

Joseph Martial **Ribeiro**

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To my mother Maria da Luz Almeida Brito Ribeiro

Foreword

The quest for economic and social progress brings developing countries face to face with a wide spectrum of challenges. The most prominent of those challenges is undoubtedly the instauration and consolidation of good governance with regard to the redistribution of wealth. National economic landscapes are characterized by great disparities, for instance between populations living in areas endowed with accessible natural resources and those from poorer geographical zones, between rural and city dwellers, or between men and women, to name but a few. Essentially, access to wealth in developing countries needs to be democratized.

But the creation of wealth in the first place is not a trivial issue. Many developing countries rely on extractive industries such as oil and minerals that are exported raw or with very little added value. These same industries generate limited employment opportunities given the sophistication of the technological processes involved and the packaging of international bids which leave little room for the sustained development of skilled local labour and effective technology transfer. Agricultural production, which occupies the vast majority of the active population throughout the developing world, is more often than not artisanal and mainly for immediate consumption (subsistence farming). Only a small fraction is processed and properly packaged for commercialization within or outside a given country's borders, resulting in limited economic profitability.

Adding value to natural production, be it of mineral or non-mineral sources, and facilitating the export of the resulting products requires that national authorities and private entities put sound investment projects into place. The development of strategic infrastructure such as roads, electricity grids or railway networks that will facilitate the creation and delivery of services equally requires the judicious use of public investment instruments along with expensive financial resources. Clearly, investment decisions form an essential part of the development process of a country as a whole. In moving away from the use of the national budgets essentially for the payment of civil servants' wages, administrative authorities in developing countries are bound to take on a more prominent role in facilitating development through direct investment in the public sector. Such investments should help create new development areas and properly maintain the strategic economic infrastructure that already exists. Domestic taxes, subsidies and tariffs are, of course, other instruments available to governments to attract and facilitate investment.

This being said, a major difficulty in developing countries in terms of social and economic development is the widespread lack of the tools and experience needed to adequately prepare investment projects. Discussions with small and medium enterprise (SME) managers, municipalities, rural communities and women's entrepreneur groups in these countries reveal an acute need for knowledge and guidance in terms of project preparation and appraisal. It might be argued that one reason for which the cost of investment capital is so high in many developing countries is the absence of a critical mass of well-prepared projects being promoted

on a regular basis for financing. It is not uncommon that international donors and development foundations express their concerns about lines of credit that lie dormant due to a lack of bankable project proposals from governmental, regional, municipal or rural community institutions. This is even truer in this day and age, where decentralized cooperation has proven itself an efficient way to channel development aid. The same goes for commercial banks in respect of private investors, especially at the SME level. There is clearly an issue in that absorption capacity for financial resources is weak in many developing countries—a situation that can be linked, in part, to the lack of knowledge and experience in terms of project preparation and performance monitoring. Not surprisingly, there is a strong demand for training and capacity-building in demand-based investment analysis and project management across the board.

The United Nations Industrial Development Organization (UNIDO) produced various manuals for project evaluators in developing countries in the 1980s and early 1990s. These manuals provide valuable references, in particular for the development of industrial projects. Various multilateral development banks also developed project manuals and software tools during the 1990s, although they were mainly intended for internal use by their staff in the process of conducting project appraisals. The other documents that can be found in the literature essentially focus either on the economic cost benefits analysis (ECBA) aspects of project appraisal or on one or another of the many sets of activities involved in project appraisal. In short, there is a need for consolidated references on project appraisal, execution planning and monitoring that at the same time tackle the specific realities of the developing world. Those realities include competition for development assistance, weak institutional capacities, scarce and expensive qualified human resources, lack of reliable data that would enable proper analysis of projects cost and financial viability, insufficient national recurrent budgets for the maintenance of developed projects, difficulties in accessing foreign exchange and more.

Hence the effort to prepare this book, which is meant to provide project evaluators and project managers in developing countries with a consolidated, easy-to-read reference guide. Needless to say, project appraisal is a demanding and complex exercise normally carried out by multi-skilled teams of experienced professionals. But it is a rewarding exercise too, and should not be seen as an endeavour to be undertaken only for bigger projects. In fact, a successful project will always be seen as a big one because the true measure of success is the satisfaction of the beneficiaries, not the amount of financial resources involved per se. In light of that, this book is an attempt to give to the reader a panoramic view of the various analytical efforts involved in project appraisal, implementation planning and monitoring. The principles set out here are applicable to all projects regardless of the amount of resources about to be committed. Without pretending to be exhaustive in any of the particular aspects discussed, this books aims to prepare the reader to take part in such undertakings and efficiently interact with other professionals as part of a team.

