Research Paper

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Networks and Links
Why Russia’s Infrastructure is Holding Back its Pivot to Asia

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Summary

- Russia's vast territory and varied geography mean that its transport networks are extremely important in connecting the eastern and western parts of the country, as well as in linking Russia with other countries to promote international trade. However, inadequate transport infrastructure is preventing the country from capitalizing on economic opportunities, particularly with Asian partners such as China, Japan and South Korea.

- Russia's population and transport networks are unevenly distributed. A dense railway and road network exists in the west of the country, but a much sparser network serves the Russian Far East (RFE). This lack of capacity is problematic for the Kremlin's stated goal of turning the RFE into a trade and investment hub linking Asia with Europe. Key obstacles to improved transport connectivity include overloaded port systems, an insufficient number of well-engineered bridges capable of accepting increases in cargo, and challenging seasonal weather conditions.

- The above factors also restrict Russia from accessing and exporting significant reserves of the natural resources – such as oil, gas, coal and precious metals – upon which the economy depends. The RFE is rich in many of these resources. Without sustained and systematic improvements to the region's transport networks, particularly railways, bridges and ports, the Kremlin will be unable to attract the foreign investment needed to boost freight capacity and support export growth.

- Prospects for the development of the RFE's economic potential have further been complicated by the international political fallout from Russia's annexation of Crimea in 2014 and subsequent military involvement in eastern Ukraine – actions that prompted the introduction of Western sanctions and have weakened Russia's relations with the US and Europe. As a result, Russia now must seek alternative economic partners in Asia.

- Although the government has introduced some measures, including favourable tax regimes, to assist foreign businesses in the RFE, this has yet to result in large-scale inward investment. Absent substantial new capital inflows, many major projects, such as the planned expansion of ports, are on hold.

- Better progress has been made in building energy transport infrastructure, such as the ESPO oil pipeline and the Power of Siberia gas pipeline. However, much more investment will be needed if Russia is to achieve its stated ambition of directing half of its energy exports to Asian markets.

- The Kremlin has revealed a preference for prioritizing political initiatives over practical projects that would link up Russia's rural regions. Systemic corruption has also resulted in public funds being siphoned from major construction projects in the RFE, deterring foreign investors and forcing many large-scale infrastructure projects to be abandoned before completion.

- All these factors are exacerbated by a dearth of research on transport in Russia, which limits the scope for innovation and construction in the RFE. Should the Kremlin fail to address this knowledge gap, the resultant economic effects may damage Vladimir Putin's legacy long after he leaves the presidency.

1. Introduction

Russia's vast geographical terrain and extreme seasonal changes mean that having functional domestic transport networks (*seti*) has always been crucial both for connecting the country internally and for promoting trade with international partners. As a country reliant on the extraction and export of natural resources such as oil, gas and coal, Russia must reliably convey these products across large swathes of territory to ensure GDP growth and economic security. This imperative presents both a problem and an opportunity for the Moscow-based political leadership.

As serious political disagreements with the West continue, Russia is attempting to position its Far Eastern region as a logistics hub that will support and exploit China's Belt and Road Initiative (BRI), and facilitate closer links to Asia and Europe. For this agenda to succeed, an efficient transport infrastructure must be in place. However, as this paper will show, there are serious inadequacies in Russia's existing infrastructure in the Russian Far East (RFE) and eastern parts of Siberia. While the authorities have acknowledged the problem, and have increasingly apportioned funds to address it, the challenges are structural and clearly go beyond mere budget allocation. Without more substantive progress, the country is likely to be impeded from further forging political and economic links with its Asian trade and investment partners.

Much academic attention has focused on Russia's so-called 'pivot to the east'; its military and political alliances with rising powers such as China; and its attempts more broadly to recruit Asian countries into coalitions against the West.[1] (A deep analysis of this context is beyond the scope of this paper.) Russia's cultivation of political and economic ties with countries such as India, Vietnam and Japan[2] is long-standing, but has been given fresh impetus by the deterioration in diplomatic relations between Russia and the West. The introduction of Western sanctions in 2014 – following Russia's annexation of Crimea and military intervention in eastern Ukraine – has obliged Moscow to seek alternative trade partners, and to redirect its trade links from west to east.[3] This shift has added urgency to the Kremlin's desire to promote the economic development of the RFE to potential partners such as Japan, India and South Korea.

The Kremlin's own focus on the RFE is not new. Successive Soviet governments expressed interest in cultivating the region and in encouraging – or forcing[4] – various groups of citizens to relocate there and develop the land.[5] Such efforts met with limited success. One of the greatest challenges for Moscow is that most of Russia's human and political resources, including the Kremlin itself, are located in the west of the country. Most of the population is concentrated west of the Ural mountain range. Few roads and railways link the eastern and western parts of the country, and the vast

[1] Bordachev, T. (2019), 'Russia's Turn to the East and the New Geopolitical World', Valdai Club, 2 September 2019, http://valdaiclub.com/a/highlights/turn-to-the-east-and-the-new-world-geopolitics/ (accessed 25 Jan. 2020).
[2] Spanger, H.-J. (2019), 'Russia's Turn to the East – Seen From the West', Valdai Club, 17 July 2019, http://valdaiclub.com/a/highlights/russia-s-turn-to-the-east-seen-from-the-west/ (accessed 25 Jan. 2020).
[3] Connolly, R. (2018), *Russia's Response to Sanctions*, Cambridge: Cambridge University Press.
[4] Gelb, M. (1995), 'An Early Soviet Ethnic Deportation: The Far Eastern Koreans', *The Russian Review*, 54(3), www.jstor.org/stable/131438 (accessed 27 May 2020).
[5] This is discussed in Gaddy, C. and Hill, F. (2003), *The Siberian Curse. How Communist Planners Left Russia Out in the Cold*, Washington, DC: Brookings Institution Press.

majority of Russia's gas pipeline infrastructure was built with a European market in mind.[6] This concentration of people, resources and power in one space has meant that the RFE has for years been underfunded and underpopulated.

