The Project Stakeholder Analysis Process[1, 2]

Aurangzeb Z. Khan[1], Miroslaw Skibniewski[2], John H. Cable[3]

1. Department of Management Sciences, COMSATS University, Islamabad, Pakistan;
2. Project Management Center for Excellence, A. James A. Clark School of Engineering, University of Maryland, College Park, MD, USA;
3. Project Management Center for Excellence, A. James Clark School of Engineering, University of Maryland, College Park, MD, USA

ABSTRACT

A general consensus prevails in the project management community that stakeholders are a prime critical success factor on all projects, especially on large and in technical and managerial perspective complex ones such as those often encountered in construction and civil infrastructure development. Consequently, in order to boost project performance, reduce risk to projects, and to realize to the maximum attainable extent the benefits brought about by the projects after their completion, it is imperative to manage and engage the stakeholders professionally and effectively over the project life-cycle. A thorough stakeholder analysis constitutes the foundation of effective stakeholder management and engagement.

The importance of stakeholder analysis is now widely acknowledged and used in practice. Though its application across the project category spectrum, including on construction and civil infrastructure development projects is widespread, there still appears to exist a need to further educate project owners, planners and other key decision-makers about unexplored possibilities offered by the stakeholder analysis process and how its practical usefulness can be enhanced. What seems to be lacking at present is a rigorous analytical framework which incorporates a set of integrated and sophisticated tools capable of delivering detailed and multi-dimensional insights about project stakeholders with a consistently high level of accuracy over time.

Based on their research on the subject of project stakeholder management and engagement, their decades of experience with projects, and a careful study of existing stakeholder analysis

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approaches and tools contained in available documentation taken from numerous large and complex projects undertaken in several project categories and across the globe, the authors present in this paper a comprehensive project stakeholder analysis process framework which they believe can supplement and add value to existing approaches used by projects to analyze their stakeholders. Themes discussed include the process benefits, challenges and constraints, and the importance of having an enabling environment and acquisition of quality information on project stakeholders for the analysis to deliver optimal results. Highlighted in this paper are five powerful stakeholder analysis tools which, if applied in a coordinated manner, may deliver all the salient insights and knowledge needed by projects to effectively manage and engage their stakeholders over their life-cycles. These tools are the Stakeholder SWOT-Analysis, the Stakeholder Attribute Analysis, the Stakeholder Issues & Complications Analysis, Stakeholder Scoring Models, and the Stakeholder Scenarios & Project Impact Analysis.

Through their research the authors hope to motivate projects to improve the quality of their stakeholder analysis. A robust stakeholder analysis will serve the interests of the projects significantly in the sense that it can reduce the risk of conflicts occurring between projects and their stakeholders and also provide projects with guidance how to respond appropriately in the event that conflicts with stakeholders do occur over the project life-cycle. The interests of the stakeholders will also be served accordingly.

Introductory Comments

Stakeholder analysis has been an integral part of the project planning process for decades. Many documented examples taken from actual projects undertaken in fields as diverse as water resource management, forestry, social development, mining, urban regeneration and construction and civil infrastructure, some dating back to the early 1990s, were discovered by the authors while researching for this paper. Interestingly, most of the stakeholder analyses reviewed are actually quite recent specimens, having appeared after the advent of the new millennium with increasing frequency of appearance as well as complexity of content over time. Presumably, this reflects an increasing awareness of the importance of stakeholders on projects and broad concurrence among project key decision-makers of the need for understanding them and managing and engaging them effectively. In fact, stakeholder analysis is almost a universal feature on all projects today.

It is now generally accepted that project stakeholders basically fall into two major categories: The ‘primary stakeholders’ which encompasses all those entities having contractual obligations or some legal responsibility towards the project, and the ‘secondary stakeholders’ which include all those entities having neither contractual obligations nor legal responsibility to the project but which are affected by it directly or indirectly in some way or the other, and positively or negatively, or both, over time. Examples of key primary stakeholders typically encountered on large and complex projects, as in construction and civil infrastructure development, are the project owner or client, steering committee, financers, designers, consultants, contractors and subcontractors, vendors, project manager and project team, and government agencies involved in the

project. More significant secondary stakeholders on such projects would usually include affected local communities, civic and professional organizations, advocacy groups and environmentalists, media and academia, and some government agencies. All stakeholders have their respective interests in and views of the project and these can vary widely and change over time.

If primary and secondary stakeholders come to view the project as constituting a threat to their interests than it is logical to assume they will resist it using the means available to them. Resistance which is active, strong and sustained can seriously affect the project causing it to experience cost and schedule overruns, image loss, demotivation of its employees, reduced benefit realization after completion, non-attainment of some of its objectives, or in the extreme case even endanger the project's existence through the possibility of enforced premature termination. Secondary stakeholders who, unlike the primary stakeholders, lie outside the project's formal control and may not be known well to the project, at least initially, but nevertheless may pose an especially high risk to it by excercizing against the project a spectrum of options which are available at their disposal. Many high-profile projects have been seriously affected by hostile stakeholder action and several examples were discussed by the authors in a previous paper on the subject.

