International construction joint ventures as a resourcing model

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Shortages in materials, skilled labour, and equipment, are well known within construction industries, and impede performance on ongoing and pipeline projects. This study explores international construction joint ventures (ICJVs) as a resourcing model that could relieve pressures within the New Zealand (NZ) construction industry. The study goes further to identify the risks and constraints associated with ICJVs. There is a dearth of literature on the role of ICJVs and their impact on the industry within the context of resource acquisition. The data for this study were collected by way of the administration of an online questionnaire survey to a representative sample of contractors, developers, and consultants. A simple descriptive method of analysis was employed for ease of understanding. The study established that materials and labour were the most demanding resources that ICJVs could help address in NZ. Risks associated with compliance with local regulations and certification requirements and those related to lead times were the most critical constraints for international material acquisition. The study findings also indicate that language and communication barriers and differences in the practice of rules and regulations were the most significant constraints for utilising international skilled labour.

Q1 Keywords:

Q2 1. Introduction
It is becoming increasingly difficult to ignore issues of resource challenges in the construction industry. These challenges include access to skilled labour, building materials and funding (Vaughan, 2016). In relation to skills, the deficiency is not only in the trades but also in professional consultancy services including designers, engineers and other specialists (Steeman, 2018). Studies have identified lack of skills as one significant factor in the success of construction projects (Ayodele et al., 2021; BDO, 2019; Ho, 2016). Because of the vital role that the construction industry plays in any country’s economy, there has to be ongoing discussions and more importantly, action plans on how to address the long-term shortage of skilled construction professionals. Despite the acknowledged significance of the construction industry, it suffers from severe shortages in terms of manpower and skills (Sherlock, 2017) for various reasons. A KPMG (2015) report indicated that 44% of global construction firms are unable to secure their required craft labour, and 45% of these organisations had a lack of qualified employees. The KPMG report also indicated that 69% of construction organisations admitted that more than 5% of their workforce were hired through external sources. In New Zealand (NZ), its construction sector has a deficit of 43,600 skilled labour required to meet expected yearly market demands (Gibson, 2018). It is reported that labour shortages are highest in the Auckland region where the most construction activity takes place in NZ (MBIE, 2018). In 2018, construction output was forecast to be sustained year-on-year until the end of the forecast period of 2023. Although Covid-19 has had a negative impact on total construction outputs, there is an anticipated recovery after 2023 (MBIE, 2020a).

This study aims to explore the significance of international construction joint ventures (ICJVs) to address resource challenges within the NZ construction industry. Three research questions were formulated to be addressed by the current study. These are the following:

What are the most demanding resources in the NZ construction environment?

What are the risks and constraints in the acquisition of externally sourced resources?

How could ICJVs assist in addressing resource challenges in NZ?

2. International construction joint ventures: motivations
The opportunity to share resources by transferring and pooling these resources has been identified in previous studies as one of the primary motivations for embarking on joint ventures in the construction sector (Razzaq et al., 2018). ICJVs allow partner organisations to access new resources such as funding and finance, personnel and associated supply chain and technology (Terjesen, 2014). Chao and Rotimi (2020) also suggest that ICJVs provide wider access to new markets, which a local partner may not have had access to, consequently enhancing their capacities in knowledge and expertise (Norwood and Mansfield, 1999). Furthermore, Luo et al. (2001) and Panibratov (2016) suggest that there may be improved project management capabilities through knowledge transfer on ICJVs.
With particular reference to capacities and capabilities, difficulties associated with finding and keeping skilled labour could be resolved through joint venture arrangements. Foreign partners are able to transfer employees from their foreign country base to the host country where there may be capacity issue (Hwang et al., 2017). It is equally possible to solve capability issues by importing much-needed skills using joint venture partners. Ping Ho et al. (2009) explain how ICJVs provide access to capable subcontractors and the possibilities of obtaining cheaper materials for projects procured using joint venture arrangements with foreign partners.

