Linesight

Japan

Country Insights and Commodity Report

Q1 2022

Japan
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Modest economic growth of 1.6% was seen in 2021 for Japan, with COVID measures weighing on household spending. The Bank of Japan forecast growth of 3.3% in its January 2022 update, although more recent global market conditions may weigh on that growth.

Following the 7% contraction in the construction industry in 2020, growth of circa 4% was seen in 2021, although investment remained subdued. In 2022, industry growth is expected, buoyed by strong demand for Japanese exports and significant investment in the burgeoning semiconductor sector, as the focus on domestic production is renewed. The ongoing Russia-Ukraine conflict remains a threat to industry growth, as supply chain challenges worsen and material price volatility is seen again following the slight moderation in late 2021.

As material costs will continue to represent a challenge for the construction industry for the foreseeable future, Linesight will publish quarterly updates to track commodities and provide insights about future projections on movements.

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Lumber
Lumber prices could face renewed upward pressure, given disruption in imports from Russia. However, domestic lumber supplies have been expanding, and there is an aim to achieve a timber self-sufficiency rate of 50% by 2025, along with industry efforts to promote the use of domestic supplies.

Cement and concrete
Although recovering from the 2020 slump, construction output growth has been fairly sluggish, and this has meant that price pressures on cement and concrete have been muted. However, with higher energy costs, production costs are rising and this will feed through into higher prices in the short term.

Concrete blocks and bricks
As with concrete and cement, prices for bricks have edged upward,s but have not recorded the levels of inflation as for metals. However, higher energy costs will generate upwards pressure on prices in the coming quarters.

Steel (rebar and structural)
Having been driven up by increases in iron ore and coking coal prices in late 2021, steel prices surged again in March in response to the Russia-Ukraine conflict. Russia and Ukraine are key sources of iron ore and coking coal imports, and this is coupled with soaring scrap steel prices.

Copper
Copper prices rose sharply over 2021, reflecting global supply constraints and improving demand. Although there may be some volatility in the coming quarters, given uncertain demand in China, domestic copper prices will remain relatively high. Japan's investment in renewable energy sources and electric vehicles, which require significant minerals and metals inputs, will keep demand high, and will contribute to ongoing efforts to improve self-sufficiency rates.

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Japan - Commodity Report

Materials	Q3 Q4 2021 JPY	Q3 Q4 2022 (f) JPY	Q3 Q4 2022 (f) 2021-22 (f) % change	Q4 - Q1 (e) 2022 % change
Copper (JPY/MT)	1,118,472.2	1,306,026	16.8% ↑	5% ↑ ●
Steel rebar (JPY/MT)	91,104.2	107,084	17.5% ↑	6.8% ↑ ●
Steel flat (JPY/MT)	122,600	147,837	20.6% ↑	0.8% ↑ ■
Lumber (JPY/M3)	66,750	71,070	6.5% ↑	2.6% ↑ ●
Asphalt (JPY/MT)	86,867.5	100,157	15.3% ↑	4.8% ↑ ●
Limestone (JPY/MT)	90,833.5	91,221.2	0.4% ↑	-1.0% ↓ ●
Cement (JPY/MT)	10,800	13,448	24.5% ↑	18.5% ↑ ●
Concrete (JPY/M3)	14,700	15,135	3% ↑	2% ↑ ■
Welded mesh (JPY/unit)	573.9	686	19.5% ↑	7% ↑ ●
Bricks (JPY/'000 unit)	114,055	132,103	15.8% ↑	8% ↑ ●
Plasterboard (JPY/unit)	1,481	1,482.5	0.1% ↑	0.8% ↑ ●
Diesel (JPY/litre)	141.4	161.04	13.9% ↑	3% ↑ ●

Q3 Q4 2021: Average **Q3 Q4 2022 (f):** Forecasted average
2021-22 % change: % change from Q3 Q4 2021 average to Q3 Q4 2022 average
● **Q4 to Q1 2022 % change greater than estimation in our Q4 report**
■ **Q4 to Q1 2022 % change less than estimation in our Q4 report**

