CRC Construction Innovation

BUILDING OUR FUTURE

Report on Relationship Management and Culture Change

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RESULTS OF THE STAGE 2 INTERVIEWS AND THE LONGITUDINAL FINDINGS FROM STAGE 1 AND STAGE 2 OF THE BRISBANE WATER ENVIRO ALLIANCE PROJECT

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DRAFT - Confidential

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

Overview

Brisbane Water (BW), a commercialised business arm of Brisbane City Council (BCC) entered into an alliance with a number of organisations from the private sector in order to design, construct, commission and undertake upgrades to three existing wastewater treatment plants located at Sandgate, Oxley Creek, and Wacol in Brisbane. The alliance project is called the Brisbane Water Environmental Alliance (BWEA).

This report details the efforts of a team of researchers from the School of Management at Queensland University of Technology to investigate this alliance. This is the second report on this project, and is called Stage 2 of the research. At the time that Stage 2 of the research project was conducted, the BWEA project was nearing completion with a further 8 months remaining before project completion.

The aim of this report is to explore individuals' perceptions of the effectiveness and functioning of the BWEA project in the latter stages of the project. The second aim of this report is to analyse the longitudinal findings of this research project by integrating the findings from Stage 1 and Stage 2 of the project. This long-term analysis of the functioning and effectiveness of the alliance is important because at the current time, researchers have little knowledge of the group developmental processes that occur in large-scale alliances over time.

Stage 2 of this research project has a number of aims including assessing performance of the BWEA project from the point of view of a range of stakeholders including the alliance board and alliance management team, alliance staff, and key stakeholders from the client organisation (Brisbane Water). Data were collected using semi-structured interviews with 18 individuals including two board members, one external facilitator, and four staff members from the client organisation. Analysis involved coding the interview transcripts in terms of the major issues that were reported by interviewees. Below, the issues that emerged from the extensive interview process are outlined.

Themes from the Stage 2 Interviews

The interview data was analysed via qualitative analysis. That is, key themes were extracted from the interview transcripts and these themes became the basis of our analyses. At Stage 2, interviews focused on four questions including:

- Interview Question 1 - Would you define this project as an alliance and why?
- Interview Question 2 - Has the project progressed as expected and why?
- Interview Question 3 - Do stakeholders differ in their perceptions of what an alliance is and how it should be managed?
- Interview Question 4 - What recommendations would you have for future alliances?

<u>Interview Question 1 and Question 2</u>

Interviewees' reported that the project had acted as an alliance and the majority of interviewees' reported that the project had progressed as they expected. Board members and senior managers reported that the alliance had achieved a number of positive outcomes including being innovative in order to meet key result areas, was financially successful, and had progressed according to the timeline. However, this

group also noted a number of negatives of the alliance including the addition of the Site Z project and the time consuming nature of the alliance process. Employees of the alliance reported that the alliance had been innovative and identified teamwork at the beginning of the project as contributing to the success of the alliance. The client group also reported that the project had been successful but this group believed that the alliance partners had possibly gained too much financial gain from the project.

Interview Question 3

Overall, there was agreement that the alliance partners generally have the same understanding of what an alliance is. The most commonly identified theme by the alliance employees and clients was that the alliance board would have benefited from, early on in the alliance, training in project management. In contrast, the most common theme discussed by the board and senior managers was that considerable effort in the early stages of the project had ensured that the alliance partners had the same understanding of alliances.

Interview Question 4

All three sub-groups had a slightly different perspective on this question. Specifically, the most frequently mentioned theme by the board and senior managers was that careful selection of projects that are suited to an alliance method needs to occur to ensure alliance success. The other themes also focused on the necessary ingredients for a successful alliance including generating and monitoring commitment to alliance processes, ongoing education of stakeholders, and a careful selection of people to fill all positions in the alliance.

The BWEA employees emphasised the importance of good leadership for alliance success. The most frequently mentioned theme was that alliance leaders' roles and style were key ingredients in alliance success. The next most frequently mentioned theme was the importance of a well informed board, followed by the importance of leaders paying attention to morale, knowledge sharing and motivation. In contrast, the clients focused on the need for more information and training in regard to what alliances entail. The most frequently mentioned theme by this group was the desire for greater transparency from the alliance team as to the practices that were implemented and why. The second theme focused on the desire of the clients for more information about alliances prior to the project starting.

The Site Z Project

During the Stage 2 interviews, over 75% of participants made reference to a new project proposal between BCC and BWEA at a new site (Site Z). Whilst the majority of respondents reported that the overall BWEA project had been very successful, the introduction of the Site Z proposal introduced some concerns. In particular, a number of stakeholders and in particular, Brisbane Water, indicated that they were less than satisfied with the initial discussions, processes, and proposals put forward by BWEA in relation to this specific proposal.

The addition of the Site Z project to the original alliance project was the source o f some concern to many of the interviewees' and clearly represents a situation where a strategic mismatch has occurred between the needs and resources required by the construction project and the strengths and weaknesses of the alliance methodology. This mismatch is of some concern to the alliance partners as it appears to be negatively influencing perceptions of the success of the overall alliance. That is, the addition of the Site Z project seems to be retrospectively altering the perceived efficiency of the overall alliance project.

The Site Z project highlights a dilemma with alliance projects. Alliance contracting is clearly not appropriate in all situations and before entering into an alliance relationship and agreement it is vital that all partners establish that this type of procurement strategy is appropriate to the scope and aims of a project.

In this particular case, the definition of the client as partner was somewhat misspecified as there was a belief within the alliance that all business units in the BCC and BW understood the aims and methods of alliance contracting. Clearly, this was not the case and interviews with board members further supported this notion. It was noted that as the alliance project had been winding down less time had been spent in carefully analysing the "new" clients' needs as it was assumed that these individuals had held the same understanding as the previous clients.

General Conclusions Regarding Stage 2 Findings

In summary, analysis and review of the interview data collected at Stage 2 suggests the following points.

- The very strong focus on developing an alliance culture that was observed in Stage 1 had persevered into the later stages of the project but there had been a decline in the support provided for aspect of the project.
- Factors such as staff contracting and turnover due to project lifecycle make it difficult for the remaining staff to maintain the levels of communication, group norms, and structures that had existed previously. Interviewees reported that changes in employee numbers had led to a resultant loss in flexibility and innovation.
- At the board level, a continuing commitment to the philosophy of alliance partnership had resulted in agreeing to do an additional project, the Site Z project, without a great deal of analysis as to whether this project was one in which alliance contracting would be appropriate or effective.
- As a result of including the Site Z project in the alliance process, client perceptions of the alliance were impacted in a negative way.
- The Site Z project highlights the importance of:
    - Carefully defining who the alliance group is and who is not a part of the alliance group
    - Constantly assessing the needs of each client group that enter into an alliance
    - Constant marketing of the reasons for adopting an alliance approach so that new alliance partners and new employees understand the importance and effectiveness of this approach in a given situation
    - The need to set clear parameters on the nature of an alliance and the partnerships involved
    - Readiness to reiterate the strengths and weaknesses of alliance contracting approaches on an ongoing basis

A Summary of Stage 1 Findings

In Stage 1 of the research project, conducted in 2003 and 2004, structured face-to-face interviews were conducted with 11 members of the BWEA alliance and two individuals external to the alliance team including one board member and one external facilitator. Each interview was conducted by one of the three researchers. Interviews ranged in length from 35 to 75 minutes.

- Results of Stage 1 of this project focused on identifying the skills and processes that were perceived to contribute to alliance effectiveness in an early stage of the alliance. At this point in the project, a number of threats for the alliance were identified including;

- The actions of the alliance board were seen as having a strong impact on the culture, but this group was seen as being removed from the day-today functioning of the alliance
- Alliance members expressed concerns about how long it takes to achieve group consensus
- Alliance members expressed concerns about maintaining the energy and enthusiasm of the team throughout the entire alliance process

At Stage 1 of the project, interviewees described many challenges they were facing. These can be summarised as:

- The existence of barriers between different groups in the alliance (e.g., design and construction) which resulted in frustration and miscommunication
- The existence of multiple alliance partners meant that many procedures were in use in the project so that it was time consuming to standardised systems and procedures for the BWEA project, and once chosen resulted in a steep learning curve for members
- The decision making process was time consuming, which is incompatible with the faced paced nature of the project

Finally, at Stage 1, interviewees discussed future challenges for the BWEA alliance. Three challenges surfaced as issues the majority of interviewees are concerned about. These are:

- Maintaining the momentum of the project and the project team
- Establishing and maintaining commitment of the alliance parent organisations for the entire length of the project (i.e. pulling out key members before program end date)
- How alliance members would assimilation back into their parent organisation.

Longitudinal Findings and Implications: Linking the Stage 1 and Stage 2 Results

A review of the Stage 1 and Stage 2 results suggests that the project lifecycle has a substantial impact on the types of issues and concerns that are expressed by alliance members. Early on in the project lifecycle, alliance members reported being concerned with group process issues such as communication and interaction difficulties associated with the alliance method. In the latter stages of the project lifecycle, however, alliance members were attempting to maintain their efforts in the face of a reduction in the resources and energy being devoted to maintaining the alliance culture and systems.

A number of common themes emerged as being important influences on project success at all stages of the project. Specifically, at both points in time that we entered the alliance, the role of the board and senior managers were critical in developing and building a culture that emphasised working collaboratively and building relationships with others. At both times, senior management and alliance employees were struggling to balance the high communication and meeting loads that are necessary in an alliance to ensure that all partners contribute to all phases of project development and delivery.

The existence of multiple alliance partners also contributed additional issues at the latter stages of the project. In particular, interviewees reported that employees began to move to new projects and there was a reduction in the resources and energy directed by the partners to maintaining the alliance culture and support networks (such as the emphasis on training alliance employees).

