

IN PURSUIT OF A FRAMEWORK TO EXPLORE STAKEHOLDER INFLUENCE IN MEGAPROJECTS THROUGH ISSUES OF SUSTAINABILITY

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Abstract

The aim of this paper is to establish a framework to explore how stakeholders influence megaprojects using the paradigm of sustainability. The paper begins by reviewing the literature concerning stakeholders and sustainability in megaprojects. It then critically reflects on two frameworks that have been developed to map sustainability in megaprojects and examines their utility in understanding stakeholder impact in megaprojects. The paper concludes by proposing a framework based on sustainability and the results of this analysis whereby the interactions of megaprojects with stakeholders can be evaluated.

Key words

Megaproject, sustainability, Authors have to provide a minimum of 4 and maximum of 6 keywords that best describe original content of the paper, alphabetically sorted and separated by semicolons

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1 INTRODUCTION

Megaprojects produce profound, widespread and highly impactful changes upon the context, community and environment in which they are placed. By their very nature, megaprojects have networks of stakeholders that go far beyond those associated with smaller projects. Given the societal imperatives that drive the design and delivery of many megaprojects, the beneficial impact on stakeholders will frequently form part of the assessment of their success. In addition, stakeholders can also have the power to disrupt and even to terminate megaprojects. Stakeholder management, therefore, has a critical role in insuring megaproject success.

Understanding the implications of megaprojects for stakeholders is fraught with complexity. For example, project management value has moved from ideas of 'value management' to ideas of 'understanding how stakeholders value different things', therefore, discerning value in megaprojects is influenced by the complex morass of stakeholders involved.[1] According to Zhai et al. [2] and Oliomogbe et al. [1] value in megaproject can be divided into value derived from project outcomes and value from project management deployment, where the first is associated with external and the second with internal stakeholders. The categorisation of internal and external stakeholders is adapted from Megaproject Cost Action where internal stakeholders are the client/ customer and contractors while external stakeholders are others (including public organisations, authorities, public, Non-governmental organisations (NGOs) etc.

One of the ways in framing the complexity of the involvement of stakeholders in megaproject is to use ideas of sustainability.

The aim of this paper is, therefore, to establish a framework to explore how stakeholders influence megaprojects using the paradigm of sustainability. The paper begins by reviewing the literature concerning stakeholders and sustainability in megaprojects. It then critically reflects on two frameworks that have been developed to map sustainability in megaprojects', (the Halstar Model and the 5P model) and examines their utility in understanding stakeholder impact in megaprojects. The paper concludes by proposing a framework based on sustainability and the results of this analysis whereby the interactions of megaprojects with stakeholders can be evaluated.

2 LITERATURE REVIEW AND RESEARCH BACKGROUND

2.1 Stakeholders in projects

The stakeholder term is considered to have first appeared in literature through an internal memo at the Stanford Research Institute in 1963. The significant growth of social communication within developed countries, especially Western Europe, Australia, Canada and the United States was, since the 1980s, noted, when it was picked up in the fundamental work of Edward Freeman, "Strategic Management: A Stakeholder Approach" [3]. Freeman's work established a new business perspective in understanding the role, and most of all the influence of stakeholders on the impact of design processes and the implementation of local corporate investment in accordance with adopted global strategies.

Although there are many definitions, the most popular and traditional description of a stakeholder(s) is "any group or individual who can affect or is affected by the achievement of the organisation's objectives"[3]. Since then the subject has been more greatly examined from different perspective and applied in various sectors.

Donaldson and Preston [4] made some division in approaches to stakeholder concept:

- descriptive which is used to depict peculiar company's characteristics,
- instrumental this is for managers and how they should act with stakeholders to make organisation more successful in a long-term perspective,
- normative it means identification of philosophical or moral guidelines related to management/corporations activities.

In accordance with Winch [5] stakeholders can be regarded as having a problem or issue with the project mission, and as having a solution, which will resolve the problem. When such solution proposals are inconsistent with the client's proposals, they can be considered as opposite to the project. The task then is to change that negative attitude by offering appropriate changes to the project. However as much important is to keep supporters on their positions preventing them to defect to the opponent camp.

