World Bank procurement approaches: Overcoming supply chain challenges in the Pacific

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Abstract

This paper explores the nexus of supply chain management (SCM) challenges and explains both the impact of recent global trends and the long-standing susceptibilities in Pacific Island Countries (PICs). The paper also discusses how these supply chain challenges exacerbate difficulties in procuring infrastructure investment projects. Finally, the paper summarises the practical solutions the Bank is pursuing through its procurement practices as an entry point for addressing supply chain management constraints. Supply chain disruptions had global repercussions in the aftermath of the COVID-19 pandemic and still present potential risks given on-going economic and geopolitical
uncertainties. These challenges have come on top of long-standing supply chain difficulties in logistically complicated remote markets such as the Pacific Islands. Businesses operating in that environment contend with high logistics costs and transport expenses, which can be further exacerbated by volatile fuel prices. For contractors undertaking transportation works, there are added risks such as volatility in commodity markets for raw materials such as steel. Mobilisation costs to the Pacific Islands are also high, especially when contractors must transport equipment, goods, and potentially labour from abroad. This is on top of the significant risk of adverse weather events, with works being highly susceptible to flooding and extreme weather due to their location near coastlines. This high risk is difficult to insure, and bidders often struggle to obtain adequate insurance for their projects. Ultimately, the combination of supply chain issues, localised risks and small contract values have contributed to price escalation and weak market response to works procurements in Pacific Island Countries (PICs). The weak market response also reflects a tightening supplier market, as construction companies focus on more attractive projects within the large pipeline of domestic infrastructure projects in countries such as Australia and New Zealand. The World Bank and borrowers (client countries) are addressing this challenge through procurement approaches intended to make projects more attractive to bidders. Outreach on the consolidated pipeline of infrastructure projects in PICs highlights the opportunity for repeat business; a sequence of projects in the same location helps offset high mobilisation costs. Similarly, the Bank informs bidders of opportunities for local subcontracting or joint ventures, which can offset mobilisation costs and facilitate access to local labour. Tenders can also make greater use of rated criteria, which place emphasis on past performance, quality and sustainability factors. Finally, greater use of phased approaches and provisional sums can help to spread price risk more effectively over long duration contracts where clear information on future costs is not available. In the context of global uncertainty, this can offset price risk for outyear items.

**Keywords**
supply chain, The World Bank, Pacific Islands, procurement, remote markets, transportation works

**INTRODUCTION**

Since the start of the COVID-19 pandemic, supply chain disruptions have affected the global economy and had pronounced impacts on markets such as the Pacific Islands. The Global Supply Chain Pressure Index spiked in March 2020 and showed significant volatility through 2022 (see Figure 1). And although this index has come down in early 2023, it is yet to return to pre-pandemic levels. Industry experts believe that global supply chains are still operating far from normal.1,2

In markets such as the Pacific Islands, supply chains have always faced geographic challenges, and recent disruptions have made conditions worse. Although trade is a lifeline for heavily import-dependent Pacific Island Countries (PICs), supply chain management proves difficult due to their remote location, high susceptibility to natural disasters and small size — which limits scale economies. This results in relatively high transport and logistics costs, and consistent supply chain challenges. These factors also lead to knock-on effects that undermine the viability of capital investment in infrastructure.

The World Bank’s clients are heavily affected by these challenges when undertaking infrastructure investment projects in the region. This paper
explores the nexus of these supply chain management (SCM) challenges and explains both the impact of recent global trends and the long-standing susceptibilities in PICs. The paper also discusses how these supply chain challenges exacerbate difficulties in procuring infrastructure investment projects. Finally, the paper summarises the practical solutions the Bank is pursuing through its procurement practices as an entry point for addressing supply chain management constraints.

THE WORLD BANK INFRASTRUCTURE PORTFOLIO IN THE PACIFIC ISLANDS

Supply chain issues are critical to the Bank’s Pacific Islands portfolio and prove particularly disruptive to infrastructure projects, which constitute 63 per cent of the US$2bn portfolio in the region (see Figure 2). Transport is the largest sector at 28 per cent.

Since 2013, the Bank’s Pacific Island portfolio has grown rapidly and currently comprises 96 projects and operations across
13 different sectors (or global practices). It is distributed across 12 client countries (see Figures 2 and 3). The 28 per cent of the portfolio in the transport sector includes aviation (runways), ports, bridges and road infrastructure. Such projects help client countries improve their regional communication and transportation links, which are of vital importance given their remote location. Projects also include climate change considerations, with infrastructure design geared towards improving the resilience of key roads, ports and other transport infrastructure. While transport projects have had a median value of US$33.5m (2013–22), the actual value of works contracts procured was US$5.5m on average across the portfolio.

