

GOVERNANCE AND SUSTAINABILITY

Edited by David Crowther
and Shahla Seifi

DEVELOPMENTS IN CORPORATE
GOVERNANCE AND RESPONSIBILITY

VOLUME 15

GOVERNANCE AND SUSTAINABILITY

DEVELOPMENTS IN CORPORATE GOVERNANCE AND RESPONSIBILITY

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RESPONSIBILITY VOLUME 15

GOVERNANCE AND SUSTAINABILITY

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THE DEVELOPMENT OF SUSTAINABILITY INITIATIVES

Shahla Seifi and David Crowther

ABSTRACT

Sustainability is recognised as an important objective in business planning and is of equal relevance to policy makers. It is equally accepted, almost universally, that the resources of the planet are finite and are being overconsumed on an annual basis. The prognosis therefore is that resources are being depleted and competition for access to remaining resources must ensue, increasing the transaction costs of business activity. Given that there are no further resources available to the world, then attention must be paid to the best way of utilising those resources, implying possibly different ways of organising or collaboration. This involves strategic decisions at both local and global levels, and Game theory is recognised as a key strategic tool by policy makers and by business decision-makers. Surprisingly therefore, although it has been recognised that Game theory has relevance to addressing the problems of manufacturing due to resource depletion, no detailed work has been done in this area.

Keywords: Game theory; sustainability; depletion; resources; mineral; extraction

INTRODUCTION

Currently, it seems that the concept of sustainability has become ubiquitous. It seems to be in the minds of all in business, government and the whole not for profit sector. Indeed, it is also on the lips of most members of the public, whether they are concerned with the effect of climate change, local disasters, pollution control or just general inconvenience. Indeed, it is refreshing to see a teenager such as Greta Thunberg raising the issue at a global level and even challenging the global leaders who are generally perceived to be failing to address the issues involved and

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to take appropriate action to deal with issues. For us, there is hope when the young people make their voices heard concerning what kind of world they wish to inhabit once the leaders have left the stage, leaving their legacy behind.

However, the concept of sustainability is ubiquitous and actions are being taken to understand the issues involved and to take appropriate action. It is a complex subject and it is only recently that some of the issues are being understood – especially that some actions have unintended consequences which also impact negatively on sustainability elsewhere. For example, hydroelectricity has been used extensively and is regarded as a sustainable form of renewable energy. Lately, however, it has been realised that environmental damage is being caused by damming rivers. This is particularly manifest in river deltas which has significant effects upon the animals and plants living in the delta and in the lakes created by the river control process. This kind of damage to the environment is only recently recognised (see, for example, [Anon, International Rivers 2019 post](#); [Poff & Schmidt, 2016](#)), although social and environmental effects have been recognised for some time – see, for example, [Rosenberg, McCully, and Pringle \(2000\)](#); [Imhof and Lanza \(2010\)](#).¹

Nevertheless, action is perceived to be necessary and is being taken by many all over the world. In this book, therefore, we look at some of these actions and their effects. Some are quite surprising and the topics covered are certainly diverse, which illustrates very well the complex nature of the topic and the actions which need to be taken.

SUSTAINABLE DEVELOPMENT

Sustainable development is accepted generally to be a process aiming to satisfy human requirements while keeping the natural environment high in quality indefinitely. Although many might think that it was Brundtland who first mentioned this kind of development, but in fact the term sustainable development was used in the report, World Conservation Strategy, and the International Union for the Conservation of Nature had recognised the relationship between development and environment in 1980. However, undoubtedly, it was after the Brundtland Report's publication that this term became ubiquitous.

The Brundtland definition for the three pillars of sustainable development is not the only definition used; for instance, [ISO central secretariat \(2006\)](#) considers standardisation, metrology and conformity assessment as the three pillars of sustainable development. On the other hand, [Lindsey \(2007\)](#) claims that in many instances standards have so far supported legislation but the role of standards in this area can be even wider and greater. For instance,

- Management system standards can be used wider in areas such as food and health safety and environmental management;

¹<https://www.internationalrivers.org/environmental-impacts-of-dams> accessed 5 June 2019.

- For some areas such as security, healthcare and education, standardisation has not been used traditionally for Legislation;
- Standards can be used to support the implementation of the Directives for services;
- Sustainable development can be supported by standards.

According to [Aras and Crowther \(2008\)](#), what is implied by sustainability is to accept whatever cost is involved today to invest for tomorrow, while others (e.g., [Orsata, 2009](#)) have argued that it leads to cost reduction but only in the longer term. In fact, the concern of sustainable development is about the effect of actions taken today on options available tomorrow. In a sustainable society, the needs of the society are provided without affecting what in future might be needed by people. Thus, in a sustainable society, resources used should not exceed what can be regenerated. So we can assume that the consumption level in present is not leading to sustainability. Therefore, sustainability should be dealt with internationally and would require formulation of standards at the international level ([Glavic & Lukman, 2007](#)). The recent globalisation movement means that this need is even stronger. In order to achieve globalisation, the world needs to integrate, hence higher need to standards in international level instead of national to avoid them be used as trade barriers.