Importantly, the success of the alliance project became an issue in the latter stages of the project as the alliance partners assumed that the key stakeholders had a similar understanding of why alliance contracting had been adopted, as they did. This assumption and a lack of understanding that BW and BCC were large entities themselves that had not communicated with all their business units why and how

an alliance works, contributed to the alliance board agreeing to do a project that does not seem to e suited to an alliance approach. The need to continually educate and reiterate the aims and strengths and weaknesses of alliance contracting is emphasised by the difficulties that the BWEA team is now experiencing with a “new” stakeholder in the form of a different group from BCC.

RESEARCH PROJECT BACKGROUND

2.0 The Research Team

The research team consists of Dr Roland Simons, Dr Alannah Rafferty, and Ms Renae Jones from the School of Management at Queensland University of Technology. The aims of Stage 2 of this longitudinal project are to:

(1) Evaluate the perceived success of the project from a variety of different perspectives as the project nears completion.
(2) Evaluate the functioning of the BWEA team and compare the functioning of the team to prior in the project. Of particular interest was whether commitment to the alliance philosophy remained high. In addition, the morale and well-being of the BWEA team in the alliance environment was also of Interest,
(3) Evaluate the challenges that have emerged within the project as it nears completion.

The overall aim of this longitudinal research project is to identify the factors that influences the ongoing success (including project handover) of the BWEA team so as to enhance understanding of the factors that facilitate of impede alliance contracting.

2.1 Methodology

The methodology used in this project was primarily based on face-to-face interviews with key individuals associated with the BWEA. A number of telephone interviews were conducted where face-to-face interviews were not possible. Interviews were aimed at revisiting the perceptions of individuals previously interviewed and to capture the perceptions of new entrants to the alliance. In all 18 individuals participated in the study. The methodology is outlined in more detail below.

1. Interviews were conducted with key team members that were a part of Stage 1. Follow-up interviews were conducted with individuals in areas such as: Design, Services, Alliance Management, and Construction.
2. Interviews at Stage 2. Due to the timing of the interviews and employee commitments only 6 of the 12(staff previously interviewed participated in Stage 2. However, additional interviews were conducted with key stakeholders. Interviews were also conducted with individuals peripheral to the core BWEA team including an external facilitator, Project Alliance Board Members, and members of the client organisation. In all 12 interviews were conducted with key stakeholders.

Participants were asked four standard questions as part of the semi-structured interviewing process. During the interviews, links were made between the key themes that had emerged in Stage 1 and the emergent themes in Stage 2 of the research. Interviewees' responses were content coded using text analysis software and dominant themes were extracted for interpretation.

After being interviewed, the six staff interviewed in Stage 1 of the research process were also asked to consider the interview findings from Stage 1 of the project and to indicate whether they agreed that the

results applied at the current stage of project completion, This approach was designed allow the research team to determine the on-going salience of the major themes and issues identified in Stage 1 of the research.

2.2 The Proposed Research Model

The research model that has guided the project was developed after a review of the organisational behaviour and alliance contracting literature. This model has provided a starting point when considering factors that may influence the effective functioning of alliance contracting teams. This model is displayed in Figure 1.

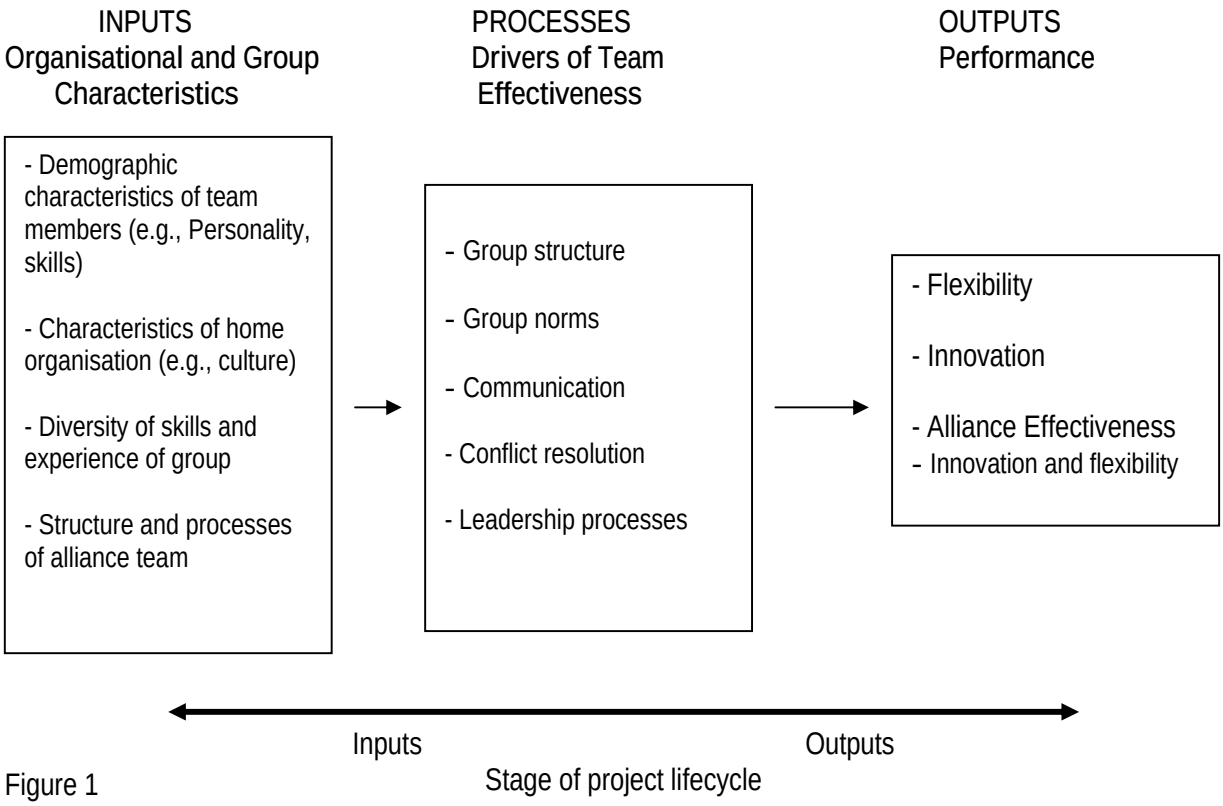

Figure 1

Research model

Figure 1 suggests that the effectiveness of an alliance project is influenced by a number of "input" factors such as individuals' personalities and skills, which influence the types of interactions and the quality of communication that occurs in the alliance team. The interaction processes that occur in an alliance influence the performance of the alliance as reflected in indicators such as innovation, flexibility, viability, and the attitudes and performance of the group.

The model shown in Figure 1 reflects the predominant approach in the organisational behaviour literature that has been adopted when considering factors that influence group development and performance. Specifically, the dominant approach in studying group performance has been the input-process-output (I-O-P) model (Gladstein, 1984; Guzzo & Shea, 1992; West, Borrill, & Unsworth, 1998). These models are explicitly causal (Guzzo & Shea, 1992), suggesting that inputs result in a certain group processes, which determine group effectiveness (Goodman, Ravlin, & Schminke, 1987).

Inputs refer to what individual members bring to the group in terms of knowledge, experience, skills, abilities and personal characteristics. Examples of inputs include group composition issues such as the mix of skills present in a team, the similarity or diversity of group members, the tenure of group members, group structure characteristics such as the degree of role and goal clarity, work norms, the degree of task control people possess, group size, and leadership issues.

Other examples of input factors include the availability of organisational resources such as training, the markets served by an organisation, and organisational structural characteristics such as the rewards for group performance and the predominant mode of supervisory control in a team. We have focused on a number of inputs, which we refer to as "organisational and group characteristics".

In Figure 1, we also identify group process as a critical factor in the model. Group process describes those things that go on in the work group that influence effectiveness (Campion, Medsker, & Higgs, 1993). One area of group process that has received widespread attention is critical functions (Ancona & Caldwell, 1988), or behaviours that must occur to some degree in order for the group to progress effectively. Most functions have been identified as falling into one of two sets; those related to accomplishing a task, and those that contribute to the maintenance of a group.

Examples of task behaviours include initiating planning, opinion seeking, opinion giving, information seeking, information giving, elaborating, summarising, evaluating, role and goal clarification, and developing performance strategies (Ancona & Caldwell, 1988; Schein, 1969). Maintenance behaviours build, strengthen and regulate group life while task behaviours enable the group to solve the objective problem to which the group is committed. Examples of maintenance behaviours include encouraging, harmonising or attempts to reduce conflict, compromising, expediting, relieving tension, group observing, and diagnosing (Ancona & Caldwell, 1988; Schein, 1969). We propose to examine both task and maintenance behaviours.

Finally, Figure 1 also considers performance or the outputs of the alliance team. When we discuss performance in this model we are concerned with a variety of indicators of performance. Most researchers think about effectiveness as a multidimensional concept including productive output (e.g., sales revenues, etc), social criteria (willingness of group members to continue working together – team viability), individual outcomes (mental health, growth and well-being, member satisfaction) and innovation. Due to the nature of the project and the difficulty in obtaining production outputs at this point in time, this research model uses three of these effectiveness criteria, social criteria, individual outcomes and innovation.

Figure 1 is a dynamic model in that we acknowledge that the stage of the project, or the project lifecycle, will influence how the components of the model interact. So, for example, the influence of the organisational and group characteristics on the drivers of effectiveness may change over time as the project progresses. At the start-up of the project, the existing values of the project team are not likely to be as important in influencing the drivers as they are at the mid-stage of the project, when team members are actively interacting with each other. Each of the aspects of the model and the factors that are emphasised in this project will be summarised below.

Organisational and group characteristics. This group of variables refers to "input" factors. These factors influence the way that the project team interacts with each other. A range of factors were selected for examination based on the team and organisational behaviour literature, including team diversity, experience in the construction industry, individuals' values, and the procurement method selected.

Drivers of effectiveness. The drivers of effectiveness, or the "process" factors, include indicators of the way that the project team interacts, the norms of the group, and the communication and networking structure of the team. The drivers of effectiveness are a product of the organisational and group characteristics.