Through ICJV strategies, stakeholders are able to share technologies and managerial resources that place them in a position to break through tender thresholds (contract prequalification requirements). Resource sharing and cross-exchange of learnings from venture partners are a major source of competitive advantage (Sung-Lin and Min-Ren, 2011), especially when one considers the magnitude of global competition, knowledge becomes a crucial strategic resource and a critical asset required for competitive advantage (Kivrav et al., 2008; Teerajetjul and Charoenngam, 2006). Because firms have different resource levels (Khattab and Soylund, 1996), ideally, they should consider their resource advantages and strengths to prepare them in pursuing diverse business strategies (Ping-Ho et al., 2009). However, Khamaksorn et al. (2020) suggest that the transfer of knowledge, skills, and experience between foreign and local partners in ICJV projects is predicated on their understanding of knowledge transfer methods and mechanisms.

Chao and Rotimi (2020) conceptualised the motivation for developing ICJVs by establishing resources that can be met through international partners’ involvement in construction projects. These are listed as follows:

- Access to international supply chain (e.g. cheaper building materials and equipment)
- Access to skilled labour and specialists (e.g. carpenters, joiners, stoppers, tilers, plumbers, and glazers)
- Access to specialised international subcontractors (e.g. design and build contractors, for example, for a façade)
- Acquiring design support services (e.g. detail design and coordination services)
- Access to technical support (e.g. material and equipment certification and testing)
- Transfer of technology (e.g. virtual design simulation and construction)
- Acquiring procurement support services (e.g. preparation of multi-trade schedule of quantities to enhance the procurement process)
- Transfer of project execution knowledge and experiences (e.g. tunneling, deep foundation, high-rise structural works, and specialist fit-outs)
- Acquiring project management resources (e.g. experienced project managers, site managers, and site engineers)
- Access to additional funding resources.

Risks and constraints associated with ICJVs were similarly identified from previous studies to assist the evaluation of the potential constraints and limitations in the acquisition of international resources. There are 25 risks in ICJVs in the East Asia region, identified by Li and Tong (1999) and 58 ICJVs risks investigated by Shen et al. (2001) in mainland China, while Ozorhon et al. (2008) suggested it was difficult to manage ICJVs due to the different cultural backgrounds between partners. Zhang and Zou (2007) investigated 17 risks in a Sino-foreign construction joint venture project through a fuzzy analytical hierarchy process approach. However, McIntosh and McCabe (2003) identified 64 risk factors, probably the highest number of recent studies. In this current study, the risks and constraints associated with international resource acquisition through ICJV strategy have been rationalised into 21 items. These are categorised in Table 1 as resource acquisition risks and constraints with the exclusion of non-resource related risks. Q3 clearer understanding.

3. The NZ context

Resource challenges are prevalent in the NZ construction industry, so much so that construction skills fall within the frequently listed skills in short supply by its immigrations department. Furthermore, two survey reports, one produced by BDO, an independent consultancy that regularly surveys the performance of the NZ construction industry (BDO, 2019), and the other by the Ministry of Business, Innovation and Employment (MBIE, 2019), provide evidence of the capacity and capability challenges of the NZ construction sector. Resource issues have exacerbated construction business performance issues manifesting in business failures (Forbes, 2019) and the inability to deliver at the scale required for intensive housing (NZCIC, 2017).

