

Costing the transport infrastructure component of SDGs in Asia and the Pacific

Transport and SDGs

Transport is a key component of overall infrastructure in SDG9: “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”. Transport cuts across many goals and, instead of being a stand-alone SDG, it is mainstreamed in many of the SDGs, especially those related to food security, health, energy, and cities and human settlements.

Achieving universal access to transport is implied in various SDGs and explicitly mentioned in SDG Target 11.2 (“provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons”).

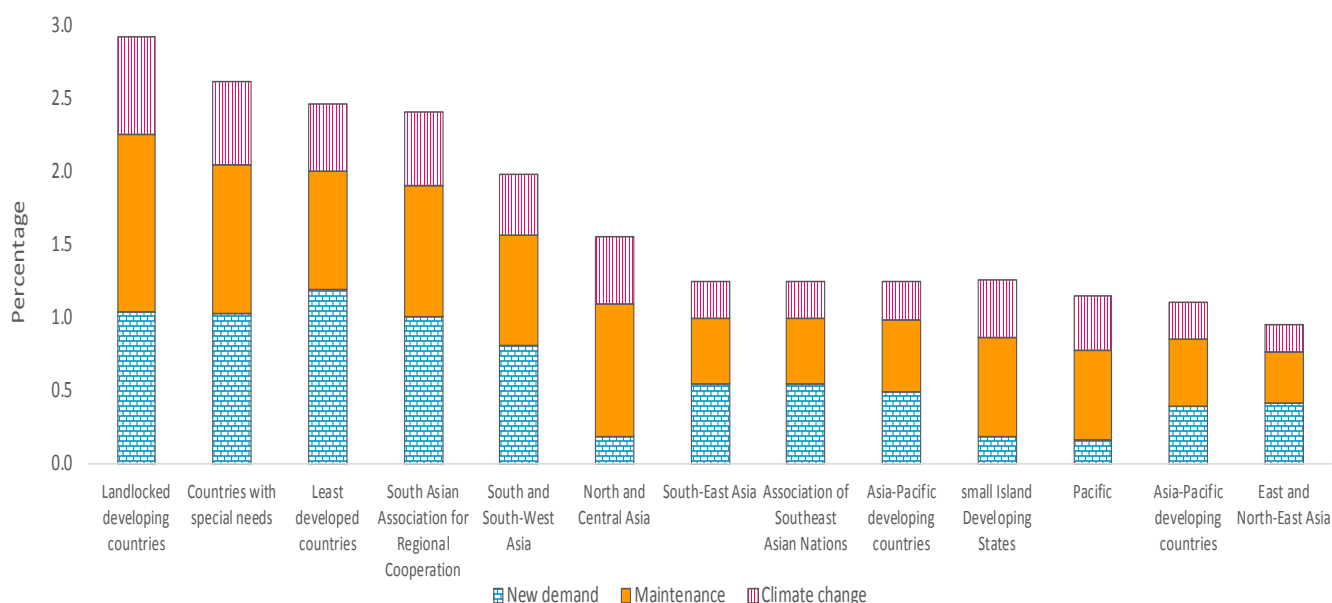
Where does the region stand?

Asia-Pacific has seen strong growth in transport infrastructure investment over the past decade. Developing countries in the region increased their road network by 5 per cent per annum during 2001-2010, faster than other developing regions of the world (ADB, 2017). The growth was especially fast in a number of countries, exceeding double-digits, including in, Afghanistan, Azerbaijan, Samoa and Thailand. However, much more investment is needed as road densities are still low and road quality needs improvement.

Progress in expanding the railway network in the region has been much slower. There was somewhat rapid growth during 2001-2011 in Malaysia, Republic of Korea, Thailand, Turkmenistan and Uzbekistan but progress was slow in most countries and some even saw reductions in their rail networks with the phasing out of obsolete tracks (ADB, 2017). The quality

Figure 1. Transport investment needs, by component

Annual average total investment need, 2016-2030, expressed in percentage of annual average GDP, 2016-2030



Source: ESCAP.

Note: Japan is excluded from East and North-East Asia subregion average. Australia and New Zealand are excluded from Pacific subregion average. Weighted averages have been used.

of railways also varies across the region with some countries having high quality networks such as China, Malaysia and the Republic of Korea, while others suffer from both infrastructure and operational bottlenecks. The slow expansion of the rail network in the region is a cause for concern as it is, usually, a more environment-friendly mode of transport.

Estimating transport investment needs in the region till 2030

The developing Asia-Pacific region will have to invest an additional \$126 billion in transport infrastructure annually, accounting for 0.4 per cent of the region's GDP. The total investment needs are about \$443 billion annually, accounting for 1.3 per cent of the region's GDP (Figure 1). Providing infrastructure to meet new demands and maintenance will account for the main share of investment while climate-proofing of the existing and future infrastructure will require an extra 0.3 per cent of GDP annually for the region.

The majority of transport spending will be for the building and maintenance of roads but with some diversity across the region. Breaking down requirements by transport indicator, 83 per cent of the financing needs will be required for the provision, maintenance and climate-proofing of paved roads, 7 per cent for rail lines and about 10 per cent for unpaved roads. This pattern is shared across country groupings except for the landlocked developing countries and North and Central Asian subregion where rail-related financing needs account for 15 and 20 per cent of the investments required in the region against 75 and 68 per cent for paved roads and 10-11 per cent for unpaved roads, respectively.