Performance indicators. The performance indicators include measures that reflect whether the project team has met financial objectives such as operating within budget, social outcomes such as maintaining the health and well-being of staff, and meeting community needs. Due to data collection constraints, the performance indicators that are assessed are self-report. That is, interviewees' have provided an assessment of the extent to which the alliance project has met certain performance goals that they identified in Stage 1 of the research.

2.3 Extending the Research Model

Strategic Alignment and Performance

A review of the strategic literature suggests that the performance of the alliance project will be influenced by the match between the strengths and limitations of the alliance contracting method and the needs of Brisbane Water. When Brisbane Water put the project out to tender they specified that an alliance was the procurement strategy of choice. Despite this, however, the alliance contract will not have necessarily been the appropriate approach to meet their needs. As such, it is valuable to detail the literature on alliance contracting in order to identify the strengths and weaknesses of this type of contracting and so as to analyse the strategic alignment between this approach and the stated needs of Brisbane Water.

Alliances

The idea that individual companies can gain competitive advantage from banding together is not new (Gomes-Casseres, 1994). Alliances between organisations, whether they are from different parts of the world or different ends of the supply chain, are a fact of life in business today (Kanter, 1994). An alliance is a collection of separate companies linked through collaborative agreements (Gomes-Casseres, 1994). Dussauge and Garrett (1999) define strategic alliances as "links formed between two or more independent companies which choose to carry out a project or specific activity jointly by coordinating the necessary skills and resources rather than pursuing the project or activity on their own, taking on all the risks, and confronting competition alone, or merging their operations or acquiring and divesting entire business units'.

The research literature identifies a number of benefits that can be derived from alliances including economies of scale or learning, risk reduction, access to knowledge, and shaping competition (Porter & Fuller, 1986). Further, Ngowi (2001) suggested that a benefit from alliances includes organisations collectively using their knowledge to produce something that is beneficial to them all and other stakeholders. Private benefits also accrue to alliance partners including picking up skills from other partners and applying these skills to their own operations in areas unrelated to the alliance.

Arguments for and against alliances are often presented irrespective of industry and company specific prerequisites (Nilsson, 1997). However, authors have argued that both external and internal forces impact on the formation and success of alliances. These forces are industry contingent and include issues such as the extent of competition, stage of development of a market, consumer demand, and competitive uncertainty that are prevalent in a specific industry (Harringan, 1988; Eisenhardt & Schoenhoven, 1996; Ngowi, 2001). It is therefore questionable whether one can use a 'cookbook' approach to alliancing (Nilsson, 1997). In this paper, we focus on the use of alliances in order to deliver a construction project in the Australian construction industry. Below, we review the literature on alliances in the construction industry,

Alliances and the Construction Industry

In the past, construction organisations have attempted, with some success, to face the challenges brought by competition, technological changes, globalisation, and dynamic environments by being self-sufficient through vertical integration within an enterprise. However, this method has proved to be less

than optimal (Ngowi, 2001), and as a result companies have begun to focus on combining the strengths of organisations that provide complementary services through alliance formation (Ngowi, 2001). The issue of developing alliances is of particular interest in the Australian construction industry where there is a need to utilise alliances given the size and complexity of the projects commonly undertaken.

The primary objective of developing an alliance in the construction industry is to achieve win-win outcomes for a wider range of project stakeholders than traditionally is the case (Department of Industry Science Resources, 1999, cited in Walker & Keniger, 2002; p.307). Project stakeholders include not only the organisations and their employees involved in the alliance, but also the end-users or operators of alliance project outcomes, the community, and the government. One of the areas for development identified by the Australian Building and Construction Industries Action Agenda (1999) includes increased use and support for network and alliances (cited in Walker & Keniger, 2002; p.308).

Potential benefits from using alliance contracting in the construction industry include enhanced competitive position, broadening the client base, access to new work, increased market share, reduction of risk, increased profits, and increased labour productivity (Badger & Mulligan, 1995). Saad and Hancher (1998) suggest that alliances are an effective tool to navigate the project management process from planning, design, procurement, construction and commissioning phases since it can be incorporated into each of the five phases.

The use of alliances to manage projects with higher risk profiles and projects seeking high quality means that it will become increasingly important to develop a flexible workforce, flexible organisational systems and procedures, and flexible teams. Rather than using traditional design processes, where selection of a contractor is based on price, alliance contracting requires high quality and flexible specialists to work with client representatives, the design team, and the construction team to finalise the project design, construction, and commission the project (Walker & Keniger, 2002). Alliances represent a significant conceptual leap in managing high risk projects when compared to traditional project delivery methods used in the construction industry.

The end result of developing an alliance is a team that features employees from several different companies with different cultures, different backgrounds and disciplines, different leadership styles, different systems and processes, and different ideas. As a result, alliance contracting requires not only a high level of individual flexibility in coping with these differences and changes, but also a high level of group flexibility in seeking new and innovative solutions to problems that cannot be tackled with traditional or single-stakeholder approaches.

Groups operating within an alliance framework require flexibility in several areas. In particular, each aspect of a project, including design and construction requires alliance members to be flexible enough to accommodate the needs of each discipline and the flexibility to innovate within the proposed budget. In addition, each team requires the ability to adapt to constant external and internal changes.

2.4 Overview of the findings from Stage 1 of the Research Project

Stage 1 Findings in relation to strategic alignment

A review of archival materials and interviews in Stage 1 indicates that the alliance was selected as a suitable approach to procurement by Brisbane Water (the client organisation) for several reasons. First, the project involved considerable expenditure and there was a feeling that a traditional contract would have taken too long to develop and scope. Second, there were a number of alliance projects of similar budget finishing at the time, which had produced successful results. Third, the client wanted to tap into knowledge outside the organisation. Fourth, Brisbane Water wanted to have input at every stage of the process and felt that the alliance contracting approach would allow them to achieve this. Fifth, the project had a defined time limit and as such, the client could not afford delays due to contract breaches. Finally,

the client wanted to achieve flexibility in its approach to design, construction, and commissioning, emphasising that this was to be an innovative project, not simply rigid business as usual, for which the construction industry has a reputation.

In Stage 1 of the project, investigation into the strategic alignment between the client and the alliance contracting mechanism demonstrated a relatively good fit. Specifically, in Stage 1 analysis suggested that against the primary criteria of (1) improving project flexibility, (2) improving project innovation, and (3) managing performance, the Alliance Team and alliance members reported that these performance indicators were all considered to have been met.

The aim of Stage 2 of the project was to assess the extent to which members of the alliance team and key stakeholders believed that these criteria were being met later in the project life cycle. In addition, an important contribution of the Stage 2 research is that a wider range of stakeholders' opinions were collected then in Stage 1.

The Context of the Stage 2 Research Component

In the latter part of most construction projects there are a number of factors that exert pressure on project performance including declining team identification due to contract employees moving to other projects; a declining capacity to accommodate modifications to project finalisation dates due to a reduction in staff size; declining commitment to standards of excellence due to reductions in training and development opportunities at the latter stages of the project; and decreased innovation and flexibility of staff due to a reduction in employee numbers and the finalisation of contracts.

One of the greatest challenges at the end of construction projects is that employees are transferred to new projects elsewhere. This represents a substantial challenge to project managers trying to maintaining staff commitment and involvement. As staff leave there is not only a loss of knowledge but a also a reduction in the reinforcement of the values that defined the team culture. A risk is that staff will become focussed on completing their own tasks prior to finalising their contracts and the desired emphasis on flexibility and team communication becomes less important. It is at this time that serious threats to the alliance philosophy may emerge and undermine the success of the project. Stage 2 of the research project is aimed at identifying the issues and perceptions of staff in the latter stages of the project. The primary goal of the Stage 2 component of the project was to identify those factors or processes that maintain or reduce the ongoing performance of the alliance project.

BWEA PROJECT BACKGROUND

3.0 Overview

Brisbane Water (BW) is a commercialised business unit within Brisbane City Council (BCC), and this unit entered into an alliance with a number of organisations from the private sector in order to design, construct, commission and undertake performance proving of upgrades to three existing wastewater treatment plants located at Sandgate, Oxley Creek, and Wacol in Brisbane. The major purpose of these upgrades is to improve the nitrogen removal performance and maintain low operating costs for BCC and to ensure each plant is run in line with new Environmental Protection Agency emission specifications.

3.1 Key Result Areas (KRAs) in the BWEA Project

A review of archival material produced by the client, Brisbane Water, suggests that to be considered successful, each of the three BWEA projects must meet the functional needs of BW and other stakeholders, including compliance with all relevant legislation and approvals ("Requests for Proposals from Prospective Alliance Partners" August, 2002; p. 7). In particular, all of the following Key Result Areas (KRAs) must be achieved:

1. Safety	Safety standards must not be compromised in pursuit of other project objectives.
2. Performance	The performance objectives in terms of capacity, effluent standard, and odour control for each of the plants must be consistently achieved in automatic mode with minimal operator intervention.
3. Quality	All work under the alliance must be carried out to consistent quality standards to ensure that the assets remain fit for their purpose for their respective design lives.
4. Cost	There is a forward budget estimate for each project. A key challenge for the alliance will be to deliver all projects within the overall combined forward budget estimate.
5. Time	The alliance must complete the processing commissioning phase of all projects to the point where each plant is consistently meeting its new licence standards by October 2005.
6. Risk	The alliance must manage all the risks (including but not limited to the process design, engineering, construction, environmental, performance proving and commercial risks).
7. Environment	The alliance must meet or exceed all of the environmental requirements set out in the relevant approvals and thus ensure that BCC's and BW's environmental accreditation and reputation is maintained or enhanced.
8. Stakeholders and Community	The alliance must deliver the works in such a way that the reasonable expectations of project stakeholders and those members of the community affected by the works are satisfied or exceeded. Through "best practice" systems and procedures, the alliance should ensure that it remains on the "front foot" in relation to project communication with stakeholders and the community. It is also expected to generate genuine sensitivity to the needs and expectations of stakeholders and the community.