The boom-and-bust cycle within the construction sector has had great impact on the provision of construction labour, consequently on employment and the national economy. Post Covid-19, there is likely to be widespread uncertainty on labour demand and supply within the NZ building and construction industry. It has been suggested that the impact of skills shortages on business performance will be either significant (25%) or minor (57%) according to NZIOB and Hays Construction (2020). Although about 59% of businesses are confident in their abilities to cope with change and overcome challenges (CCNZ and Teletrac, 2020), there is still comparatively lower overall confidence because of uncertainties around industry outlook and the general economy. Q4

The report by BDO in 2019 also acknowledged that many challenges are constraining the sustainable growth of the NZ economy and placing construction industry participants at great risk of non-achievement (BDO, 2019). For example, there is concern that the fragmented nature of the NZ construction industry (Vaughan, 2016) reduces its ability to train the required skills needed to cater to the volume of ongoing and future construction activities. Steeman (2018) suggested that resources
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Table 1. Risks and constraints with resource acquisition

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are generally stretched, and contractors only have time to deliver projects rather than invest in training programmes. Considering that the industry is made up of small and medium size players, it has been challenging to get training done, and difficult for small contractors or subcontractors to employ a large number of staff, because their workloads are unpredictable (Steeman, 2018).

As a consequence, the industry is now struggling to execute complex and large-scale construction works, coupled with lack of innovation. Government and local authorities have intervened in the market through new and updated policy initiatives, including new regulations. For example, there is a concerted effort to reform the resource management system to support the building and construction sector to lift its performance (MBIE, 2020b).

Hartley (2018) had concluded that it was significant that ‘external’ resources be allowed into the construction market to ease capacity and capability challenges experienced by the industry. Very few NZ construction industry studies have addressed resource acquisition using ICJVs. In this study, it is contended that the use of ICJV can be strategic to addressing NZ’s construction resource challenges. Knowledge of the status, challenges and opportunities of ICJVs in NZ is scarce. Therefore, towards contributing to the discourse on ICJVs, this study addresses the following objectives: determine the resources in demand that could be addressed through ICJVs in NZ and establish the constraints/limitations in acquiring some of the identified resources through ICJVs?

4. Research method

This study aims to explore the significance of ICJVs to address resource challenges within the NZ construction industry. To achieve this study purpose, some questions were formulated. The first seeks to understand the current state of resources within the NZ construction industry, which was addressed through the literature review. The review focused on resource sharing, transferring, and pooling in ICJV from previous studies outside of NZ, as there is a shortage of literature on ICJVs in NZ. Ten types of potentially demanding resources were identified through literature review. Also, potential risks and constraints of resources acquisition through ICJVs were listed. In order to answer the second research question, a questionnaire survey was conducted. The data were collected from local NZ construction practitioners through an online questionnaire survey. This was undertaken to identify the most demanding resources and potential risks and constraints in relation to resources acquisition through ICJV strategy. An online survey seems to be an efficient way of gathering a considerable amount of data, with minimum human efforts and mistakes (Regmi et al., 2016). According to Regmi et al., (2016), the online survey approach is helpful when collecting data from people with special circumstances or gathering information from busy individuals, as they can respond at their convenience and take longer time to answer the questions.
This strategy of data collecting can produce meaningful results only if the survey questions are clear and specific. The following section details the step-by-step process of the online questionnaire survey adopted for this research.

4.1 Questionnaire survey

The survey focused on a representative sample of contractors, developers and consultants, as these groups are deemed to be the key stakeholders of any type of project delivery. A respondent-driven sampling method, so-called the snowball method, was used to ensure adequate responses can be collected. Just few industry professionals were contacted directly and asked to help recruit other participants through calls and emails. This method is commonly used to locate rare populations or target participants that are anticipated to be very hard to reach (Cui et al., 2019). Also, a non-profit professional organisation, the New Zealand Chinese Building Industry Association (NZCBLIA), was approached to get additional support. The NZCBLIA represents a wide range of businesses and professionals in the building industry in NZ and the Kiwi business and professionals that have close working relationship with the Chinese building industry and the local NZ industry.