Russia's ability to advertise itself as a viable transport hub and source of exports is hindered by the poor connections between its roads, railways, airports, ports and maritime infrastructure. According to the government's official Transport Strategy, which runs to 2030, around 15 million people (10 per cent of the population) are cut off from transport networks in certain seasons, and more than 46,000 settlements in the RFE and Siberia are not connected to the broader road system.[7] As this study will show, these and other weaknesses – particularly in rail, bridge and port infrastructure – have economic implications, limiting Russia's ability to export raw materials and products or to re-orientate itself towards Asian markets.

A World Bank report in 2011 highlighted the important role that reducing 'spatial inefficiency' would play in boosting Russia's economic competitiveness.[8] A combination of long distances and an inhospitable climate raises transport and production costs while impeding economic development. According to the report, a further complication is the sparse distribution of Russia's population – more so than in other 'vast' countries such the US, Canada, Australia and China. While more than two out of every three Australians and Canadians live in one of their country's largest three cities, only one of every eight Russians live in Moscow, St Petersburg or Nizhny Novgorod.[9] To help overcome these challenges, the authors of the World Bank report proposed that policymakers increase 'spatial connectivity' through significant investment in infrastructure, including in 'roads, railways, airports, harbours, and communication systems that facilitate the movement of people, goods, services, and ideas locally, nationally, and internationally'.[10]

While the term 'infrastructure' can relate to numerous spheres of activity, from urban development to waste management, this paper confines its definition to four core sectors identified in the World Bank report – roads and bridges, railways, airports, ports – while also making reference to energy transport infrastructure. These sectors all consist of networks and systems that facilitate the movement of goods and people, both within Russia and to and from its external partners. Improvements (or a lack thereof) in this infrastructure can be viewed as broadly indicative of the level of socio-economic development and modernization.[11] However, not all infrastructure development is of equal economic value: as this paper will demonstrate, the upgrading of airports and roads tends to fulfil a social function, i.e. as a means of bringing the population together. On their own, airports and roads contribute little to the expansion of trade with Asian partners.

In this paper, we consider the condition of Russia's transport infrastructure, particularly in the RFE, and assess the prospects for improving regional connectivity within the context of Russia's ambitions for stronger trade, economic and diplomatic links with Asian partners.

[6] RIA Rating (2019), 'Рейтинг регионов по демографии – 2019' [Demographic ranking of regions – 2019], http://www.riarating.ru/infografika/20190423/630123908.html (accessed 20 Jan. 2020).
[7] Ministry of Transport (2008), 'Транспортная стратегия' [Transport Strategy], https://www.mintrans.ru/ministry/targets/187/191/documents (accessed 5 Jan. 2020).
[8] World Bank (2011), *Russia: Reshaping Economic Geography*, Washington, DC: World Bank, p. 8, http://documents.worldbank.org/curated/en/863281468107678371/pdf/629050ESW0box30g0Economic0Geography.pdf.
[9] Ibid., p. 10.
[10] Ibid., p. 18.
[11] Larkin, B. (2013), 'The Politics and Poetics of Infrastructure', *Annual Review of Anthropology*, 42 (2013), www.jstor.org/stable/43049305.

2. Russia's Overtures to Asia

Russia's diplomatic overtures to countries such as China and Japan are underpinned by both political and economic concerns. Russia's foreign policy strategy, updated in 2016, highlighted the importance of developing the RFE's economy, and of cooperating with Asia-Pacific countries to this end.[12] The government's previous strategy, in 2012, had paid scant reference to Asian partners, and had mainly mentioned deepening engagement with them through existing formats such as the BRICS[13] grouping or the Shanghai Cooperation Organisation (SCO).[14] The 2016 strategy indicated a more serious intent from the Kremlin to foster closer economic and diplomatic ties with Asian states, particularly as relations with the West were deteriorating.

The RFE plays a vital role in linking Russia with the economies of the Asia-Pacific region. An overwhelmingly large proportion of Russian trade with the region is with China. Trade with China has grown at a much faster rate than has trade with the wider Asia-Pacific or other parts of the world, such as Europe or the Middle East. In 2018, the volume of annual trade between Russia and China exceeded the politically important $100 billion level for the first time. By 2019, China was the destination for 10 per cent of Russia's exports and the source of 22 per cent of its imports, making it Russia's single largest trade partner. The rest of Asia – including economies such as Japan, India and South Korea – accounted for around 10 per cent of Russia's exports and 13 per cent of its imports in the same period.[15]

The economic shift towards the Asia-Pacific region – and towards China in particular – reflects a long-standing desire among the Russian political elite to cultivate closer political relations with the region. In 2012, President Vladimir Putin expressed the hope that Russia would 'catch some of China's wind in the sails of our economy', which, he hoped, might in turn generate an acceleration of mutual investment and technology transfer.[16] Other policymakers at the time indicated that closer integration with the Asia-Pacific region would foster the development of Russia's domestic economy in Siberia and the RFE. An elaborate institutional framework aimed at stimulating activity by overseas businesses was put in place to support this.[17] Yet progress on the economic development of these regions has been slow.

