economic development.

[2] Including assignments for Europe Aid, the World Bank, ICO, DfID, CBD, SIDA, Know How Fund, State and Federal governments of Brazil, Hungary, Romania, Mozambique, Kenya, Tanzania, Uganda, United Kingdom, Intercomex, Cobec, Interbras, Aquion, Mars Electronics and Unilever.,

SDGToolkit and Covid-19

The objective of the SDGTookit is to deliver technical support remotely while improving practical results in comparison with the variable standards of existing project design, implementation, monitoring and evaluation. This can help reduce the failure rate in agricultural projects linked to inappropriate designs.

This objective was established as a priority by the George Boole Foundation in 2010. As a result of analytical reviews of conventional project cycle methods, Open Quality Standards Initiative[3] (OQSI 2010-2020) has proposed numerous improvements in applied procedures. Each proposal has been implemented as a software module to test implementation feasibility and reviewed by sector practitioners to assess relevance and ease of use. This part of the development was undertaken by SEEL-Systems Engineering Economics Lab[4]. As a result of this procedure the OQSI has produced a comprehensive set of practical procedural recommendations.

SDGToolkit is the first system to be based on OQSI recommendations.

The result is a system that is a significant improvement on the conventional methods of technical support which are becoming costly in terms of consultancy fees, international travel and accommodation of assignment teams.

In the context of the constraints imposed by Covid-19, SDGToolkit is an ideal answer to many of these outstanding issues. It is delivered remotely, it improves standards of project design and implementation and is a lower cost means of delivering technical support.

Better coordination, accessibility and coherence

The traditional methods of managing project cycles include the use of conventional communications methods including email, video conferencing, exchanges of documents and visits by donor and funding representative and monitoring and evaluation personnel. Various PC, laptop, tablet and mobile phone applications exist as containers of data and project and policy plans. The unique aspects of SDGToolkit include its oversight and coordination of all contributions to a project cycle. All contributions are recorded and all records accessible through on-demand real time analyses and reporting. The level of coherence of information and datasets across the cycle phases of design, implementation, monitoring and evaluation remains high.

In addition to these functions being available for each project, the system also provides the same level to each project across any-sized portfolio of projects[5]. Portfolios can be that of an executing agency, a donor, ministry or extension service wishing to maintain oversight of progress in assisted projects.

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[3] The OQSI was established in 2010 under the Decision Analysis Initiative 2010-2020 sponsored by the George Boole Foundation.

[4] SEEL was established in 1983 to monitor the development of technologies employed in the development of applications on global networks, including the Internet.

[5] The database technology deployed is the most stable and tested in current use (2020). The state-of-the-art capacity of memory, memory caches and disc data seek technologies make limits on numbers of projects in a portfolio only dependent on central processor speeds. Theoretically, an operational limit might be around 250,000 projects in a portfolio, depending on the size of data sets recorded for each project. Any user requirement exceeding these current limits (2020) can be accommodated by switching in additional server processors to handle the data.

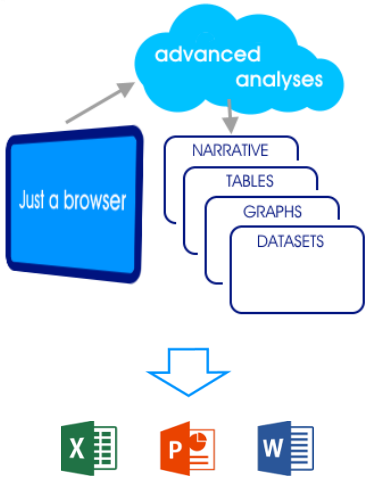
User requirements

As part of the quest to minimise user entry costs and ease of access, the only software required is a browser. Most browsers are free and in cases where browsers are charged for SDGToolkit.com will provide customers with browsers free of charge.

The system will work on any device including PCs, laptops, tablets and mobiles with touch screens and using any operating system as long as the browser deployed is an industry standard.

All data and narrative reports generated by the system are compatible with standard word processor documents and pdfs, spreadsheets and presentation systems and all data, reports, tabulations and graphs can be downloaded.

Narrative reports are compatible with online and local environment text to voice systems.