The online survey questionnaire was developed by using ‘Google Form’ which is free and easily accessible. The online survey was posted by way of social media ‘LinkedIn’, and ‘WeChat’. Email invitations attached with questionnaire links were sent to the identified construction professionals to get more survey responses. A total of 38 questionnaires were obtained for this study. The response rate is statistically significant. The target participants were NZ-based contractors, developers, and consultants as these groups are considered key stakeholders of any type of project delivery. These are directly involved in ICJV types of projects as well. Also, these target groups are assumed to be most appropriate to participate in the survey with less potential biases. For instance, local suppliers are likely to respond against sourcing cheaper international materials through ICJV, and local subcontractors would be reluctant to partner with international subcontractors. Undoubtedly, international resources would bring potential competition to the local market, which local subcontractors and suppliers would potentially act against to protect their own interests. Hence, this research study considered contractors, developers, and consultants the most appropriate target participants.

5. Presentations and analysis of results

5.1 Online questionnaire response

The purpose of the survey was to identify the most demanding resources and potential risks and constraints concerning resources acquisition through ICJV strategy. The questionnaire consists of three major sections with 30 questions in total. The first part (Section 1) is the general information section that collected information about respondent’s profiles, including the discipline or field of work, years of local working experience, any involvement in ICJV project/s, and finally, the respondent’s job title. Feedback collected in this section allowed the researcher to filter data and enabled a more accurate survey result.

The second part (Section 2) of the survey covered specific survey questions regarding the demanding level of each identified potential resource that could be acquired from foreign joint venture partner/s by using a 5-point Likert scale and followed by a ‘checkbox’ of associated risks and constraints. There is an option to select ‘others’ for each question, designed to collect additional views on the risks and constraints from the participants that may add to the listed options.

5.2 Demographic information

A total of 38 questionnaires were received through the snowball sampling method adopted for this survey. Table 2 shows a breakdown of the demographic information of the respondents. Majority of the respondents (55%) have quantity surveying backgrounds compared to other professions. The high per cent age of professionals with quantity surveying backgrounds prompted further scrutiny of the responses, to determine their knowledge and involvement in ICJVs. Of the 63% of respondents with local construction experience, 14 (58%) are quantity surveyors. Further scrutiny found that 57% had less than 5 years of local experience. However, 67% of these respondents were at middle and senior management cadre, suggesting that they had prior international construction work experiences before NZ.

Generally, the respondents work with contracting organisations (55%). In terms of job cadre, 26% of the respondents are at senior management level, and 46% at middle management and operation level. Respondents were required to indicate how long they have been involved in any ICJV projects. The response shows that 63% have been involved in projects of this nature. From the demographic information obtained from the respondents, it is inferred that the dataset emanates from reliable sources and speaks to the NZ context.

5.3 Resources in demand in NZ

Respondents were asked to indicate their level of interest in accessing a list of ten international resources on a scale of 1 to 5, with 1 being ‘not interested’ and 5 being ‘very interested’. The scores of the ranking assigned by the respondents are added up and divided by the total number of respondents to give a mean score (MS) for each resource. From the MS, a rank order of interests for the resources was established and presented in Table 3. The Cronbach’s alpha value calculated from the dataset is 0.876, which indicates an acceptable internal reliability of the survey as it is greater than 0.700 (Hair et al., 2014).

The result shows a relatively high level of interest in accessing international building materials at an average of 4.42 out of 5 with a median number of 5. By implication, the result means that there is potential building material resource shortage in the local market or that the local building material product/market is less attractive. Of note, is that the survey respondents held that the ICJV strategy was
useful in the acquisition of much needed international building materials for NZ.

On a similar note, the level of interest for acquiring international skilled labour and technology transfer were found to be considerably high, rated second over seven other types of international resources. The average interest level was 4.05 out of 5 with a median number of 4, showing a considerably high level of interest. With the advent of new information management systems and technologies, such as planning software, BIM, Blockchain, the demand for technological skills have increased. The survey results align with the various industry reports reviewed in the Introduction, which found manpower and skill shortages within the NZ construction industry.