ALLIANCE APPROACH

4.0 Overview

As outlined previously, when calling for tenders to complete the three upgrades to water treatment plants, Brisbane Water (BW) required that an alliance contracting approach be adopted. This approach was advocated by BW in order to create mutually beneficial relationships between all parties involved so as to produce outstanding project outcomes ("Requests for Proposals from Prospective Alliance Partners" August, 2002; p. 13). Under an alliance, all parties to the alliance take collective ownership of all risks associated with delivery of the project, with equitable sharing (in fixed pre-agreed ratios) of the "pain or gain" resulting from a project, depending on how the outcomes compare with pre-agreed targets.

Given the size of the project and the environmental requirements of the project, an important aspect of the project that needed to be managed by alliance partners was risk. In general in alliances, risk/reward arrangements are designed so that exceptional performance will deliver excellent returns for all participants whilst poor performance results in poor returns for all parties. This underlying commercial alignment is consistent with a "no-blame, best for project" alliance philosophy that focuses all participants on achieving common objectives.

The by-word for alliance projects is risk management. It should be emphasized that well-understood projects such as residential housing rarely require an alliance because they are easy to plan and execute. On the other hand innovative or unique public works, particularly those involving large capital outlays, require a wholly different approach to planning and execution. From what we have understood and gleaned from the project, flexibility and innovation become critical to the success of alliance contracting as there is a need to take advantage of the strengths of the individual alliance partners in relation to project challenges.

4.1 Selection of Alliance Project Team

The alliance partners were selected after a number of stages. Initially, an extensive selection process occurred so as to identify preferred organisational alliance members. Criteria used to identify the organisations to form the alliance include ("Requests for Proposals from Prospective Alliance Partners" August, 2002; p. 22);

1. Capability and capacity to complete full scope of works
    a. Technical capability and experience
    b. Financial capacity
    c. Capacity and commitment to complete the full scope of works within the time frame

2. Proposed approach to projects
    a. Achieving best value for project stakeholders and community
    b. Inclusion of plant operation issues in planning and design
    c. Innovation
    d. Maintaining existing operations during construction, commission and performance proving

e. Transfer and integration of operations to BW personnel
f. Workplace health and safety

3. Affinity with project alliance culture
    a. Cultural compatibility of organisations with alliance principles
    b. Demonstrated attitude and behaviour of nominated personnel consistent with alliance principles
    c. Process for selection and performance management of people within the alliance
    d. Feedback on proposed commercial framework and proposed alliance agreements
    e. Key non-technical challenges and how to overcome them

4. Relationship management
    a. Synergy with BCC/BW team
    b. Approach to developing a high performance team and enthusiasm for achieving "breakthrough" results
    c. Workplace and industrial relations
    d. Community and stakeholder management

After selection of the organisations that would participate in the alliance and extensive discussion with the alliance partners, a Project Alliance Agreement (PAA) was executed.

4.2 Structure of the Alliance Team

The alliance team consists of the Project Alliance Board (PAB), which is composed of senior executives from BW/BCC and each of the alliance partner organisations. The PAB provides overall direction and support to the alliance team. The alliance is run by an Alliance Manager who coordinates all three water treatment upgrade projects. The Alliance Management Team (AMT) provides overall management for all three projects and ensures effective integration of the project into BW operations.

STAGE TWO: INTERVIEWS

5.0 Interview Approach

Semi structured face-to-face interviews were conducted with 18 individuals associated with the BWEA alliance. Each interview was conducted by one of the three researchers. Interviews ranged in length from 45 to 120 minutes. A semi-structured interview guide was developed for use when conducting interviews. The semi-structured interview guide addressed the key areas of interest including inputs, processes, and outcomes. This guide was open-ended enough to let the interviewees introduce any ideas and thoughts they believed were appropriate for further discussion (Dukerich & Ammeter, 1998). The interviews were organised around 4 major questions that were essentially identical for all participants:

1. Would you define the project as an alliance?
2. Has it progressed as expected?
3. Have stakeholders differed in their perceptions of what an alliance is and how it should be managed?
4. What recommendations would you have for future alliances?

At the commencement of each interview, interviewees were informed that notes would be taken and had the option of refusing. All participants agreed to note taking. Eleven of the 18 participants requested anonymity as part of the process. One issue that arose out of the interviews at Stage 2 was the introduction of a new project at Site Z. This tentative project was investigation as a specific threat to alliance success and represented a unique opportunity to evaluate the results of the late introduction of a new project element into an existing alliance agreement.

5.1 Data Analysis

The text (qualitative data) from the interview notes were run through three processes prior to final thematic coding. First, the text was analysed using custom text analysis software that separated concept stems (e.g., satisfy*, happ*, availab*) and relationships within the text. Second, the concept stems were categorized according to a standard structure of concepts, and unallocated concepts were manually coded into the structures. Finally, conceptual clusters were checked against an independent thematic analysis conducted by an expert coder. In this instance there was a 76% convergence between text analysis and coder themes suggesting a high degree of consistency. the themes typically covered between 59% and 90% of reported concepts across the 4 open-ended questions.

The themes resulting from the thematic analyses are presented in this report. Raw text comments are not provided to maintain the anonymity of respondents. Please note that the thematic analysis intends only to draw out consistent themes in the responses rather than highlight unique or extreme points of view. Concept coverage is a critical part of determining the value of a thematic analysis.

5.2 Affirmation of previous findings

Upon presentation of the themes identified in Stage 1 of the research the following % of staff agreed with their continued relevance at Stage 2. Where additional comments were made by 50% or more of the respondents, new themes were added. Themes added by respondents in Stage two are marked in bold. These findings not only reaffirm the results of the previous interviews but also to highlight the on-going relevance of these issues in the later stages of an alliance project.

Broad Category	Sub-Category	Theme	Stage 1 % Agreement	Stage 2% Agreement
INPUTS				
Skills	Critical for the alliance process	Working as a team	100%	100%
		Communication skills	100%	100%
		Ability to think broadly	100%	100%
		Thinking outside one's own discipline	67%	83%
		Flexibility	83%	83%
		Being open minded	100%	100%
		Achieving group consensus in decision making	92%	100%
		Creative thinking	92%	100%
	Key areas	Knowledge of other disciplines	83%	67%
		Project management skills	83%	83%
		People skills	83%	67%
		Understanding the client	100%	100%
		Challenging traditional thinking	100%	100%
	Obstacles to acquiring skills	Lack of challenge	67%	67%
		Becoming submissive	67%	83%
		No commitment to solving problems	92%	100%
		Lack of person – job- fit	83%	83%
		Staff having to move on after their contracts finish		83%
		Lack of ability to reflect on one's own practices and styles		100%
DRIVERS OF EFFECTIVENESS				
Culture	Characteristics (Key)	Encouragement of responsibility	100%	100%
		Senior management/board commitment (-)	100%	100%
		Creating a sense of commitment	100%	100%
		Group decision making	92%	100%
		Creating an innovative environment	83%	100%
		Not stressful	83%	67%
		Multi-corporate and multi-discipline interactions	67%	67%
		Team environment	83%	83%
		Awareness of other people's needs	92%	100%
		Smaller more intimate company	67%	67%
	Development	BWEA merchandise	67%	67%
		Informal events	100%	100%
		Nature of the building industry and client market	92%	100%
		Intensive induction process	100%	100%
		Team building workshops	100%	100%
		Reduction in micromanagement	83%	67%
		Aggressive goals	67%	67%
		Myers Briggs or something akin	83%	83%
		Listening workshops	83%	83%
	Impact	Building ownership by operators	100%	100%
		Community involvement	100%	100%
		Breaking down discipline/professional barriers	83%	100%
		Team cohesiveness	92%	100%
		Team cohesiveness despite staff turnover in		83%

		later stages of the project		
		Consistency in approach and standards of behaviour		100%
Innovative Environment	Initiatives (Useful)	Innovation day	100%	100%
		Structured tools in meetings	100%	100%
		Orientation of the Services group	83%	83%
		Achievement book	83%	83%
		Coaching	100%	83%
		Zero-In – Safety targets	100%	100%
		Risk and innovation manager	100%	100%
		Group facilitation	100%	83%
PERFORMANCE				
Flexibility	Evidence	Being aware of everybody's needs	100%	100%
		Pro-active planning and preparation	100%	100%
		Considering a variety of approaches	100%	83%
		Challenging ideas in a constructive way	100%	100%
		Willingness to change something	100%	100%
		Accommodating to people/circumstances	100%	100%
		Proactive people	100%	100%
	Importance	Meet client demands	100%	100%
		Individuals can adapt to new systems & procedures	100%	100%
		Individuals can develop workable solutions to problems		100%
		Individuals are able to consider new ideas and processes		100%
	How to develop	Individual coaching	100%	100%
		Receiving feedback	100%	100%
		Working with people from different companies and backgrounds	100%	100%
	Barriers to	Site distance	100%	100%
		Budget	100%	100%
		Variation in processes already agreed to	83%	83%
		Tight timelines		83%
		Severely limited staff and resources		67%
		Board inflexibility, unavailability, or prior agreement within board		67%
Innovation	Outcomes	Idea generation	100%	100%
		Creative thinking	100%	100%
		Team building	100%	100%
		Exploring possibilities	100%	100%
		New designs	100%	100%
		New relationships	100%	83%
Alliance Team Effectiveness	How to define	Preference to run similar project together in the future	100%	100%
		Developed broader skills base	100%	100%
		Understand other disciplines	100%	100%
		Achieve a quicker result than a standard demolition and construction arrangement (in similar circumstances)	100%	100%

		Strength of relationships between people after project completion		50%
		Better documentation on how to run alliances well		100%
		Better workshops on how to run alliances well (particularly for future board members; 50%)		100%
Alliance Project Effectiveness	How to define	Zero incidents	100%	100%
		Under budget	100%	100%
		Outstanding KRAs	100%	100%
		Community satisfaction	100%	100%
		Achieved nitrogen levels	100%	100%
		Deliver quality product	100%	100%
		Operators and the client are happy.	100%	83%
		Project becomes a benchmark for client and other operators		100%

Note: Themes in bold were additional themes identified by respondents in Stage 2 of the research project

Interview Findings at Stage 2

Below, we review the responses to each of the four Interview questions in turn and discuss and summarise interviewees' responses to these questions,

5.3.1 Project as an alliance

All 18 respondents were asked to discuss whether they viewed the project as an example of an alliance between client, construction and related agencies. Figure 2 displays the results of this question visually. As can be seen, 89% of the 18 interviewees reported that the BWEA team had acted as an alliance team in terms of acting as collaborative partners.