In their paper *The Project Stakeholder Management and Engagement Strategy Spectrum: An Empirical Exploration* which was presented at the University of Maryland's fifth annual project management symposium in 2018, the authors argued that stakeholder resistance and opposition to projects can often be prevented, reduced or eliminated through the application of carefully conceived, robust and flexible management and engagement strategies. Management strategies are applied on primary stakeholders while engagement strategies are used on secondary stakeholders. Management and engagement strategies themselves lie at the end of a complex and dynamic process which commences with contextualization of the project in both primary and secondary stakeholder perspective, followed by comprehensive identification of the stakeholders, and subsequently by a careful and thorough analysis of all identified stakeholders. The analysis is the basis for designing the strategies for managing and engaging the stakeholders effectively over the project life-cycle. As such it is a means to an end and not an end in itself.

Consequently, an excellent stakeholder analysis is extremely important for the project; an incomplete or flawed analysis could result in ineffective stakeholder management and engagement strategies resulting in a wastage of project resources and possibly generating more stakeholder resistance and opposition to the project instead of reducing or eliminating these. Project performance may suffer considerably as a result. In extreme cases, the project's existence may even be jeopardized. Stakeholder analysis therefore needs to be taken very seriously and undertaken with the utmost care and professionalism. From their research the authors conclude that there are three fundamental ingredients to an efficacious project stakeholder analysis, namely, presence of an enabling environment for the analysis, acquisition of 'high quality' information about all the project's identified primary and secondary stakeholders, and the application of a set of specialized analytical tools which, viewed collectively, can deliver accurate and multi-dimensional deep insights about stakeholders based on the information inputted into them. This is a

logical and systematic approach not inconsistent with current practice on projects. The contribution which this research makes to the knowledge domain of stakeholder analysis is that it advocates the application of stakeholder analysis tools (two of which were developed by the authors) in an integrated manner which seems uncommon on projects - at least insofar as the projects which were reviewed for this paper are concerned – and, furthermore, this research proposes that stakeholder analysis should not constitute merely a one-time effort, which appears to be the current approach on projects, but an excercise which must be repeated, possibly even several times over the project life-cycle if and whenever deemed necessary, in order for it to maintain its effectiveness.

Project Stakeholder Analysis: Importance of an Enabling Environment

For undertaking an effective stakeholder analysis several prerequisites must be met. First and probably foremost, projects and their decision-makers must demonstrate a sincere and unwavering interest in and commitment to professionally managing and engaging their stakeholders over the entire project life-cycle. A high-level of interest and commitment may be demonstrated by having in place a succinctly formulated and strictly adhered to policy that unequivocally acknowledges stakeholders, primary and secondary, as a (if not the) prime critical success factor and provides the resources needed by the project for the identification and analysis of the stakeholders and for the strategies needed for managing and engaging them. Constraints, off course, must be taken thereby into consideration. Project resources usually are limited and effectively dealing with stakeholders, especially secondary stakeholders whose number may run into millions on large and complex schemes such as those often encountered in construction and civil infrastructure development schemes can be prohibitively costly. Cost considerations aside, Analysts equipped with the requisite knowledge, skills, abilities, experience and creative talent are indispensable for properly undertaking and managing the stakeholder analysis process and finding such talent easily, cheaply and in the required number may be difficult given the still apparent dearth of formal project stakeholder management and engagement education, training, and certification programs. Given also the voluminous amount of information on stakeholders – the sourcing and acquisition of which presumably would be quite a costly and difficult endeavor – normally needed for performing a thorough analysis and for repeating the analysis possibly multiple times over the project life-cycle, a sophisticated technical infrastructure with appropriate software and database would be needed to store, catalogue, collate and utilize the information collected on the stakeholders. Setting up such a stakeholder information system may also prove quite cost- and effort-intensive as well as technically challenging for projects. And even if projects fully meet all prerequisites mentioned above, this still does not guarantee that the stakeholder analysis will be successful in the sense that it invariably leads to the design and execution of 'perfect' stakeholder management and engagement strategies.

Hence, investing in stakeholders is evidently not something which projects can expect or hope to do quickly, easily and on the cheap with the expectation of automatically reaping prompt and huge benefits in return. Stakeholder management and engagement is a rapidly evolving subdiscipline of project management whose importance may now be universally, albeit in many

quarters still somewhat grudgingly, acknowledged by project owners, planners and other key decision-makers of whom many apparently still rather prefer their projects to continue focusing primarily on performing their technical work tasks and activities and leave the possible unpleasantries of dealing with stakeholders to others.

Project Stakeholder Analysis: The Pivotal Role of Information

Stakeholder Analysis is, as was already mentioned, not an end in itself but a means to an end which is to deliver useable insights and knowledge about stakeholders, both primary and secondary, to an extent which can be used for the design and execution of effective strategies for their management and engagement respectively. It is reasonable to assume that an excellent stakeholder analysis translates into highly effective stakeholder management and engagement strategies which in turn reduce risk to, or the effect of complications on, the project resulting from stakeholder apathy or hostility while at the same time benefitting from the goodwill and helpfulness of stakeholders who are favorably inclined to the project. The likelihood that the project will be 'successful' thus increases. A deficient stakeholder analysis on the other hand will bring few, if any, benefits for the project. This is the situation often witnessed on projects, for example, when opposition to them by secondary stakeholders increases over time when instead it should have lessened in response to the engagement strategies applied on them. If the stakeholder management and engagement strategies applied prove to be ineffective or less effective than envisaged - a situation that can easily be determined by using appropriate monitoring indicators - than the underlying causes for this deficiency must be determined and prompt remedial action taken by adopting modified and more effective strategies. This implies that stakeholder analysis is not a one-time exercise which it is often treated as on projects but, if situations or circumstances dictate, may need to be repeated and up-dated over the project life-cycle.