The survey shows that other highly ranked interests (see 4 to 6 on Table 2) also relate to the acquisition of skills and manpower through ICJVs. These were more specifically referring to project execution knowledge, procurement, and funding. The respondents to the survey have indicated that skilled labour can be acquired through ICJVs. Checking through the table, it is observed that the least MS was 3.47 (design support services). This infers that regardless of the ranks, all the resources were of interest to the respondents and could be acquired through ICJVs. This confirms the importance of ICJVs as a viable procurement strategy within the NZ context. Similarly, the results further confirm the resource shortages within the local construction market, especially in the greater Auckland region in NZ.

5.3.1 Constraints to international resource acquisition

In this section of the questionnaire survey, respondents were required to identify risks and constraints associated with acquiring resources under ICJVs. Table 4 provides a breakdown of the respondents’ views about the risks and constraints corresponding to ten types of resources that can be met through international partners’ involvement on construction projects. The ten resource

<table>
<thead>
<tr>
<th>Types of resources</th>
<th>MS</th>
<th>Median</th>
<th>Ranking</th>
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<tr>
<td>Skilled labour</td>
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<td>Specialised subcontractors</td>
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<tr>
<td>Design support services</td>
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<tr>
<td>Technical training support</td>
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<tr>
<td>Technology transfer</td>
<td>4.05</td>
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<tr>
<td>Procurement support</td>
<td>3.95</td>
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<tr>
<td>Project execution knowledge and experiences</td>
<td>4.00</td>
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<td>Project management resources</td>
<td>3.84</td>
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<tr>
<td>Funding support and resources</td>
<td>3.84</td>
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## Table 4: Ranking of risks and constraints to acquiring international resources through ICJV

<table>
<thead>
<tr>
<th>Building materials and equipment</th>
<th>Skilled labour</th>
<th>Specialised subcontractors</th>
<th>Design support services</th>
<th>Technical training support</th>
<th>Technology transfer</th>
<th>Procurement support</th>
<th>Project execution knowledge and experiences</th>
<th>Project management resources</th>
<th>Funding support and resources</th>
<th>Frequency count</th>
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<td>2 Warranty risk</td>
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<td>4 Lead-time risk</td>
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<td>16 Buildability issues</td>
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<td>30</td>
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<td>29</td>
<td>31</td>
<td>116</td>
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<td>17 Incompatibility with local practice</td>
<td>30</td>
<td>26</td>
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<td>30</td>
<td>16</td>
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<tr>
<td>18 Restrictions from building authorities</td>
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<td>19 Non-compliance with building codes</td>
<td>26</td>
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<td>26</td>
<td>15</td>
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<tr>
<td>20 Restrictions of money transfer policy</td>
<td>33</td>
<td>33</td>
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<td></td>
<td>33</td>
<td>33</td>
<td>11</td>
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<tr>
<td>21 Intellectual property rights</td>
<td>14</td>
<td>12</td>
<td>13</td>
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<td>50</td>
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6. Discussion

Through literature review, this paper established the challenging resources within the NZ construction industry and how ICJVs

Table 4.

Continued

<table>
<thead>
<tr>
<th>Project Funding support and resources</th>
<th>Project execution knowledge and experiences</th>
<th>Project management resources and support</th>
<th>Technical Procurement support and services</th>
<th>Design and Support services</th>
<th>Skilled labour</th>
<th>Specialised subcontractors and equipment</th>
<th>Building materials and equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Unfamiliar with local rules and regulations</td>
<td>30 Technology transfer</td>
<td>27 Project execution knowledge and experiences</td>
<td>26 Project management resources and support</td>
<td>25 Technical Procurement support and services</td>
<td>24 Design and Support services</td>
<td>23 Skilled labour</td>
<td>22 Specialised subcontractors and equipment</td>
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</tbody>
</table>

The results show that the highest ranked risk and constraint (ranking = 1) to the use of international resources is ‘language and communication barriers’. This risk item was indicated to affect nine out of ten international resources, with the highest being ‘skilled labour’ and the lowest being ‘funding support and resources’. This would seem logical, as language barriers could impact on the quality of communication and interrelationship between project parties, and consequently, the achievement of project objectives. Ranked second is ‘incompatibility with local practice’ that impacts project management resources (31), technology transfer (30), project execution knowledge and experiences (29), and procurement support (26), respectively.