Market globalisation expansion means that international standards and not the national or regional ones are getting more and more important for businesses when exports and imports can undergo a fair situation while meeting safety and performance requirements in the international level. According to [ISO central secretariat \(2006\)](#), through improved safety, compatibility and quality, international standards for production and products and also for services play a big role on facilitation of trade and also on sustainable development and the world is significantly benefitted from this. While a society can be benefitted from improved environment and health and good practice in regulation and sustainability, standardisation will support trade internationally as well.

The idea of globalisation encourages countries to adopt harmonised rules. Unless otherwise they will be trapped in diverse and sometimes conflicting rules which would result in unequal trade market. International standardisation is an ideal opportunity for the countries to raise their voices on the matters which otherwise may become barriers to their trades with the world. So, countries should necessarily participate actively in the process of international standards drafting. This is indeed of vital importance for the developing countries who could make sure that their national conditions are observed. So, they would willingly meet the international standards formulated through a fair consensus approach. Besides, use of international standards is beneficial in avoiding unnecessary costs to provide national standards which may result in other barriers to trade. Spending time and money on already established international standards at national level is just as reinventing the wheel. Therefore, the worldwide trend is to adopt international standards in order to realise the aim of 'one standard, one test and one conformity assessment procedure which is

accepted everywhere'. However, it is worth mentioning that 'development is not a one-size-fits-all process'. Each country must progress, as ultimately only it can best tell what its ambitions and needs are. However, in a globalisation world, sustainable development cannot be achieved in isolation (Sudarwo, 2008).

A NEW ERA FOR SUSTAINABILITY

In 2019, Earth Overshoot Day occurred on 29 July, three days earlier than in 2018 and earlier than any previous year. In 2017, it occurred on 2 August, 6 days earlier than in 2016, 11 days earlier than in 2015 and 22 days earlier than in 2014. Earth Overshoot Day is measured by the Global Footprint Network and is the day when humanity has exhausted the total natural resources of the planet for the year.² For the rest of the year, society operates in an effectively overdrawn mode and in ecological overshoot by making use of and depleting local resource stocks and accumulating carbon dioxide in the atmosphere. This overshoot first occurred in 1987 and the day in which it occurs has become earlier with each succeeding year. The concept is based on the work of Wackernagel et al. (2002).

Equally therefore we can be uncontroversially certain about the finiteness of the Earth's resources which must ultimately restrict development and growth on the planet. Indeed, President Macron, of France, stated (2018) that there is no Planet B and we must preserve this one.³ The resources available to people are heavily used – and many would say overused.⁴ So Earth Overshoot Day gets earlier each year and clearly this is not sustainable. Equally obviously once resources are used they are not available for future use and, despite the wishful thinking of economists (see Raworth, 2018), one resource can never completely substitute for another.⁵ The lack of sufficient resources of raw materials to maintain current production, let alone to provide for sustainable development as outlined by Brundtland (WCED, 1987), has become known as resource depletion (West, 2011) and is one of the problems which the inhabitants of the planet must currently face and address.

The organisation of the economic system which is currently operating within the world is determined by assuming growth to be feasible and also desired as well as assuming that the system of pricing in the market acts as mediation for obtaining the additional resources needed for such growth. It is in complete alignment with Brundtland's assumptions (WCED, 1987) and accepted unquestioningly ever since. Price has been accepted as the medium of exchange within

²www.footprintnetwork.org accessed 3 July 2018.

³Speech to US Congress, 25 April 2018 – reported by The Times on the following day.

⁴Although it is often assumed that resources include human ingenuity and such things as finance, the ultimate resources of the planet are natural – raw materials and the products of nature.

⁵Consider for example Easter Island. Once the trees had been fully used, then no resource was available as a substitute (Pakandam, 2009) and such activities as sailing had to be terminated alongside the termination of the construction of the famous statues.

the market system (Richardson, 1995) and the free market has become dominant. As a consequence of this acceptance, governments have concentrated their attentions on the system of pricing in the market hoping to lower the costs of transactions and also on the different meetings held by the World Trade Organisation (WTO) and the General Agreement on Trade and Tariffs (GATT) as facets for lowering these costs in the global environment. At the same time, it has been shown by the environmentalists that the global resources are close to being extinguished and therefore the amount of resources used is unsustainable. Consequently, the concept of depleted resources is commonly known about.