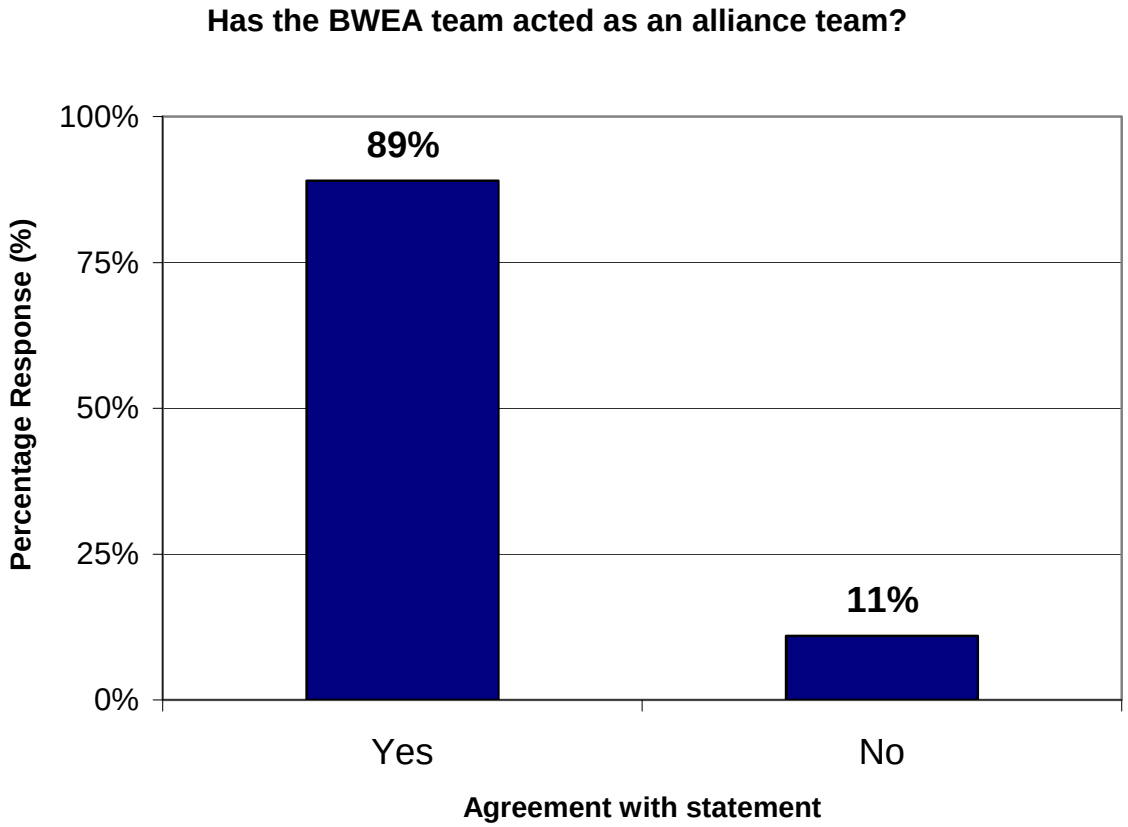

Figure 2
Percentage of interviewees who agreed that the BWEA team had acted as an alliance team

Investigation of the key themes that emerged from interviewees' comments revealed seven major areas of comment. These issues are displayed in Table 1 below.

Table 1
Key themes in response to Question 1 ("Did the BWEA team act as an alliance team?") for all interviewees

Rank	Theme
1	Commitment to innovation and risk management *Included comments that suggested a very high level of commitment to innovation and risk-management were central to the execution of the project.*
2	Flexibility to meet clients' needs and to adapt to changing conditions *Included comments that suggested a strong element of flexibility was needed, especially in the early stages of the project, when assessing client needs, formulating workable solutions, and reacting to unique features of the building environment*
3	Collaborative approach between parties to problem resolution *Included comments that suggested collaboration between BWEA stakeholders was a key feature of the project management and that this was quite different from standard demolition and construction arrangements*
4	Open-communication between parties and within project team *Included comments that indicated a large amount of openness between BWEA stakeholders*

	at a higher level, largely due to the structure of the contracting, and that this was also evident within the operational team.
5	Availability to discuss concerns and perceptions *Included comments that indicated that all throughout the arrangement staff were able to discuss their concerns either openly or with a manager. Whilst this was less that case between management and the board the comments were also made higher up in the management structure.*
6	Time consuming emphasis on meetings and seeking consensus *Included comments that indicated that a necessary but, at times, distracting component of alliance contracting was the emphasis on sharing viewpoints and hosting meetings. Such meetings tended to be time consuming. Few alternatives were proposed but many indicated that experienced staff might be better able to run such a system of meetings and be more exact in their time management.*
7	More time is spent sharing knowledge than on other projects where it is hoarded *Included comments that distinguished the BWEA project from traditional arrangements by specifying the emphasis on sharing information, views, and knowledge to get a good outcome for all stakeholders rather than hoarding knowledge that might be used to drive a better deal or outcome for a particular party.*

Table 1 indicates that the most commonly mentioned reason why the BWEA team was seen as an alliance team is that the group displayed a commitment to innovation and managing the ricks of the project. The second most commonly mentioned characteristic that was seen as reflecting the fact that the BWEA team was an alliance team was that the group displayed flexibility in terms of trying to meet clients' needs and engaging in efforts to adapt to changing conditions.

It is important to note that a number of differences were apparent in the pattern of responses made by interviewees' in response to the first question. Differences in responses revolved around the different sub-groups that an individual belonged to. This issue is outlined in more detail below.

Sub-Group Analysis

Board and Senior Managers

In total 100% of board members and senior managers interviewed agreed that the four themes in Table 2 were a clear example of indicators of why the BWEA project was an example of an alliance project (see Table 2).

Table 2
Key themes in response to Question 1 ("Did the BWEA team act as an alliance team?") for board and senior managers

Rank	Theme
1	Commitment to Innovation and risk management
2	Flexibility to meet clients needs and to adapt to changing conditions
3	Collaborative approach between parties to problem resolution
4	Open-communication between parties and within project team

BWEA Employees

In total 92% of employees interviewed agreed that the following five themes were indicators of why the BWEA project was an alliance project (see Table 3 below).

Table 3
Key themes in response to Question 1 ("Did the BWEA team act as an alliance team?") for employees

Rank	Theme
1	Commitment to Innovation and Risk Management
2	Flexibility to meet clients needs and to adapt to changing conditions
3	Time consuming emphasis on meetings and seeking consensus
4	Open-communication within project team
5	More time is spent sharing knowledge than on other projects where it is hoarded

Clients

In total 75% of clients interviewed (including BCC) agreed that the following five themes were indicators of why the BWEA project group was an alliance project (see Table 4 below).

Table 4
Key themes in response to Question 1 ("Did the BWEA team act as an alliance team?") for clients

Rank	Theme
1	Effectively managing the timelines for a complex and risky project
2	Flexibility to meet clients needs and to adapt to changing conditions
3	Time consuming emphasis on meetings and seeking consensus
4	Availability to discuss concerns and perceptions
5	Commitment to Innovation and Risk Management

5.3.2 Progress

All 18 respondents were asked to discuss whether they viewed the project as progressing in the direction that they had expected.

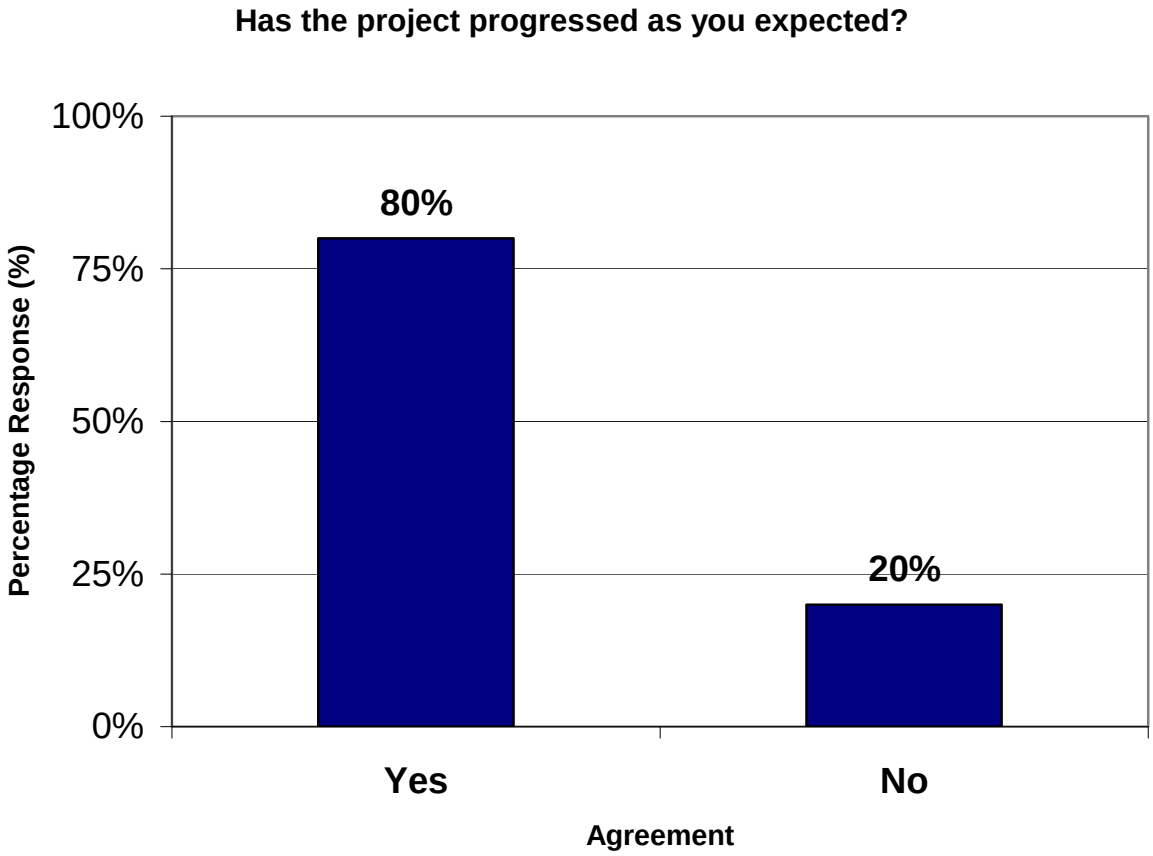

Figure 3
Percentage of interviewees who agreed that the project had progressed as they expected