Project memory

Reviews of traditional project records have highlighted a very large range in the quality and coherence of documentation. In some cases, original evaluations are misplaced or out of date documentation circulates at the same time as updated documents. Another common problem is that different parts of project preparation documentation is produced by different lender or executing agency departments. This atomises the distribution of knowledge concerning a project. This can have negative impacts if key individuals leave a project and their contributions and viewpoints inadequately recorded. This can introduce significant delays in project decision-making and create challenges for those who take the place of those who leave in coming up to speed so as to maintain project momentum by contributing to the ongoing activities in an informed manner.

In order to address all of these common problems the SDGToolkit maintains a constantly updated Project Memory as a single coherent source of information[6] on all aspects of a project. This maintains a good across team state of knowledge and provides an unparalleled quality of information for use by external auditors or evaluators.

Procedural standards

The process of remote technical support faces a challenge in the form of the degree to which communications are understood. In the case of SDGToolkit this communications challenge is addressed by applying clear procedures and methods set out in the form of a due diligence

[6] Project Memories are coordinated by the Real Time Monitoring & Evaluation system which maintains records in an Accumulog, an immutable database record similar to blockchain.

design procedures[7] used to identify the most effective change strategy supported by analytical tools which generate compatible outputs.

The overall sequence of procedures and the analytical tools ensure that a high standard of overall cycle management is maintained. Indeed, the overall system has a higher level of deliverable procedural standards than are commonly contained in project cycle guidelines[8]. This is because most guidelines are not accompanied by appropriate tools and calculators to be used by team members to complete the required calculations, analyses and projections.

Much contained in project cycle guidelines, including evaluation criteria are dependent upon user and evaluator discretion[9]. This creates significant problems when portfolio managers need to compare different projects across different sectors or countries. This is because, the general lack of agreed application standards results an inability to conduct effective comparative analyses of portfolio content in a precise manner. The results in terms of risk and quality control analysis are a limitation on the ability to optimise the evolution in the quality of entry of projects to a portfolio. The numerous analytical tools included in the Toolkit not only makes the required resources fully available but this also helps standardise the procedures applied to each project in a portfolio. This helps ensure accurate calculations and comparable results and to a higher standard that is common practice.

The issuing of guidelines without access to analytical tools is a very significant provisions gap. This impacts practitioners in low income countries who, currently, often do not have access to the required analytical resources.

Outline of procedures

The Toolkit is divided into four distinct phases of the procedures associated with groups of analytical tools designed to support the necessary calculations and analyses required to support the completion of each step in the procedural phase.

The cycle procedural phases are as follows:

- GCA-Global Constraints Analysis
- 3DP-Due Diligence Design Procedures
- Designer
- RTME-Real Time Monitoring & Evaluation

The first three phases, GCA, 3DP and Designer are all concerned with project design and RTME is concerned with the management of implementation, operational decisions, adjusting operations as well as ongoing monitoring and evaluation.

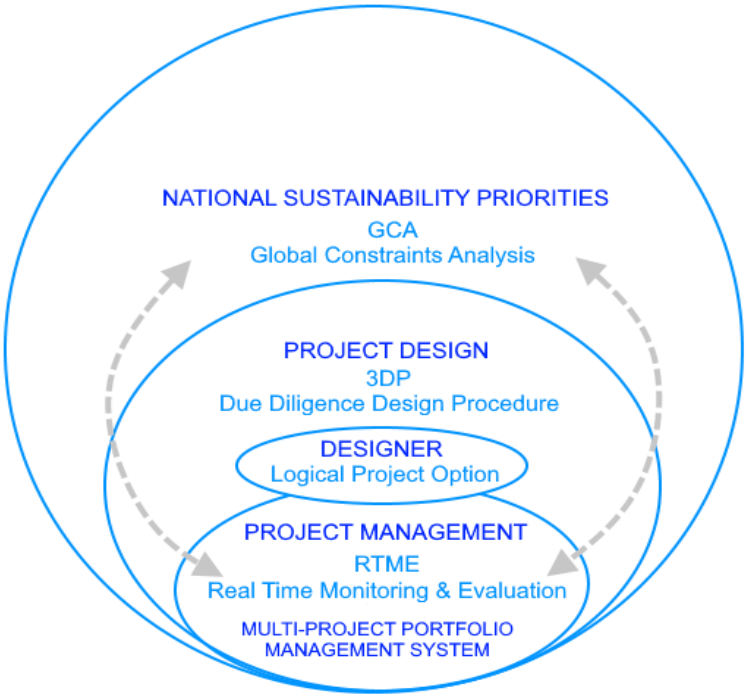
These phases are shown in diagrammatic form in the diagram on the next page.