An added complication is that the West's response to Russia's 2014 annexation of Crimea and the subsequent conflict in eastern Ukraine has restricted Russian access to Western capital markets.[18] From a political perspective, Russia has been forced to broker closer ties with Asian partners to avoid greater diplomatic isolation. Yet the Kremlin has been acutely aware of an accompanying

[12] President of the Russian Federation (2016), 'Об утверждении Концепции внешней политики Российской Федерации' [On approval of the Foreign Policy Concept of the Russian Federation], 30 November 2016, http://kremlin.ru/acts/bank/41451 (accessed 17 Jan. 2020).
[13] The five major emerging national economies – Brazil, Russia, India, China and South Africa – collectively known as BRICS.
[14] President of the Russian Federation (2012), 'Концепция внешней политики Российской Федерации' [The Foreign Policy Concept of the Russian Federation], http://static.kremlin.ru/media/events/files/41d447a0ce9f5a96bdc3.pdf (accessed 17 Jan. 2020).
[15] Bne Intellinews (2018), 'Sino-Russian trade turnover on track to top $100bn this year', 8 November 2018, https://www.intellinews.com/sino-russian-trade-turnover-on-track-to-top-100bn-this-year-151618/ (accessed 4 Jul. 2020).
[16] Titov, S. (2014), 'Владимир Путин: Россия и КНР намерены качественно изменить экономические связи' [Vladimir Putin: Russia and China intend to qualitatively change economic ties], Expert.ru, 21 May 2014, http://expert.ru/2014/05/20/vladimir-putin-rossiya-i-knr-namerenyi-kachestvenno-izmenit-ekonomicheskie-svyazi/ (accessed 12 Dec. 2019).
[17] Fortescue, S. (2016), 'Russia's "turn to the east": a study in policy making', *Post-Soviet Affairs,* 32(5), doi: 10.1080/1060586X.2015.1051750 (accessed 12 Dec. 2019).
[18] Ibid.

financial imperative: to afford many of the planned upgrades to infrastructure in the RFE and eastern Siberia, Russia also needs to improve economic ties with Asia.[19]

Upgrading infrastructure and deepening ties with Asia both present multiple challenges, however. The Russian economy has performed relatively poorly since 2013, with much of this weak performance driven by a low rate of investment. The combination of an exhausted growth model, the collapse in the global price of oil in late 2014 and the almost simultaneous imposition of Western sanctions caused a prolonged and painful recession, from which Russia emerged only slowly.[20] Although by 2019 the federal government was running a budget surplus,[21] the World Bank was still forecasting only modest economic growth in Russia, averaging less than 2 per cent a year over 2020–21.[22] And this was before COVID-19 plunged the world into a deep recession. Unsurprisingly, the overall economic picture has been unconducive to the development of infrastructure in the RFE. With domestic sources of investment proving difficult to unlock, the need for foreign investment has grown.

The Kremlin has made various attempts to stimulate investment in the RFE, although such initiatives have rarely addressed the many structural and systemic problems in the region. Since 2015, for example, Russia has hosted the Eastern Economic Forum (EEF) in the city of Vladivostok. While the EEF started out as a small-scale trade event, it has snowballed into one of the region's most important economic meetings, routinely attended by high-level delegations from China, Japan and South Korea. The EEF usually offers a window into the Kremlin's strategy towards both the RFE and Asian trade/investment partners. The 2019 forum featured an entire roundtable devoted to the oil giant Rosneft's meetings with Japanese businesses. The largest contingents of participants were from Japan, China, South Korea and India, with only a scattering of representatives from Western countries.[23] The EEF often results in the signing of numerous agreements, memoranda of understanding (MoUs) and declarations of intent on improving economic cooperation. In 2019, for instance, several Indian delegations expressed interest in importing coking coal from the RFE; talks are ongoing among Russia's railway, ports and logistics companies on how best to approach this.[24] Russia is also in discussion with South Korea on the establishment of a joint investment fund to develop industrial materials and equipment, with talks planned on the development of bilateral trade agreements in specific sectors.[25]

However, investment initiatives are often complicated by political considerations. Russia is extremely cautious of being relegated to the role of junior partner and raw materials supplier to China – a prospect that is the source of much discomfort within the Russian leadership, especially as China's own economy, population and global influence are all growing. Russia is also wary of

[19] Gorenberg, D. and Schwartz, P. (2019), *Russia's Strategy in Southeast Asia*, Policy Memo No. 578, PONARS Eurasia, http://www.ponarseurasia.org/memo/russias-strategy-southeast-asia (accessed 15 Dec. 2019).
[20] Connolly (2018), *Russia's Response to Sanctions*.
[21] This changed when oil prices plunged again in early 2020.
[22] World Bank (2019), 'Russia Economic Report', 4 December 2019, https://www.worldbank.org/en/news/press-release/2019/12/04/rer-42-urges-sharper-focus-on-domestic-reforms-in-russia-amid-weaker-global-outlook (accessed 20 Feb. 2020).
[23] Восточный Экономический Форум [Eastern Economic Forum] (2019), 'Дальний Восток – горизонты развития' [The Far East: Development horizons], https://forumvostok.ru/ (accessed 25 Jun. 2020).
[24] Прайм: Агентство Экономической Информации [Prime: Economic Information Agency] (2019), 'Индия намерена привлекать порты и железные дороги России в сотрудничество по углю' [India intends to engage Russian ports and railways in coal cooperation], 23 October 2019, https://1prime.ru/energy/20191023/830441810.html (accessed 30 May 2020).
[25] RIA Novosti (2019), 'Южная Корея предложила создать южнокорейско-российский инвестиционный фонд' [South Korea proposes to establish a South Korean-Russian investment fund], 5 September 2019, https://ria.ru/20190905/1558369200.html (accessed 25 May 2020).