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LIST OF MAIN ACRONYMS

AAA Accra Agenda for Action

AR Appraisal Report CN Concept Note

CPI Cost Performance Index

ECBA Economic Cost Benefit Analysis EIA Environmental Impact Assessment EMP Environmental Management Plan

EPC Engineering, Procurement and Construction

ESW Economic Sector Work ETI Enabling Trade Index

EV Earned Value

EVM Earned Value Management FDI Foreign Direct Investment

FE Foreign Exchange FS Feasibility Study

GCI Global Competitiveness Index

IA Implementing Agency

ICT Information and Communication Technologies

IFI International Finance Institution

IRR Internal Rate of Return KPI Key Performance Indicator

LC Local Currency
LCC Life Cycle Costing
LF Logical Framework

LOGS List of Goods and Services
M&E Monitoring and Evaluation
MDB Multilateral Development Bank

MTR Mid-Term Review NPV Net Present Value

O&M Operation and Maintenance ODA Official Development Assistance

OS Opportunity Study

PCR Project Completion Report

PD Paris Declaration on Aid Effectiveness

PFS Pre-Feasibility Study

PP Project Plan PM Project Manager

PPP Public Private Partnership
PSC Project Steering Committee
RBS Resources Breakdown Structure

RE Recurrent Expenditures

SME Small and Medium Enterprises

xviii List of Main Acrononyms

SOW Statement of Work

SPI Schedule Performance Index

SWOT Strengths, Weaknesses, Opportunities, Threats

TA Technical Assistance TORs Terms of Reference

VA Value Added

WBS Work Breakdown Structure

Introduction

The globalized nature of world trade and finances has placed increasing pressure on developing countries to improve their competitiveness in order to consolidate their economic relevance. But for various reasons, many developing countries fail to attract the foreign direct investment (FDI) that would be instrumental in leveraging the multiple challenges of poverty. Major infrastructure gaps, high costs of labour, bureaucratic bottlenecks related to business initiation and administration, unfriendly export policies and procedures, and poor governance are but a few of the obstacles impeding these countries from living up to their full potential. In this chapter some of the most prominent obstacles to economic competitiveness in developing countries are discussed. It bears stressing that even if well appraised and properly monitored, a project will face difficulties in achieving success if it does not take place within an enabling environment. Competitiveness should remain at the forefront of the policy agenda in the developing world.

1.1 PRODUCTION COST STRUCTURE IN DEVELOPING COUNTRIES

In any economic undertaking, a wide array of costs is involved in materializing the final product. These are usually categorized as direct costs and indirect costs. In addition, not all costs are identified; some are not systematic as they depend upon the particular context. These are labelled as invisible costs.

1.1.1 Direct costs

Direct costs are those associated with the production processes themselves. They are also called variable costs because their amount varies with the quantity of the company's output. They primarily include interest paid on capital, compensation paid to workers (labour costs), and energy costs.

In developing countries, the cost of capital is generally expensive. In fact it is much higher in developing countries than elsewhere. The excessive cost of capital epitomizes the lack of competitiveness in developing countries' economies within the world business environment because the financial systems in place allocate resources primarily, and at an affordable cost, to their most productive uses. Within national boundaries there is also significant disparity in access to capital in the sense that the smaller the firm, the more expensive its credit when it finally receives it. Not many commercial banks do SME banking in developing economies.

Poverty is very common in developing countries, so one would think that labour costs would be low. But actually, labour costs are relatively high in many developing countries because of high social security costs and high costs for

Development Project Cycle

The soundness of an investment venture can be described as being like the links in a chain. Various studies normally need to be carried out each with a more focused approach than the last on the venture's medium-term objective and long-term goal, and with ever-increasing precision regarding costs. Those studies, discussed in this chapter, form the development project cycle, which culminates in project appraisal and implementation. As one would expect, the weak link defines the fragility of the entire venture, not only in terms of thoroughly assessing the project's profitability and social viability, but also in terms of the judicious use of funds. A well-conducted preliminary study can show the unsuitability of a given venture, thus preventing further unjustified expenses. Hence the need to invest the necessary effort in every link in the chain—meaning every element of the project cycle—to make sure they are of adequate strength.