Three indicators were used to assess transport investment needs, reflecting population numbers with access to different modes of transport including: (i) paved roads (total route km per 1,000 people); (ii) unpaved roads (total route km per 1,000 people); and (iii) rail lines (total route km per 1,000,000 people). The required investment was calculated based on the assumption of providing road and rail infrastructure stock for additional demand and filling current infrastructure shortages by 2030. Maintenance and climate change-related components were added.

Investment gaps

Forecasting future needs means addressing not only current but also emerging challenges.

Business-as-usual will not meet future investment needs. The conclusions from most transport investment needs assessments, based on business-as-usual scenarios, point to the high levels of investment needed. For some countries in the region, this may not be possible, making the business-as-usual scenario not a very viable option. For instance, a recent analysis of future

urban transport needs, assessing existing accessibility levels with the expected trends of urban sprawl, concludes that just maintaining accessibility levels would require road investments that are not financially or environmentally sustainable. In some Asian cities, the expected sharp drop in density (-19 per cent between 2010 and 2050), despite projected growth of trunk road length of 137 per cent, would require multiplying the trunk road network six-fold just to maintain road accessibility at a constant level (ITF, 2017).

Most of the available evidence shows that the transport sector is the area where resource optimization holds a high, if not the highest, promise. It has been conclusively shown that the costs of transport development vary significantly based not only on initial conditions and development objectives but also on the means of delivery. In particular, future mobility demand could be supplied at lower costs and fewer externalities if implementation strategies capitalize on promoting a greater integration between transport and land-use policies, a more balanced modal split between transport modes and other ways of optimizing the development and use of transport networks. For example, some studies suggest that in urban transport, integrated transport planning, i.e., coordinating land-use and transport policies so that urban density is encouraged, could provide improved mobility services with 20 per cent less investment (ITF, 2017). Similarly, implementing policies which promote a greater and more efficient use of rail and public transport, in urban or rural transport, could satisfy the future demand for mobility at the relatively low cost of 1.3 per cent of GDP versus the alternative scenario of 3.3 per cent of GDP if no such policies are in place (Rozenberg and Fay, 2019).

In this sense, the Sustainable Development Goals approach and notably its integrated approach of three sustainability dimensions and its cross-sectoral nature is a very welcome perspective for assessing transport needs to achieve sustainable development and should result in policies leading to overall cost saving rather than cost inflation of investment needs.

Financing and policy options

The transport sector accounts for 64 per cent of the total investment needed to enhance economic infrastructure in the region. Meeting this very high level of investment requires innovative methods to access and leverage all sources of financing. The main sources of financing are the public and the private sectors. The former can borrow from international development financial institutions (DFIs) to supplement domestic resources.

- **Public financing:** Raising additional revenue involves direct and indirect taxes such as the value-added tax (VAT). Governments can also use transport-related revenues including transport user charges such as fuel surcharges, airport taxes, tolls and rail tariffs. Another source of revenue is charging non-users benefiting from transport infrastructure such as land

can borrow from DFIs, capital markets and private lenders. Prudent fiscal risk management is needed to capture both direct and contingent liabilities in the long term. Governments also need to enhance public investment management to select and prioritize investments.

- **Private financing:** There is considerable scope for private financing. Bank financing by both domestic and foreign banks has proved both insufficient and prone to maturity mismatch in lending. Capital markets should be tapped more to attract foreign and domestic investors. Institutional investors, although not private, are an untapped source with substantial assets and are looking for secured returns over the long term, which matches the infrastructure lifecycle. They can provide a conducive enabling environment for private and institutional investors from both domestic and international markets to finance projects. This would entail reforms in legal and policy frameworks, procurement, commercial and institutional practices. Furthermore, they need a pool of well-prepared, economically viable projects. In the long run, to reduce currency mismatch and increase participation of local institutional investors, countries should move away from dependence on foreign capital markets by developing local currency equity and bond markets.

- **Combining public and private sector:** Public-private partnerships (PPPs) are a procurement method where governments partner with the private sector by combining resources and sharing risks in transport infrastructure projects. However, PPPs have not played a large role in financing infrastructure in the region so far. On the public side, this is partly due to lack of a business-friendly regulatory and institutional climate in many countries and partly due to a lack of proper preparation to ensure economic and commercial viability of projects. The private sector has partly lacked understanding of country and project-specific risks and even with an understanding of risks, has shown limited risk appetite for emerging countries. PPP-related reforms include PPP laws, streamlining PPP procurement and bidding processes, clear rules of engagement such as dispute resolution mechanisms, credit enhancement mechanisms and establishing independent PPP government units. Governments should also be cognizant of risks associated with PPP projects. Private companies and banks should also support the sharing of risks and benefits during project design and implementation. An appropriate risk-sharing mechanism does not impose undue burden on the

public fiscal space and is affordable to both governments and users.

It is important to realize that, no matter how much the public and private sectors contribute, many developing countries will still need international development finance to fully bridge the gap in transport infrastructure funding. Overseas development assistance (ODA) accounts for 70 per cent of non-public funding in low-income countries globally (UNOHRLLS, 2018). It is a matter of concern that access to traditional bilateral ODA will decline as countries in the region graduate from the lowest income levels to middle-income developing country status. Also, ODA is directed primarily to social sectors and infrastructure has a far smaller share. The good news is that new sources of multilateral ODA are emerging in the region. The Asian Infrastructure Investment Bank (AIIB) offers particular promise for Asia-Pacific transport investment given its focus on national and cross-border infrastructure projects. Another emerging source of funding is the New Development Bank of the BRICs with a focus on infrastructure lending.

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