China emerging as a competitor on the global arms market, and of China's intentions towards countries within what Russia considers its sphere of influence. These include the Central Asian republics, where China is renting land and investing in infrastructure projects (in particular, buying up stakes in the oil and gas sector in Kazakhstan).[26] More ominously for Russia, China's BRI plans include investment projects in Belarus and Ukraine, countries where Russia has serious and historically rooted political and strategic interests.[27]

Russia's diplomatic relationship with countries such as Japan is also marred by political disagreements. Putin has met the Japanese prime minister, Shinzo Abe, numerous times over recent years to discuss joint investment projects, but the two leaders remain at an impasse over the status of the disputed Kuril Island chain (known in Japan as the Northern Territories). Most prospective economic agreements hinge on some form of compromise over the status of the islands, which remain a serious sticking point in any negotiations about future Japanese investment in Russia. The relationship has been further complicated by Japan's own economic sanctions against Russia, introduced somewhat reluctantly in 2014 in order to respect the West's line on Russia's annexation of Crimea and involvement in the conflict in Ukraine.[28] Russia's relationship with other regional partners such as South Korea are in principle positive – South Korea's president, Moon Jae-in, announced the Nine Bridges economic initiative at the EEF in 2017 as a means of promoting deeper trade ties. While the project's eponymous 'bridges' are metaphorical, South Korea has expressed interest in investing in Russia's port infrastructure, as well as in constructing rail connections to link the Trans-Siberian Railway to the Trans-Korean Railway.[29] But this enormous project has stalled many times, chiefly due to Moscow's concerns that significant foreign investment in critical infrastructure might make Russia beholden to a foreign power, with little control over its own actions. This appears at odds with Russia's stated agenda to attract foreign investment, and is likely to present difficulties in the future unless Russia is able to reconcile the contradiction.

Local resistance

Russian citizens in the RFE occasionally object to the Kremlin's attempts to attract investment from Asian countries. For instance, northern Chinese businesses have been engaged for decades in small-scale trade with their Russian counterparts in the Amur and Primorskiy regions, but there are only a handful of more substantive business agreements between Russia and China, all of which are heavily dependent on government support.[30] Citizens in the RFE are protective of their territory, and despite long-standing Russian legislation that prevents foreigners from owning land outright, local concerns are growing about China's intentions to expand its presence in the region.

[26] Lenta.ru (2019), 'Цена стабильности' [The price of stability], 18 June 2019, https://lenta.ru/articles/2019/06/18/money_money/ (accessed 25 May 200).
[27] Istrate, D. (2019), 'Chinese investment in Belarus surges', 28 August 2019, Emerging Europe, https://emerging-europe.com/business/chinese-investment-in-belarus-surges/ (accessed 26 May 2020).
[28] Shagina, M. (2018), 'How Russia exploits Japan's soft approach', Atlantic Council, 7 June 2018, https://www.atlanticcouncil.org/blogs/new-atlanticist/russia-exploits-japan-s-soft-approach/ (accessed 20 May 2020).
[29] Voloshchak, V. (2019), 'A Closer Look at South Korea's Plan for Cooperation with Russia', *The Diplomat*, 9 January 2019, https://thediplomat.com/2019/01/a-closer-look-at-south-koreas-plan-for-cooperation-with-russia/ (accessed 30 Jun. 2020).
[30] Troyakova, T. (2018), 'Primorskii Krai and Russia's "Turn to the East": A regional view', in Blakkisrud, H. and Wilson Rowe, E. (eds), *Russia's Turn to the East, Global Reordering*, Cham, Switzerland: Palgrave Macmillan, https://link.springer.com/chapter/10.1007/978-3-319-69790-1_3#citeas.

The contrast between China's growing population and the sparsely populated RFE exacerbates this tension. Several inflammatory films have been made about China's supposed 'takeover' of the RFE and parts of Siberia, and there have been occasional commentary articles in the press about the threat of Chinese mass immigration to the RFE.[31] It is also noteworthy that the development programmes of border areas such as Khabarovsk and the Jewish Autonomous Republic of Birobidzhan make reference to the word 'security' and the risk of 'aggressive' migration *vis-à-vis* trade with China.[32] While mass immigration to the RFE is unlikely to pose a real risk to local livelihoods or security, these media pieces are reflective of locals' concerns and attitudes to Asian partners.

This local resentment, alongside systemic corruption and seemingly intractable political differences between Russia and other Asian countries, makes investing in the RFE a high-risk venture for foreign investors. There are few indications that the Russian authorities are willing to dismantle patronage networks, even though this would make investing in Russia a more practical option for foreign businesses. Yet without foreign investment, Russia will be unable to complete the large infrastructure projects that it has set in motion for the RFE, including new bridges, roads, railways and ports. Given the importance of these projects to facilitating connectivity with Asia, this is a serious problem for Russian policymakers.

[31] Mikhailkov, N. (2019), 'Китайский Захват России' [China's Seizure of Russia], YouTube, 18 August 2019, https://www.youtube.com/watch?v=YYXQGiynth4 (accessed 4 Jan. 2020).
[32] Kononov, I. (2019), 'Дальневосточным свободным экономическим режимам нужны стратегии долгосрочного развития' [Free economic zones in the Far East need long-term development strategy], Экономика и Жизнь [Economy and Life], 13 September 2019, https://www.eg-online.ru/article/406267/ (accessed 21 May 2020).

3. The Kremlin's Economic and Political Thinking on the RFE

The RFE is a vast geographical space, encompassing more than a third of Russia's entire territory (41 per cent). It includes regions east of Siberia up to the city of Vladivostok, by the Sea of Japan.[33] In November 2018, the territories of Buryatia and Zabaikal were transferred from the Siberian Federal Okrug (an administrative district) to the Far Eastern Okrug,[34] so additional areas are now also considered part of the RFE and are able to receive funding and infrastructure subsidies accordingly. The RFE contains enormous quantities of oil, gas, coal and precious metals, but has a population of just over 6 million people,[35] which makes it extremely difficult to locate skilled labour to extract these raw materials.