Material	% change Q1 – Q2 2022 (f)	Level of impact of pricing on construction procurement and supply chain *	
Metal prices - Copper - Steel rebar - Flat steel	 +4.8% ↑ +4.0% ↑ +4.5% ↑	Moderate	Copper prices jumped to a level above JPY1,300/kg in late March, following a persistent upward trend in recent months. Prices had been easing towards the end of 2021, and improvements on the supply side were expected to contribute to a weaker price scenario in 2022. However, low inventories and positive demand have kept prices high, and tightness on the global market has been exacerbated by the Russia-Ukraine conflict. There was continued upward pressure on steel prices in 2021, owing in part to high material costs and shortages in the domestic market. Prices edged up marginally over January-February, but then jumped in March, as markets reacted to the impact of the disruption to steel supplies stemming from the conflict. For example, in late March, Kyoei Steel increased its steel rebar prices by 7%. Scrap prices also surged in March. Russia is a key supplier of iron ore and coking coal for many Japanese steelmakers. Around 14% of Nippon Steel's imports of iron ore pellets are sourced from Russia and Ukraine.
Cement **Concrete**	+2.0% ↑ +0.9% ↑	Low	Cement prices moved higher in Q1 2022, reflecting decisions by major producers to push up prices to account for the sharp rise in costs, namely those relating to fuel. Cost pressures have intensified and demand remains strong in major cities, such as Tokyo, with investments in urban redevelopment works.
Asphalt	+2.0% ↑	Moderate	Although asphalt demand is primarily met through domestic production, Japan relies heavily on crude oil imports, and as such, asphalt prices are impacted by global crude prices. Asphalt prices rose throughout 2021 and during Q1 2022, and will now face further upward pressure given the higher price for crude.
Limestone	+0.6% ↑	Low	Limestone prices have stayed stable in recent months, and are not expected to rise markedly.

Please note that commodity prices are based on representative materials available in the respective countries, and as these materials may not be standard across all markets, cross-country comparisons on prices can be ineffective. For example, asphalt types can vary between hot, cold or a bitumen price, and standard unit sizes for materials can vary across countries.

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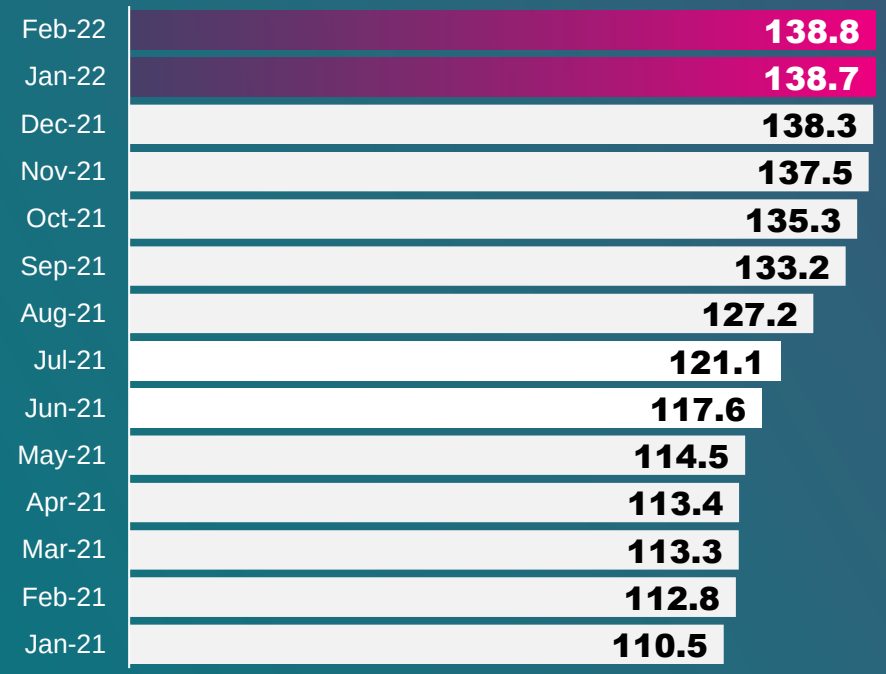
Japan - Commodity Report