A good, robust stakeholder analysis must provide clear answers to many critical questions, both general and specific in nature, about the project stakeholders, primary and secondary, which are of interest to project decision-makers. For example: What issues and conflicts may arise between the project's primary stakeholders over time and how may these issues and conflicts affect project performance? Which secondary stakeholders may or will support and oppose the project and why, when and how? Which secondary stakeholders will experience direct or indirect losses or disadvantages and gains and of what type because of the project over time? And so forth.

To answer these and the many other pertinent questions raised before commencement of the stakeholder analysis process two fundamental inputs are needed: information of sufficiently high quality and the analytical tools capable of filtering and systematizing this information and thereby delivering (hopefully) all the many insights and answers the project needs to design and execute its stakeholder management and engagement strategies. A major advantage of the stakeholder analysis process is that it includes all stakeholders, both primary and secondary, whereby primary stakeholders are analyzed as singular individual, group or organizational entities

whereas the secondary stakeholders, with certain exceptions, are analyzed as distinct groups of entities collectively.

For a stakeholder analysis information quality must always take precedence over information quantity. Amassing all and any information available about the stakeholders can easily and quickly overwhelm the Analysts and greatly erode the effectiveness as well as the efficiency of the analysis process. What is clearly needed instead is a more focused approach following which the Analysts seek to acquire only that particular information – 'quality information' - which adds value to the analysis process. Quality is a highly complex and multi-dimensional and multi-perceptional concept and finding information on stakeholders which satisfies all defined quality criteria can be immensely challenging. For a stakeholder analysis, quality information means that the information acquired on primary and secondary stakeholders must for instance at least be factually correct, relevant, complete, specific, up-to-date, reliable, actionable, and comprehensible. The information must also be acquired legally and ethically. Any deficiencies or shortcomings in the quality of information inputted into the analysis process may lead to inaccurate conclusions about stakeholders and these in turn can adversely affect the effectiveness of the stakeholder management and engagement strategies which are designed and executed on the basis of the stakeholder analysis.

Stakeholder analysts usually have a multitude of sources at their disposal from which information on project stakeholders can be acquired. Some sources may yield information of higher quality than others. Acquiring information on the primary stakeholders is comparatively easier since these entities, whether they are organizations or individuals, are all active project participants with assigned roles and responsibilities and their information can usually be accessed promptly without incurring significant cost and difficulty. Important sources of information about these stakeholders include organizational and individual profiles and records, documentation available from past or on-going projects in which they were involved, other project managers and teams who previously interacted or are currently interacting with them, employment records and performance appraisals, and direct interaction one-on-one with these stakeholders themselves. For the secondary stakeholders, i.e. those entities who do not have any contractual or legal obligations to the project and about whom information may not be so readily accessible as it is with the primary stakeholders, many sources of information still offer themselves for consideration. For instance, the Analysts can also approach these stakeholders directly and survey or interview them about their views, interests etc. about the project, consult documentation from past or on-going projects to determine the nature of the relationship and interaction the project had with them, or ask other project managers and entities about their experience dealing with them. Useful information about secondary stakeholders may often also be found in archived newspaper and magazine back editions and in published case studies. Many organizations such as advocacy groups and environmentalists which traditionally (and often vehemently) oppose projects adversely affecting the natural environment, fauna and flora, the interests of indigenous peoples, historical or cultural sites and artifacts, and so forth, usually publish detailed material about themselves, their mission, goals, priorities, activities and other parameters which may be significant for a secondary stakeholder analysis. Such information may

be available in print or on their websites which can be accessed easily, swiftly and without cost via the internet. Subject Matter Experts – for example, ethnologists, sociologists, researchers, consultants, community leaders, public officials and many other entities - can provide useful information on stakeholders. Government agencies publish a wealth of statistical and research material, some of which may also be useful for a secondary stakeholder analysis. Information on secondary stakeholders which is difficult to acquire from 'conventional' sources may be collected by hiring 'researchers' or 'informants' who can mingle and interact inconspicuously and directly with stakeholders or observe them closely but from a distance in order to ascertain their perspectives about the project without the stakeholders themselves actually being aware of this. It is pertinent to add that if the Analysts employ this method, then it is crucial that both legal and ethical boundaries are respected and no illicit means of information gathering – for example, through phone wire-tapping or electronic eavesdropping in private spaces – whatsoever are used. It is important that any information collected on secondary stakeholders must be treated confidentially and appropriate safeguards are adopted to ensure the security of information stored in electronic and/or file-based systems as unintended disclosure of such information outside the project may cause serious complications for it. Access to information about project stakeholders, whether primary or secondary, must in principle always be confined to the Analysts and others tasked with monitoring the stakeholders or designing, executing and periodically revising strategies for managing and engaging them.

The complexity of acquiring and processing information about secondary stakeholders in practice must not be underestimated. It is possible, even highly likely, that some of the available information may not satisfy all the above-mentioned information quality criteria. Finding high quality information in the extent required for a rigorous and thorough analysis can often be a task which is arduous and frustrating, time-consuming, prohibitively costly and sometimes practically impossible to perform on large and complex projects as in major construction and civil infrastructure development schemes given their enormous number of secondary stakeholders, sometimes numbering several million entities, who are dispersed over a large geographical area and whose perspectives about the project typically vary tremendously. Some mega-projects have influential secondary stakeholders transcending national, regional and even continental boundaries who may not be apparent at first glance but whose potential impact on the projects, and vice versa, may nevertheless be highly significant and often rather unpleasant as past experience has aptly shown on several occasions. An added complication for the Analysts is that information acquisition for the stakeholder analysis on large and complex projects cannot realistically be viewed as a one-time exercise but must be repeated in varying time intervals over the project life-cycle, and usually more frequently so during the project execution stage, for the simple reason that secondary stakeholder perspectives about the project can and often change over time according to how they view themselves and their interests in relation to the project as it progresses through its life-cycle and especially when its visibility increases and impacts become more apparent.