Synonymous with horizontal infrastructure, transport projects can involve significant unavoidable risks, particularly in the Pacific Islands due to projects’ proximity to low lying coastlines, as well as the frequency of extreme weather events. In PICs, infrastructure projects often need to be built around challenging physical environments, can entail complex design and require high levels of technical expertise and specialisation.

SUPPLY CHAIN IMPACTS ON TRANSPORT SECTOR PROJECTS IN PICS

Transport projects in PICs are affected by supply chain constraints due to both global disruptions and factors specific to their operating environment. To illustrate these factors, Figure 4 depicts the multiple supply chains in the construction/infrastructure operating environment. Essentially, these multiple supply chains (raw materials, goods/equipment, labour) must be coordinated to complete the final product that is delivered to the client/borrower.

Raw materials supply chain

Depending on the type of transport project, raw materials can include soil,
aggregate, bitumen, cement and steel. Among these, global disruptions have been particularly acute in the steel industry. Geopolitical events have added to the uncertainty, as the Russian invasion of Ukraine caused prices to rise by US$500 per ton in Europe and the US (both Ukraine and Russia are minor steel producers). Since July 2022, prices have declined and are expected to further correct. Although more shortages are not expected, global economic uncertainty could lead to further volatility. China’s economic activity often drives commodity prices. Uncertainty about the Chinese economic outlook is also causing uncertainty in the demand for, and price of, commodities such as...
steel. Transportation project suppliers need to price-in this uncertainty and do so over a potentially extended time frame. In the case of the steel industry, heightened demand saw significant price increases as businesses resumed activities after COVID-19 lockdowns. This demand led to stock outs and shortages in the underlying materials to produce steel. Further down the supply chain, processing capacity was overburdened, with plants unable to keep up with skyrocketing demand, especially at a time of labour shortages. An increase in transportation and global shipping prices added to the already high commodity prices.

Beyond these global disruptions, PICs face systematic challenges in sourcing raw materials. For example, aggregate is not readily available and other raw materials such as bitumen need to be shipped from abroad. This entails logistics expenses, weather risks and transit time. Moreover, global volatility in fuel prices can also escalate these costs, as fuel prices drive transport costs and increase the costs of aggregate and bitumen. Figure 5 illustrates recent trends in the crude oil price, as a proxy for fuel price volatility. With long procurement lead times and contract durations for works, contractors/suppliers need to price-in this volatility, which ultimately affects the costs of transporting raw materials to PICs.

**Logistics**

As noted, the small size and remote location of PICs implies that many inputs required for transport projects may be unavailable locally and must be transported from far away. Thus, logistics become essential and can include:

- Transport from production facility/outbound warehouse;
- Exporting from source country (customs and licences);
- Shipping/container freight costs;

![FIGURE 5 Oil price volatility 2017–23](image)
• Importing (customs and licences);
• Local transport, potential warehousing, delivery to site.

Moreover, logistics are relevant for all supply chains (see Figure 4), as goods, equipment and labour are often not available in PICs and need to be sourced from abroad.

Globally, logistics became more complicated and costly due to container shortages, shipping rate increases, fuel surcharges and geopolitical tensions. Among other factors, increased economic activity in the aftermath of COVID-19 led to port congestion and affected the availability of shipping containers. In September 2021, container rates reached a record high of US$10,400 and have trended downward since 2022, with prices nearing pre-pandemic levels.

Despite this downward trend, the recent high prices and potential for volatility remain a reference point for bidders for transportation projects. Lump sum bids will price-in potential volatility, as procurement processes can be lengthy and actual costs may not be realised for several years for long-duration contracts. Therefore, just as with commodity prices, uncertain global economic circumstances pass through into uncertainty and risk in logistics and transport costs, and ultimately can result in higher bids for transport projects in PICs.

This price risk comes on top of high logistics costs in the region, driven by high transport costs (due to remoteness from market) and overall poor logistics performance. PICs are on average 12,000km from centres of economic activity, putting them at excessive distance from foreign suppliers, increasing unit costs due to transportation expenses, and making them some of the most remote countries in the world (see Figure 6).