There is very strong support for stakeholders being involved in the development and appraisal of projects from an early stage. Engaging stakeholders does not mean that all their aspirations can be met. [6] Engaging stakeholders and practical benefits of those are better preparation to deal with opponents and thus better project performance. Certainly it should not be forgotten the involvement of stakeholders is sustained from early stage of the project. Not only opponents deserve attention, but also those with neutral or positive attitude should be monitored as there could appear circumstances that trigger changes.

It is obvious a construction project can affect stakeholders in positive as well as negative ways. The positive effects can be: higher standards of living, better housing and better communication. The negative side of a construction project can be deterioration of the physical environment for the affected stakeholders. Therefore, project management must be able to analyse the various needs presented by stakeholders so that communication between them is facilitated. [7] Furthermore social science stakeholder theory relating ethics, concerns issues such as equity, justice and social rights. Consequently, giving stakeholders moral right to exert influence over project development or changes.[8]

Thus in considering stakeholders, there is a need to think of them as those who shape various projects to create better life for human beings, new generations and natural environment. So their actions affect the projects' sustainability.

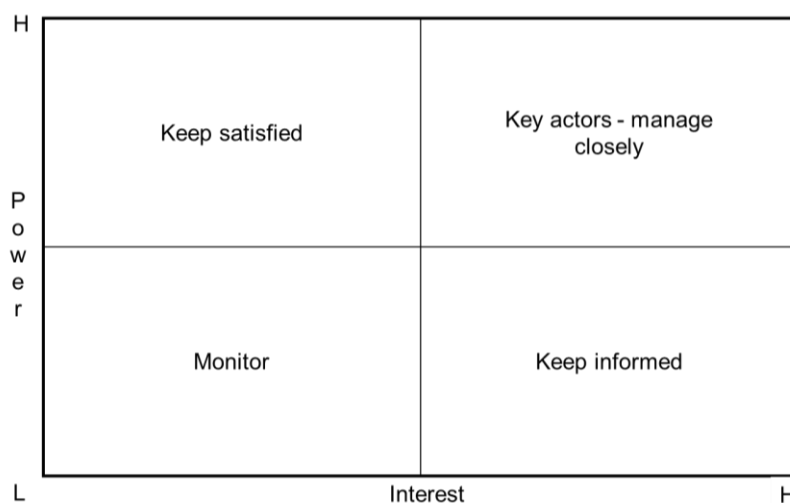


Fig. 1: Stakeholder's power-interest matrix[9]

Project stakeholders, depending on how powerful they are and how interested they are, will affect the project delivery. Their potential impact is usually represented by power-interest matrix (Figure 1), where P_xI score determines how management actions should be planned towards each stakeholder. [9] Yet, existing concepts does not offer the framework for exploring how stakeholders influence megaprojects.

2.2 Stakeholders and sustainability in megaproject

There are many definitions of sustainability and sustainable development. Although the concept of sustainability started to be used in 19th century, nevertheless in context of decision making process and infrastructure the term has not have the long history. The World Commission on Environment and Development (1987) set the foundation for sustainability concept by stating that *“In its broadest sense, sustainable development strategy aims at promoting harmony among human beings and between humanity and nature”*, implying that sustainability requires also a social and an environmental perspective, next to the economical perspective. The European Commission says about Sustainable Development as *standing for meeting the needs of present generations without jeopardizing the ability of futures generations to meet their own needs – in other words, a better quality of life for everyone, now and for generations to come. It offers a vision of progress that integrates immediate and longer-term objectives, local and global action, and regards social, economic and environmental issues as inseparable and interdependent components of human progress. Sustainable development will not be brought about by policies only: it must be taken up by society at large as a principle guiding the many choices each citizen makes every day, as well as the big political and economic decisions that have.*

Based on that, the first sustainability concept developed Elkington as the ‘triple bottom line’ or ‘Triple-P (People, Planet, Profit)’ concept: Sustainability is about the balance or harmony between economic sustainability, social sustainability and environmental sustainability [10]. (Figure 2)