In many ways, the RFE is representative of the broader difficulties in Russia's relationships with Asian countries such as China. Russia's leadership is caught between two competing views: concerns voiced semi-privately about possible Chinese encroachment into the region are set against the Kremlin's stated view that the RFE has the potential to become a new centre of multilateral engagement and investment.[36]

The RFE's proximity to Asia has meant that the territory has always been part of Russia's military and security thinking. The Pacific Fleet, for example, is based at Vladivostok. But state-led attempts to stimulate the regional economy during the Soviet era were piecemeal, and lacked a comprehensive strategy. Instead, developments in the RFE have usually been linked to specific events, which have created short-term interest but few long-term and sustainable projects. Soviet-era leaders had initially encouraged migration to the region and invested funds in improving industry there, but the collapse of the USSR meant the end of an organized way of maintaining these territories, despite repeated official assertions that the RFE was important.[37]

The Kremlin's approach to the RFE has since shifted in favour of viewing the region as a potential economic hub. In 2012, Russia hosted the Asia-Pacific Economic Cooperation (APEC) summit in Vladivostok, which prompted a flurry of activity that included paving roads, constructing a new bridge across the Golden Horn Bay and building a new airport terminal, all with the intention of showcasing the region's economic potential. With few good-quality roads and bridges in the region, Moscow ended up spending around R666 billion (around $22 billion at 2012 average exchange rates) on improving and constructing infrastructure in and around Vladivostok for the summit; this

[33] Eastern Economic Forum (2019), 'About the Far East', https://forumvostok.ru/en/about/ (accessed 20 Dec. 2019).
[34] Interfax (2018), 'Бурятия и Забайкальский край перешли в Дальневосточный федеральный округ' [Buryatia and Zabaikal moved under the Far East Federal District], 4 November 2018, https://www.interfax.ru/russia/636452 (accessed 15 Jan. 2020).
[35] Renselaer, L. (2013), 'The Russian Far East: Opportunities and Challenges', 17 April 2013, Foreign Policy Research Institute, https://www.fpri.org/article/2013/04/the-russian-far-east-opportunities-and-challenges/ (accessed 20 Dec. 2019).
[36] Lubina, M. (2017), 'China's Appendix? The Russian Far East', in Lubina, M. (2017), *Russia and China: A political marriage of convenience – stable and successful*, Leverkusen: Verlag Barbara Budrich.
[37] Shlapentokh, D. (2010), 'The Russian Far East: new directions', *New Zealand International Review*, 35(2), https://www.questia.com/library/journal/1G1-221335071/the-russian-far-east-new-directions-dmitry-shlapentokh (accessed 3 Feb. 2020).

was in addition to funds provided by private investors.[38] But roads laid in haste for the summit are already filled with potholes, and two of the promised hotels were never built.

The government's approach to the RFE comes under the umbrella of Putin's 12 'national projects' – initiatives that he announced on his re-election in 2018 and which form the cornerstone of state economic policy during his fourth term as president. Planning documents for these initiatives make reference to upgrading various aspects of infrastructure, but do not describe specific projects; instead they give a list of sectors towards which investment should be directed, such as roads, small businesses and healthcare. There are few guidelines from Moscow about how investment should be stimulated, and which initiatives should be prioritized.

At the same time, it is far from clear that increased funding for the RFE would, on its own, truly address many of the region's systemic problems (including corruption). In a meeting in December 2018 with dozens of private businesses, Putin suggested that the private sector could become more deeply involved in the projects, yet there is little evidence that many businesses have since taken up any opportunities.[39] The national projects have been privately and publicly criticized by high-profile figures such as the former finance minister, Alexei Kudrin,[40] as well as by the regional administrations tasked with implementing them. Complaints are that the plans are vague, burdensome and financially unviable.

The announcement of the national projects nonetheless marked a slight shift in the government's policy focus, from boosting Russia's hard military capabilities in previous speeches to refocusing on improving living standards, infrastructure and social development more widely. The timing of this announcement was no coincidence. There had been noisy protests since 2015 in satellite towns all over the Moscow region – beginning in the town of Volokolamsk – about the state of Russia's urban infrastructure,[41] and specifically about the authorities' inability to organize safe waste disposal management that did not impact on the environment or locals' health. While the protests took place chiefly in western Russia and were unlikely to have affected government decisions about the RFE, Putin's announcement in 2018 could have been an attempt to engage more with protesters who were demonstrating along socio-economic lines – and whose numbers have been steadily mounting in recent years. Putin's shift towards domestic issues and the refocus on infrastructure and the RFE have meant increased government funding for, but also scrutiny of, this region.

Significant stakeholders in the RFE

While Putin and his close circle of advisers have disproportionate control over most major policymaking decisions, the president does not entirely oversee day-to-day operations. He must delegate the routine running of the country to departments such as his Presidential Administration

[38] Omarova, Kh. (2012), 'Сколько заплатили налогоплательщики за саммит АТЭС-2012?' [How much did taxpayers pay for the APEC 2012 summit?], *Novaya Gazeta*, 5 September 2012, https://www.novayagazeta.ru/articles/2012/09/05/51311-skolko-zaplatili-nalogoplatelschiki-za-sammit-ates-2012 (accessed 3 Feb. 2020).
[39] RBK (2018), 'Путин предложил бизнесу подключиться к нацпроектам' [Putin invited the business sector to join national projects], 26 December 2018, https://www.rbc.ru/politics/26/12/2018/5c2392579a794718408fd3d8 (accessed 10 Jan. 2020).
[40] Pravda.ru (2019), 'Кудрин, Макаров и Шохин выступили с критикой нацпроектов Путина' [Kudrin, Makarov and Shokhin criticized Putin's national projects], 8 June 2019, https://www.pravda.ru/politics/1420314-critics/ (accessed 10 Jan. 2020).
[41] Zotova, N. (2018), '"Здесь будет просто Чернобыль": Волоколамск снова вышел на митинг' ['This place will turn into Chernobyl': Volokolamsk protests again], BBC Russian Service, 1 April 2018, https://www.bbc.com/russian/news-43612639 (accessed 5 Jan. 2020).

and, crucially, to regional governments. This means that the role of regional authorities and businesses in the development of the RFE is extremely important.

