



DEVELOPING VIABLE INVESTMENT DESIGNS AS A DELIBERATE INITIATIVE TO FACILITATE GREEN FINANCING FOR SUSTAINABLE DEVELOPMENT

Caroline Ayuma

Senior Lecturer Finance & Accounting, University of Eldoret

caroline.ayuma@uoeld.ac.ke

Abstract

The 2030 Agenda for sustainable Development recognises climate change as one of the most unique and amorphous challenges of the present time. Concerns are expressed on how its adversarial impacts can weaken the ability of all Nations to attain sustainable development. To mitigate against the adverse effect of climate change, Nations are developing and incorporating policies and frameworks aimed at a cleaner and safer environment. Public and private investors have the potential to be change drivers by supporting greening in the economic, social and environmental facades through green financing. The lack of information on green projects and high cost of information search compounded by project developers lacking the ability to design investable initiatives that are scalable and replicable complicates the situation further. In the quest to create a safer environment, investors should not be subjected to 'Loose Cannons' which are not financially viable defeating all the logic of carrying out an investment appraisal in the first place. Prudential utilization of resources, sound project management practices tailored to suit such projects and guaranteed sustainability through constant monitoring of the environmental impact by experts and continuous improvement can ensure that greening goes hand in hand with improved financial returns for investors. This paper explores such an arrangement which is appealing to green financing for sustainable development. Findings indicate that project developers should design scalable and replicable projects, characterized by regular, timely and accurate communication; comprehensive tracking and constant feedback between project managers and investors. Developing a Country Green Taxonomy however comes first.

Keywords: Green finance, Sustainable development, Climate change, Environmental impact

BACKGROUND

Climate change refers to long-term shifts in temperatures and weather patterns. The shifts may be natural but from the 1800s human activities have led to the shifts through burning fossil fuels, gas etc. Some of the activities that currently facilitate climate change include; manufacturing, transportation, power generation, food production, cutting down forests among others. Greening generally means becoming more aware of environmental issues. A Green project is one that makes products or develops technologies that are primarily aimed at reducing greenhouse emissions or supporting the use of clean energy. Green management on the other hand is management that is designed to reduce the overall impact of the built environment on human health and natural environment by: efficiently using energy, water, natural resources, reducing waste, pollution and environment degradation, protecting occupant health and improving employees' productivity. Greening is not a concept but 'the construction processes of an entity, a good etc., for instance green car, green company. Greening is a paradigm that generally encompasses the utilization of resources efficiently so as to save on over-exploiting the natural resources. Green transition is a social change strategy that will allow us to turn the current environmentally unsustainable global situation into a new sustainable paradigm' that drives development and peace, aiming at improving the living conditions of all'. Drakenberg *et al.*, (2009) on greening development planning indicate that the environment asset base should support economic flows through provisioning, regulating and also culturally. Economic flows from sustainability through greening should in turn ensure human wellbeing. Human wellbeing constitutes of: Security (personal safety, secure resource access, security from disaster), Health (strength, feeling well, access to clean air and water), Basic material for good life (adequate livelihoods, sufficient nutritious foods, shelter, and access to goods), Good social relations (social cohesion, mutual respect, ability to help others). All these culminate into freedom of choice (ability to be able to achieve what an individual actually values being and doing) and this in turn improves the indicators of economic growth.

INTRODUCTION

Sachs *et al.*, (2019) explain "green finance" as the new financial instruments and new policies, such as green bonds, green banks, carbon market instruments, fiscal policy, green central banking, financial technologies, community-based green funds, etc., Green financing is the financing of green projects and/or scaling up the financing of investments that provide environmental benefits for sustainability (Bergedieck *et al.*,2017). Due to the novelty of this paradigm, investors shy away from it, hence the need to not only provide viable investment opportunities for investment but also provide a bank of successful ventures in order to motivate

future investors. Sustainability can be explained as a long term goal to ensure continuity of the existing resources). Sustainable development are the many processes and pathways used to achieve sustainability such as engaging Educationists and academicians. The five broad areas of sustainable development include; social development, economic development, environmental sustainability, peaceful, just and inclusive societies and partnership. (UNODC, 2016). Environmental sustainability involves making responsible decisions that will reduce your business' negative impact on the environment. Sustainability for a business means a company's strategy to reduce negative impact resulting from their operations in a particular market. They are analysed against environmental, social and governance ESG metrics. Business sustainability strategy has the potential of reducing expenses in the medium and long term since; making the business more energy efficient will save you a significant amount on energy costs, performing a cost-benefit analysis will allow you to compare the benefits of environmentally sustainable practices with the total cost of implementation. Additionally, it gives a competitive edge in attracting customers and investors. This is due to customer conscience and public image, Business differentiation and Environmental marketing.