2.1 BACKGROUND OF DEVELOPMENT PROJECTS

A project is a unit of investment. A project is a proposal for an investment to create, expand or develop certain facilities in order to increase the production of goods or services in a community during a certain period of time. Development projects result from the vision defined by a government as to what a country or an administrative entity should be like by a certain time, for instance twenty-five years ahead. Once a vision is defined, then a strategy is devised to articulate actions in the various development sectors to reach the vision. In order to be manageable, the strategy must identify a number of programs which will target the achievement of intermediate milestones. The programs will themselves be articulated into a range of projects to be implemented concurrently or sequentially, each of them addressing a specific objective. Hence, a key feature of a good sector development plan is the identification of a list of potentially viable projects, almost like building blocks, for which preparation studies can be carried out according to a phased plan to build a shelf of projects that will attract investors.

From the ODA institutions' (or donors') point of view, the point of departure is their Country Assistance Strategy (CAS). Institutions like the MDBs, IFIs and bilateral donors define a strategy of intervention for all countries of interest to them. They propose financial, advisory and technical services to help countries identify their priorities and reach their main development goals. Donors' strategies are defined for a period of time, say five years, and countries' program or project proposals that fall within the purview of the strategy are eligible for financing subject to the availability of funds and other pre-conditions (e.g. the country must not be suspended for arrears on previous loans, or the political situation must be clear enough to enable the government to effectively commit the country to long-term loans).

Project Formulation

As discussed in Chapter 2, the project formulation process, from the CN or business concept to the FS, is a step-by-step progression in terms of refining both the project's contours—meaning what it will do and what it will not do—and its cost estimates. It may be tempting in some circumstances to try and take shortcuts throughout the process in order to meet urgent social or political needs. But shortcuts represent only minor savings of time and resources while potentially allowing costly evaluation mistakes or design errors to go undetected. It bears stressing also that at all the stages of the project formulation, the involvement of the stakeholders and final project users will prove to be very beneficial. A project's success will always depend on the way it brings stakeholders together. On a social note, in the developing world, consultations with project stakeholders should take into account gender issues, because the male and female populations, as well as male-headed and female-headed households, tend to experience very different realities, especially in rural areas. Those social aspects are discussed later in this book.

3.1 PROJECT CONCEPT

The project conceptualization process essentially includes a brainstorming exercise and the use of judgment, or common sense, against the background of a country's development vision and strategic priorities. Putting the project concept together means first identifying the development opportunity, socio-economic need or problem, and then identifying a generic response. In a brainstorming session all ideas are recorded, none are discarded; only later will the ideas be screened in the aim of adopting one as the project concept.

Another way of conceptualizing projects is the sector approach. ESW studies help to identify investment potentials through the compilation of area, industrial sector and resource-based studies and the preparation of sector development master plans. This is a more elaborate approach that requires long-term forward planning but that is very beneficial in terms of harmonious and sustainable development in the country. It is essential that developing countries prepare master plans for the various economic sectors such as energy, transportation, education, health and agriculture and validate those plans with all the relevant sections of the civil society. In the process of drawing up the master plans for the various sectors, project ideas are normally identified and can be validated at later stages when financial resources can be committed to specific projects.

Finally, project concepts can be determined through general opportunity surveys within the country. These may be area studies, meaning that the development opportunities within specific geographical areas of interest are investigated; industry studies, meaning that the development opportunities within a given industrial branch are examined; or resource-based studies, meaning that the investigation looks at development opportunities based on the human and natural resources in the country. In such a context, one of the common ways of deciding how to invest is to follow the lead of other countries, a "me too" approach that is appealing for its simplicity.

3.1.1 Screening project ideas

The process of defining a project concept starts with the identification of a specific opportunity, problem or need. Subsequently, a number of possible projects that would address that need or opportunity are elaborated and screened for their adherence to government policies, development vision and program orientations and prioritized on the basis of their foreseeable benefits and ease of implementation. This leads to an ordered list of possible projects. The process is illustrated in Figure 3.1 below and an example is presented for a health sector project.

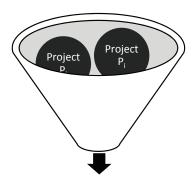


Figure 3.1 Screening potential project concepts

Example 3.1 Conceptualizing a health project

Need statement: The government wants to facilitate access to health services for a rural village situated about 70 km from an average-sized town. The current practice is that the village's residents travel to the town using their own means each time they need to receive medical services, which represents many constraints and affects the quality of life in the village. The government is facing serious budget constraints but at the same time it holds the development of health care throughout the country as one of the pillars of its development vision.