Project Stakeholder Analysis Process Tools

Information, even of the best available quality, is of little use unless and until it can be systematically processed and filtered to fully deliver clear answers and generate the deep insights which are expected from an excellent stakeholder analysis. Several tools for analyzing project stakeholders are currently used in practice. A review by the authors of dozens of published stakeholder analyses on projects in the fields mentioned earlier indicates an evident preference for tables, mapping tools, and quadrant diagrams, on which stakeholders, primary and/or secondary, are positioned according to a set of specified parameters. Some of the more common parameters used in stakeholder analyses are, inter alia, their interest level, power or influence, legitimacy, designated priority, the impact which the project may have on them, and the stance, supportive or hostile, which the project expects them to adopt towards it. Without doubt, these are useful tools which can help projects design and execute effective stakeholder management and engagement strategies. However, the authors feel that there is still a need to take the analysis a step or two further and also attempt to incorporate potent tools which presently rarely appear to find application in the stakeholder analysis process but which offer the possibility of significantly enhancing its quality by yielding additional valuable insights. Furthermore - and very surprisingly - virtually all stakeholder analyses reviewed appear to constitute a one-time effort usually undertaken early on in the project life-cycle. Ignoring the time factor is a gross error with possibly far reaching implications because, as the authors have already pointed out, stakeholder perspectives on projects, especially in large and complex construction and civil infrastructure development schemes, can and often do change over time, especially during the project execution phase. Failure to detect, analyze and promptly and effectively respond to changes in stakeholder perspectives over the project life-cycle is potentially dangerous for projects and may seriously affect their performance or worse.

The four analytical tools proposed and discussed by the authors here for the category of the primary stakeholders are the SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis, the Stakeholder Attributes Analysis, and the Stakeholder Issues & Complications Analysis. Scoring Models are also useful for evaluating primary stakeholders. Three useful and recommended analytical tools for the category of the secondary stakeholders are, besides the SWOT-Analysis and the Stakeholder Attributes Analysis, the Stakeholder Scenario & Project Impact Analysis. The application and benefits of these analytical tools are discussed below for both primary and secondary stakeholder categories separately.

Primary Stakeholders: Primary stakeholders are all without exception active project participants having contractual and/or legal obligations to the project. Whether they are individuals, teams or organizations, they all have assigned roles and responsibilities which must be fulfilled to the fullest in order to ensure that the project stands a higher chance of success. Primary stakeholders do not operate in a vacuum but need to closely communicate, coordinate and collaborate with other primary stakeholders over the course of the project life-cycle in order to effectively execute their diverse tasks, functions and responsibilities. Stakeholders – whether primary or secondary - are somewhat like people: they have different ways of doing things, abilities,

experiences, interests, motivations, concerns and so forth. By looking at stakeholders as singular entities and not as a collective bunch all lumped together, and then by carefully, systematically and thoroughly analyzing them, the project can gain valuable insights which can be used as the basis for designing stakeholder-specific strategies which can bring immense benefits for both the project and its stakeholders.

The SWOT analysis is a powerful and effective analysis tool that has been used by organizations and managers for a long time. From project perspective and in the context of stakeholder management and engagement, a SWOT-Analysis basically analyses primary (and secondary) stakeholders according to four dimensions, namely, the stakeholders' respective strengths and weaknesses, the opportunities which will or may present themselves for the project in dealing with them as well as the threats they will or may pose for the project. Since primary stakeholders are all active and usually voluntary project participants with contractual and/or legal obligations to the project, it is reasonable to assume that under normal circumstances they will support it as much as they can. Hence, their discernible strengths are an asset for the project which it must seek to benefit from while their weaknesses constitute a liability for the project which it must attempt to reduce or, if and where possible, eliminate in order to avoid occurrence of possibly serious problems which may have an adverse effect on project performance.

Important strengths of primary stakeholders which would usually be of great relevance and significance to a project include them having, for instance, a high level of professionalism, client orientation, competence, experience, interest and commitment, dynamism, tenacity, flexibility, dependability, cooperativeness, innovativeness, robust project management infrastructure, and systems and process maturity. The higher the intensity of each identified strength, the more advantageous it obviously is for the project. Important weaknesses of primary stakeholders – besides exhibiting the opposite of some (or all) of the above identified strengths - could for instance be their inertness and overemphasis on procedures, sluggish responses, performance and capacity constraints, communicational challenges, overstretched resources, unfriendly working environments and lack of incentives. Existing or potential opportunities as seen from the perspective of the project may be the possibility of developing close long-term relationships with primary stakeholders which not only may benefit the project but possibly also projects undertaken in future by the project-owning/performing organization as well, leveraging strengths, getting acquainted with and adopting more efficient and innovative processes, tools and techniques with a view to reducing cost and risk and improving quality and time management and work performance, and promoting professional networking with stakeholders with global outreach. Threats from primary stakeholders may include the possibility of failure to meet their contractual commitments and obligations to the project, unprofessional conduct, occurrence of insolvency during the project, involvement in unethical or illegal practices and consequent damage to the project reputation, leakage of project information to competitors, loss of interest in and commitment to the project due to shifts in priority.