Constitutional changes announced by Putin in January 2020 may also indicate a growing role for regional government, particularly regarding implementation of the above-mentioned national projects. Some of the proposed amendments to the constitution envisage boosting the profile of the State Council, at which Russia's regional governors are all represented. While the exact implications of the amendments are not yet clear, the move to give regional governors greater responsibility for – rather than power over – what is essentially Putin's legacy will mean that the governors' backgrounds and experience will become particularly significant.[42]

In previous years, many governors tended to be appointed and promoted because of their military experience or after postings in the Federal Security Service (FSB).[43] But a trend is emerging whereby younger individuals with strong business backgrounds – such as in mining, metallurgy, or oil and gas – are being promoted to senior positions in regional administrations. This is a particularly salient issue in the RFE, where the appointment of certain people can give a sense of the Kremlin's strategic decision-making. It is no accident that the governor of the Amur region, Vasily Orlov, appointed in 2018, speaks fluent Chinese.[44] Orlov has been responsible for accompanying several Chinese delegations around the region.

Other powerful individuals in government also dominate the investment agenda in the RFE. The region's minister for development, Alexander Kozlov, and Yuri Trutnev, a deputy prime minister who also serves as Putin's envoy to the RFE, are two of the most important actors. Kozlov oversees all of the government's plans for upgrading the RFE's infrastructure, and in February 2019 Putin officially expanded the powers of the body headed by Kozlov – the Ministry for the Development of the Far East – to include the development of Russia's Arctic region.[45] Trutnev's role is also significant. He has frequent contact with senior officials from Asia, and is responsible for meeting delegations from South Korea and China to discuss joint infrastructure projects, including the construction of railway bridges.[46]

Key players from the business sector also have interests in the region. Sergei Chemezov, the head of state-controlled Rostec (Russia's major developer and exporter of technology products), signed a series of agreements in 2014 with Shenhua, a Chinese company, to improve coal extraction and export infrastructure in the RFE, although the proposed cooperation does not appear to have come to fruition.[47] Despite his relatively low public profile, Chemezov is highly influential and a close

[42] Ferris, E. (2020), 'Why Russia's Constitutional Changes Reveal Who Will Bear Responsibility for Putin's Pet Projects', RUSI Newsbrief, 40(1), 31 January 2020, https://rusi.org/publication/rusi-newsbrief/why-russia%E2%80%99s-constitutional-changes-reveal-who-will-bear-responsibility (accessed 27 Apr. 2020).
[43] Shamiev, K. and Mchedlize, L. (2019), 'All the Tsar's Men: Who Leads Russia's Regions?', Riddle, 20 January 2019, https://www.ridl.io/en/all-the-tsar-s-men-who-leads-russia-s-regions/ (accessed 27 Apr. 2020).
[44] *Amurskaya Pravda* (2018), 'На Международной ярмарке культуры в Благовещенске Василий Орлов заговорил на китайском языке' [At the International Cultural Fair in Blagoveshchensk, Vasily Orlov opened his speech in Chinese], 27 June 2018, https://ampravda.ru/2018/06/28/082778.html (accessed 3 Feb. 2020).
[45] *Vedomosti* (2019), 'Путин расширил полномочия Минвостокразвития' [Putin has expanded the powers of the Ministry for the Development of the Far East], 26 February 2019, https://www.vedomosti.ru/politics/news/2019/02/26/795188-putin (accessed 3 Feb. 2020).
[46] RIA Novosti (2019), 'Трутнев пригласил Китай к сотрудничеству в российской Арктической зоне' [Trutnev has invited China to cooperate in the Arctic], 26 April 2019, https://ria.ru/20190426/1553087144.html (accessed 3 Feb. 2020).
[47] Rostec (2014), 'Details of the agreement between Rostec Corporation and Shenhua', 5 September 2014, https://rostec.ru/en/news/4514484/ (accessed 20 Feb. 2020).

associate of Putin. His company controls substantial industrial assets, including large parts of the defence industry. Igor Sechin, the owner of oil conglomerate Rosneft and also a powerful Putin ally, has numerous and long-standing economic interests in the RFE. His major projects include a liquefied natural gas (LNG) plant at De Kastri port, which will supply gas to Japan.[48] Rosneft has invested significant amounts into programmes to explore and extract oil deposits in the RFE. In 2013 the company announced that it would invest R52 billion ($0.7 billion)[49] to support its main activities in the region.[50]

Words vs deeds

Notwithstanding the powerful individuals overseeing many investment schemes, and a significant allocation of funds from the state, it is clear that Russia's attempts to stimulate investment by Asian companies in the RFE have failed to yield the desired results. Just eight years after the APEC summit, local news outlets frequently report on the degradation of Vladivostok's roads, particularly when storms wash away poorly laid asphalt.[51] Heavy rain in the summer of 2019 caused almost R100 million ($1.4 million) worth of damage to the city's infrastructure, including the road network. Oleg Kozhemyako, governor of the Primorskiy region where Vladivostok is located, acknowledged the validity of concerns over the issue, despite recent road renovations. Kozhemyako claimed that the heavy rain, a lack of funding and a lack of specialized companies to carry out roadworks were responsible for the poor condition of the roads.[52]

Mindful that poor infrastructure in the RFE risks deterring investors, the government for some years has been taking steps to improve connectivity. After the APEC summit, the Kremlin in 2013 put together several official strategies to improve infrastructure in the RFE and eastern Siberia, planning ahead until 2030. These documents included plans for high-speed rail links to expand the capacity of both the Baikal–Amur Mainline (BAM) railway and the Trans-Siberian Railway; for the laying of new railway tracks to Sakhalin Island in the northern part of the RFE; and for the development of a new Trans-Korean Railway.[53] Putin also outlined the importance of the RFE in the Kremlin's strategic thinking in his state-of-the-nation address in December 2013. He maintained that developing parts of eastern Siberia and the RFE was a key part of Russia's long-term economic strategy, which includes establishing favourable tax regimes to stimulate investment and encourage foreign and Russian companies to locate their premises there.[54]