The majority of respondents (80%) felt that the project had progressed as expected. In addition, analysis of interviewees' discussions about the project's progress in terms of key outcomes that had been achieved could be organised into a number key themes (see Table 5 below). It is interesting to note in Table 5 that both positive and negative outcomes of the alliance were discussed. Two of the nine themes that arose were negative, while the remaining themes were positive. The most frequently mentioned theme was a positive one, where interviewees' reported that the alliance had achieved innovation in order to deliver on the key result areas desired by the client. In contrast, the second most frequently mentioned theme was a negative one. That is, many interviewees also reported that over time, the alliance team had become less flexible as the project moved into the construction phase.

Table 5
Key themes regarding the outcomes achieved in the BWEA project for all interviewees

Rank	Theme
1	Has achieved innovation on the sites that deliver on the necessary key result areas (+) *Included comments that suggested one of the primary goals of the alliance was to provide innovation in managing risks so that the KRAs could be met. There was the recognition that many of the KRAs were achieved simultaneously by good design, good management, or good consultation.*
2	The project has become less flexible over time as the project design and deliverables had become clear and construction had begun (-)

	Included comments that suggested that any construction project requires an eventual commitment to the designs and processes that are decided upon in the earlier stages of the project. Therefore, it was noted that whilst flexibility was possible later in the project it would have been seen largely as a failure of the initial stages of the project to plan for the necessary contingencies. Therefore, it was felt that as design staff left the project some degree of flexibility was lost. Some comments also recognised a loss of momentum in maintaining group culture at such high levels once key staff contracts had terminated.
3	High key results area outcomes were achieved (+) *Included general comments that indicated across the 3 main construction sites a very high standard was maintained across all KRAs.*
4	Project has progressed according to timeline (+) *Included comments that indicated projects were kept within their delivery timeframes. Whilst some specific tasks may have gone over time they were compensated for by efficiencies on other tasks. Careful project management was also recognised as a key driver of this result.*
5	Site Z project proposal was a poor strategic decision (-) *Included comments from a wide range of respondents who felt that the board decision to consider the Site Z project was a poor one that should have been given more evaluation. It was also widely recognised that the decision to consider Site Z was the likely result of a board keen to maintain good relations.*
6	Project has been successful financially (+) *Included comments that the project on balance had been financially beneficial for the construction stakeholders and that the level of risk managed to achieve this should be kept in mind.*
7	Progress has been attributable to well run board (+) *Included comments from a wide range of stakeholders that indicated the openness and effectiveness of board members, whilst not always agreeing with each other, played a critical role in shaping the performance of the project.*
8	Progress has been attributable to well run management team (+) *Included comments from a wide range of stakeholders that indicated the attitude and dedication of the BWEA management team was also a critical factor in shaping the performance of the project. Particular note was made of the need to maintain effective culture, effective staff recruitment, and leadership.*
9	Teamwork set up at the beginning of the project has been important (+) *Included comments that suggested the large amount of time spent on meetings, training, and staff development at the beginning of the project had been crucial to the development and maintenance of culture and its longevity over the life of the project. Although some comments noted the decline of culture as staff have left.*

Note: (+) positive theme, (-) negative theme

Sub-Group Analysis

Sub-group analysis revealed a number of differences in responses to Question 2. These differences are detailed below.

Board – Senior Managers

In total, 100% of board members and senior managers interviewed agreed that the project had progressed in the expected direction. Table 6 summarises the key themes that emerged out of senior managers' discussions in response to this question. Table 6 indicates that the most commonly reported theme for the Board and Senior Manager was the same as that reported for the sample as a whole.

However, the second most commonly mentioned issue in regard to Question 2 for this group was that the project had been a success in financial terms.

Table 6
Key themes for Board members and senior managers in response to Question 2

Rank	Theme
1	Has achieved innovation on the sites that deliver on the necessary key result areas (+)
2	Project has been successful financially (+)
3	Project has progressed according to timeline (+)
4	High performance on key result areas were achieved (+)
5	Site Z project proposal was a poor strategic decision (-)
6	Project has been more time consuming than anticipated (-)
7	Progress has been attributable to well run board (+)
8	Progress has been attributable to well run management team (+)
9	Teamwork set up at the beginning of the project has been important (+)

Note: (+) positive theme, (-) negative theme

BWEA Staff

In total 70% of employees interviewed from the alliance agreed that the project had progressed in the expected direction. Table 7 summarises the key themes that emerged out of employees' discussions in response to Question 2. This table indicates that the most commonly reported theme for employees was the same as that reported for the sample as a whole. However, the second most commonly mentioned issue in regard to Question 2 for this group was that the teamwork set up at the beginning of the project was important in contributing to project success.

Table 7
Key themes regarding the outcomes achieved in the BWEA project for employees

Rank	Theme
1	Has achieved innovation on the sites that deliver on the necessary key result areas (+)
2	Teamwork set up at the beginning of the project has been important (+)
3	The project has become less flexible over time as the project design and deliverables had become clear and construction had begun (-)
4	High key result areas were achieved (+)
5	Project has progressed according to timeline (+)
6	Progress has been attributable to well run management team (+)

Note: (+) positive theme, (-) negative theme

Clients

In total 75% of clients interviewed agreed that the project had progressed in the expected direction. Table 8 summarises the key themes that emerged out of clients' discussions in response to Question 2. This table indicates that the most commonly reported theme for employees was that the project had been successful financially. However, while other sub-groups reported that this was a positive, there was a feeling from Brisbane Water that there was too much profit generated for the alliance partners. The second most commonly mentioned theme from the client group was that the project had progressed according to the timeline.

Table 8
Key themes regarding the outcomes achieved in the BWEA project for clients

Rank	Theme
1	Project has been successful financially (perhaps too much) for some stakeholders (-)
2	Project has progressed according to timeline (+)
3	Site Z project proposal is not working as well as expected (-)
4	Progress has been attributable to well run board (+)
5	Has achieved innovation on the main 3 sites that deliver on the necessary key result areas (+)
6	The project has become less flexible over time as the project design and deliverables had become clear and construction had begun (-)
7	High performance in the key result areas was achieved (-)

Note: (+) positive theme, (-) negative theme

5.3.3 Stakeholder perceptions

The third question directed towards interviewees was whether they viewed the various project stakeholders as having similar perceptions of what an alliance is and how best to manage it. Figure 4 displays the results for all interviewees for this question. This figure indicates that the majority of respondents felt that the various stakeholders involved in the project did have similar perceptions regarding the nature of an alliance and how to manage such a project.

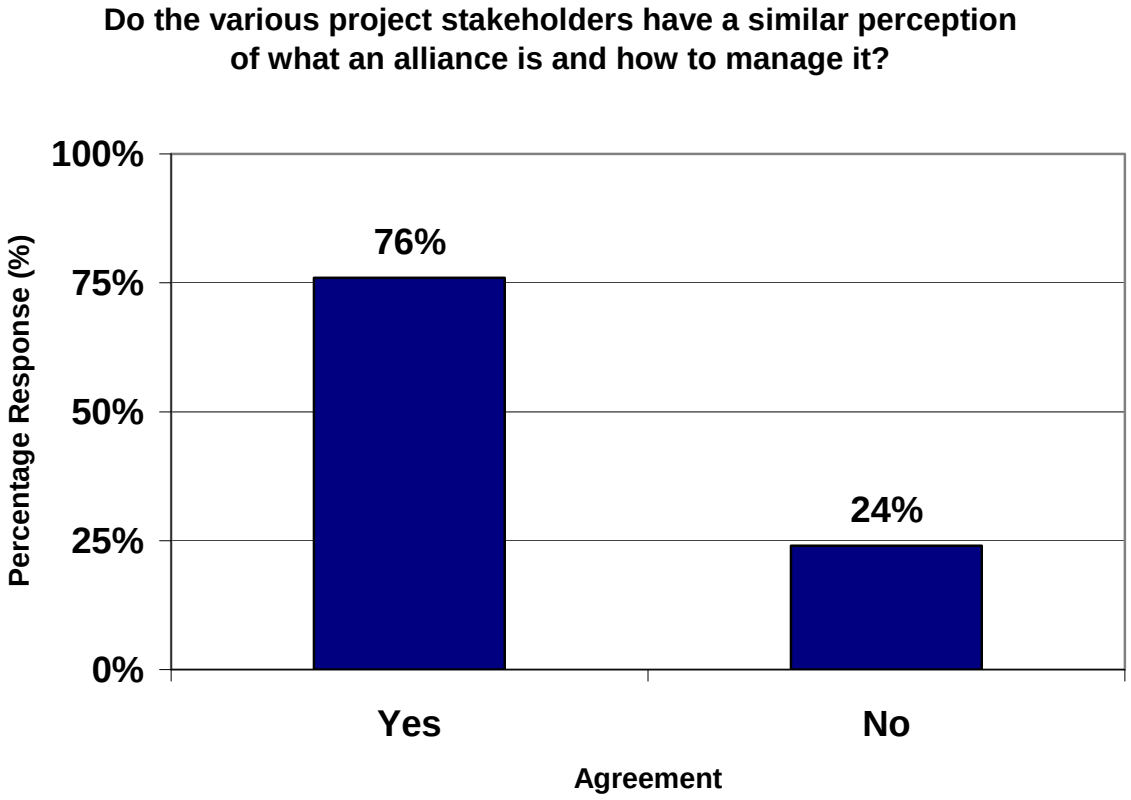

Figure 4
Percentage of interviewees who agreed that the various stakeholders have a similar perception of what an alliance is and how to manage it

Analyses of interviewees' responses to Question 3 revealed a number of key themes, which are displayed in Table 9. This table indicates that while there was agreement that the various stakeholders agreed about what an alliance is and how to manage it, a considerable amount of work went into making this happen.