The 2030 Agenda for sustainable Development recognises climate change as one of the greatest challenges of the present time and expresses its concern on how the adverse impacts can undermine the ability of all countries to achieve sustainable development. This therefore requires that projects aimed at reducing the effects of climate change or reverse its effect should be considered important in financing; that is green financing.

SCOPE OF THE STUDY

The scope of this paper is limited to financing of green projects without putting much emphasis on the different types of green financing available in the financial market. The study does not also put much consideration on social costs which are mostly associated with public projects. This paper explores the costs that are involved in management of projects; it does not tackle the challenge of greenwashing activities that may present a project as a green project with the intention of attracting green financing or eliciting more interest from the populace hence attracting a larger market base.

LITERATURE REVIEW ON THE VIABILITY OF INVESTMENT INITIATIVES

Ralph Currier Davis defines a Project as "any undertaking that has definite, final objectives representing specified values to be used in the satisfaction of some need or desire'. Key Considerations in a Project include; how much the Project will cost, the amount of time required, what technical performance capability it will provide, and to what extent the project

results will fit into the design and execution of organizational strategies. There is no clear definition of green projects and clear set standards but as Bergedieck *et al.*, (2017) put it, 'Greening the financial system goes beyond lending and investment standards, it considers the impact of both environmental and social risks on the financial system, and the impact of the financial system on environmental and social risks'. Most projects that deal with greening are considered Open Projects or "walking in the fog" Projects, also known as "Just do it" Projects - Loose Cannons (projects undertaken to achieve results irrespective of time and cost) therefore investors tend to avoid them entirely. The financing of green projects and/or scaling up the financing of investments that provide environmental benefits for sustainability should not mean that the investor is willing to put in endless hours and unlimited sums of funds as long as the project is completed; that goes against viable financial management investment decisions; made after doing a capital budgeting/investment appraisal.

To identify how viable investment initiatives can be achieved for green financing, we are first required to identify the intricate distinguishing features between green projects and other projects and consequently reengineer the green project designs in order to minimize the risks through project financial management. This is particularly important in this publication as we explore green financing predominantly as financing of green projects. Furthermore, we take a basic and comprehensible approach in addressing 'a green project' at the project level as opposed to a more complex approach where the individual green finance sources for the project, such as green loans or bonds are explored. According to Bergedieck *et al.*,(2017), Green projects can be broadly categorized into; adaptation (conservation, bio-system adaptation), carbon capture and storage, energy efficiency (cogeneration, smart grid), environmental protection (pollution control, prevention, and treatment), green buildings, green products and materials, renewable energy (solar, wind, hydro), sustainable land management, (sustainable agriculture, forestry), transport (urban rail/metro, electric, hybrid), waste management (recycling, waste management) and water (water efficiency, wastewater treatment). Underlying motivations are mostly used to identify green projects, hence green financing.

Just like any other project, a green project will go through the usual project life cycle phases: developing a novel idea; occasionally in line with the broader investor strategy. Followed by research into the field of knowledge. This will enable you to convert idea into a practical plan, designing the idea to get it converted into practical plan. It is followed by converting the design through the development of an actual product, service, or process, then marketing it to customers and then finally providing the Post Sales service and support to customers. The progress from one life cycle phase to another depends on how efficiently the

preceding phase has been executed therefore proper management is essential. Managerial actions in these phases include; establishment of conceptual base phases and formulation of management approach, where the decision to implement the project is made, goals established, resources estimated, and key personnel are appointed. This is followed by the Planning Phase where major program characteristics are validated and refined, program risks and costs are also assessed, resolved, or minimized. The project organization is defined, targets are set, schedule of execution is drawn, tasks, resources are defined and allocated and also project teams are built. The third phase for the manager is the execution Phase which consist of full scale development phase and production phase. Fabrication and testing are completed in the final full-scale development phase. To ensure that the program is ready for the production phase, costs are assessed. In the production phase the system is produced and delivered as an effective, economical, and supportable system. During this period, responsibility for program management is transferred. Finally, there is the termination Phase where the system is actually transferred to organization. At this stage the commitments are completed, the personnel who were involved in the project are rewarded. The resources are released at this stage, and team members who were involved are now reassigned. The lack of clear cut timelines and high variabilities in cost estimates, which is an indication of high risk and uncertainty, make the financing of green projects less attractive to investors. These challenges have to be addressed in order to change this status quo.