Not only does this distance imply high transportation costs, but also limited availability and longer delivery time frames for transporting raw materials, goods, equipment and potentially labour to work sites. As their low liner shipping connectivity suggests, PICs can be considered ‘sea locked’ and few container lines service their ports. Figure 7 illustrates the Liner Shipping Connectivity Index for PICs, each of which has an extremely low value (below 10). Among the Pacific Islands, Marshall Islands, Tuvalu, Kiribati, Federated States of
Micronesia (FSM), Palau and Nauru have extremely low connectivity, while Samoa and Vanuatu have better connectivity. Within the region, there are also strong links from New Zealand to Fiji and Tonga, between Tonga and Samoa and between Tonga and Fiji.

Beyond transport costs and availability, Pacific Islands also have overall poor logistics performance, as suggested by the low ranks of Fiji, Papua New Guinea (PNG) and Solomon Islands in the International Logistics Performance Index. Fiji ranks 133, PNG ranks 148 and Solomon Islands ranks 103 out of the 160 countries in this index. Dimensions where PICs performed worst included:

- Quality of trade and transport infrastructure;
- Competence and quality of logistics services (trucking, forwarding, and customs brokerage);
- Ability to track and trace consignments;
- Timeliness (frequency with which shipments reach consignees within scheduled or expected delivery times).

**Equipment/goods supply chain**

The equipment and goods supply chain is essentially about getting construction equipment to the work site to build the transport infrastructure. As illustrated in Figure 4, this supply chain can also entail considerable logistics if equipment is located at significant distance from the project site. This is likely to be the case in PICs, as larger projects often involve international contractors based in foreign countries. Unless the contractor already has an ongoing project in that client country, it is unlikely that their equipment would be near the site already. Added to that, these works contracts are relatively small in value and are likely to attract small or medium-size bidders.

Therefore, transport and logistics play a key role in the equipment and goods supply chain. As with the transportation of raw materials, contractors are likely to price-in volatility of fuel prices that have an impact on transport costs. The poor logistics conditions in the region also affect the transport of equipment and goods.
Labour supply chain

Labour shortages, particularly for skilled workers, is another key supply chain issue in the region. Except for PNG, most PICs have small populations, ranging from 11,000 in Nauru and Tuvalu, to 900,000 in Fiji. These islands also experience considerable outmigration, with workers leaving for seasonal employment in New Zealand or Australia. Transport projects often involve the hiring of foreign workers who need to travel to the work site. Thus, the same transport and logistics constraints would apply as with the other supply chains.

Added complications are that workers may be contracted through intermediaries, making the supply chain more complex. Working through intermediaries and with foreign labour also entails further risks. For example, both workers and intermediaries may lack familiarity with local labour laws, codes of conduct, as well as health and safety regulations. In addition, the local population may oppose large influxes of foreign workers, which could result in social unrest and political backlash for projects.¹⁶

DIFFICULTIES SECURING TENDERS FOR TRANSPORTATION PROJECT WORKS IN PICS

Based on World Bank procurement data, the supplier market for works projects in the Pacific Islands includes a limited number of suppliers and is likely to reflect geographic segmentation. The large distances to PICs serve as a barrier to entry and tend to limit participation to suppliers based in Oceania, China and perhaps Japan. Figure 8 illustrates this geographic segmentation, with winning bidders based in China and countries throughout Oceania. Bidders based in China have won the highest total value of works contracts in the Pacific, although this reflects a small number of high-value contracts.

The Bank’s procurement data documents 13 different companies that have won works contracts in the region and includes several joint ventures between companies. The overall supplier market may be larger and include companies that have made unsuccessful bids for Bank projects, or those that operate in the transport sector but have not bid.

![Figure 8: Total value of works contracts awarded by country of winning bidder](image-url)
Moreover, this supplier market is anticipated to tighten as substantial infrastructure investments in Australia, New Zealand and Japan offer more favourable opportunities. Both Australia and New Zealand are prioritising infrastructure development as a driver of economic growth, with substantial investments planned in road and rail networks.\textsuperscript{18} Figure 9 reflects the combined expenditures (Australia and New Zealand) in road and other transport projects anticipated through 2026, implying substantially larger projects than those planned in PICs.

**Limited market response**

Bank projects have and are expected to continue to have limited market response to tenders for transportation works. Works tenders have received few bids, with an average of three bids, and a maximum of seven bids for tenders over US$10m. Some tenders received no responses and needed to be contracted through direct contracting. The small size of PIC projects (estimated US$5.7m)\textsuperscript{20} is likely to make these unattractive to bidders, particularly when considering that these projects entail high cost, high risks and barriers such as insurance requirements.