The next risks and constraints are related to ‘compliances with building codes’, ranked third, and relates more to technical and technological issues associated with building projects. The respondents considered the ability (or otherwise) of ICJVs to comply with local building regulations and could constrain the opportunities for ICJVs to address resource challenges.

Ranked fourth and fifth are compliances with local laws and regulations and cultural barriers, respectively. Aspects that these risks and constraints may impact relate to the management of projects and people as can be observed from Table 4. The least item that constituted risk to the use of ICJVs to address resource needs is ‘restrictions from building authorities’. This means that building authorities in NZ are generally open to any means by which resource challenges can be tackled, even if it was through ICJVs.

Looking across columns in Table 4, the magnitude of risks and constraints varies depending on the resources under consideration. For example, certain risks and constraints are associated with acquiring international building materials and equipment through ICJV strategy. The most frequently identified risk is the ‘compliance with local building code’, the total number of respondents that selected this item was 29. This is followed by ‘warranty risk’, ‘lead-time issue’ and ‘quality control’ with response numbers of 24, 22, and 21, respectively.

In column two on skilled labour, the risk items are ‘language and communication barriers’, followed by ‘differences in rules and regulations’, then ‘cultural barriers’, and lastly, ‘differences in construction methodology’, respectively.
could become strategic in addressing those challenges. It also established ten types of resources that can be met through international partners’ involvement on local construction projects. The study went further to confirm these resources through interviews, and the results are subsequently ranked. Finally, the risks and constraints associated with each resource are identified, evaluated, and ranked according to their impact on ICJVs. These findings are insightful and provide basis for the improvement of wider construction industry constraints. The next paragraphs provide detailed discussion of the study findings.

It is evident from the analysis that there are preferences for ICJVs to meet the resource challenges that currently affect the performance of the NZ construction industry. ICJVs could address the heightened demand brought about by housing shortages, population growth, and reconstruction at the lower South Island of NZ. Mitigating those challenges could address workforce and contractors’ requirements in support of the suggestions of Ali Alosi (2017). It is important to note that international resource acquisition would need to be planned at the early pre-construction stages of projects. With international skills acquisition, the lack of specialisation that has impacted the capability and productivity of the NZ construction industry could be tackled. Although acquiring an external workforce has its own complications, these will need to be justified through immigration application formalities. Ghose et al. (2017) had also identified that regulatory policies significantly constrain the NZ construction supply. For materials and equipment inputs, an appropriate lead time for their acquisition will be required through the use of ICJVs. Concerning the identified risks and constraints, an independent project management team with the ICJV project execution experiences could help deliver and address those risks when they occur. The benefits offered by ICJVs of leveraging partner resources, know-how, reputation, and the ability to spread risks give feasibility to the study findings. Furthermore, the inherent resource, market, and capital-seeking strategies of international joint ventures (Parameswar and Dhir, 2018) consequently give access to resources, new markets and funds, which are often unavailable in the local construction market.

In addition, the study found some significant constraints to the use of ICJVs in NZ. For example, risks associated with compliance with local regulations and certification requirements and lead times are the most critical constraints for international material acquisition. The study findings also indicate that language and communication barriers, and differences in practice rules and regulations are the most significant constraints for utilising international skilled labour. These findings support extant literature on the risks and barriers to strategic alliances on construction projects between domestic and international businesses (Bodunde et al., 2020, Hwang et al., 2017; Ozorhon et al., 2008; Shen et al., 2001; Yu et al., 2017). ‘Language and communication barriers’ is actually ranked the highest of the risks and constraints to the use of ICJVs. This is probably true when one considers the catchment of migrant construction workers in NZ. These mainly originate from the Philippines, China, and other Asian countries. Therefore, the assertion of Ozorhon et al. (2008) that cultural distances between joint venture partners could significantly influence performance closely aligns with this study findings. The significant risks and constraints identified in this study also align with the conceptualisations of Hastak and Shaked (2000). These are country-specific risks such as compliance and regulatory policies; market risks such as currency fluctuations and restrictions to money transfer; and project level risks such as buildability and compatibility issues. Project risks are associated with project characteristics that could affect the performance of ICJVs (Hwang et al., 2017).