Construction cost index 2021-2022



Knoema World Data Atlas

Index of economic freedom **74.10 out of 100**

Material	% change Q1 – Q2 2022 (f)	Level of impact of pricing on construction procurement and supply chain *	
Lumber	+3.5% ↑	Moderate	Having stayed stable at a relatively high level in late 2021 and the first two months of 2022, lumber prices were pushed up further in March. Import demand has strengthened, and given that Russia accounts for around 10% of lumber imports for residential construction, the disruption to supply will add to inflationary pressures.
Welded mesh	+5.5% ↑	Low	The price of welded mesh is mainly impacted by the steel rebar prices, which will trend upwards in the coming quarters.
Bricks **Plasterboard**	+1.5% ↑ +0.6% ↑	Low	Construction demand will not be excessive, but high production costs will keep prices close to current levels in 2022.
Diesel	+3.5% ↑	Low	Diesel prices jumped in March, hitting close to JPY150/litre late in the month, reflecting trends in global crude prices. Prices will remain high, but although Japan is a major importer of crude, Russia has generally accounted for only around 4%.

* Level of impact rating reflects a combination of factors: the price movement and also price level (compared to recent past beyond the last quarter), the importance of the material, and general state of the supply chain in terms of stability.

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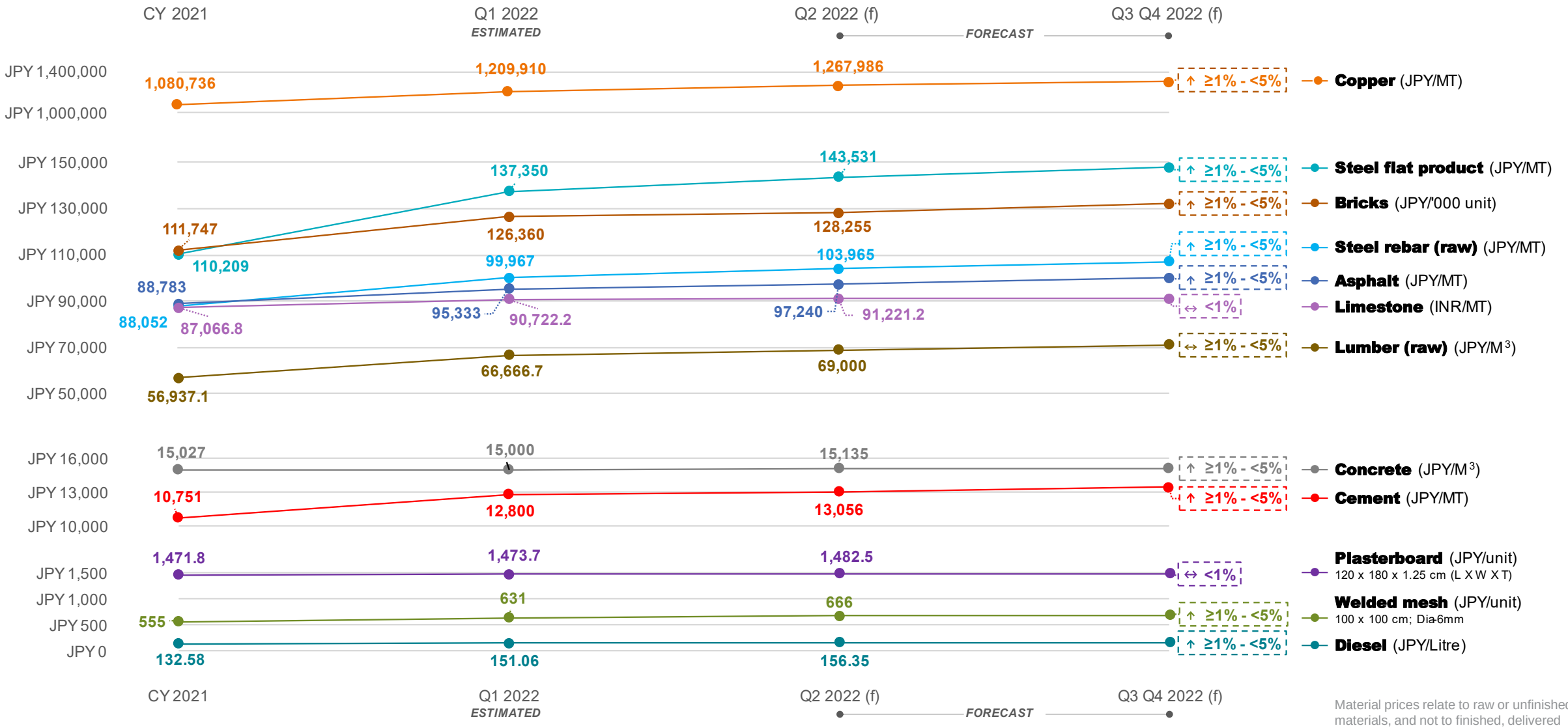
Japan - Construction Materials Pricing (2021-2022)