Conceptualization: A brainstorming session was organized at the Ministry of Health and the main ideas that came out were:

(i) To put into place a shuttle service free of charge with regular rotations between the village and the town's hospital;

Project Appraisal

Appraisal is the process undertaken by interested parties—investors, financiers, guarantors—to determine if the project design is satisfactory. Properly appraising a project is a time-consuming effort but a valuable one as, aside from unpredictable external factors such as political and economic turmoil, the major cause of investment failure is the inadequate assessment of the opportunity prior to the investment commitment. Appraisal is appropriate in all types of investment projects: new investment, modernization, expansion, privatization, technology acquisition and equipment replacement. The method of appraisal may differ for each type, but criteria always exist upon which to base a decision to invest or not to invest. Appraisal is done in both the public and private sectors and represents the final stage of project development. If the project's financing is granted, the appraisal report (AR) is the fundamental document upon which the project implementation planning will be based.

4.1 BACKGROUND AND OBJECTIVE

4.1.1 Why appraise?

The central purpose of project appraisal is to understand the likely consequences of an investment. The risks involved are ascertained to enable decision-makers to decide if the investment should be undertaken or not. Both revenue and non-revenue projects need appraisal. Criteria for approval exist for any type of investment project. A project should be examined for its ability to satisfy the goals and aspirations of all participants. For public investment projects the economic rate of return is a key criterion. For privately sponsored revenue projects a major consideration is the financial rate of return. In non-revenue projects the criteria can be least cost, maximum contribution to national income, income distribution effects and other economic and social outcomes. In any case, project appraisal is the central element of a project's lifespan as illustrated in Table 4.1.

Table 4.1 Key questions and reference documents in a project's lifespan

Key questions at various stages of a project's life	Relevant document
How can the government address the identified need or opportunity?	Project concept note (CN)
Is the project bankable? Can it attract financiers?	Opportunity study (OS)
Should the project be included in the donor's pipeline?	Identification report
What is the project's best technical alternative?	Pre-feasibility study (PFS)

Table 4.1 (Continued) Key questions and reference documents in a project's lifespan

Key questions at various stages of a project's life	Relevant document
Is the project aligned with the donor's strategy and priorities?	Preparation report
What is the project's optimal design and profitability?	Feasibility study (FS)
Should the donor's board authorize investment in the project?	Appraisal report (AR)
Is the project going in the right direction? Is it on track?	Progress and financial audit reports
Has the project succeeded?	Project completion report
What should our standards be?	Post-project evaluation

4.1.2 Key questions to be addressed in the appraisal

The key questions to be addressed in the appraisal will, of course, vary according to the stakeholder's perspective. The AR is deemed to contain all the relevant information describing a project and justifying its financing for all the stakeholders. This section discusses the views of the government and the project's financiers in the context of a public investment venture.

The government's perspective. A project appraisal can be carried out at two levels: first, at the microeconomic level, meaning from the point of view of the project with a view to determining the project's financial or commercial profitability; or second, at the macroeconomic level, meaning from the perspective of the national economy and with a view to determining the project's overall national profitability. When the project is either large enough or otherwise strategically significant for the national economy, appraisal at the macro level is mandatory, even for a private venture, prior to its clearance by the national authorities. Appraisal of the national profitability measures the project's contribution to national objectives, such as national income, distribution effects and job creation.

Hence, there are two sets of constraining parameters within which the project needs to be able to operate successfully. The macro or external parameters include economic environment, government sector policies, political and legal aspects, physical environment, natural resources, social and ethical constraints, level of technology, human and institutional resources, capital markets and regulations, demand and distribution structure. The micro or internal parameters, which are encapsulated in the project definition, include output, financing plan, personnel, location, patents, licenses, technology, and public image. For a government, the project needs to be appraised both at the micro level, based on an appropriate financial analysis, and at the macro level, based on an appropriate economic analysis.

The donor's perspective. From the donor's perspective, project appraisal is the critical assessment of the relevance, feasibility and potential effectiveness of a project or program before a decision is made to participate in the financing. It constitutes a reviewing, verifying and clarifying process which confirms and, where necessary, updates the project objectives and its technical and economic justification. The appraisal process will normally include a field mission by donor's staff to the country and project location.