The SWOT-Analysis is evidently a potent tool which, if applied carefully, can provide projects with valuable information about their primary stakeholders and help analysts design effective

management strategies accordingly. Much effort needs to be undertaken to conduct a thorough SWOT-Analysis on all primary stakeholders. If undertaken in isolation a SWOT-Analysis would be less useful than if it used in combination with the other suggested primary stakeholder analytical tools through which collectively much deeper insights and knowledge about the primary stakeholders can be generated which in turn can be used for crafting more effective management strategies for them. Consideration may be given to undertaking the SWOT-Analysis more than once, and possibly at least a few times over the course of the project life-cycle because while primary stakeholder observed strengths and weaknesses may not change significantly over time, the opportunities they offer and especially the threats they pose to the project may be more variable depending on circumstances and the project must be aware of these changes in order to safeguard its interests.

The Stakeholder Attribute Analysis is an approach that was developed by the authors and discussed in detail in their paper *Understanding Stakeholder Psychology. The Path to Effective Stakeholder Management and Engagement* which was presented at the University of Maryland's fourth annual project management symposium in May 2017. There the authors identified six parameters or 'attributes' shared universally by all primary and secondary stakeholders regardless of whether they are individuals, groups of individuals, public, commercial, or not-for-profit organizations, and even countries. Grouped into three binary pairs the six stakeholder attributes are motivation and concern, expectation and perception, and attitude and behavior. Motivation is the positivity inclining stakeholders in favor of a project because they view the project as a means through which they can realize, in full or in part, their respective needs and wants. By contrast, concern is the negativity reflecting their misgivings and apprehension about the project. By juxtaposing their motivation and concern stakeholders develop expectations about what the project may or will bring them or may or will not bring them over future points in time, and they subsequently compare these positive or negative expectations with their perceptions of project reality as it unfolds and envelopes them. Attitudes are the feeling stakeholders develop about the project based on their motivation, concern, expectations and perceptions, while behavior is the consequent visible stance - supportive, neutral or hostile - which they adopt towards it. The attributes are not static but can change over the project life-cycle. Stakeholders which initially were supportive of the project may not be supportive of it later on, and vice versa. The authors also argued that since primary stakeholders are bound contractually to the project they normally would not be expected to develop animosity towards it as secondary stakeholders may and often do but if primary stakeholders are not managed properly they may lose interest and their performance level may consequently drop which obviously is detrimental for the project. The Stakeholder Attribute Analysis, therefore, constitutes a very useful analytical tool because, first, it looks at a set of universal fundamental factors which are dynamic in nature and which provides crucial insight into <u>why</u> primary stakeholders behave as they do over time and, second, it can be repeated flexibly and without great cost and effort over the course of the project life-cycle to capture and compare any substantive changes occurring within any the primary stakeholder attributes and study the reasons for such changes. Information about primary stakeholder attributes can be acquired by the Analysts using simple and tested methods such as by surveying and carefully interviewing primary stakeholders as well as through close

observation and monitoring of their behavior over time. To determine if and to what extent any changes have occurred over time the surveying and interviewing can be repeated over the project life-cycle. It is important that the reasons for changes be explored and identified, especially if these run counter to project interests. A key benefit stemming from the fresh insights gained through periodic stakeholder attribute analysis is that management strategies for primary stakeholders can be modified promptly if and when the need should arise so that their effectiveness does not diminish over time.

The Stakeholder Issues & Complications Analysis is the second tool proposed by the authors. This Analysis utilizes a set of pre-specified and distinct categories which are project-specific and which each represent part of the more serious issues and complications which in practice tend to crop up and overshadow the relationship between projects and their primary stakeholders over the project life-cycle. Examples of common issues and complications typically encountered on projects as for instance in construction and civil infrastructure development relate to information & communication, methodology, complexity management, conflicts (task, process, inter-personal), work performance, stakeholder behavior, and compliance. For every primary stakeholder, the frequency, severity, duration and consequences of the issues and complications occurring over time must be documented and, very importantly, their causes analyzed and determined so that corrective action can be taken, especially with a view to preventing future reoccurrence as much as possible. If issues and complications arise with increasing frequency over shorter intervals of time this is an indicator that the project's problem management system is deficient, the underlying reason(s) of which must be swiftly investigated and effectively addressed. By using a Stakeholder Issues & Complications Analysis, Analysts can develop a detailed profile of each primary stakeholder and the information acquired can benefit the project by showing it how to get its primary stakeholders to perform at their best and at the same time avoid complications which may arise in their relationship with the project. Insights acquired on stakeholders can also supplement the stakeholder SWOT-Analysis.

Another useful and practical tool which can find application in the context of a primary stakeholder analysis are scoring models. This in practice already established quantitative modelling tool is especially well-suited for assessing and selecting stakeholders before the project enters into a contractual agreement with them. In a competitive environment it can determine which out of a pool of prospective stakeholders are the 'most suitable' entities for the project. Stakeholders on which scoring models can be applied typically include designers and consultants, contractors and sub-contractors, vendors and key human resources such as the project manager and team members.

