

Making Ends Meet: The Challenges of Investing in and Accounting for Sustainability

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Abstract—The transition to sustainable development requires considerable investments from stakeholders, both financial and immaterial. However, accounting for such investments often poses a challenge, as ventures with intangible or non-financial returns remain oblivious to conventional accounting techniques and risk assessment. That such investments may significantly contribute to the welfare of those affected may act as a driving force behind attempting to bridge this gap. This gains crucial importance as investments must be also backed by governments and administrations; entities whose budget depends on taxpayers' contributions and whose tasks are based on securing the welfare of their citizens. Besides economic welfare, citizens also require social and environmental wellbeing too. However, administrations must also safeguard that welfare is guaranteed not only to present, but to future generations too. With already strained budgets and the requirement of sustainable development, governments on all levels face the double challenge of making both of these ends meet.

Keywords—Accounting, Administration and Government, Risk Assessment, Sustainable Development

I. INTRODUCTION

SUSTAINABLE development is usually defined by the most cited definition originating in the UN's Report of the World Commission on Environment and Development entitled "Our Common Future" states that sustainable development implies meeting "the needs of the present without compromising the ability of future generations to meet their own needs" [1]. The very same passage that incorporates this belief in sustainable development also stipulates that "become a central guiding principle of the United Nations, governments and private institutions, organizations and enterprises" [1]. Indeed, governments play a key role in the struggle towards sustainable development; be it in the form of policies or direct investments, a government's attitude towards sustainable development is crucial, irrespective of the level of administration. As the crucial task of administrative entities is the provision of services contributing to the welfare of their citizens, and welfare in this case consisting of economic, social

and environmental welfare, a multi-dimensional approach is increasingly desired from administrations. Several factors may influence this attitude, both internal and external.

Under conditions of financial stability, such as during the age of the "Great Moderation" [2], when assuming investment risk was at a relatively small premium, green investments with characteristically more uncertain returns and longer "terms of maturity" could seem lucrative. However, it has also become apparent that these investments are of the most vulnerable kind, since almost as soon as the tides have changed and financial stability was no more, such investments, in an overwhelming number of cases, were halted. The immediate changes in government investments are generally obvious: a brisk swift from "risky" investments to the traditionally more reliable and stable ones was perceived necessary to curtail further compilation of debt, often at tremendous environmental and social cost. Indeed, large-scale public construction works have been initiated all over the world, a tactic that has been used over and over during the millennia, including the Roman Empire and Napoleon III. The financial costs of such investments are usually quite clear and comparatively easy to account for, but the true social and environmental costs generally remain hidden.

In past ages, when we – humans – were less capable of accounting for the true environmental and socio-economic impact of investments, we were so "fortunate" as to have been incapable of changes on a truly massive scale. Now, however, as we became more and more capable of such projects on a large scale, a multi-dimensional accounting methodology has also become essential, one that takes into consideration the economic, social and environmental effects.

II. THE NATURE OF INVESTMENTS IN SUSTAINABLE DEVELOPMENT

Assessing the effects of investments in sustainable development requires a multi-disciplinary approach. A particular field of environmental economics, namely environmental evaluation tackles the problems arising from the inadequacy of financial and economic assessments to account for the true social, environmental and economic benefits of such investments. The cornerstone of related methodologies is that they look beyond the scope of financial evaluations and, whilst ensuring that economic rigor is applied in full, they consider the social and environmental aspects of investments, which frequently remain hidden or difficult to uncover and evaluate [3]. Nevertheless, the necessity to evaluate stems from the externalities that investments may trigger [4]. Indeed,

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a fundamental dilemma arises when we consider such financial undertakings: investments which may have considerable financial returns will usually have rather large environmental and social costs associated, and those with considerable environmental and social benefits may not boast with the right financial pedigree to arouse investor attention. The underlying problem may be illustrated by a simple example concerning the attempts to prevent all-out economic disaster. As the financial crisis began turning into an economic one, commodity prices dropped, and the environmental and social costs associated with them depreciated in value, but not in effects. In other words, it has apparently become cheaper to pollute, whereas the social and environmental costs have not followed suit. The difference between these costs is that which is not borne by the polluters, but must be borne by a society that is already put under strain. On the other hand, investments which would serve to improve the social and/or environmental dimensions may be discarded on financial grounds, as their true financial benefits may be nearly impossible to determine.