**High cost**

PICs projects entail high cost due to the remote location and high mobilisation costs. In addition to distance, there is the limited connectivity and poor logistics performance that make raw materials, goods, heavy equipment and labour expensive and time-consuming.
High risk
Bidders contend with potential supply chain disruptions due to global disturbances (COVID-19 aftermath, geopolitical events, potential recession) and use these as a reference point to price uncertainty into critical inputs — such as fuel, steel and logistics — in their proposals. Beyond global uncertainties, PICs also face substantial risk due to extreme climate events and natural disasters (see Figure 10), which may not only disrupt supply chains, but also undermine physical progress on transportation works.

For the transportation works tenders in the Pacific Islands, there is the added complication of long lead time for procurements. With limited local capacity for undertaking works procurements, 12–18 months may pass before contracts are awarded and suppliers are mobilised. Thus, bids must account for risks that might be realised over this protracted time frame.

Difficulty satisfying insurance requirements
Bidders face considerable challenges and costs in obtaining adequate insurance (Contractors All Risk) for transportation works in PICs.

The region lacks a mature banking and insurance sector, with some PICs having experience in the sector and others having no regulatory landscape:

- PNG, Fiji, Solomon Islands and Vanuatu have well-established insurance markets that provide construction insurance;
- Tonga and Samoa have established insurance markets but do not have the strong experience or capability to cover construction or larger projects;
- Kiribati, Nauru, Palau, Republic of the Marshall Islands (RMI) and Tuvalu lack strong regulation of their insurance markets and are unlikely to cover construction projects.

In the absence of adequate local regulation, both local and international

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**FIGURE 10** Probability per year of severe natural disasters in PICs

*Note: The size of circle denotes the probability that each country is hit by a severe (above 75th percentile) natural disaster*
insurers are hesitant or unwilling to support construction projects. For large contractors, this constraint is less apparent as they have their own insurance coverage that would apply. Mid-tier and smaller companies, however, lack such coverage and need to acquire it for PIC transport projects.

Due to the risks associated with works in the region, insurance comes at a high cost. For example, in 2020 contracts works insurance premiums in the region increased on average by 30–35 per cent. Bidders referenced 1–1.5 per cent of the contract value as the premium cost for contract works, far surpassing the average of 0.6 per cent in Australia. Insurance to cover natural disasters (cyclone coverage) also comes on top of those premiums.

Practical solutions through procurement approaches
Supply chain issues have contributed to price escalation and poor market response to transport works tenders in PICs. For client countries and World Bank partners, it is critical to find effective approaches to offset these high costs and risks. The following procurement practices are being used by The World Bank:

1. Building trust in institutions and governance through enhanced complaints handling, direct payments to contractors by The World Bank and hands-on implementation support to clients;
2. Outreach to potential bidders on the combined Asian Development Bank (ADB) and World Bank Transport Project Portfolio in Pacific Islands;
3. Enhanced contract management support and targeted use of provisional sum items in contracts;
4. Informing potential bidders of opportunities for subcontracting and joint ventures with local partners;
5. Greater use of rated criteria in World Bank contracts.

The World Bank and other development partners (Department of Foreign Affairs and Trade [DFAT], New Zealand Trade and Enterprise [NZTE], ADB) have presented project pipelines to contractor groups, which helps encourage market participation by demystifying the conditions of the project locations. This information can also help make small projects more attractive, when these are framed as opportunities for repeat contracts in the same country. Mobilisation costs can be spread across multiple projects and contractors can position themselves as the incumbent and bid more competitively for future projects in the same country.

Joint ventures or local subcontracting could also potentially offset mobilisation costs along with labour supply chain risks. The World Bank provides information on the local market during the bidder outreach so that they are aware of potential partners for joint ventures or subcontracting. Some of these partners may already have the required equipment and labour in country, which could lower mobilisation costs. The borrowers (client countries) also look favourably to such arrangements, given pressure to award tenders to local contractors. Finally, local partners may also be more in tune to local labour conditions, regulations, and other labour supply chain challenges.

Projects still need to contend with supply chain risks due to global uncertainties, which can result in price fluctuations and cost volatility. When contractors use lump sum pricing, they price-in all these risks and need to do so over an extended time frame. An
alternative is to reduce price risk for both the contractor and the client (borrower) by using provisional sums for ‘outyear’ risky items. In this approach, the contractor provides a provisional sum for an item (including labour and materials) that they cannot definitively price at the time the contract is entered into, even after making all reasonable inquiries. Thus, the contract includes a provisional amount for that item that can be revisited in the future. And the item gets priced at a time where there is greater certainty about what that price actually is.