While it has been a matter of concern for the western part of the world, in other parts of the world, some countries have aimed at developing themselves rapidly. The main such countries are the four countries known as BRIC.⁶ As Seifi and Crowther (2016) state, their main feature is their access to great amounts of the planet's available resources as well as their large number of residents; accordingly, they have very good potential for developing rapidly. This development therefore affects the world economic system and has the effect of increasing demand and so the resource prices will be bid up which in turn will put a limit to growth as the cost for economic operations will rise and the resources will be diverted from production to this bidding process.^{7,8} This in turn leads to a reduction in speed of growth and puts pressure on global economy in a way which will become more pronounced as development continues, and resource depletion, with the consequent shortages, becomes more apparent. Under this model of the market, however, demand for raw materials in the production process will continue to rise as consumption (and its corollary production) continues to increase without any increase in available supply of these raw materials. This is also a factor of concern for the energy requirements of the world, which are also increasing as these countries develop; and with increased energy consumption comes increased pollution and increased amounts of greenhouse gases and therefore climate change.

Thus, there are changes happening in the world and arguably it is entering a period when it has just recovered from the 2007–2012 harsh economic crisis while at the same time recognising and dealing with the effects of the changing climate, environmental issues and resource depletion. Consequently, several issues have become more essential for manufacturing companies. One issue, as Vohs and Heatherton (2000) state, is that there is a common understanding about occurrence of resource depletion. Vincent, Panayotou, and Hartwick (1997) argue that in effect it means that not only the world resources are completely used but also that they are used so excessively that demand for them exceeds supply. Inevitably, scarcity of resources leads to increasing difficulty in acquiring them and therefore increases the transaction cost of their acquisition. It does so both not only because they become more scarce and difficult to acquire from more remote

⁶Brazil, Russia, India and China.

⁷In particular it makes it more difficult for the West to get access to these resources as they are increasingly diverted towards domestic use.

⁸Essentially this equates to an increase in transaction costs.

sources but also because competition for these limited quantities increases between the various firms which need to acquire them. As stated by Kerr (1998), another issue affecting these companies is about how to manage in a world after Hubbert's peak in which energy should be utilised as efficiently as possible. Waeyenbergh and Pintelon (2002) argue that the production costs are reduced by more efficiency in operations; this is crucial for development in a sustainable manner. It also implies the need for the most efficient use of the limited resources of raw materials to maximise their productive use. This problem should be dealt with by taking a comprehensive approach integrating sustainability approaches into every activity inside the firm throughout its supply chain. This has implications for firms for the way products are manufactured and for the characteristics of these products as well at different levels of the firms, countries and also the world economy.

The issue of sustainability has come to prominence currently among the academics as well as media and general people. Indeed, what is often observed is that individuals care about sustainability; arguably it is because of media attention and therefore a general acceptance of the existence of the fact of climate change. At the same time, there has arisen a general recognition of the problems ensuing from resources depletion. Wiedman and Minx (2007) argue that at present it is common for a person to be able to know about their environmental impacts. The same is about Hubbert's peak.⁹ At the moment many companies outline their sustainability policies and as Weideman, Thrane, Christensen, Schmidt, and Lokke (2008) describe they are taking steps to achieve carbon neutrality.

As Hart (1997) discusses this attention has led inevitably to the idea of sustainability becoming central to many debates and this issue needs to be addressed at different levels of a firm, an individual and the society. According to Aras and Crowther (2009), indeed, sustainability as a term seems to be used everywhere in the discussion about a company's performance and also in the discussion about globalisation. In fact, sustainability is a controversial topic and it is defined in many ways (White, 2013).

The most simple definition of sustainability is that life will just carry on as it is in an unchanged manner, based upon a nostalgic idea of the past as unchanging. This is a definition which enables decision-makers to make little effort to change our way of life by assuming that future developments will take care of any problems. While it may be comfortable, this approach is also unrealistic – things are changed even by us carrying on in an unchanged manner! The deep green approach of returning to the illusory *golden age* prior to industrial development, under an unquestioned assumption that life was thereby both simpler and

⁹Hubbert was a geologist who worked for Shell Oil, and in 1956, he developed a theory on the shrinkage of resources such as fossil fuels. This theory became famous as Hubbert's peak. It defines a relationship between rate of production of gas and oil to extraction rates rather than reserves and that this rate will raise to a peak point, but afterwards it will quickly decline by the depletion of reserves. Although the theory was originally developed to explain the future of oil production in the United States, it applies equally true everywhere and can be applied to the world as a whole.

happier, can be considered as the opposite end of the spectrum. According to [Marrewijk and Werre \(2003\)](#), it is also not realistic and therefore another kind of sustainability needs to be searched for.