[7] The core due diligence design procedures are used in the 3DP analytical procedures to ensure that all relevant factors are considered.

[8] Guidelines include the latest issued by the main development banks, bilateral agencies and the European Union.

[9] OECD DAC advise evaluators to apply their Evaluation Criteria according to their discretion. The OQSI procedures has additional criteria and the way they are applied is specified clearly.

Phases of the due diligence procedure



GCA-Global Constraints Analysis

Although national level indicators are of importance, when the requisite data is available for their estimation, SDGToolkit provides a complementary basis for determining the exposure of different measures of wellbeing to existing national level constraints. This is important to identify the specific challenges facing any project. To complete this analysis the toolkit provides analytical tools to determine the impact of population growth rates, current income levels and distribution and inflation on real incomes and purchasing power trends. These analyses include land carrying capacity trends, the balance of renewable resources, food consumption production needs and costs and margins of alternative production systems. The underlying theme here is that production of food, fibre and feedstocks need to be accessible in terms of the purchasing power of affected communities.

Having dimensioned the scale of gaps and needs at the national level it is necessary to locate actions (projects) according to the geographic distribution of the communities in need within a country.

This information is used in the due diligence design procedures to eventually quantify resource requirements and on this basis, it is possible to determine the nature of the required solutions as single projects or programmes or frameworks with several distributed projects.

This information also provides, at the final design stages of design specification, a quantification of the potential contribution of the solution to the national need as well as estimates of the total financial requirements for implementation budgets[10].

[10] Precise budgets are calculated by the RTME-real time monitoring and evaluation system group of tools.

These calculations and projections are of particular interest to policy makers who can determine what types of incentives might be beneficial to support the project, programme or framework selected.