Table 9
Key themes regarding stakeholders' agreement about what an alliance is and how to manage it for all interviewees

Rank	Theme
1	Considerable effort in the early stages of the project has ensured that alliance partners generally have the same understanding of alliances (+) *Included comments that recognised staff differences at the commencement of the project had been shaped to some degree by meetings, training, personal development, and careful recruitment induction. Interviewees also recognised this as a very necessary process that whilst they may not have agreed with all of the approaches adopted recognised the intent behind the process.*
2	Project management around alliances would have benefited from some initial training of the board (-) *Included comments that suggested a process of training and personal development would have also been useful for board members. Whilst some interviewees were directing their comments to specific board members the majority were suggesting that such processes would have created a closer link between board and management and a greater understanding of the process for board members.*
3	Considerable effort has been required at every stage of the project to ensure that there is consensus (-) *Included comments that expressed slight frustration regarding the amount of time required to reach consensus at all levels of the project. It was recognised by the majority of respondents that this was necessary, however some indicated that the emphasis on meetings had been excessive. There was a general feeling that staff had improved as the project had progressed and that experienced staff may develop efficiencies in future projects.*
4	Site Z is an example of how the process has fallen down in the later stages of the project (-) *Included comments that suggested the process of maintaining a careful eye on the project boundaries had been lost over time with a specific reference to the Site Z project proposal. Comments varied widely in relation to how best to manage project boundaries. Some referred to the need to ensure all new or potential stakeholders are carefully inducted into the alliance philosophy whilst others referred to the need for existing stakeholders to determine whether risk management is a key KRA in future proposals. There was a general consensus that the Site Z proposal was better suited to a traditional contract rather than an alliance relationship and that the board had overlooked this fact.*
5	BCC have had some difficulty because their systems are not set up to handle this style of contracting (-) *Included comments that suggested Brisbane City Council had difficulties in the early stages and, to some extent, in the later stages due to the novel features of alliance contracting and the flexibility this style of contracting demands.*
6	Considerable effort is required to ensure the mechanisms are in place for stakeholders to air grievances and for compromises and solutions to be found (-)

	Included comments that indicated that developing the channels of communication and attitudes to joint problem solving, especially in the current climate of the Australian construction industry, requires considerable input. This was commented on in a range of ways with particular reference to the communication channels between stakeholder firms (each with their own process and culture). Most indicated that this was an important aspect of the project that was quite difficult to overcome and should not be overlooked in future projects.
7	How can one maintain the 'relationship' in later stages of the project is an interesting challenge (+/-) *Included comments that suggested a challenge for alliance projects is to maintain the commitment and philosophy of an "alliance" in the later stages of a project where staff are moving to other contracts and the momentum is 'winding down'. The Site Z proposal was presented by a number of respondents as an interesting case in point where the desire to maintain the alliance may outstrip the ability to effectively manage it.*

Note: (+) positive theme, (-) negative theme, (+/-) includes both components

Sub-Group Analysis

Sub-group analysis revealed a number of differences in responses to Question 3. These differences are detailed below.

Board – Senior Managers

In total 67% of board members and senior managers agreed that stakeholders had shared a similar understanding of the meaning and management of alliances. The key themes extracted from their discussion of this question are outlined in Table 10 below. The first theme extracted from board members' and senior managers' discussions were that considerable was required in the early stages of the project to ensure that all alliance partners have the same understanding of alliances. The second theme extracted was that considerable effort has been required at every stage of the project to ensure that there is consensus between alliance partners.

Table 10
Key themes for Question 3 for board members and senior managers

Rank	Theme
1	Considerable effort in the early stages of the project has ensured that generally the same understanding of alliances (+)
2	Considerable effort has been required at every stage of the project to ensure that there is consensus (-)
3	Site Z is an example of how the process has fallen down in the later stages of the project (-)
4	How can one maintain the 'relationship' in later stages of the project is an interesting challenge (+/-)
5	Considerable effort is required to ensure the mechanisms are in place for stakeholders to air grievances and for compromises and solutions to be found (-)

Note: (+) positive theme, (-) negative theme, (+/-) includes both components

BWEA Staff

In total 100% of employees agreed that stakeholders had a similar understanding of the meaning and management of alliances. The themes extracted from employees' discissions in response to Question 3

are displayed in Table 11. This table suggests that the most frequently mentioned theme was a need for additional training for the alliance board.

Table 11
Key themes for Question 3 for employees

Rank	Theme
1	Project management around alliances would have benefited from some initial training of the board (-)
2	Considerable effort in the early stages of the project has ensured that generally the same understanding of alliances (+)
3	Considerable effort has been required at every stage of the project to ensure that there is consensus (-)
4	Considerable effort is required to ensure the mechanisms are in place for stakeholders to air grievances and for compromises and solutions to be found (-)
5	BCC have had some difficulty because their systems are not set up to handle this style of contracting (-)
6	Site Z is an example of how the process has fallen down in the later stages of the project (-)

Note: (+) positive theme, (-) negative theme

Clients

The themes extracted from an analysis of clients' discussions about Question 3 are displayed in Table 12. All of the themes extracted from this group had a negative slant with the most frequently mentioned theme being that project management training was needed for the board followed by the theme that BCC is not set up to operate in an alliance setting. Interestingly, those relatively new to the alliance arrangements felt that they needed more information about alliances and how to make them work suggesting that they had had less induction and training than their more experienced colleagues.

Table 12
Key themes for Question 3 for clients

Rank	Theme
1	Project management around alliances would have benefited from some initial training of the board (-)
2	BCC have had some difficulty because their systems are not set up to handle this style of contracting (-)
3	Considerable effort in the early stages of the project has ensured that generally the same understanding of alliances (-)
4	There has been a loss of some momentum and 'relationship' in the later stages of the project (-)
5	Need more information about alliance philosophy (-)

Note: (+) positive theme, (-) negative theme

5.3.4 Recommendations for the future

All 18 respondents were asked to discuss recommendations for the future in the BWEA project and also for future alliance projects. A number of themes were distilled from this question. The themes extracted from all 18 interviewees are displayed in Table 13. This table demonstrates that the most frequently mentioned theme was that not all construction projects are suitable as alliance projects and there is a need to carefully select which projects use alliance contracting. The second most frequently mentioned theme was that alliances require new ways of working and interacting with employees and this is a cultural change that is difficult for many in the construction industry.

Table 13
Themes extracted from all 18 interviewees' discussions

Rank	Theme
1	Careful strategic selection of projects is required *Included comments that suggested vigilance is required when considering future construction projects. Common reference to the Site Z proposal was made as a case in point. The key feature of the alliance project was presented as 'risk management' and it was felt that if future projects requiring risk management were modelled on the BWEA project (with some modifications) then there was a high likelihood of success.*
2	People are essential component of alliances rather than contracts and this can threaten some people who are used to working in the traditional way *Included comments that indicated staff recruitment was a very critical aspect of alliance contracts that is different from traditional demolition and construction projects. The emphasis on openness, professionalism, and collegiality were identified as critical qualities that may threaten some people in the industry. A number of examples were given for staff, management, and board members who were less suited to the process.*
3	Alliances require careful time management especially around meetings *Included comments that suggested time management was a critical skill in alliance projects especially in relation to preparing for, chairing and attending meetings.*
4	There is not a lot of knowledge regarding the effective use of alliances and this can be a problem with clients who want to get on the band wagon but don't know why *Included comments from a range of respondents that indicated alliances were not appropriate for all projects and that many potential clients do not know when to apply the alliance model. A number of respondents referred to the Site Z proposal as an example of a poor match approach that would not be best suited to the alliance style of contracting.*

Sub-Group Analysis

Board – Senior Managers

The themes extracted from board members' and senior managers' discussions in response to Question 4 ("What recommendations would you make for the future of the BWEA project and future alliance projects?") are displayed in Table 14. The most commonly mentioned theme was that it is very important that there is a careful selection of projects that operate under an alliance contracting method. The second most commonly mentioned theme was that there is a need to generate and monitor commitment to openness to new ideas in alliance projects for a successful project to be built.

Table 14
Board members' and senior managers' responses to Question 4

Rank	Theme
1	Careful strategic selection of projects is required
2	There is a need to generate and monitor commitment to openness
3	Ongoing education of stakeholders is required
4	Due to the mindset required, a careful selection of board members, management, and staff is required

BWEA Staff

The themes extracted from employees' discussion in response to Question 4 are displayed in Table 15. This table indicates that the most frequently mentioned theme was the importance of the leader's role and style in developing and maintaining the right approach to an alliance. The second most commonly mentioned theme was the importance of having a well informed and supportive board.