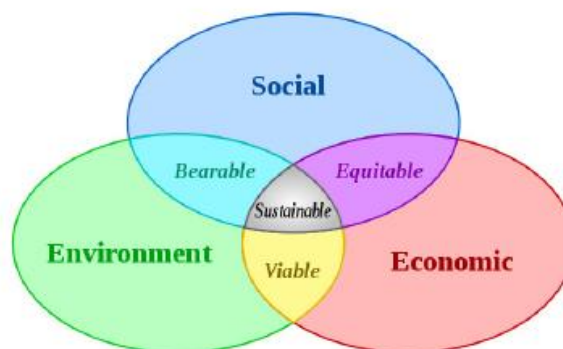


Fig. 2: The Triple-P concept of sustainability

Therefore the sustainability seems to appear as a balance between finances, human and environmental issues continuing in time.

Achieving sustainability-related targets in construction projects is increasingly becoming a key performance driver. [11]

Gibson's thesis is that sustainability concerns should be embedded in stakeholder theory rather than being treated as a marginal issue. [12] He suggested that describing management's

task as balancing the interests of the environment as one stakeholder among many is initially attractive but ultimately lacks conceptual clarity or prescriptive power. Further, he proposes that we discard general talk of the environment, and instead focus on the more tangible idea of human sustainability.

In the study on the key success factors for stakeholders management in construction projects, the highest ranked factor is managing stakeholders with social responsibilities (economic, legal, environmental and ethical) and next 4 high ranked are Exploring stakeholders' needs and constraints to projects, Communicating with and engaging stakeholders properly and frequently, Understanding the area of stakeholders' interests and Identifying stakeholders properly (Table 1) [13]

Tab. 1: Ranking of the 15 CSFs [13]

CSFs	Mean	Rank
C1. Managing stakeholders with social responsibilities (economic, legal, environmental and ethical)	4.43	1
C5. Exploring stakeholders' needs and constraints to projects	4.26	2
C15. Communicating with and engaging stakeholders properly and frequently	4.26	2
C4. Understanding the area of stakeholders' interests	4.22	4
C3. Identifying stakeholders properly	4.21	5
C11. Keeping and promoting a good relationship	4.17	6
C9. Analyzing conflicts and coalitions among stakeholders	4.04	7
C7. Predicting the influence of stakeholders accurately	4.02	8
C12. Formulating appropriate strategies to manage stakeholders	3.97	9
C8. Assessing attributes (power, urgency, and proximity) of stakeholders	3.91	10
C10. Compromising conflicts among stakeholders effectively	3.88	11
C2. Formulating a clear statement of project missions	3.87	12
C13. Predicting stakeholders' reactions for implementing the strategies	3.83	13
C14. Analyzing the change of stakeholders' influence and relationships during the project process	3.83	13
C6. Assessing stakeholders' behaviour	3.80	15

Notes: Number = 183.

Kendall's coefficient of concordance = 0.122. Level of significance: 0.00.

For 'Mean scores': 1 = least important and 5 = most important.

Re-thinking stakeholder management, Collinge highlighted attempts to link stakeholder management work with important emerging themes such as sustainability. [14] Rowlinson & Cheung presented a conceptual stakeholder management model based upon the ideas of empowerment, relationship management and sustainability ideals [15]. However, sustainability itself is a complex and difficult concept upon which to attain consensus amongst project participants: the academic community has yet to reach agreement on the optimum method of achieving this in a construction project context. [14]

The sustainability assessment process, if appropriately designed could be an appropriate mechanism through which the benefits of stakeholder engagement within a project can be maximised and the sustainability agenda be pursued. [16] Mathur also claims that if sustainable development cannot be defined in an objective manner and value judgments exist, then, by implication, the exact interpretation of sustainable development should be determined in the context of each project, its particular characteristics and stakeholders. [16] An Australian survey on infrastructure projects identified two distinct ways in which the stakeholders heed the call of sustainability:

- External Pressure (Global pressure, government requirement and business survival)
 - Internal Volition (Human survival, community expectation and individual volition).
- [17]

3 METHODOLOGY

In order to design a framework for understanding how external stakeholders interact with megaprojects using a sustainability perspective, the first stage was to identify suitable sustainability frameworks that had been previously used to explore issues of sustainability in megaprojects. Following their identification, these existing frameworks were critically assessed to understand their suitability to be used in a stakeholder context. This activity was supported by megaproject case studies made available through the COST Action MEGAPROJECT portfolio [18]. Finally the results of the critical analysis were used to create a framework that could be used to understand the impact of megaprojects on stakeholders using a sustainability perspective.