In the case of green investments, the true problems arise from the perceived remoteness or proximity in all four dimensions. Financial evaluations consider future and present values to take decisions about investments, and the closer the returns are to present day, the less the associated risk premiums are expected to be. However, with green investments, returns are often realized over a timeframe far exceeding corporate strategic timeframes. Furthermore, the tangibility of returns also poses a problem. Green investments may need to be directed at the preservation or maintenance of economic yield levels, whilst also protecting the quantity and quality of available resources – and preserving a balance between economic, social and environmental forms of capital.

A further misperception revolves around the matter of common goods and free goods. Both of these are well-known problems in economics, however, a number of goods nowadays are still treated as if they were free goods, whereas in reality they are no longer that: they have become quasi-free goods. To ensure non-diminishing returns from capital – i.e. environmental sustainability – investments must be made in preserving the stock of former free goods.

III. ACCOUNTING FOR THE COSTS AND BENEFITS OF INVESTMENTS IN SUSTAINABLE DEVELOPMENT

Accounting for the costs and benefits of investments is a rather straightforward part of accounting techniques. However, one must realize that these techniques only work properly with investments whose returns, especially from a financial aspect, can be defined with little effort. As for investments with considerably less obvious financial advantages and more intangible benefits, accounting with the usual techniques becomes an almost impossible undertaking.

One of the most important shortfalls of current accounting techniques is that they fail to appropriately address expected future benefits arising from immaterial capital, such as social and environmental capital [5].

Intellectual capital, which takes the form of human knowledge and social capital, plays a crucial part in sustainable development. Important as it may be, accounting for this form of capital is rather problematic. Corporations, whether they are businesses, organizations, or indeed administrative units, face a tough challenge in accounting for intellectual capital. Practice shows that one part of this capital may be included in balance sheets among the corporation's intangible assets, whilst it's the other part of this capital that completes accounting for this asset [6.].

Crucially, as cautiousness about the welfare of future generations is a task of present generations. This also includes the shareholders of corporations. The concept of sustainable development confirms the role environmental and social capital play in corporate competitiveness [7]. Transitively, this also implies the role of decision-makers in administration and government.

To tackle the existing gaps in accounting techniques, one may call upon the help of Environmental Performance Evaluations. The cornerstone of this tool is the use of indicators, which are defined by the organization, and the changes in which are monitored over time, and actions are taken if necessary. To ensure an efficient execution of Environmental Performance Evaluation, organizations need to define a sufficient number of carefully selected indicators. These indicators need to be measurable and quantifiable, benchmarks for acceptable and unacceptable levels need to be defined, and action points need to be defined [8].

To define a range of such indicators may be a rather difficult issue in itself, but the tangibility of the returns of the investment may influence the nature of these indicators. Clearly, more tangible results will allow for more direct indicators, but as the intangibility of returns grows, the indicators grow in complexity and become more indirect. This also has a direct effect on the effort that needs to be exerted to price investments, a direct consequence of the foundational principles of Total Economic Value [9]; those with mostly tangible returns will be simpler to price, particularly if human involvement is considerable. However, those with a higher proportion of intangibility involved will require considerable foresight, due diligence, cautiousness and a multidisciplinary approach. This can be traced to the fundamental characteristics of goods. One of these characteristics is the financial value, reflected in the price of the goods in question. However, environmental goods generally lack a direct financial value, whereas their functional value may be considerable [10].

IV. INVESTMENTS WITH LESS TANGIBLE RETURNS

The previous chapter has stipulated that when returns are tangible, and investments can be priced with comparably little effort and using mostly common methodology, and crucially, where human control is significant, investments may be numerous. However, the case is quite different when the returns are less tangible, more difficult to price and human control is limited.

Nevertheless, it cannot be said that investments with less tangible returns ought to be regarded as less important. If one seeks to choose long-term investments of a less ordinary kind, for example, one may easily come across opportunities where land may be purchased and trees will be grown to support a managed forestry industry. Investors may even attain Forest Stewardship Council certification for their timber, which would place it among the best quality, and in turn, highest priced woods available. This investment, though, still boasts tangible returns, as the plantations will be cut down in a decade or two, and the wood will be sold at a very high price indeed. But then, what about investments where the ultimate aim is not to cut down the forest, but rather leave it there to be?