[48] Reuters (2019), 'Rosneft CEO says Sakhalin-1 to build its own LNG plant in Russia's De Kastri port', 5 September 2019, https://www.reuters.com/article/us-russia-rosneft-lng/rosneft-ceo-says-sakhalin-1-to-build-its-own-lng-plant-in-russias-de-kastri-port-idUSKCN1VQ162 (accessed 20 Jan. 2020).
[49] Except where specified otherwise, all exchange rate conversions use the R74:US$1 rate taken on 6 May 2020.
[50] Interfax (2013), '"Роснефть" инвестирует 52 млрд рублей в программы развития Дальнего Востока - Сечин' [Sechin: Rosneft has invested 52 billion roubles in programmes for developing the Far East], 16 July 2013, https://www.interfax-russia.ru/far-east/news/rosneft-investiruet-52-mlrd-rubley-v-programmy-razvitiya-dalnego-vostoka-sechin (accessed 25 Jan. 2020).
[51] Vl.ru (2019), 'Разбитый асфальт, «поплывшая» плитка и открытые ливневки — центральные улицы Владивостока после затопления' [Broken asphalt, "washed out" paving blocks and open manholes – the central streets of Vladivostok after flooding], 29 August 2019, https://www.newsvl.ru/vlad/2019/08/29/183425/ (accessed 6 Jan. 2020).
[52] Regnum (2019), 'Губернатор Приморья выяснил, почему дороги во Владивостоке плохие' [The governor of Primorie explained why the roads in Vladivostok are bad], 11 September 2019, https://regnum.ru/news/society/2715119.html (accessed 15 Jan. 2020).
[53] Medvedev, D. (2013), 'Программа «Социально-экономическое развитие Дальнего Востока и Байкальского региона на период до 2025 года»' [The Socio-economic development programme for the Far East and the Baikal region until 2025], 29 March 2013, https://www.primorsky.ru/authorities/executive-agencies/departments/economics/program-social-economic-development-of-the-far-east-and-the-baikal-region-for-the-period-till-2025.php (accessed 5 Jan. 2020).
[54] Putin, V. (2013), 'Послание Президента Федеральному Собранию' [The President's speech to the Federal Assembly], 12 December 2013, http://kremlin.ru/events/president/news/19825 (accessed 5 Jan. 2020).

As part of this development strategy, special economic zones (SEZs) were set up in locations such as Russkiy Island in Vladivostok. In 2014 the government also introduced 'advanced development zones' (ADZs, or *territorii operezhaiyushevo razvitiya*) in various locations, including in the RFE. SEZs and ADZs offer investors advantages such as exemptions from certain profit taxes or reduced social contribution rates. The government also began to offer to provide business infrastructure in these areas, including assistance with opening new premises.[55] Moscow created a range of institutions to advocate for and support foreign and domestic businesses. The new bodies included the Far East Human Capital Development Agency, designed to assist employers with finding labour, and the Far East Investment and Export Agency, which helps investors to navigate the SEZ system. However, the zones have been beset by problems, and the SEZ on Russkiy Island was short-lived – it closed in 2016 as competition for funding between the regional and federal authorities deterred potential investors, many of whom eventually withdrew.

Most of these areas have failed to attract the levels of foreign direct investment (FDI) that the Kremlin had hoped for. FDI amounts into SEZs such as the Free Port of Vladivostok remain low. The port currently has 540 'residents' – companies that have registered premises there – but most of these are Russian businesses seeking to exploit the favourable tax regime; indeed Russian businesses have helped to boost investment in the port from R118 billion ($1.6 billion) in 2016 to R358 billion ($4.8 billion) in 2017.[56] According to local sources, 64 per cent of the foreign investment in Vladivostok comes from China, whereas only 12 per cent originates in South Korea and 6 per cent in Japan.[57] Even though foreign investors have residential status, many companies report that they are unable to begin operating because of uncertainties in the Russian economy, bureaucracy and unclear legislation. Foreign companies maintain that the municipal authorities often prevent them from operating once they have resident status, and that coordination with the customs authorities tasked with handling the zones' tax advantages is poor.

[55] EY (2019), 'Russia proposes unified approach to Special Economic Zones', Global Tax Alert, 27 September 2019, https://www.ey.com/Publication/vwLUAssets/Russia_proposes_unified_approach_to_Special_Economic_Zones/$FILE/2019G_004365-19Gbl_Russia%20proposes%20unified%20approach%20to%20Special%20Economic%20Zones.pdf (accessed 28 May 2020).
[56] Garbar, A. and Majzner, N. (2018), 'Свободный порт Владивосток: проблемы и перспективы развития' [The free port of Vladivostok: Problems and development prospects], *Региональная экономика и управление [Regional economy and governance]* 2(54), https://eee-region.ru/article/5415/ (accessed 20 Apr. 2020).
[57] Ibid.

4. Infrastructure and Connectivity in the RFE

Underpinning the specific challenges that foreign businesses have encountered in the RFE are more fundamental and practical issues for the region as a whole. One of the main hindrances to economic development in the RFE is a lack of connectivity, both within Russia and between Russia and other countries. In 2008 Putin, then prime minister, echoed these exact sentiments in a speech to the State Council on the government’s development strategy to 2020. In the speech, Putin maintained that Russia was rich in natural resources but that they were difficult to extract because of insufficient transport infrastructure.[58]

This poor connectivity stems from weaknesses in the region’s systems of roads, airports, railways and bridges, most notably the fact that they are insufficiently linked to port infrastructure. Raw materials mined or extracted from the RFE need to be transported by road and water to Asian markets, but many routes are seasonally dependent and inaccessible at certain times of the year.