4 ANALYSIS OF SUSTAINABILITY MODELS IN MEGAPROJECTS

There has been growing interest in establishing appraisal methodologies that properly address the widening range of environmental and social concerns, mostly driven by the recognition that environmental and social factors are actually fundamental components of development on an integral basis with economic factors. [6]

Moving from the basic concept Silvius et al. extended view on sustainability, stating that sustainability is about:

1. Balancing or harmonizing social, environmental and economic interests
2. Both the short term and the long term
3. Local and global
4. Consuming income, not capital
5. Transparency and accountability
6. Personal values and ethics ([19]cited from [20])

To provide a more suitable framework for the incorporation of social, environmental, as well as institutional dimensions of sustainability, to compliment concerns about sustainable economic development in the appraisal of major infrastructure projects, the Omega Centre concluded that it is necessary to look for a more widely based and established model based on the HalSTAR Systems Model developed by Halcrow [21] showed on Figure 3. Its core structure is its balanced division of sustainability criteria into five key fields or ‘capitals’ related to a nested system of stakeholders (socio-geographic representation) over the project lifecycle (short, medium and long term). An adaptation of this model by the OMEGA Centre team provided in Figure 4 was employed in its on-going research in decision making in the planning, appraisal and delivery of mega urban transport projects (MUTPs).[22]

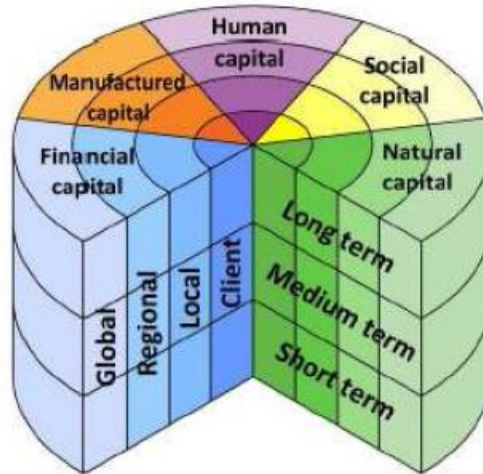


Fig. 3: The original HalSTAR Systems model of sustainability (Source: Pearce, 2008)

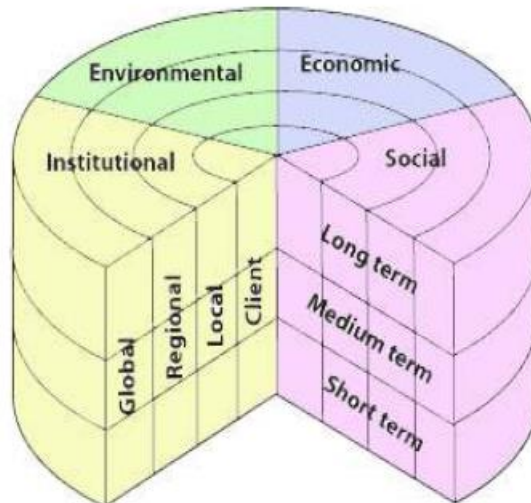


Fig. 4: OMEGA Centre's adaptation of the HalSTAR Systems model of sustainability [6]

This model added one more point to sustainability to 'triple bottom line'. Stability in institutional frameworks is essential to effective project development and appraisal, as this ensures that there is a sound basis for establishing objectives clearly. Lack of institutional sustainability can lead to a project lacking a firm basis for development and thus failing to meet goals for sustainable development, even where these are proposed. OMEGA [6]

5P model is derived from PRiSM™ (Projects integrating Sustainable Methods), the sustainability based project delivery method, which incorporates tangible tools and methods to manage the balance between finite resources, social responsibility, and delivering "green" project outcomes. It was developed for organizations to integrate project processes with sustainability initiatives to achieve business objectives while decreasing negative environmental impact.