The objective of most projects is to ensure prudent utilization of the funds to ensure maximum returns as the investor is principally interested in the revenues expected to be generated by the project making proper financial management of the project is essential. Green financing decisions go even further as not just project sustainability of financial capital (Financial Returns), but also impact sustainability on Society (Economic returns and Social benefits), and Environmental sustainability of natural capital (Measurable Green Benefits) are essential (ADB, 2017).

This involves doing an investment appraisal whose financial aspect should ensure a judicious employment of discounted capital budgeting techniques such as the net present value, internal rate and profitability index; these factor in the time value of money. It is irresponsible for this to be done only to have the results ignored in making the investment decisions, just like in the case of many projects which have ended up failing. It is important to factor in risk into decision making. In addition, economic concepts such as marginal returns analysis, elasticity of demand, supply and demand curve analysis, learning curve theory should be considered in managing projects more effectively. Develop and manage a project budget guided by a cost

estimates; mostly rough estimates are used in green financing due to lack of readily available of information on similar projects.

Before the project commences

Before a project commences, clearly defined agreements and terms of engagement/reference should be in place for the Project Financing Participants to elude any conflicts. The participants under this contract agreement include; the lender, that is the financial institution or group of financial institutions that will provide debt financing to the project company. The sponsor(s) or developer(s) of project financing organizes all other parties; controls, and provides equity financing, the company or any other entity that holds the project and other equity holders. The construction contractor provides the design, engineering, and construction of the project, while the project operator is in charge of long-term day-to-day operation and maintenance of the project. The feedstock supplier(s) supplies feedstock throughout the project, and the product off taker(s) who is in charge of purchase of all of the energy, goods or other product produced at the project. Since most green projects require specialized skills and technical know-how which may not be readily available, or whose application may be novel, it is important to have a clearly defined agreements which state the roles, responsibilities timelines, budget allocations (based on cost estimates accompanied with the assumptions) and penalties for optimum implementation and operationalization of the project. They should also provide clear indications of the environmental benefits associated with the project instead of using broad labels such as project finance.

Tools and techniques for estimating cost may include; determination of resource cost rates. This involves determining the rate for labour and materials. Vendor bid analysis will involve an evaluation of bids from external contractors, settling on the one. Reserve analysis involves allocating some funds for overruns whereas cost of quality involves tracking the cost of all your quality-related activities all the way to the overall budget. Early estimates in the stages of project are usually based on information from aforementioned projects that can be adjusted/ scaled to match the size and complexity of the present project or developed using standardized formulas. This may pose a challenge for green projects due to lack of information on previous successful projects. This therefore means that analogous estimates may not be very applicable for the project. Parametric estimates (estimates that are calculated by multiplying measured parameters by cost-per unit values) may also not be entirely applicable as it is easy to leave out some costs due to the tendency to generalize activities or processes, making bottom-up estimation to be most appropriate for green projects. This however may also be the most time-

consuming estimating method. This is because it requires the identification of the cost of each item, in each activity of the schedule; including labour and materials. It interprets the project schedule as a hierarchy; the general descriptions of tasks are at the top making the lower levels more detailed. It comprises finding the price of each item at the lowest level then summing them to determine the cost at the higher levels. Whereas activity –based estimates may be used for some projects, details of the estimated costs have to be captured to avoid obscurity, replication or omission of some costs. Since the definition of ‘green activities’ is not clear though and since it may be inconsistently applied, this poses a major challenge in the application of these methods. In order to manage the budget, the cash flows of an individual green project should be managed to ensure funding is available when required. It is also necessary that funds be allocated for dealing with unplanned but statistically predictable increases in cost; that is contingency reserves. This may also be a challenge for green projects due to lack of pre-determined parameters that can ensure accurate statistical prediction of increase in costs hence this requires the application of rigorous analysis of relevant economic concepts mentioned earlier. In addition, management reserves; money that should be made available at the manager’s discretion to meet needs that would change the scope of the project should be factored in after negotiation with the investor. These amounts should however be reasonable enough not to scare away the investor but at the same time not so insufficient that it leads to the stalling of the project.