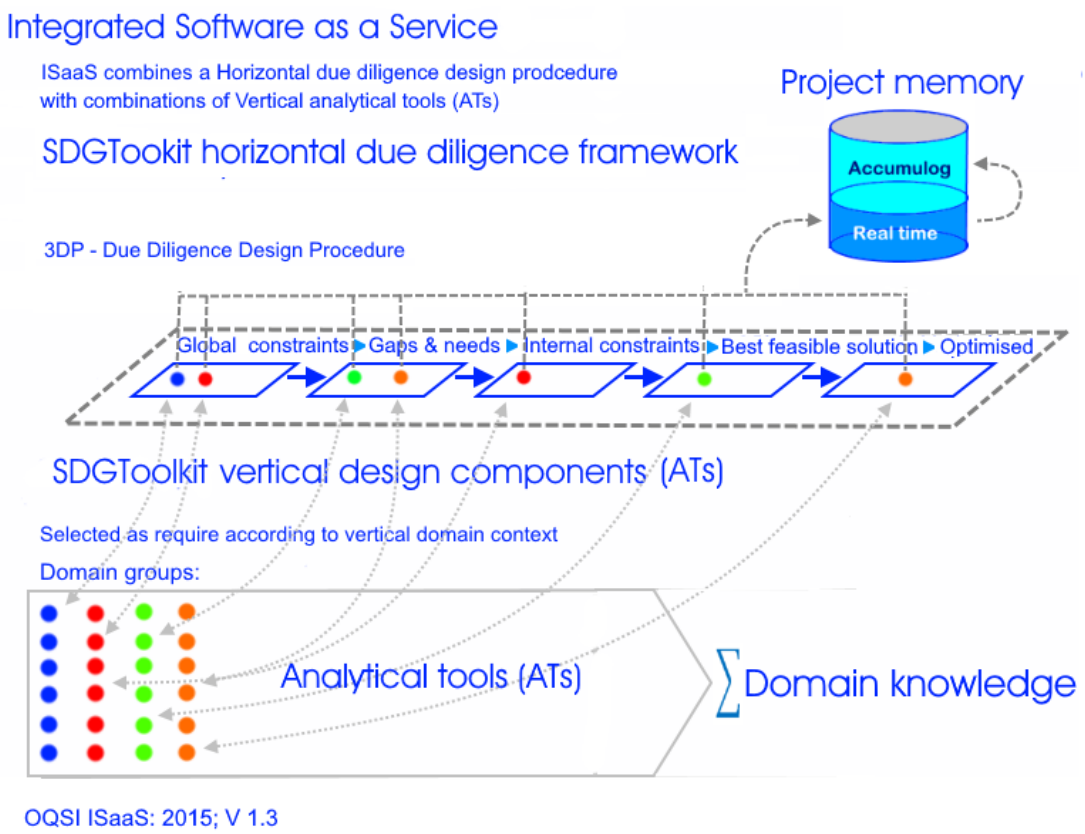
3DP-Due Diligence Design Procedures

The due diligence design procedure (3DP)[11] is a comprehensive horizontal framework used to identify and prepare information on the degree to which identified classes of conditionality or constraints relating to all of the key factors that need to be considered and provided with due consideration in any project design.

3DP provides the framework to carry out a micro-analysis of the specific constraints facing any particular project within the national constraints universe identified and quantified by the GCA. 3DP is both a checklist and an applied design methodology providing a practical structured approach to project design. 3DP records combine Global Constraints Analysis output covering gaps, needs at the national level to establish the project context. To this is added more detailed project-specific locational constraints such as economics, ecology, logistics, factor and produce markets, sustainability and GHG emissions.

Each 3DP procedure is assisted by "vertical domain-specific" information managed by appropriate analytical tools.

SDGToolkit Integrated Development Environment



[11] 3DP-Due diligence design procedure is based on the OQSI-Open Quality Standards Initiative recommendations for project design (2019)

From change theory to change strategy

The purpose of the 3DP approach is to assess all of the detailed constraints and to identify means of mitigating them or avoiding them. The list of possible actions can then be prioritised to produce a Best Feasible Solution (BSF).

Final design specification & plan

The BSF is then reviewed and tested by seven ***performance evaluation criteria***:

- Relevance
- Effectiveness
- Efficiency
- Impact
- Sustainability
- Resilience
- Coherence

A final trade-off position within which all evaluation criteria are satisfied is the basis for identifying the option representing the best potential feasible solution. The details of this options are input to a Real Time Monitoring & Evaluation system. Here the expected operational details for the number of tasks[12] and their individual processes, inputs and outputs become the reference benchmarks for measuring progress and performance during subsequent monitoring and evaluation procedures.

Economy and climatic impacts

The current risks to the world communities linked to the current of trends in climatic impacts are addressed by the SDGToolkit. In terms of production and consumption practice are addressed on the basis of a trade-offs between the seven performance criteria and ***eight sustainability criteria:***

- **Social**
- **Economic**
- **Financial**
- **Technical**
- **Technique**
- **Environmental**
- **Ecosystem**
- **Carrying capacity**