A general approach to the problem is that sustainability is about the utilisation of environment; therefore, people should consider recycling their bottles or not to print their emails and so on. Thus, picking the low hanging fruit will ensure that the problem has been addressed. This makes good press and is comfortable but what is implied is that resources should not be utilised beyond what can be reproduced. [Hawken \(1993\)](#) defined this issue through the ecosystem's carrying capacity and explained it by models of input/output of resource utilisation. Considering a company as a member of the larger economic and social system means a focus upon the longer term and implies that such impacts should be considered both for the evaluation of value and cost of the business in present and also future. These matters are relevant at different levels from an individual firm to a country and to the whole society. A further approach is that technological developments in the future will enable the problems to be solved ([Vollebergh & Kemfert, 2005](#)). While this gives security to those espousing this view, it is difficult to accept as sustainable. After all we are clearing up the mess made by previous generations and it is difficult to believe that future generation will find this approach acceptable.¹⁰ For example, it is unlikely that Easter Islanders were happy that their ancestors had used up all the trees which led to economic collapse.

Utilisation of financial resources can be minimised through minimising the utilisation of the environmental resources which is important when considering raw material and energy consumption. This fact will inevitably rise in prominence and concern by continuous increase in cost of energy because of their becoming scarcer.

As a result of energy scarcity, the operation costs will particularly rise because firms use a lot of energy and this therefore leads to rise in the manufacturing costs. Naturally when the plant functions with high efficiency, this leads to not just an efficient company but also a low cost (and therefore profitable) one. It is not just financially wise but also through minimised utilisation of environmental resources the firm becomes socially responsible. The firm will also be socially responsible as when operations have high efficiency as waste and pollution will be reduced to a minimum. This means that social responsibility and good financial management and operational efficiency agree with each other. [Fig. 1](#) illustrates this.

DEPLETING RESOURCES

Without any doubt, the resources of the Earth are finite and this puts a limit to the development potential which is something related to this research. The resources available to people are heavily used – and many would say overused. Therefore, the day when people consumed all of what the Earth can produce

¹⁰Consider for example the problems with previous use of asbestos.

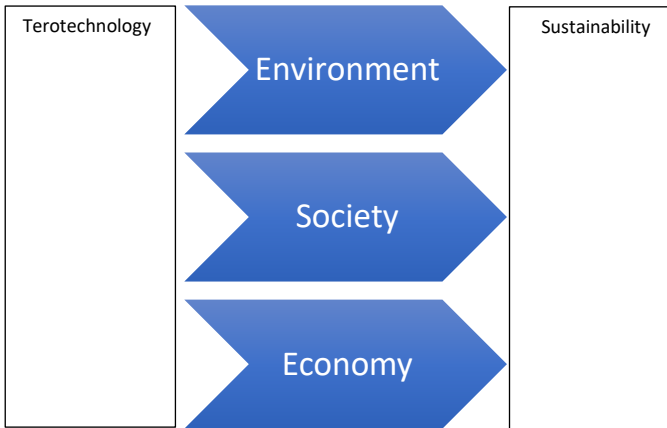


Fig. 1. The Three Elements of Sustainability.

during one year, or the Earth Overshoot Day, happened on 2 August in 2017 and gets earlier each year. Obviously this is not sustainable. Equally obviously once resources are used, they are not available for future use and, despite the wishful thinking of economists, one resource can never completely substitute for another.

However, such interest in sustainability, which can be observed currently, is improved by the Earth resource depletion (see for example, [Schneider, Kallis, & Martinez, 2010](#)).¹¹ Of particular concern is the reduced supply of extractive industries like tin and aluminium or the shortage in supply of minerals needed in electronics industry. As an instance, the tin which has been the basis for founding the capital city in Malaysia is completely extracted, and now the major part of this industry is devoted to recycling. Tin was the main reason for founding Kuala Lumpur ([Gullick, 1983](#)).¹² This is because the United Kingdom had already extracted all their tin for many years ([Hawkes, 1974](#)) and the prosperous industries related to tin also had all disappeared. Therefore, as a desire to expand, Britain exploited what existed in other areas. By complete extraction of a resource like coal, the related firms will all fade as will all the related professions. Therefore, people involved in such industries will obviously be worried.

¹¹Plus all the other papers in the special issue of the Journal of Cleaner Production which they edited on the topic of Growth, Recession or Degrowth for Sustainability and Equity.

¹²Ampang is the name of an area in Kuala Lumpur, but it was the major centre for tin extraction. This is the area where KLCC and the twin towers are situated and still is the heart of this city. By tin becoming depleted, oil and gas have played the role of main elements to fuel the expansion of Kuala Lumpur. However, these elements are also getting completely extracted and therefore they are also finishing.