During the project

During the project, the budget has to be periodically evaluated and regular comparisons made between the amount of money spent and the budgeted amount, followed by reports to managers and stakeholders. It is essential to establish an understanding on measurement and reporting of the progress. Some costs that have to be traced and communicated in detail throughout the project life cycle, even more so for the green project in order to attract and maintain investors interest. These costs include; the budgeted cost of work performed (**BCWP**) which stands for the budgeted cost of work scheduled that has been done as opposed to the cost of work schedule showing what was to have been done as per the budget. The sum of the BCWP values up to that point in the project schedule gives the earned value (**EV**), not the planned value (**PV**). In most cases though, the amount spent on an item is more or less than the estimated amount that was budgeted for it. Actual cost (**AC**) means the sum of the amounts actually spent on the items whereas schedule variance (**SV**) is the difference between the earned value (**EV**) and the planned value (**PV**). In case less value has been earned than was planned, the schedule variance is negative, implying that the project is

behind schedule. The difference between the earned value (**EV**) and the actual cost (**AC**) is the cost variance (**CV**); a positive **CV** means that the project is under budget. Schedule variance and the cost variance give an indication of how much the spending is behind or ahead of schedule and by how much the project has exceeded the budget or under-utilized it. They however do not give an indication of how these amounts associate with the total budget. Earned value to planned value gives an idea of how much of the project is completed; the ratio is referred to as the schedule performance index (**SPI**). Earned value to the actual cost ratio is the cost performance index (**CPI**). In the course of the project, the schedule of the project can be evaluated using the schedule variance (**SV**) and the schedule performance index (**SPI**). The budget can be appraised using the using the cost variance (**CV**) and cost performance index (**CPI**). The estimate to complete project (**ETC**) is used to evaluate the accuracy of the cost estimates for the activities already implemented and uses that knowledge to predict how much money it will take to complete the ones still pending. The decision on whether the cost variance observed in the estimates to that point are representative of the future has to be made by the Manager, considering the prevailing economic and geographical environment. In case the cost variance up to this point in the project is atypical, the estimate to complete is the difference between the original budget for the entire project; the budget at completion (**BAC**) and the earned value (**EV**) up to that point. In case the manager's decision is that the cost variance is caused by factors that will affect the remaining part of the project, then the estimate to complete (**ETC**) needs to be adjusted through dividing it by the cost performance index (**CPI**).

Estimating final project costs

It is vital to estimate the final project costs. In case the costs of the activities up to the present differ from the original estimates, the total estimate of the project cost will be affected. The new estimate of the project cost is now the estimate at completion (**EAC**) which is calculated by adding the estimate to complete (**ETC**) to the actual cost (**AC**) of the activities already implemented. Breaking down the project into activities makes it possible to calculate the overall project costs by estimating and totalling the individual activity costs through cost aggregation whereas the process of matching the schedule of transfers with the schedule of activity payments is referred to as reconciliation; both are key. It is imperative to note that sometimes contractual agreements require partial payment in the course of the project therefore the unit of measure for partial completion should be similar to the one used for calculations during cost budgeting, for accurate management of contracts.

CONCLUSION AND RECOMMENDATIONS

First, the definition of 'green' should be clear and should be applicable across all frameworks and policies, hence the need for a Country Green Taxonomy'.

There is need for project developers to design investable initiatives that are scalable and replicable so as to attract green financing; debt or equity. Projects which employ new technologies are associated with several risks and are known to offer a lower rate of return. If we want to achieve sustainable development goals, we require to expedite implementation of green projects and scale up the financing of investments that provide environmental benefits, through new financial instruments and new policies; green bonds, green banks, carbon market instruments, fiscal policy, green central banking, financial technologies, community-based green funds are essential.

An information pool or database for green projects is necessary in order to give potential financiers and project managers the relevant data on such investment; for estimation and comparison. This is even more essential for green financing given that it is a novel paradigm but more important is that it is at the 'heart' of our existence through sustainable development.

Timely, accurate and comprehensive tracking and communication combined by constant feedback between project managers and investors is essential in building confidence in green projects. This will help ease the challenges occasioned by insufficient information on such projects. A more thorough approach of financial management in project management has to be employed, particularly paying attention to cost estimates and timelines and making prompt adjustments in order to avoid inflated budgets and endless timelines which end up discouraging potential investors. There should be better integration of green measures into existing financial data. The development and use of a customized integrated green project management system would also be highly recommended.

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