Material prices relate to raw or unfinished materials, and not to finished, delivered and erected on-site prices.

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Japan - Macroeconomic overview

Economic indicators

3.3%
GDP growth in 2022 (f) and 1.6% in 2021

0.54% inflation rate in 2022 (f) and **-0.17%** for 2021

67.2M people employed in 2022 (f) and 66.9M in 2021

2.38%
unemployment rate in 2022 (f) and 2.78% in 2021

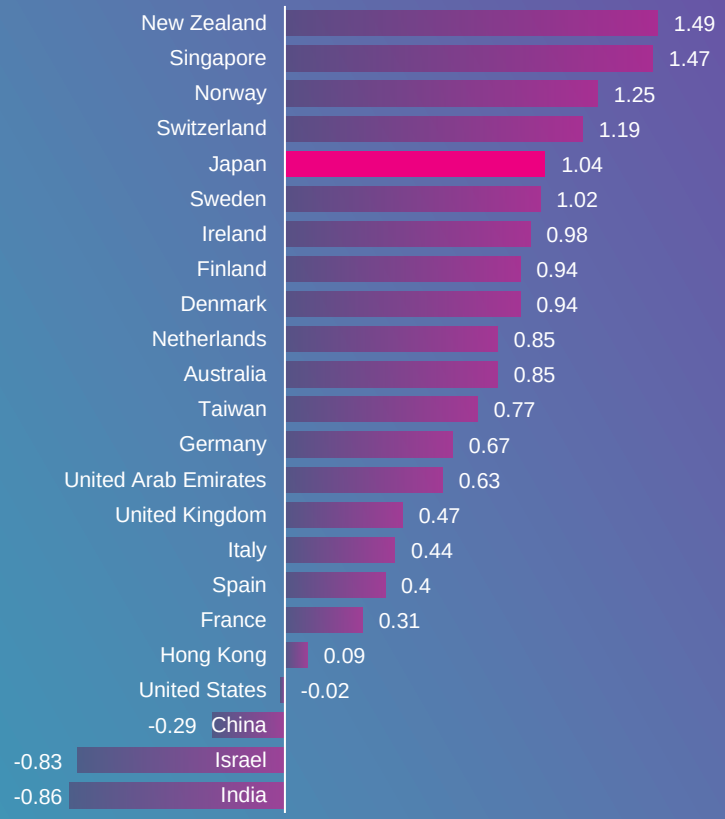
100.7
Consumer Price Index in 2022 (f) and 100.1 in 2021

Weather conditions

2°C to 30°C
typical temperature range throughout the year

1,700mm
average annual rainfall in Japan.