Using a scoring model is a simple excercize which usually makes use of a comparison table for the purpose. For each stakeholder type, the project determines a set of assessment criteria. In other words, different stakeholder types would have different criteria. Overlapping will, to some extent, occur. Some of the criteria may be considered by the project as being comparatively more important than others in which case a weight factor may be applied to these more highly regarded criteria; criteria considered as being of the highest importance are assigned the highest

weight factor while criteria deemed as being of lessor importance are assigned lower weightages in order of their perceived relative importance. Through a careful analysis which relies on information available on all the stakeholders under consideration, each stakeholder's score against each criteria is determined and its aggregate score is then calculated by multiplying its criteria scores with their corresponding weightage factors and then summing up. The stakeholder scoring highest is selected.

Scoring models, like quantitative tools in general, tend to be highly regarded by practitioners because of their supposed advantage of mathematical 'objectivity' over qualitative or 'subjective' methods (such as Expert Opinion). Social reality, however, is usually far too complex to be expressed in numbers only and being ranked at the top of the list does not automatically guarantee that the selectee will ensure a stellar performance on the project or perform better than another lower-scoring entity.

In summarizing, the four powerful analytical tools presented above collectively yield multi-dimensional insights about primary stakeholders which enable projects to develop very detailed and dynamic profiles about each of them. This information can immensely help in managing them very effectively and flexibly over the project life-cycle. Additional knowledge and insights about primary stakeholders which are not acquired through the application of these analytical tools can be acquired by the Analysts from the project manager or project team members based on his, her and their routine interactions and experience with and observations of them over time and which often may not find its way into the project documentation.

Secondary Stakeholders: Two fundamental differences set secondary stakeholders apart from primary stakeholders. Unlike the primary stakeholders, secondary stakeholders have no contractual or legal obligations to the project and hence lie outside its formal control, and they exhibit three modes of behavior - supportive, neutral, adversarial - towards projects whereas primary stakeholders normally are expected to be supportive of their projects and not exhibit adversity towards them (but which they nevertheless still do on occasions).

For secondary stakeholders the SWOT- and Stakeholder Attribute Analyses can also be applied. Both should also be performed as early as possible in the project. But whereas it makes sense to conduct a SWOT-Analysis on each primary stakeholder, doing so for the secondary stakeholders would be too costly, time-consuming and effort-intensive given their large number, heterogeneity and geographic dispersion on large and complex (and controversial) projects, especially such as those in construction and civil infrastructure development. A more practical approach would be to divide secondary stakeholders into two categories, supportive and adversarial, and then analyze them collectively and thoroughly for each category. However, all identified powerful secondary stakeholders, both supportive and adversarial, should be analyzed individually where possible.

From project perspective, the strengths of its supportive stakeholders can be highly beneficial for it if the project acknowledges and consciously seeks to make use of these strengths. The

strengths of adversarial stakeholders by contrast may constitute a serious challenge which the project must closely heed in order to safeguard its interests. The weaknesses of its supportive stakeholders offers the project no benefits but weaknesses identified can sometimes be transformed into strengths with appropriate engagement strategies. The weaknesses of the adversarial stakeholders are good for the project. Typical strengths of secondary stakeholders, both supportive and adversarial, include being well informed about the project and its consequences (positive or negative) on them, commitment to their support or adversity, determination and tenacity, ability to organize themselves quickly by forming alliances and coalitions for or against the project, access to resources, skillfulness in using information and communications technology, the ability to influence other stakeholders (e.g., in politics, public administration, media), and awareness of their legal rights and the spectrum of options available to them which they can exercise either for or against the project.

Typical weaknesses of supportive and adversarial stakeholders may be the opposite of some (or all) of the above mentioned strengths, for instance, their disinterest or reluctance of the stakeholders to involve themselves directly in the project, lack of time and resources to engage directly with the project, lack of information about the project, inability to organize themselves collectively and form alliances and coalitions, and non-awareness of their legal rights and options at their disposal and through they can influence the project in the positive or negative sense.

Opportunities which may present themselves between the project and its secondary stakeholders are off course desirable and must be comprehensively identified and utilized to the maximum. For the supportive secondary stakeholders these are, for instance, openness on the part of these stakeholders to accept the change which the project will inevitably bring about in time provided the project can convince them that it is their best interest to do so, their approachability, openness and keenness to learn about the project, desire to communicate and to cooperate, being in possession of and having the willingness to provide resources (informational, material, human and others) which the project needs, and consent to become active advocates for the project. For adversarial stakeholders opportunities for the project may, for instance, result from the willingness of at least some of these entities to enter into a dialogue with the project and to curtail or cease their hostility towards it in response to appropriate engagement measures applied by the project on them.

Threats to the project are reflected in the hostile actions adversarial secondary stakeholders may adopt and which could seriously impair project performance and, in the most extreme case, result in its premature termination. Consequently, the project must identify all threats and treat them very seriously. Stakeholders can influence projects negatively by exercising the ‘options’ available to them. Secondary stakeholder options can be categorized as soft options, hard options, and illicit options, with options in the context of transnational projects making up a special category. Options can be exercised both for projects (i.e., by supportive stakeholders) and against projects (i.e., by adversarial stakeholders). It is empirically evident that stakeholders opposed to projects tend to have more options at their disposal than stakeholders who support projects. Indeed, long

is the list of high-profile projects across the globe which have been seriously affected by options exercised by hostile secondary stakeholders in the past few decades. The subject of stakeholder options on construction and civil infrastructure development projects was discussed in detail with several examples by the authors in their paper *Adversarial Project Stakeholders. Influencing Projects With Options* which was presented at the University of Maryland's fourth annual project management symposium in May 2017. Examples of adversarial stakeholder options are, for instance, refusal to cooperate, formation of an organized front against the project, launching of a public campaign to defame it in the eyes of the wider stakeholder community, attempting to influence powerful stakeholders to intervene in the project, mounting legal, administrative or political challenges to the project or, in more extreme cases, resorting to the use of scare tactics and direct intimidation in an attempt to 'kill' the project or at least to severely damage its performance. For their part, supportive stakeholders do not per se constitute a direct threat to the project but if they feel ignored or disrespected by it or are poorly engaged by the project than they may in time also turn hostile and become a real threat to project interests.