Finally, the greater use of rated criteria allows contractors to be selected on quality-based criteria rather than just price. If contracts are awarded based on price alone, then bidders may perceive that they are not well positioned to compete seeing that contracts are of small value and entail high cost. Yet with rated criteria, contractors can differentiate themselves based on quality, sustainability, health and safety, as well as past performance. Thus, this approach might improve the market response to PICs transport tenders. And to the extent that rated criteria emphasise past performance, this could also help shift contracts from one-off engagement to a repeated game. In other words, contractors will see the potential for repeat business, and that their good performance on small contracts could help them win future contracts. Rated criteria can also be used to incentivise contractors to better manage supply chain risks. For example, evaluation criteria could include proficiency in supply chain risk management and identification of specific contingency plans to address these risks.

**CONCLUSION**

Recent supply chain disruptions have posed difficulties globally and risks linger on due to on-going economic and geopolitical uncertainties. Dealing with these supply chain constraints has been particularly problematic for remote locations such as the Pacific Islands. In the case of transportation works tenders, these constraints come on top of long-standing supply chain challenges in the region.

Ultimately, supply chain constraints have resulted in poor market response to transportation works tenders and significant price escalations, as bidders price-in high costs and potential future supply chain risks. These high costs reflect both the recent high commodity prices for raw materials such as steel and fuel, and the potential for future price volatility. Fuel price volatility also drives higher prices for other raw materials (bitumen), along with inputs such as goods, equipment and labour required for transport works. As most of these inputs are unavailable or in short supply in PICs, bidders need to figure in costs for transporting these inputs from abroad.

In addition, PICs present further supply chain risks due to limited shipping connectivity, poor logistics performance, and the high risk of extreme weather events. Obtaining adequate works insurance is a further problem, as local banking and insurance sectors offer limited coverage, are unwilling to assume high risks, and lack familiarity with these kinds of projects. As a result, transport works opportunities in PICs are considerably less attractive to potential bidders, when compared to the growing domestic infrastructure pipeline in Australia and New Zealand.

Addressing the supply chain risks for these transport projects is no easy task. The risks are unlikely to abate in the near future, which means that borrowers need to determine effective strategies
for addressing the price escalation and limited market response.

The World Bank is using procurement practices that encourage bidders to find ways to offset supply chain constraints. Outreach on the consolidated pipeline of transportation works in PICs, across multiple donors (ADB and The World Bank), can help make individual tenders more attractive. This can be an entry point for repeat business in the same location — helping to spread high mobilisation costs across several projects. Greater use of rated criteria can also make these projects more attractive. Emphasis on past performance means that the contractor’s performance on a current project can put them at an advantage when bidding on future projects. So, the small value of contracts may be less of a deterrent if framed as a stepping-stone towards further business.

Information about potential subcontractors and joint ventures in the works location can also help offset high mobilisation costs and supply chain constraints. Bidders can take advantage of subcontractors’ equipment that may already be on site, averting some mobilisation costs. Joint ventures can also potentially lead to better connections for sourcing local labour.

Finally, the Bank is encouraging the use of provisional sums to better spread price risk between the parties of the contract. This approach can potentially bring down some of the price escalation driven by global supply chain risks, which essentially involve many unknowns.

In the end, these procurement approaches are a first step, intended to move transport projects forward in the face of supply chain constraints. Some of these constraints are driven by global uncertainties or natural disasters. Others are part of on-going capacity development and reforms in the region, such as strengthening logistics or building a more robust insurance and banking sector. It is commendable that all parties (donors, contractors, borrowers/client countries) are proactively addressing these constraints as part of their long-term development agenda.

REFERENCES AND NOTES


in The World Bank’s Investment Project Financing Portfolio in the Pacific Islands.

(6) The World Bank, ref. 4 above.


(8) High consumer spending on home construction work also drove demand for steel and other raw materials used in the construction industry.


(15) The added complication is that contractors often rent this equipment, which means they target a narrow time frame for usage. But long transport time frames, and uncertainty in the project execution time frame, would undermine such planning.


(17) The World Bank, ref. 4 above.


(22) Kiribati, Tuvalu, Palau, Nauru and Marshall Islands (RMI) are noted to lack strong regulation of insurance markets; Asian Development Bank (ADB) (2022), ‘Pacific Region Infrastructure Facility (PRIF) Infrastructure Projects’, (document not publicly available).


(24) Asian Development Bank (ADB), ref. 22 above.