Political stability



Political stability index (-2.5 weak; 2.5 strong)

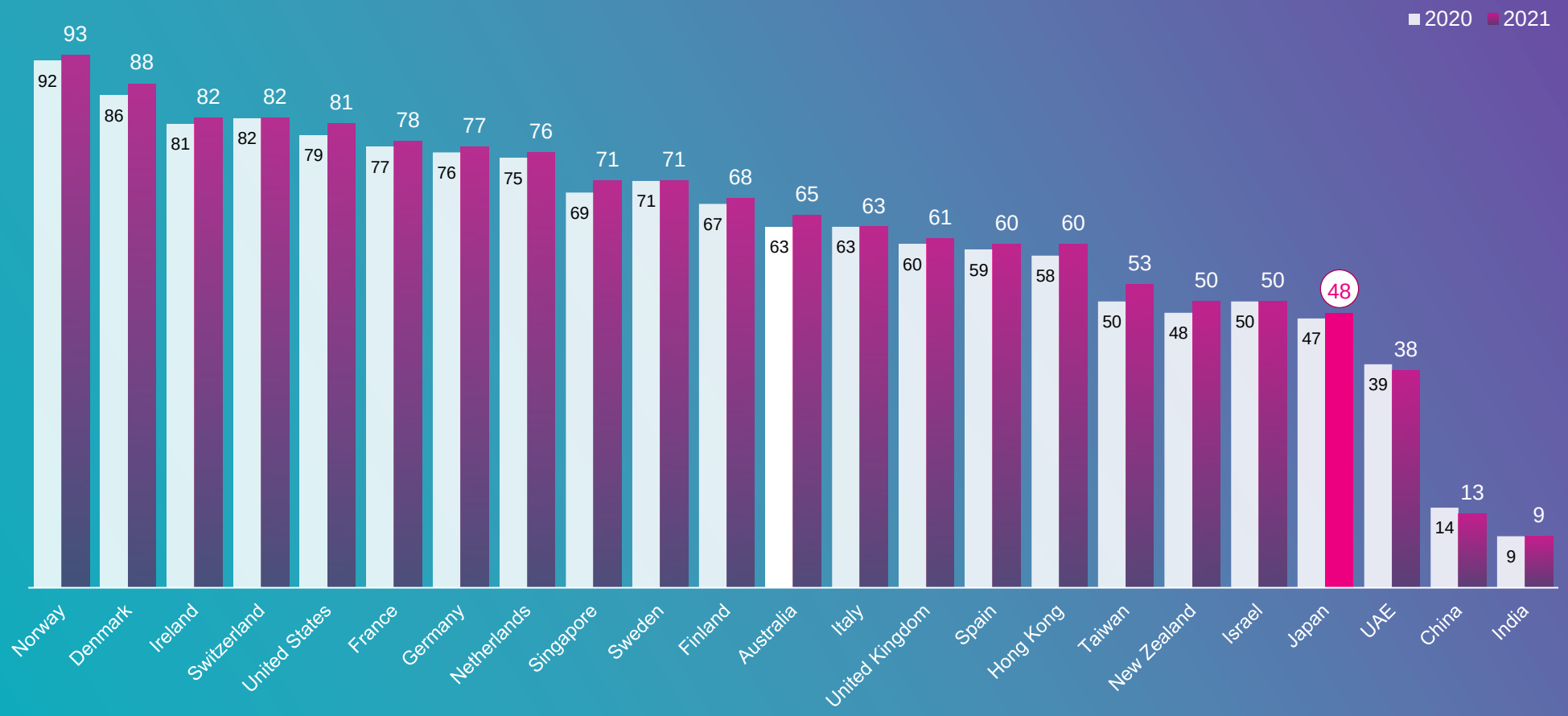
The index of Political Stability and Absence of Violence/ Terrorism measures perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.

National holidays

16 national holidays in Japan each year.

Japan - Macroeconomic overview

Labour productivity



Labour productivity per hour worked in 2020 international dollars, converted using Purchasing Power Parities

Labour costs

JPY1,950
is the average hourly earnings
or
JPY4,057,017
average construction worker gross salary in Hong Kong.

An entry level construction worker (1-3 years of experience) earns an average salary of **JPY3,016,692**. A senior level construction worker (8+ years of experience) earns an average salary of **JPY4,912,428**.