Similar to the primary stakeholders, a Stakeholder Attribute Analysis can also yield very useful insights about the project's secondary stakeholders. Two potentially formidable challenges present themselves here: the dearth of quality information on secondary stakeholders which projects usually have at the early stage of their life-cycles and, when compared to the primary stakeholders, the higher level of variability which secondary stakeholder attributes may possibly exhibit over time and which may necessitate the Analysis to be repeated several times over the course of the project life-cycle so that the stakeholder engagement strategies can be modified accordingly if and when the need arises. Repetition of the Analysis can be costly, time-consuming and effort-intensive given the largeness, heterogeneity and spatial dispersion of secondary stakeholders.

Research indicates that in the context of construction and civil infrastructure projects for instance, the secondary stakeholders attribute 'motivation' appears to be fairly rigid and broadly consistent across location and typically revolves, inter alia, around a general acknowledgement of product or service deficiencies and recognition that such deficiencies can best be overcome through projects, creation of jobs and business opportunities, investment inflows, appreciation of property values and rental incomes, improvement in the quality of life, and civic pride. Secondary stakeholder concerns can be both general and entity-specific and they may be relatively quite numerous, diverse and location-specific and must be comprehensively and accurately identified by the Analysts and then reduced or preferably eliminated by the project in order to reduce stakeholder resistance to and win over stakeholder support for it. Against the backdrop of their motivation and concern, secondary stakeholders may develop a complex set of positive and negative expectations about the project and its individual phases over time and these must be then matched with their corresponding perceptions. Surveying and interviews are excellent direct methods with which to determine stakeholder motivation, concern, expectation and perception; the many sources of information about stakeholders indicated earlier in this paper can also be used if and when circumstances so dictate. Determining stakeholder attitudes and especially stakeholder behavior, which can manifest itself as supportive, neutral, or

adversarial, are also a feature of the Stakeholder Attribute Analysis. Stakeholder behavior especially must be closely monitored throughout the project life-cycle. A sudden or over time gradual observed increase in stakeholder adversity or decrease in stakeholder support for the project signals that the Analysis may need to be repeated.

The higher the quality of the Stakeholder Attribute Analysis the more accurate the insights it can be expected to yield about stakeholders and the more useful it is for the project for designing effective stakeholder engagement strategies which on the one hand seek to reduce and eliminate adversity by carefully and, if feasible, fully addressing their concerns while attempting to boost stakeholder support for the project by maximizing their motivation on the other.

A third powerful analytical tool capable of providing useful insights about secondary stakeholders and especially their positive and negative influence on project performance is the Stakeholder Scenario & Project Impact Analysis. This tool basically explores a set of hypothetical situations - 'scenarios' - resulting from possible stakeholder future action, i.e., the exercise by stakeholders of their options for and against the project, and then quantifies their consequent impact on key project performance parameters. Effective application of the Stakeholder Scenario & Project Impact Analysis hinges on comprehensive identification of all stakeholder options by the Analysts – an exercise ideally already performed as part of the threat component of the secondary stakeholder SWOT-Analysis. The expected quantitative impacts on the project can then be determined primarily with the help of a project-specific mathematical modelling system using either or both deterministic and probabilistic approaches. For qualitative impacts, which usually are not possible or desirable to express in numbers, alternative methods such as expert opinion may have to be used to examine these instead.

The options available to secondary stakeholders depends on several factors such as the type of project and the place where it is undertaken. The use of this tool is demonstrated with the help of a simple and on projects commonly occurring example: Suppose some adversarial stakeholders vehemently opposed to a project may at some future time prior to the project's execution phase exercise their legal option of obtaining from the relevant Court a stay order before commencement of construction work resulting in an indefinite delay of construction activities. In this scenario, the delay will presumably have a negative impact on both project schedule and cost; the longer the delay the greater is the additional cost incurred by the project. With mathematical calculations it may be possible to specify exactly or at least approximately the magnitude of schedule and cost overruns the project may consequently experience. Many scenarios are conceivable due to stakeholder intervention and in addition to cost and schedule other critical parameters of project performance, such as its scope, quality, future benefits realization, image, client satisfaction and the relationships of key stakeholders, may also be adversely affected as a result of the exercise of adversarial stakeholder options. The reverse holds true for exercise of options by supportive stakeholders. Projects can hence utilize the valuable insights acquired through application of this flexible and powerful tool to proactively design and execute appropriate engagement strategies for their secondary stakeholders to minimize the possible

danger they may pose in future to project interests and to develop contingency plans in the event that such scenarios inevitably become reality eventually.