PRiSM is a structured project management methodology that highlights areas of sustainability and integrates them into the traditional core project phases which, when understood and

effectively addressed, can reduce negative environmental impacts in all types of projects while maximizing opportunities to manage sustainability and finite resources. [20] This concept takes further than ‘triple bottom line’ by adding two more aspects of sustainability: process and product. Product aspect is covering product sustainability; lifespan of product and servicing of product, while and process is about process sustainability, maturity of process and efficiency and fairness of process. (Figure 5) These two elements are integrating internal and external sustainability in projects.

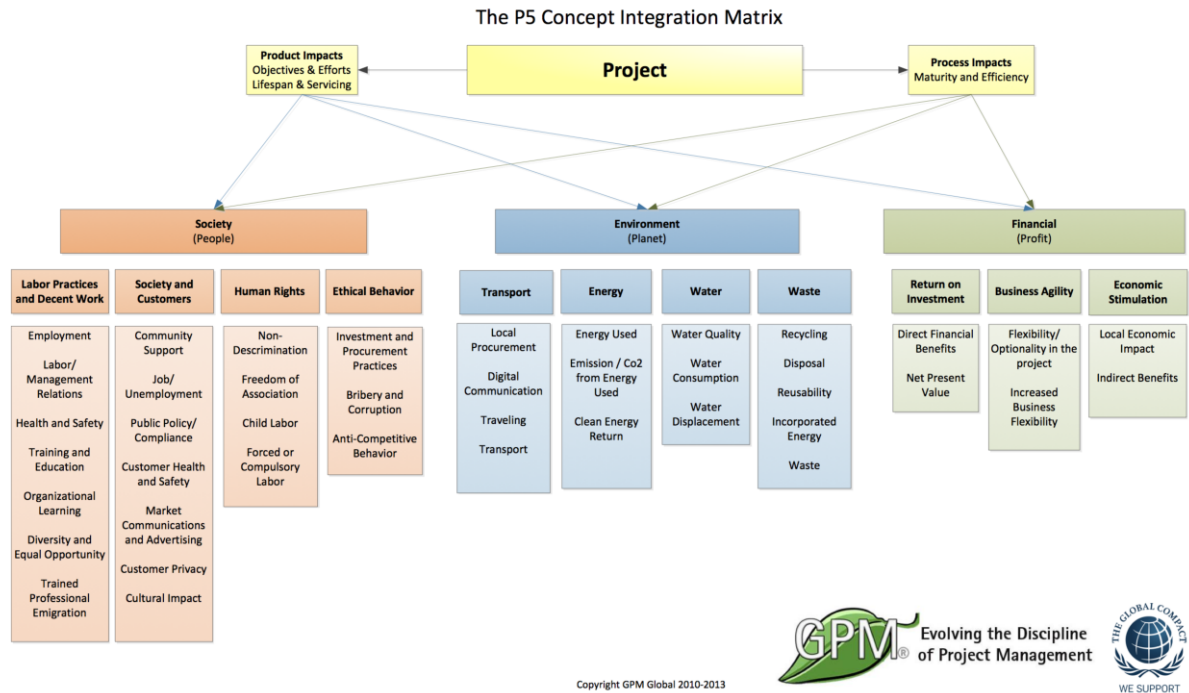


Fig. 5: 5P sustainability model

Both OMEGA and 5P models are examining sustainability but in different ways. The OMEGA model is trying to include sustainable governance as an important aspect of the successful delivery of major project. At the same time the 5P concept is taking a step further – considering that the sustainability of a project comprises governance and project management aspects but also the final product and its sustainability.

5 TOWARDS THE DEVELOPMENT OF A FRAMEWORK: A CONCLUSION

The results of the critical analysis indicated that the most appropriate sustainability model for exploring stakeholder interactions in megaprojects is the 5P model. It enables the capture of issues of interest and impact together.