As for the government, there is also a specific background of policies, strategies and prior experiences to be taken into account from the donor's perspective. In the current context of development aid delivery, the adherence of the project's design to the PD and the AAA will be value-adding features. Other elements to be considered are: Is the project compatible with other investment activities? Is the project potentially bankable? Does the project make the best use of the donors' resources? Does the donor have the capacity to energize the project and to retain its momentum when facing obstacles to growth? What proportion of the total equity is to be provided by the various financiers? The financiers' boards will want the appraisal to ensure that the project will be properly managed, by putting in place the appropriate financial and monitoring systems. Milestones should also be set against which progress will be judged, and appropriate contingency plans should be created to deal with risks. In a development aid context, a project's sustainability beyond the investment phase, meaning when it is fully transferred to end users, is an essential aspect.

4.1.3 Scope of the appraisal exercise

Overall purpose. Project appraisal (or evaluation, or assessment) is the process of assessing and questioning proposals before resources are committed. The assessment is done at three main levels:

- (i) At the policy and strategic level, the sponsors will examine the project concept and rationale and determine the project's acceptability and justification;
- (ii) At the financial and economic level, the soundness of the investment project is analyzed, i.e. an *ex-ante* analysis of the effects of the determined course of action is performed;
- (iii) At the impact and sustainability level, the environmental and socioeconomic acceptability of the project is examined and the long-term sustainability for the targeted beneficiary group is determined.

In a nutshell, the project's characteristics and projected performance are compared with the criteria set by the various sponsors and other stakeholders. If the criteria are met, the project may be accepted and proceed to detailed design, implementation and operation. Projects that do not meet criteria may be rejected, recycled or modified to the extent that the sponsors' criteria are satisfied. Hence, the essence of a project appraisal can be summarized as follows:

Appraisal justifies spending money on a project. Appraisal asks fundamental questions about whether funding is justified on policy and strategic levels for

Project Implementation Planning and Monitoring

Development projects involve using scarce resources to get sustainable results in a dynamic environment. For that reason, considerable efforts are spent on projects' viability and social desirability assessments, as well as technical and financial scheduling, prior to the decision to invest. Once the decision to go ahead with the project is taken, the project investment phase is started and the project team must undertake detailed implementation planning. This involves the detailed forecasting of the project's activities and milestones, the timing of costs and the establishment of human and financial resource requirements. Implementation planning also requires the development of implementation feedback and control mechanisms. The management of project implementation can be considered as a cyclical process with two imbedded cycles. In the primary cycle, goals and objectives are set with strategies for their achievement. The secondary cycle involves measurements of compliance with the plan. This is illustrated in Figure 5.1. For every activity, any significant deviation of the results from the anticipated ones should trigger a review of the planning and eventually the initiation of corrective measures.

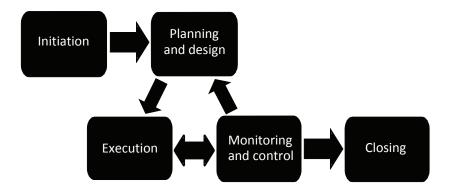


Figure 5.1 Project implementation as an iterative process

During the course of project implementation, considerable efforts will be devoted to the M&E of the project's outputs and outcomes. As discussed earlier in this book, while a project's outputs are the tangible products—e.g. a school's building or an energy project's power plant—the project's outcomes, which would relate to progress in education or energy consumption in the above examples, are the ones that effectively represent the project's contribution to the country's development goals. Monitoring project outcomes is thus essential in a development

endeavour and those outcomes should be tested against a documented baseline reference established upon the initiation of the project's implementation. Also, feedback and control mechanisms ought to be in place at the very beginning of the investment phase to enable the project IA to cope with the dynamic nature of project implementation.

5.1 PROJECT PLANNING

The rationale of spending effort on a project's detailed implementation planning is that it is judicious to invest 1 to 2% of a project's costs into planning in order to save 10 to 20% on contingencies. Equally, the mobilization of human and financial resources for project implementation comes at a cost. Thus, while in the pre-investment phase, the project's quality and dependability are more important than the time factor, whereas in the investment phase the time factor is critical in order to keep the project within the forecasts made in the FS.

5.1.1 Project definition

When a project involves the construction of physical infrastructure (as most development projects do, with the exception of institutional capacity-building projects or policy-based lending operations), detailed engineering is required following the investment approval. This is referred to as project definition. Detailed engineering comprises the final selection of technology and equipment, construction planning and time scheduling, and the preparation of flow charts, scale drawings and a wide variety of layouts. Full project definition makes it possible to prepare proper cost schedules, normally at a level of precision of plus or minus 5%. The project definition stage also includes the preparation of TORs and bidding documents for the recruitment of key consultants and contractors who will contribute to delivering the project's outputs.

