Japan: Balancing the G20’s Global Impact

Barney Foran\textsuperscript{1,2}
Manfred Lenzen\textsuperscript{2}
Daniel Moran\textsuperscript{2,3}
Ali Alsamawi\textsuperscript{2}
Arne Geschke\textsuperscript{2}
Keiichiro Kanemoto\textsuperscript{4}

1. Institute of Land Water and Society, Charles Sturt University, Albury, Australia
2. ISA, School of Physics, University of Sydney, Australia
3. Norwegian University of Science and Technology, Trondheim, Norway
4. Institute of Decision Science for a Sustainable Society, Kyushu University, Fukuoka, Japan
Japan lives on the rest of the world’s resources: Japan’s consumption footprints are mostly in external global value chains for scarce water (75%), land footprint (75%), material usage (86%), animal species threats (61%) and greenhouse emissions (45%). Consumption trends across value chains have been generally upwards for the past two decades while domestic usage is stable or declining. Globalisation advantages Japan substantially and self-sufficiency programs now underway could redress an historic over-reliance on imported resources. Animal species impacts are due to wild harvesting (forestry and grazing), climate change, pollution and agriculture with Papua New Guinea, USA, India and Thailand the leaders in external countries impacted. The scarce water footprint is led by imports from USA (cereals, oil seeds), China (crops, prepared foods) and India (coconuts, rice) while the large imported land footprints is for crops, fish and forest products.

Japan’s high material usage (third rank after Canada and Australia) reflects its sophisticated manufacturing where raw materials transform to market products mostly within the country’s borders. Import reliance is total for ores and fossil fuels and mostly for biomass and construction materials. Japan ranks fifth in per capita GDP but third in ‘embodied value added’ where globalisation is reconciled.

Japan’s loyal savers tolerate a huge government debt: As the G20’s largest international creditor ($3,100 billion), predictions of Japan’s imminent collapse due to internal debt (240% of GDP) are difficult to reconcile. More than 95% of internal debt is held by domestic investors whose net worth equals that debt, and they accept low investment returns as the inevitable business cost of “staying Japanese”. Interest payments currently take one quarter of government revenues causing budgetary and political fragilities, particularly as demographic change accelerates. Increases to Japan’s traditionally low levels of income and sales taxes could improve budget resilience over relatively short timeframes. Financial analysts generally agree that Japan’s savers will continue to support their government’s spending, but looming old age without sufficient social security might see them spend savings and send capital offshore in search of higher returns.

Japan’s inequality rankings give it fourth lowest place in the G20 behind Germany, France and the EU although inequality has been steadily rising since its lowest point in 1976. Currently, more than 40% of income is collected by the top one tenth of earners compared to 30% in the mid 1970s, and 33-35% now in Germany and France. While Japan is a rich country, social security is focused more on the elderly and misses the working poor who once had a job for life and now bear the brunt of economic restructuring and competition with low wage countries nearby.

Nuclear shock constrains the energy transition: The Treaty of Kanagawa with USA in 1854 saw Japan’s population of 32 million transition from relative isolationism to modernisation and industrialisation. On a median projection basis, today’s population of 127 million will decline to around 106-108 million in 2050 as the median age increases from 46 to 53 years. While predictions of demographic doom are plentiful, a one third decline in the working population by 2050 takes it back to the size in the 1950s, at the start of the post-war miracle. Cultural beliefs in tanitsu minzoku (an homogenous people) currently inhibit large scale in-migration although some categories in health and traineeships are encouraged. Declining birth rates are attributed to an out-dated marriage model and a growing disinterest in relationships by the young. While unemployment hovers around 3% overall and 8% for youth, nearly one sixth of people live below the poverty line.

Domestic reserves of oil and natural gas cover consumption of 13 days and 70 days respectively. The shutdown of 50 nuclear reactors following the 2011 incident saw Japan become the world’s second largest fossil fuel importer, so distorting trade balances. Electricity generation is now 86% fossil and 12% renewable with hydro one half of that. Government policies promote rapid deployment of renewable technologies with solar and biomass the most advanced. Large geothermal resources are relatively unexploited as they largely occur in national parks.

Japan’s loyalty to the international creditor:

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Social change needs to be dramatic: Japan’s jobs requirement is third ranked in the G20 with three quarters of one full time worker per citizen required to generate final consumption. One half of the 109 million labour force is external to Japan, with China dominant while India, Indonesia, the Philippines, Russia and Thailand supply smaller proportions (see pie chart). The wage differential of domestic to external workers is eight times showing the economic advantage of outsourced labour chains that parallel large outsourced physical supply chains. Domestic labour supply is problematic in sectors of farming, construction, health care and other physical tasks less suitable for robotic solutions. Ageing will compound the issue as 80% of rice farmers are already over 60 years of age. The required social reforms are many faceted and need to ensure higher participation of women, older persons and youth while revitalising the workplace to ensure work-life balance and better rights for high numbers of low-paid non-regular workers.

Plans for a low-carbon economy stalled: The 2011 nuclear accident and current shutdown of plants have stalled the low carbon transition plan depending on 50% nuclear electricity by 2050. Many elements remain however, such as a declining population, 30-80% energy savings targets in different sectors, the technology “front runner” program and feed-in tariffs for renewable technologies. The energy provision gap remains substantial without nuclear and current policies ignore Japan’s energy transactions off shore, currently one third of current consumption. Development threatens biodiversity: Up to 40% of vertebrate animals and 25% of vascular plants in Japan’s rich and endemic biodiversity resource are threatened by development, insufficient management, invasive species and global change. Strategic policies aim to recover ecosystems and species lost over the last century with particular emphasis on flatlands, freshwater, marine and coastal ecosystems.

- The success of Japan’s post-war economic miracle has left it highly sophisticated but dependent on the world’s resources, facing accelerated population ageing, the world’s top creditor with the most indebted government. Ageing may give a 2050 workforce similar in size to that in 1950, and possibly, a fresh start. If financial and social restructuring coincide with a retraction in the extent of Japan’s global value and global impact chains, then a radically new national design is possible. The next kaizen (self-changing for the best of all) will reconcile energy and material reliance, ageing, inequality and domestic debt and leave behind the outmoded models of the 20th century.
Rationale for Indicators

Key References
Material footprint: Wiedmann et al., (2013). The material footprint of nations: A novel approach of each country is important. There is no inherent right or wrong in being inside or outside the G20 average as each country has its own set of special circumstances. Thus for the Japanese example above, most of the indicator set are above the G20 average. These above-average indicators report both better and worse outcomes. High indicators for scarce water use, emissions and animal threats point to higher impacts on ecosystems in per capita terms and little room for complacency given total population size. A lower than average Gini coefficient reflects lower inequality and some policy success to date. An 80% above average GDP suggests economic development has been good while a high jobs figure reflects high outsourced employment.