Table 15
Employees' responses to Question 4

Rank	Theme
1	Leadership role and style are critical to the development and maintenance of the right mind set
2	A well informed board is essential, we can't fix poor decisions made at a higher level
3	Because of staff contracts and changing team compositions careful attention to morale, knowledge, and motivation are required
4	Coaching, training, and mentoring are essential in this industry in addition to careful recruitment
5	More frequent board involvement would have been good
6	Need very good meeting management skills

Clients

The themes extracted from clients' discussion in response to Question 4 are displayed in Table 16. The most frequently mentioned theme from clients was that there was a need for a greater transparency of the reasoning behind why certain practices are adopted in the alliance contracting process. The second most commonly mentioned theme from clients was that they would have liked to know more about alliances and benchmarking alliances prior to the project starting.

Table 16
The themes extracted from clients' discussion in response to Question 4

Rank	Theme
1	Would appreciate greater transparency of practices (especially at the senior level)
2	I would have like to have known more about alliance practices and benchmarking prior to the project
3	Some general training workshops for BCC would have been useful, I would like to know more about it
4	BCC had some difficulty adjusting to the project philosophy early on

5.3.5 Site Z Contract – Special Case investigation

During the Stage 2 interviews, over 75% of participants made reference to a new project proposal between BCC and BWEA at a new site, Site Z. Whilst the majority of respondents reported that the overall BWEA project had been very successful, the introduction of the Site Z proposal introduced some concerns. In particular, a number of stakeholders and in particular, Brisbane Water, indicated that they were less than satisfied with the initial discussions, processes, and proposals put forward by BWEA in relation to this specific proposal.

Upon further questioning all participants agreed that, although innovation at the Site Z site was still important, there were differences to the original project specifications in a number of key areas. In particular, the Site Z project differed from the original alliance project in the following ways:

- Risk was less of an issue in the Site Z project because the project timeframes were more clearly understood, and (perhaps) less urgent
- Project planning did not carry the same degree of ambiguity.

Brisbane Water and Brisbane City Council also indicated that they would like the new proposal to be less oriented towards mutual problem solving and more focused on a traditional client and supplier relationship (72%). In addition, while the project request originated from the original client organisation, the specific sections of the client organisation dealing with the BWEA alliance were different. As a result, the 'new' client staff were not familiar with the different processes and requirements of alliance contracting compared to more traditional procurement methods (67%). As such, the business units in BCC and BW driving the Site Z proposal were less open to the necessary relationship orientation required for alliance contracting, which requires knowledge and idea sharing meetings (67%). Furthermore, clients were frustrated by the orientation of alliance staff toward consensus building and high cost quotations.

On the other hand, the BWEA project staff and management reported feeling somewhat powerless about the difficulties of the Site Z project as it had been put to them by the board (33%). Choosing on the basis of past experience to cost for a wide range of contingencies in line with the "risk-management" philosophy and the previous KRAs there was a feeling that the clients were being somewhat uncommunicative and unreasonable in their price expectations.

It is not surprising therefore that a number of BCC staff viewed the BWEA approach to construction on the Site Z as:

- Over priced
- Unclear
- Unnecessarily time consuming and "warm and fuzzy"

Interviewees' expressed general concern, regardless of their affiliation, that the Site Z project proposal and resulting client perceptions would 'taint' perceptions of the overall success of the three "nearly completed" sites. Indeed, some BCC staff (representing the new 'client' group) had begun to view the performance of the previous stages of the project in a different light. Upon further questioning of these individuals there appears to have been little recognition of the critical "risk management" aspect of the BWEA project. Given that the previous project had been successful in delivering \an innovative and timely solution for BCC the project also delivered a net profit to the construction partners. This "profit" was

being viewed at with some scepticism by BCC staff who considered it to be the result of careful positioning on the behalf of construction partners.

5.3.5.1 Discussion regarding the Site Z project

The addition of the Site Z project to the original alliance project was the source o f some concern to many of the interviewees' and clearly represents a situation where a strategic mismatch has occurred between the needs and resources required by the construction project and the strengths and weaknesses of the alliance methodology. This mismatch is of some concern to the alliance partners, as it appears to be negatively influencing perceptions of the success of the overall alliance. That is, the addition of the Site Z project seems to be retrospectively altering the perceived efficiency of the overall alliance project.

The Site Z project highlights a dilemma with alliance projects. These types of alliance contracting are clearly not appropriate in all situations and before entering into an alliance relationship and agreement it is vital that all partners establish that this type of procurement strategy is appropriate to the scope and aims of a project.

In this particular case the definition of the client as partner appears to have been somewhat misspecified and there appears to have been an assumption within the alliance that all business units in the BCC and BW understood the aims and methods of alliance contracting. Clearly, this is not the case. Interviews with board members further supported this notion. It was noted that as the alliance project had been winding down less time had been spent in carefully analysing the "new" client groups' needs. It appears to have been assumed that the "new" clients had held the same understanding of and commitment to relationship contracting as the previous clients.

6.0 Discussion

Methodology

In Stage 2 of this research project, we conducted 18 interviews with a diverse range of alliance partners and clients. Interviews focused on four key questions including:

- Would you define this project as an alliance and why?
- Has the project progressed as expected and why?
- Do stakeholders differ in their perceptions of what an alliance is and how it should be managed?
- What recommendations would you have for future alliances?

Analysis

Qualitative analysis was adopted. That is, key themes were extracted from the interview transcripts and these themes became the basis of our analyses. An important aspect of the analysis is the focus on the themes that were extracted from the different sub-groups studied including board members and senior managers, employees, and BCC and BW (clients).

Results

Interview Question 1 and Question 2

Interviewees' reported that the project had acted as an alliance and the majority of interviewees' reported that the project had progressed as they expected. Board members and senior managers reported that the alliance had achieved a number of positive outcomes including being innovative in order to meet key result areas, was financially successful, and had progressed according to the timeline. However, this group also noted a number of negatives of the alliance including the addition of the Site Z project and the time consuming nature of the alliance process. Employees of the alliance reported that the alliance had been innovative and identified teamwork at the beginning of the project as contributing to the success of the alliance. The client group also reported that the project had been successful but this group believed that the alliance partners had possibly gained too much financial gain from the project.

Interview Question 3

The third interview question asked interviewees to report on whether the various project stakeholders have a similar perception of what an alliance is and how best to manage an alliance. Overall, there was agreement that the alliance partners generally have the same understanding of alliances. The most commonly identified theme by the alliance employees and clients was that the alliance board would have benefited from, early on in the alliance, training in project management. In contrast, the most common theme discussed by the board and senior managers was that considerable effort in the early stages of the project had ensured that the alliance partners had the same understanding of alliances.

Interview Question 4

The final interview question asked interviewees' to identify any recommendations for the future in the BWEA project and also for future alliances. Overall, the major themes from discussions were that when

using alliance contracting careful selection of projects needs to occur so that there is a strategic fit between the project and contracting approach. The second major theme was that people are an essential component of alliances and that the people need to have the right approach to ensure that the alliance approach is successful.

All three sub-groups had a slightly different perspective on this question. Specifically, the most frequently mentioned theme by the board and senior managers was that careful selection of projects occurred to ensure alliance success. The other themes also focused on the necessary ingredients for a successful alliance including generating and monitoring commitment to alliance processes, ongoing education of stakeholders, and a careful selection of people to fill all positions in the alliance.

The BWEA employees emphasised the importance of good leadership for alliance success. The most frequently mentioned theme was that alliance leaders' roles and style were key ingredients in alliance success. The next most frequently mentioned theme was the importance of a well-informed board, followed by the importance of leaders paying attention to morale, knowledge sharing and motivation. In contrast, the clients focused on the need for more information and training in regard to what alliances entail. The most frequently mentioned theme by this group was the desire for greater transparency from the alliance team as to the practices that were implemented and why. The second theme focused on the desire of the clients for more information about alliances prior to the project starting.

General Conclusions

In summary, analysis and review of the interview data collected at Stage 2 suggests the following points.

- The very strong focus on developing an alliance culture that was observed in Stage 1 had persevered (in large part) into the later stages of the project
- Factors such as staff contracting and turnover due to project lifecycle did make it difficult for the remaining staff to maintain the levels of communication, group norms, and structures that had existed previously. Interviewees reported that changes in employee numbers had led to a resultant loss in flexibility and innovation. This represents a unique challenge for alliance project managers.
- At the board level, a continuing commitment to the philosophy of alliance partnership had resulted in agreeing to do an additional project, the Site Z project, without a great deal of analysis as to whether this project was one in which alliance contracting would be appropriate or effective.
- As a result of including the Site Z project in the alliance process, client perceptions of the alliance were impacted in a negative way.
- The Site Z project highlights the importance of:
    - Carefully defining who the alliance group is and who is not a part of the alliance group
    - Constantly assessing the needs of the client group
    - Constant marketing of the reasons for adopting an alliance approach so that new alliance partners and new employees understand the importance and effectiveness of this approach in the situation
    - The need to set clear parameters on the nature of an alliance and the partnerships involved.
    - Readiness to reiterate the strengths and weaknesses of alliance contracting approaches on an ongoing basis.

A major dilemma identified in this project is the nature of construction projects and the philosophy of alliance partnering. Specifically, construction projects have a finite lifespan with some clear stages (e.g., scoping, initiation, design, construction, and handover) whilst the alliance contracting process itself seeks

to establish more enduring and long lasting relationships. As seen in the BWEA example this dilemma creates challenges and issues that can threaten perceptions of the performance of the project and the alliance as a whole, such as:

- When project employees are being moved back to their parent organisations at the end of the project it becomes difficult to support the development of new proposals?
- When project employees have moved on to other projects then the morale and enthusiasm of the remaining alliance members becomes an issue as does how to maintain this energy
- When project employees have moved on to other projects how can the experience and learning from the alliance project be carried forward to other projects and should it be?
- How can the alliance partners set up a process of vetoing future proposals without damaging the alliance partnership?

In addition to the conclusions regarding the specific execution of alliance contracting style arrangements there are a range of implications for preparatory training. It is recommended that a training and personal/professional development package be tailored to the unique needs of alliance stakeholders, including board members, managers, project staff, and (to a minor degree) subcontractors.

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