This latter scenario may be surprising, even deterring with the conventional investor mindset, as there is an input of capital, with no apparent returns. This is where the multi-dimensional approach gains importance. Whereas with conventional economic logic, the only output that could be valued – or attributed a price – would be timber. However, considering the environmental and social dimensions, the picture soon changes. The plantation could offer habitat to both animals and plants, which would radically increase its ecological value. Forests also fulfill an environmental sink function, where pollution is captured and neutralized. Trees filter out carbon dioxide from the atmosphere, purifying the air around us. They also filter out airborne particulate matter, regenerate soil, act as storm defense, and produce a steady flow of biomass, which could be used to make compost, or otherwise, fuel. As time progresses, the plantation would begin to look increasingly less man-made and it could attract visitors from nearby settlements, with families picnicking, children playing and so forth. Thus, recreational value appears, completing an all-round increase in total economic value [9] of the whole plantation. One must realize that this is not an idealistic progression of events, but rather, the natural one. And should it be decided that the forest be cut down for timber, all this cumulated value would be utterly lost.

V. REGENERATING THE COMMONS

As it is known, in economics the term “Commons” used to describe resources that are collectively owned. To gain wealth, mankind has continuously resorted to using – or abusing – these commons, be it in the form of public and free goods, which were in abundance around him and usually only an arms’ reach away. Whether that commons was a pasture where cattle could graze or another form of public good that could be used with little or no effort for significant gains, it made no difference. As Garrett Hardin pointed out in his groundbreaking article “The Tragedy of the Commons” [11], each individual is driven to maximize their utility, and taking more out of the commons seems like a rational option, as each unit of gain will result in only a fraction of a unit of loss to the whole community. But since the rules of this game are known to each and every player, the system is soon driven to the

breaking point, and tragedy – where everybody in the whole community loses – is inevitable. The problem with commons is obvious: defecting pays as long as the system holds together. The solution to the problem, however, is problematic. It begins with the realization that disaster is just around the corner, and it takes a communal effort to avoid that disaster.

Garrett Hardin also pointed out that a commons may not necessarily be a source of goods, but a sink of bads, but they may also act as buffers. Increasingly, free goods such as natural waters, pastures and even the atmosphere have become stores of human pollution, either willingly or unwillingly. He pointed this out almost four and a half decades ago, but his words only seem to be gaining weight nowadays. Polluted lands, rivers, seas and an atmosphere containing a dangerous amount of greenhouse gases is what our commons are today. Our previously existing free goods – including clean air, clean waters, and abundant fertile soils – are no more; they have become quasi-free goods, at best.

Returning to the problem of finding a solution, we have to realize that the commons we need to protect are inherently intangible, remote and vaguely defined, essentially meaning that the solutions need be innovative enough to cover them. Solutions also need to span across all levels of geographic and administrative dimensions, essentially requiring cooperation between global, national, regional, sub-regional and local levels. Furthermore, solutions must be based on a mutual understanding and partnership of stakeholders, comprising governments and authorities, businesses and enterprises, as well as the general public.

VI. FENCING OFF THE ATMOSPHERE

What path lies ahead? – That is a question stakeholders must ask themselves once they realize what is truly at stakes. Garrett Hardin’s stipulation at solving the problem of commons consisted of essentially two options: selling or legislating. The first option may work adequately with commons which are well-defined and have clear delineations.

But we can’t fence off the atmosphere.

Legislation, then, seems like the other natural option to take, but we are soon confronted with the limitations of international law. We need not think beyond exclusive economic zones, fishing on international waters, deep-sea oil extraction and international airspace to see how problematic these truly are. Nonetheless, even if a possible solution has been found, the problem may not be over. Hardin suggests that one of the problems with legislation is the control of the custodians: *Quis custodiet ipsos custodes?* – Who watches over the watchers? [11] Indeed, it may only be wishful thinking that the morally righteous are entrusted with watching over the activities. Furthermore, he adds, it is all too easy to legislate prohibitions (though their enforcement is another question altogether). The real question, he adds, is how to legislate temperance, or moderation [11].

This is where the role of governments on all levels becomes crucial. Under ideal circumstances, governments will look

beyond the three-to-seven year electoral cycles and devise such strategic plans, which may aim to have their returns in twenty, fifty, or even a hundred years. Such plans to save or recreate commons are being carried out globally at the moment, including the UN's "The Billion Tree Campaign" [12], which aims to plant fourteen billion (14 000 000 000) trees globally to stop deforestation, desertification, soil erosion, and to lay down the foundations for a better future for generations to come. To date, 11.814 billion trees, including saplings and more developed ones, have been planted, which is a truly commendable feat. However, the real challenge begins not at the outset of the project, but once the results of the project can be seen. Governments on all levels must ensure that such global projects generate wealth for local citizens, through a steady flow of goods and services, whilst ensuring that the created environmental, social and economic capital is preserved. To achieve this, governments must forge partnerships with citizens, Non-Governmental Organizations and enterprises, and cooperate in the preservation efforts. It is crucial to stress here, that the fundamental moving forces behind such efforts are moderation, education and, need be, sanctions.