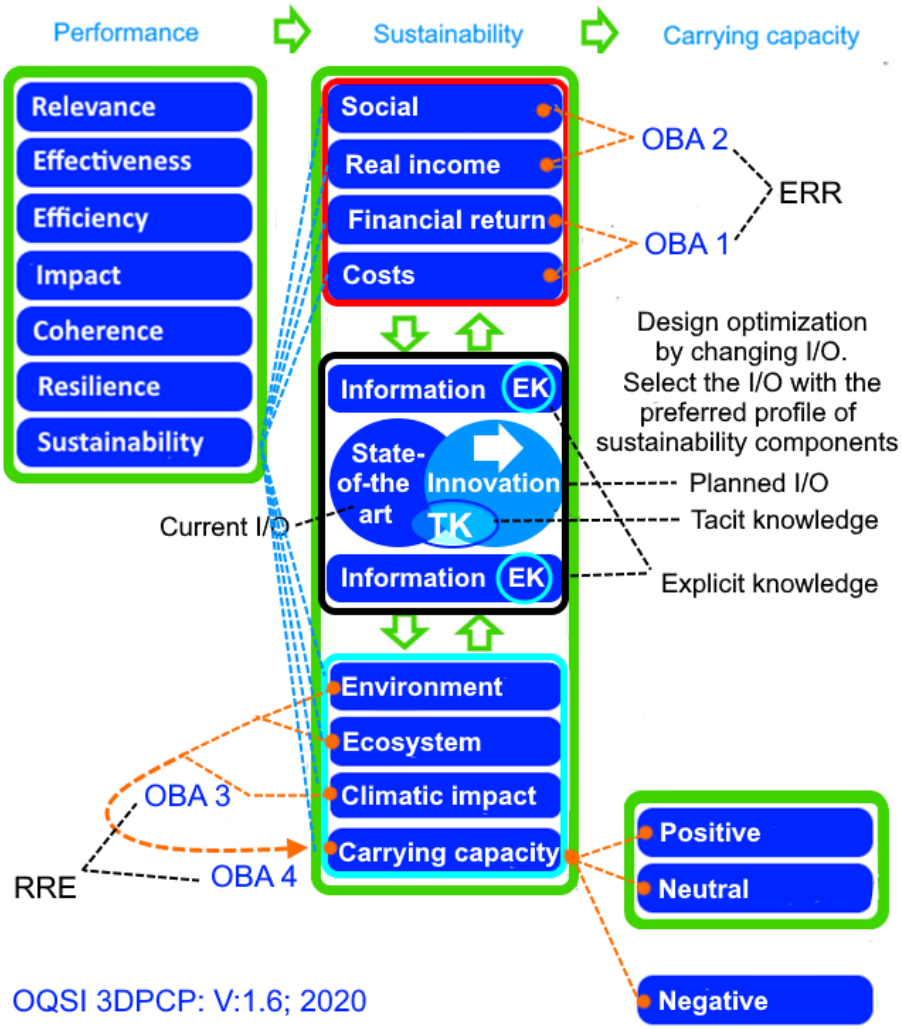
These criteria are colour-coded to comply with the different boxes in the Climatic impact critical path (see next section).

Climatic impact critical path

Use is made of a critical path to link performance and sustainability criteria as illustrated on the following page.

[12] Tasks are activities or single process transforms that together make up all of the operational components of a project.

Climatic impact critical path



The critical path is demarcated by the satisfaction of all criteria while also satisfying a neutral or positive impact on carrying capacity and climate change. The critical path lies within the green boxes in the diagram. The red box contains social aspects of employment and entrepreneurship related to financial return, real incomes and costs. The black box combines technology and human tacit knowledge, or state-of-the-art practice expressed in terms of applied technique and human capital capabilities.

The turquoise box contains the other ley factor considerations of physical environment, ecosystem (including biodiversity) climate impact and carrying capacity.

Design adjustments to identify optimised option

Design adjustments are made to optimise project designs by changing the input-output (I/O) details of as comparative options undertaken by changing the technological relationships by altering them. The impact of these changes on all of the sustainability factors can then be compared with other I/O combinations. Technical input-output relationships are manipulated to optimize the trade-off between economic and ***financial rates of return*** (ERR) and

environmental and ecosystem ***rates of return to the environment*** (RRE) related to carrying capacity and climatic impacts.

Designer

Designer is used to record the final design selected as a "Logical Project Option" (LPO). The use of the term "option" signifies that depending upon conditions during implementation, conditions and therefore details are subject to change.

Design provides input forms to add the following details:

- Project coordinates
- Number, names and durations phases
- Number, names and durations of tasks by phase
- Task processes
- Task input and output specifications including human resources with quantities and prices
- Capital equipment/plant/construction requirements with specifications, qualities and prices
- Task by-products,
- Task durations
- Project timeline
- Task by-products

This data is the baseline plan for the project. The quantitative measures applied in the Designer establish the target benchmarks to be used as comparative datum lines for monitoring and evaluation.

The LPO can be used by monitors and evaluators as a reference summary of the overall project similar to a Logical Framework but the LPO provides direct access to far more information than a Log Frame.

RTME-Real Time Monitoring & Evaluation

RTME[13] is designed to enhance standards and ease of management of project design and implementation. The central objective is to provide a system of monitoring and a team-based shared evaluation of progress over the whole project cycle.

An internal monitoring and recording process remains a constant feature covering project design following the normal constraints, gaps and needs analysis and the review of solution options. This provides records of the identification and design of project phases covering setup, procurement, implementation and any concluding phases. The tasks in each project phase are described and quantified in terms of inputs, outputs, processes, human resources requirements and budgets. The output of this exercise is a project plan, including Gantt charts and budget and an M&E schedule.