The main findings of this study confirm the primacy of ICJVs as a resourcing model for the NZ construction industry. A well-considered approach to forming ICJVs is necessary to exploit and enjoy the benefits inherent in ICJVs. Very few studies have investigated ICJVs regarding their benefits, implications, and constraints in the NZ context. This study has provided insights into the nature of the risks and constraints of ICJVs as a resourcing model. Therefore, if ICJVs were to successfully address the resource needs of the NZ construction industry, the risks and constraints identified in the current study would need to be mitigated.

7. Conclusion

This study focused on addressing the resources shortage in the local NZ construction industry by considering ICJVs as a strategic alternative. In the context of the potentials for resource acquisition, the study found ICJVs as an ideal model for solving the widespread resource shortfalls. The findings show a relatively high level of interest of all ten resources identified in this study. However, material and skilled labour were the two most demanding resources in the local NZ market. The acquisition of international resources through ICJVs is very likely to relieve project execution pressures.

Furthermore, the study provides an analysis of risks and constraints associated with ICJVs. The study found that these risks were related to country, market, and project level risks that could negatively impact the achievement of ICJVs as a viable resource model. Although there are many risks and constraints associated with ICJVs, the survey confirms an overall high level of interest from the local practitioners’ point of view. These risks are not unfounded and would seem natural in any collaborative arrangement, more so with international partners. It is suggested that the identified risks and constraints could be mitigated effectively with proper forward planning, risk management, and continuous monitoring. The study believes that a project management team with ICJV project execution experiences could help deliver and address risks when they occur. Periodic evaluation of ICJVs is recommended at all levels of implementation: country, market, and project levels, to elicit optimum benefits from ICJVs as a resourcing model.

From a practice perspective, the current study highlights the need for forward-thinking and collaboration of project programming and design management if ICJVs are to be strategic. The benefits
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and risks associated with the ICJV have already been discussed in this study. The most critical elements to deliver international resources acquisition are detailed planning and accurate end-user management. Once the materials and equipment acquisition requirements are established and a decision is made, these should not be reversed unless necessary. International procurement involves risks of long lead times, and materials and products are often custom-made to suit local compliance requirements. It would be very costly and time-consuming to change and perhaps even more expensive than sourcing locally.

The study provides insight into ICJVs and the nature of the risks and constraints associated with ICJVs as a resourcing model. It contributes to the minimal literature that exists about this strategic model in NZ. The study findings are incremental; therefore, further wider-scaled studies are recommended to enhance the current investigation results. Case studies of ICJVs in NZ, past and present, could provide complementary findings that could validate the notion of ICJVs as a resourcing model for the NZ construction industry.

Q7 REFERENCES


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Q1: Please provide keywords. Suggested keywords are given here. ICJVs/international material acquisition/international skilled labour/resource acquisition/resourcing model.

Q2: Please check that the leveling of sections and subsections is accurate because of the change from unnumbered to numbered per journal style.

Q3: Please check this phrase for clarity. It appears to be missing a word or two before ‘clearer’. Did you mean ‘with the exclusion of non-resource-related risks for clear understanding’?

Q4: Please check the figures for accuracy. Should they be interchanged or retained?

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Q10: This reference is listed in the reference list but not cited in the text; please indicate where in the text it should be cited, otherwise delete it from the list: Chang-Richards et al. (2017).

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