Concluding Remarks

Project stakeholder analysis constitutes a crucial, costly and usually highly complex process on large projects. It is also the prime input in the process of design and execution of stakeholder management and engagement strategies as well as the possible subsequent revision of these strategies. Good stakeholder analyses can benefit projects immensely by reducing the risk of stakeholder action against the projects, and the consequent and possibly immense practical complications such action may entail, while at the same time helping the projects benefit from the opportunities which present themselves in their dealings with their stakeholders over the project life-cycle.

Poorly undertaken project stakeholder analyses on the other hand may reduce project performance. High quality information, a set of powerful and complementing stakeholder analytical tools, and an enabling environment are the three fundamental factors on which an effective stakeholder analysis depends. It is a field which undoubtedly can benefit from more research in future.

Throughout their years-long research on the subject of project stakeholders the authors have incessantly argued that project stakeholder management and engagement in the ideal sense dictates that no stakeholder, primary or secondary, experiences a net loss (financial, material or otherwise) and that all stakeholders should experience at least some net gain as a result of the projects which they are either voluntarily involved in or are involuntarily affected by. An excellent project stakeholder analysis can help ensure that achievement of this ethical imperative can become a reality.

Selected References

Andrew L. Friedman & Samantha Miles, *Stakeholders. Theory and Practice*, Oxford University Press, New York, 2006.

Aurangzeb Khan, Miroslaw Skibniewski, & John Cable: *Understanding Stakeholder Psychology: The Path to Effective Stakeholder Management and Engagement*, in: *PM World Journal*, Vol. VI, Issue IX – September 2017. http://pmworldlibrary.net/wp-content/uploads/2017/09/pmwj62-Sep2017-Khan-Skibniewski-Cable-understanding-project-stakeholder-pyschology-second-edition2.pdf

Aurangzeb Khan, Miroslaw Skibniewski, & John Cable: *Adversarial Project Stakeholders. Influencing Projects With Options.* Paper presented at the University of Maryland's Fourth Annual Project Management Symposium in College Park in May 2017.

Ezekiel Chinyio & Paul Olomolaiye, *Construction Stakeholder Management*, Blackwell Publishing Ltd., UK, 2010.

John McManus, *Managing Stakeholders in Software Development Projects*, Elsevier Butter-worth-Heinemann, Oxford, UK, 2005.

Kammi Schmeer, *Guidelines for Conducting A Stakeholder Analysis*. Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc., November 1999.

R. Panneerselvam & P. Senthilkumar, *Project Management*. PHI Learning Private Ltd., New Delhi, 2009, pp. 211-235 (Chapter 14: Vendor Evaluation).

William M. Babiuch & Barbara C. Farhar, *Stakeholder Analysis Methodologies Resource Book*. National Renewable Energy Laboratory, US Department of Energy, March 1994.

About the Authors

Dr. Aurangzeb Z. Khan

COMSATS Institute of Information Technology
Islamabad, Pakistan

Dr. Aurangzeb Z. Khan is an Assistant Professor in the Department of Management Sciences at the COMSATS Institute of Information Technology in Islamabad, Pakistan. He introduced Pakistan's first master degree program in project management at his university in the fall semester 2008. His prime areas of research are project stakeholder management, and project monitoring and evaluation, which he teaches to project management graduate-level students. He can be contacted at aurangzeb_khan@comsats.edu.pk

Dr. Miroslaw J. Skibniewski

University of Maryland
College Park, MD, USA

Dr. Miroslaw Skibniewski is a Professor in the Center of Excellence in Project Management at the University of Maryland. He is also Editor-in-Chief of *Automation in Construction*, an international research journal published by Elsevier, and North American Editor of the *Journal of Civil Engineering and Management* published by Taylor & Francis. An author/coauthor of over 200 research publications, he lectures on information/automation technologies in construction, construction equipment management, and legal aspects of engineering. Miroslaw can be contacted at mirek@umd.edu

John Cable

Director, Project Management Center for Excellence
University of Maryland, College Park, MD, USA

John Cable is Director of the Project Management Center for Excellence in the A.J. Clark School of Engineering at the University of Maryland, where he is also a professor and teacher of several graduate courses in project management. His program at the University of Maryland offers masters and PhD level programs focused on project management. With more than 1,300 seats filled annually with students from many countries, including more than 40 PhD students, the program is the largest graduate program in project management at a major university in the United States.

John Cable served in the newly formed U.S. Department of Energy in 1980, where he was involved with developing energy standards for buildings, methods for measuring energy consumption, and managing primary research in energy conservation. As an architect and builder, Mr. Cable founded and led John Cable Associates in 1984, a design build firm. In 1999 he was recruited by the University of Maryland's Department of Civil & Environmental Engineering to create and manage a graduate program in project management. In his role as

founder and director of the Project Management Center for Excellence at Maryland, the program has grown to offer an undergraduate minor, master's degrees, and a doctoral program. Information about the Project Management Center for Project Management at the University of Maryland can be found at www.pm.umd.edu.

In 2002, PMI formed the Global Accreditation Center for Project Management Educational Programs (GAC). Mr. Cable was appointed to that inaugural board where he served as vice chair. In 2006, he was elected as chairman, a role he held through 2012. As Chair of the PMI GAC, John led the accreditation of 86 project management educational programs at 40 institutions in 15 countries in North America, Europe, the Middle East, Latin America and the Asia Pacific Region. John was awarded PMI's 2012 Distinguished Contribution Award for his leadership at the GAC. He can be contacted at jcable@umd.edu.