[13] RTME-Real time monitoring and evaluation is a direct result of recommendations made by OQSI to improve the quality of information available for monitoring and evaluation. These recommendations are designed to augment transparency and quality of communications between project teams and external monitoring and evaluation personnel applying OECD DAC evaluation criteria.

RTME is based on recommendations arising from detailed reviews of evaluation methods by OQSI, including a review of OECD DAC evaluation criteria. The recommendations enhance the quality of in-team analysis of progress to establish a significant knowledge base for independent external evaluators. This process has four related objectives:

- To assist teams to actively monitor and evaluate their activities and project performance as a means of advancing their personal acquisition of knowledge on the practical operational characteristics of their projects.
- To enable timely, optimised decisions in response to changes in the implementation phases.
- To acquire tacit knowledge or practical expertise in combining their disciplinary expertise with an effective capacity in managing project resources
- To provide a convenient way to feed regularly updated data to improve the quality of on-demand data retrieval, analysis and reporting. This helps project managers, donors, stakeholders and other authorised parties including evaluators to remain up to date on any aspect of the design and implementation activities.

Internal and external evaluations

RTME is based on two parallel procedures:

- Internal M&E (IME)
- External M&E (EME)

Internal M&E

If a project proposal succeeds in obtaining funding then the M&E plan provides milestones marked by the date of completion of each task when an assigned team member should compare the current accepted project design benchmarks in Designer with the actual achievements to measure the task's performance. The nature of this process is that of an information management tool to help the team refine its knowledge of the factors that cause variance of operations and outcomes with the desired benchmarked results. In this way, teams and management can maintain a more intimate grasp of events on the basis of a system that helps augment the learning and competence of the team members.

The additional benefit is that this approach encourages a level of "ownership" over process efficiency and a more proactive and positive view, on the part of team members, towards the question of project performance. Design errors are not a basis for personalization of past decisions or recriminations but rather a motivation to discover what information was missing at the design stage, which assumptions were in error or what aspect of current knowledge was not explicit enough. Without this being internalised by teams in real time in a positive and learning system-based attitude, lessons learned will tend to be lost.

Internal M&E has an important role in advancing the status of team members' professional knowledge and skills in application..

External M&E

External M&E (EME) is the well-established process of independent and external M&E assignments being used to provide appraisals of a project's performance, to identify reasons for variance of results from the projected performance set out in project plan proposed and established reference benchmarks.

Traditionally M&E assignments are concentrated into a relatively short period, depending on the project. Within an allotted time, the M&E personnel need to visit a project site and institution executing a project to gather together information, interview people involved to hear explanations as to why certain aspects of performance might not have attained required levels and to analyse the findings and to prepare a report including suggested lessons learned.

Quite often, when M&E assignments occur during implementation, they might even be asked to propose options for resolving ongoing issues. Usually, this is not a role that EME personnel should be providing but it is often the case that the lack of IME data places an unfair weight on EME personnel.

With the RTME resources the external evaluations can be spread out involving short remote exchanges with external evaluators having full access to high quality coherent project documentation and analyses contained in the Project Memory. Also, the fuller involvement of the project team in monitoring and internal evaluations means that the level of expertise and knowledge of the team will help raise the levels of transparency in communications with more useful exchanges on information.

Implementation decision making

An important reality of project implementation is that external and sometimes internal [14]conditions change to such a degree that it is necessary to evaluate the situation and take decisions to adjust project activities to respond to the change.

As a result of the RTME process of internal evaluations, team managers and teams have an intimate knowledge of any changes and can also refer via the Project Memory to project design simulations of different expected conditions. With access to this type of information teams are in a better position to take good quality real time decisions to keep projects on course by adjusting processes, inputs and outputs.

This can help avoid the extreme situation when external evaluators are relied upon to assist in such decisions. This involves delays and thereby risks project performance. The outcome of this sort of situation is an interim evaluation that leads to a downgrading of expectations and target indicators. This represents a decline in expected performance and a deficit in the contribution of the project in question to the national expected development impact.

[14] External conditions are changes in conditions beyond the control of a project and its team such as unexpected changes in prices of input factors or extreme weather conditions. In project design procedures, these are analysed on the basis of the identification of factor which have an influence on project results (dependencies) and then estimating the sensitivity of required project results to possible changes in these factors.
Internal factors can include delays in administrative procedures upon which project performance is dependent, accidents, unexpected loss of key personnel are similar events.

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