$48
is the labour productivity per hour worked in 2021 international dollars, and $47 in 2020 (converted using Purchasing Power Parities)

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Japan - Construction overview

Output 2021 & 2022 (f) (in millions)

Sector	Total 2021	Total 2022 (f)	% change
Commercial	JPY 9,001,410.05	JPY 9,211,201.18	2.3%
Energy and utilities	JPY 12,896,664.01	JPY 13,414,391.38	4%
Industrial	JPY 5,457,333.80	JPY 5,540,190.75	1.5%
Infrastructure	JPY 20,768,511.62	JPY 21,646,867.31	4.2%
Institutional	JPY 3,227,152.27	JPY 3,286,209.07	1.8%
Residential	JPY 20,454,236.38	JPY 21,039,661.12	2.9%
Total output	**JPY 71,805,308.13**	**JPY 74,138,507.95**	**3.2%**

Long-lead equipment (LLE) – time risks

Long-lead equipment (LLE) lead times have changed drastically since the start of 2022. Suppliers have seen the implications of material shortages, delays and price hikes throughout the supply chain which is leading to extended lead times and reduced commitment from suppliers for new projects. The key areas in focus are:

1. **Demand**: The demand for long lead equipment in the data sector has increased exponentially with the IT boom. More and more data centre and crypto mining providers are joining the market and this new demand far outweighs the capacity of the supply chain. Entry onto the production line has become a significant challenge with suppliers reporting fully booked capacity until Q1 2023. Opportunities exist for the development of Tier 2 and Tier 3 suppliers to Tier 1 status however that will take time to develop an extended supply chain.
2. **Material shortage**: The end of Q1 2022 saw a significant drop in the availability of raw materials used for LLE production. Global factors such as the conflict in Ukraine and the resurgence of COVID19 has halted production which is at its lowest levels in recent years. The ethical approach, which is to manoeuvre away from the use of Russian gas and oil, has reduced production levels and added longer lead times within the supply chain – even for APAC, as the European impact is felt. The raw material shortages are expected to continue into Q2 2022, whilst there is uncertainty for the security of the supply chain.
3. **Freight durations and costs**: Heightened by the increase in fuel costs and compounded by the shortage of labour and low supply of shipping containers, freight durations have soared as suppliers look for ways to mitigate these challenges. The demand for freight services has grown across all markets in recent years and the competition amongst industries has had a negative effect on availability and durations. As clients consider alternative solutions, it almost becomes cost prohibitive to use quicker forms of transport such as air freight due to increasing fuel costs.

Construction health & safety practices and culture

258 accidents with fatalities in the construction industry in 2020 – 102 of these in civil engineering and 102 in construction work.

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Japan - Report methodology

Linesight has commissioned independent global research to track construction materials and commodity prices.
The approach and methodology for the collection of construction material pricing and other indicators is based on primary and secondary research.

Primary and secondary research

Primary research is conducted on a quarterly basis with stakeholders in the value chain, including manufacturers and suppliers/distributors of the target materials, to ascertain market information on prices in recent quarters, and also on projections for changes in the coming quarter and remainder of the year. The market analysis also involves a thorough assessment of secondary sources of data on materials and labour prices, in addition to underlying demand and supply trends that will impact market prices.

Sources include GlobalData's Construction Intelligence Center (CIC), the World Bank, IMF, OECD, as well as country specific national statistics offices, such as the U.S. Bureau of Economic Analysis, Bureau of Labor Statistics, and also industry specific associations and publications. A more comprehensive list of sources is included below.

Definitions

- Commodity prices are net of taxes for all the countries
- Prices are not customer delivered
- All commodities are raw materials
- Nominal and real data

Nominal data series do not exclude changes in prices and are also referred to as current prices series.

Annual changes in nominal data for construction output will include changes in construction activity, as well as changes in costs for materials and equipment.

Real data series are calculated by keeping prices constant (so, are also referred to as constant price series), and therefore, they reflect changes in activity only. Growth rates in nominal terms can overstate the pace of growth in construction activity if there is high inflation stemming from rising prices for key inputs.

Sample sources – Japan

For Japan, sources for this report include, but are not limited to:

- IMF
- Economy.com
- The Global Economy
- Weather Spark
- Japan Industrial Safety and Health Association
- Statistics Bureau of Japan
- GlobalData's Construction Intelligence Center (CIC)
- Conference-board.org

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