As mentioned earlier, however, the fact that project definition is undertaken only after the approval of investment and the subsequent signature of loan or grant agreements usually raises difficulties in development projects in many developing countries. Indeed, due to various pressure forces (both from governments and donors!) pushing for high-visibility investment projects involving big budgets, many projects are appraised based on insufficiently detailed FSs. Then the preliminary technical investigations and planning activities, which are normally done before resources are committed, end up being done after such commitments, which considerably impedes a speedy implementation of the project. Furthermore, the country ends up paying for commitment fees levied by donors for committed finances yet undisbursed! Also, because a weak FS leads to financial resources being committed on inaccurate bases, many projects involving bigger infrastructure such as dams or highways quickly become cash-strapped. Then the country has to try and resort to other donors who may or may not be interested in the particular project. For these reasons, it is good practice in countries with low institutional capacity to fully define a project and have key TORs and bidding documents ready before having donors commit financial resources. Some donors have grants or project preparation funds that should be used extensively for this purpose.

Recurrent Costs Problem

In the vast majority of developing countries, the inadequate maintenance and operation of the existing capital stock is a central development problem. All across these countries, roads without maintenance, schools without materials, clinics without health workers and rural extension workers without fuel for their motorcycles are prevalent. This endemic situation, which is referred to as the recurrent costs problem, has multiple causes and severely undermines the effectiveness of development aid.

Poor O&M means lower levels of public output, lower capital endowment of the economy and lower (than the implied) rate of return associated with public investments. There can be costly downstream consequences linked to the neglect of maintenance, the lack of local expertise, the inefficient use of O&M funds and the unclearly delegated responsibilities and accountability. These populations regularly suffer from power shortages that create life losses in hospitals and clinics, as well as losses in industrial production and employment. The delivery of essential social services, like water and sanitation, education or health, also suffers because of their high dependency on maintenance and operation. Insufficient maintenance creates loss of productivity and deterioration of capital stock, creating a vicious circle. A significant number of the projects implemented are highly unlikely to sustain their benefit in the future, partly due to lack of local funds for O&M. Poor O&M generates loss of production for the country, commercial costs for private businesses and significant administrative costs for public authorities. In a nutshell, a high cost is paid for poor operation and lack of maintenance.

6.1 ACCOUNTING FOR LIFESPAN COSTS

Adequate planning for O&M expenditures supposes that they will be appropriately factored into project cost projections. The capital investment of a project is usually incurred over a short period of time varying from one to five years. Following that period, and often with some overlap, comes the longer period of the operating phase, which normally corresponds to the economic lifetime of the created assets (except in the case where the project is abandoned, of course). The economic lifetime is related to the lifetime of the physical assets accrued by the project, which go well beyond the duration of the investment phase. To illustrate this, Table 6.1 presents indicative values for the duration of common physical assets.

Overall, provided with regular maintenance and the rehabilitation or replacement of assets, the benefits derived from a development project will span anywhere from twenty to fifty years or more, according to the nature of the project. During that rather long period, the crucial issue for the user entity is how to meet the costs of O&M.





International Development Project Appraisal, Execution Planning and Monitoring

In their struggle for economic and social progress, most developing countries strive to attract foreign investments, in particular international aid funds. The positive outcome of these efforts depends on a wide array of factors including the aid recipient country's preparedness in terms of having high quality pre-investment studies available as well as professionals who are experienced in leading or participating in full-fledged investment project appraisals.

The purpose of *International Development Project Appraisal, Execution Planning and Monitoring* is to provide the reader with an overview of the various analytical efforts involved in preparing and appraising a development project funded in cooperation with international donors. It puts emphasis on explaining the key concepts in a simple fashion and on showing the interrelationships between the various facets of project preparation and appraisal. Professionals and students with an interest in development work will find it a handy reference, regardless of their areas of expertise or academic background.

Joseph Martial Ribeiro has a background in civil engineering and holds a Ph.D. in hydrology. He has acquired extensive experience in the area of pre-investment studies for international development projects, as well as project preparation and appraisal, in particular on the African continent. His professional activities have led him to interact with a variety of stakeholders and professionals from diverse social and academic backgrounds, which has greatly enriched his perspective. He is currently a manager at the African Development Bank.