VII. ON THE PROBLEM OF FINANCING GLOBAL PROJECTS

As we have seen, global projects aimed at sustainable development are expected to deliver returns over a time span exceeding conventional strategic time frames, and their returns may not be easy to account for financially. Nonetheless, their returns may be appearing as a cleaner environment, a better habitat, lasting fertile soils, and so forth, improving the welfare of future generations.

Financing such projects poses a serious problem, and puts enormous strain on governmental budgets. Firstly, a number of states are heavily indebted already, with obligations to pay back vast amounts of money to their lenders. Secondly, this problem is worsened by the structure of these debts: some countries have obligations with a very short maturity period, at times in the order of a few years [13]. Trying to back investments with returns in the order of half a century with capital that is due to be repaid in a fraction of that is impossible. To add insult to injury, such global projects are not adequate, but merely necessary preconditions to sustainable development.

Another problem is the issue of "efficiency of scale", which is also present when it comes to projects aimed at sustainable development. When projects are small in size and isolated, these pockets of activity will remain largely ineffective, and their returns will be relatively low in comparison with the amount of resources, including money, time and human effort, invested. As soon as such projects are connected into a network, their effectiveness increases greatly, with positive feedback loops and symbiotic effects, and their returns will be considerably higher. At truly large scale, such projects may have overwhelming effects of global benefit.

VIII. THE ROLE OF LOCAL AND REGIONAL GOVERNMENTS

The role of local governments in the transition to sustainable development has been outlined in Chapter 28 of Agenda 21, the UN's action plan for the 21st Century. [14] Local governments play a particularly important role in such projects, as they are the level closest to citizens, and they act as the first link of the chain leading to global projects. However, as it has been demonstrated previously, low-level administrative units tend to be overburdened with tasks, whilst also being heavily underfinanced [15], [16]. This in turn also means that besides financing day-to-day operations, which due to an inefficient size of operation remains rather costly, local governments have little disposable resources that could be invested in sustainable development. Due to their small size and restricted capabilities, efforts and initiatives by local councils will need backing both vertically and horizontally. Achieving a larger and more efficient scale of investments, however, requires capital, an efficient allocation of resources, a working partnership with stakeholders, as well as legal and administrative support for local governments. In some cases, the rigidity of the legal framework poses another challenge: if the administrative framework is laid down in a constitution, necessary changes will be frequently painfully slow or absent altogether. In such cases, it's up to the ingenuity of local and central governments to try to forge partnerships within the legal framework, without jeopardizing the legality of their activities. This has led to the establishment of looser or tighter territorial cooperations, which coordinate the common execution of tasks between smaller entities. [17]

Local governments and local businesses need to realize the potential that lies within corporate social responsibility as well. Mutual proactivity is the desired attitude to be adopted by all parties involved. To achieve this, governments on all levels need to exemplify excellent businesses, disseminate best practices, acknowledge individual business' achievements in corporate social responsibility, build partnerships with businesses and communicate relevant information to the wider public and finally, monitor CSR activity [18]. Under optimal conditions and fulfilling the tasks set out previously, local governments may be able to identify and delegate some duties to be undertaken by businesses as part of their corporate social responsibility activity. This, however, requires that legal systems be permissive enough to allow for such agreements to be made, as well as wider economic stability, where businesses are encouraged to remain within the administrative boundaries rather than to move elsewhere. Such stable conditions may be necessary to be present not only on local, but micro-regional, regional and national levels too.

IX. CONCLUSION

Green investments have begun to play an important role in transforming our common future to a sustainable one, but the matter of what these investments target remains a crucial issue. Investments with tangible returns are numerous, although some skepticism about their true benefits is probably in order.

Investments with much less tangible benefits are no less critical, but are less attractive to benefactors. This is at least partially the result of some shortfalls in accounting methodology, which may present otherwise beneficial investments as unworthy of carrying out. Nevertheless, when these investments are valued using a multi-disciplinary approach through simultaneously evaluating all three dimensions of sustainable development, the scene becomes very different indeed.

The preservation of free goods, or commons, is a seemingly unrewarding task that needs to be undertaken communally. However, investments aimed at preserving the commons often need to be either encouraged or backed by authorities or governments to become truly successful. With overburdened administrations, though, this remains a tough problem to solve. A partnership between the stakeholders, including governments, businesses and citizens, in the form of corporate social responsibility may offer a way out of this catch.

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