Using the 5P model as a basis, the new framework was developed as is presented in Figure 4. This figure shows that to understand stakeholders and their behaviour, their interest and impact on the megaproject needs to be observed. Stakeholders by definition have an interest in the megaproject. Different stakeholders have different aspects of interest in the megaproject, which will consequently have a different impact depending on the stakeholders’ power and their willingness to act. Interest in the megaproject can be classified with “the triple bottom P’s”. It is evident that not every stakeholder will have interest in sustainability

from global perspective. The stakeholder can have interest in project because of their personal perspective and this kind of interest can also be classified with 3P.

Stakeholders, if they want to impact the project, can do that by influencing the process or the product. In that way, they will impact sustainability of the megaproject in a manner which is in line with their interests. For that reason, the use of the 5P model by the framework in Figure 4 is suitable to separate impact of stakeholders on the project internally and externally. An internal impact is considered to be an impact that can be measured by project management attributes: cost, time and scope. They are marked as “side effects” because the stakeholder are not aiming at impact on time, cost and scope. Their involvement is measured through outcome they influenced on, and the “iron triangle” is just consequence of stakeholder’s influence on the project. External impact or impact on outcome relates to social, ecological and economical aspect of megaproject (3 P’s). (Figure 6)

In different social environments, stakeholders will act differently: therefore stakeholders and projects need to be analysed with respect of their cultural and contextual environment. This part of framework is developed by Pau at all [23] and it is designed as gap analysis of 16 criteria comprising leadership and project management styles, governance, organisational culture, risk attitude, accountability, political inference and values.

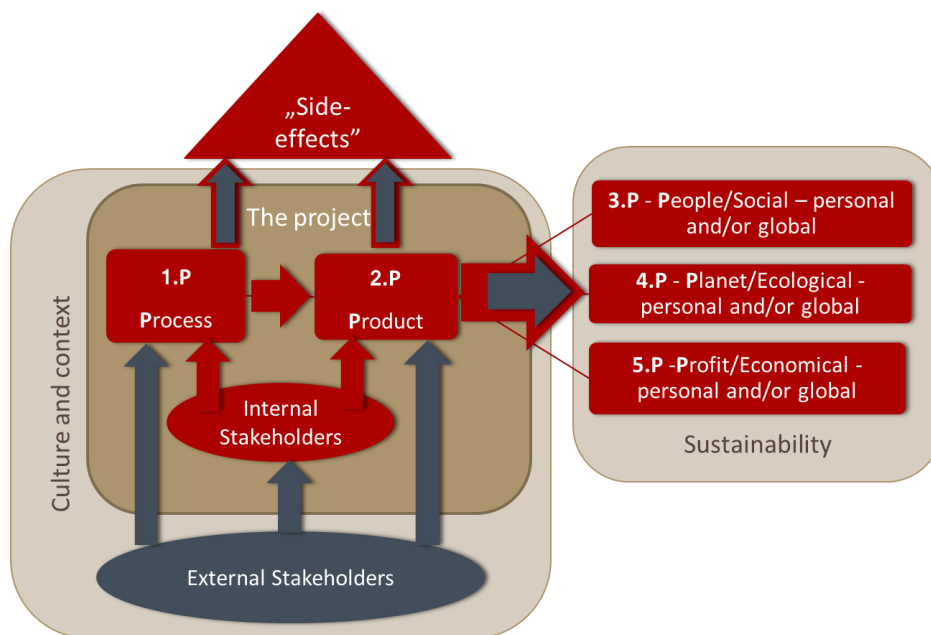


Fig. 6: The framework to explore stakeholder influence in megaproject through a sustainability perspective

The value of this framework is that it enables to explore stakeholders’ influence from the wider perspective of sustainability. It provides a useful mechanism to ‘untangle’ the complexity of stakeholder interactions in megaprojects. Preliminary results of the application of the framework to a series of megaproject cases have shown that the framework is suitable for both stakeholder identification and management in megaprojects. Further work is now needed to explore that efficacy further and to apply the framework in other megaproject contexts.

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