It is clear that the Kremlin is starting to think beyond the logistical and transport hubs of Moscow and St Petersburg, and is considering how better to link up Russia’s vast territory. However, putting ideas into practice is a slow process. Following his re-inauguration as president in 2018, Putin announced that the government would allocate R8 trillion ($108 billion) to upgrading the economy, including infrastructure spending, until the scheduled end of his term in 2024.[59] The most expensive of the planned projects are for non-energy-related infrastructure: these account for around R6.4 trillion ($86 billion) and include the large-scale upgrade and construction of roads, bridges and airports. State spending on roads during this period is scheduled to account for R4.8 trillion ($65 billion) alone.[60]

Systemic issues blight infrastructure

Attempts to develop infrastructure in the RFE suffer from three systemic issues that are common to infrastructure projects across the country.

The first is that the Kremlin’s approach to improving infrastructure is essentially to throw money at the problem, with little regard for specific needs. For example, huge infrastructure projects and investments were required ahead of the Winter Olympics in Sochi in 2014, and for the 11 cities hosting the FIFA World Cup in 2018. This resulted in one-off upgrades. Russia spent more than $50 billion on the Sochi Olympics, but the region has since failed to find a use for the stadiums and transport hubs that were constructed.[61] As criticisms of Putin’s national projects have noted, the

[58] Putin, V. (2008), ‘Выступление на расширенном заседании Государственного совета «О стратегии развития России до 2020 года»’ [Speech at the extended meeting of the State Council “On the development strategy for Russia until 2020”], 8 February 2008, http://kremlin.ru/events/president/transcripts/24825 (accessed 6 Jan. 2020).
[59] Правительство России [Government of the Russian Federation] (2019), ‘Национальные проекты: ключевые цели и ожидаемые результаты’ [National projects: key goals and expected results], 11 February 2019, http://government.ru/news/35675/ (accessed 20 Jan. 2020).
[60] Ibid.
[61] *Moskovsky Komsomolets* (2018), ‘«Ведомости» сравнили стоимость Олимпиады в Сочи и Пхенчхане’ [Vedomosti compared the cost of the Olympics in Sochi and Pyeongchang], 12 February 2018, https://www.mk.ru/social/2018/02/12/vedomosti-sravnili-stoimost-olimpiady-v-sochi-i-pkhenchkhane.html (accessed 20 Jan. 2020).

Russian government tends not to conduct feasibility studies, nor does it make comprehensive plans to prioritize regions' economic development needs or link those needs to proposed infrastructure projects. Therefore, even if large amounts of state and private funding are pledged to a particular infrastructure project in the RFE, the investment may not be directed where it is most needed and the project may fail to meet the region's requirements.

The second issue is systemic corruption. Large construction and infrastructure projects are often hampered by a behind-the-scenes struggle for power and funds,[62] with the latter appropriated by subcontractors, regional authorities or unscrupulous private companies. This is particularly prevalent in the construction sector, in which tenders for large and lucrative projects are often granted to influential companies with close ties to the Kremlin. There is evidence of this having been a problem in Vladivostok. Following the 2012 APEC summit, investigators launched a probe into the multi-million-rouble embezzlement of project funds that had been allocated to upgrade the city – around R29 million ($0.4 million) was thought to have been siphoned off from various construction projects, with senior figures in the regional administration among the initial suspects.[63] Ultimately, the mayor of Vladivostok, Igor Pushkaryov, was charged with abuse of office over his role in the embezzlement of funds from a project to lay roads in the region, and for bribing others to select a construction company to which he was personally linked for the tender.[64]

The third issue is political. The government tends to prioritize infrastructure projects with political significance, such as the Crimea Bridge. The first part of the bridge, designed to link the peninsula to mainland Russia, was completed in 2019. The bridge has cemented Russia's political control over Crimea, and has made it more difficult to include the return of the region to Ukraine as a condition of easing Western sanctions on Russia. The bridge was constructed by a company owned by Arkady Rotenberg, a close family friend of Putin, at a cost of around $3.7 billion.[65] The extent to which politically important projects are prioritized over those of practical use was seen when a significant portion of funds from a different bridge-building project across the River Lena in Yakutsk was redirected in 2014 to support the construction of the Crimea Bridge.[66] When the government is intent on making a political point about Russia's place in the world, there is less symbolic value to be had in allocating funds to lower-level – but no less important – projects such as regional railway systems.

In short, the Kremlin's disregard for specifics, Russia's systemic corruption and the prioritization of political over practical projects – underpinned by the lack of a government strategy to coordinate infrastructure policy and development – all mean that large parts of the RFE remain geographically isolated. As a result, Russia is prevented from taking advantage of the raw materials that the region has to offer, and from deepening its trade ties to Asian markets.

[62] Monaghan, A. (2013), 'Putin's Russia: Shaping a "Grand Strategy"?', *International Affairs* 89(5).
[63] Metlyaev, M. (2012), 'Коррупция на фоне АТЭС' [Corruption behind ATES], *The Moscow Post*, 9 November 2012, http://www.moscow-post.su/economics/korruptsija_na_fone_ates10344/ (accessed 5 Apr. 2020).
[64] RFERL (2016),'Vladivostok Mayor Charged With Corruption, Abuse Of Office', 3 June 2016, https://www.rferl.org/a/vladivostok-mayor-pushkaryov-chaarged-corruptio-abuse-of-office-russian-investigative-committee-moscow-court/27776067.html (accessed 20 Jan. 2020).
[65] Yaffa, J. (2017), 'Putin's shadow cabinet and the bridge to Crimea', *The New Yorker*, 22 May 2017, https://www.newyorker.com/magazine/2017/05/29/putins-shadow-cabinet-and-the-bridge-to-crimea (accessed 25 Jan. 2020).
[66] Lyutova, M. (2014), 'Деньги на дорогу до Якутска могут перебросить в Крым' [Money for the road to Yakutsk can be transferred to Crimea], *Vedomosti*, 14 July 2014, https://www.vedomosti.ru/business/articles/2014/07/14/lena-bez-mosta-i-dorogi (accessed 5 Jan. 2020).

Improvements to Russia's railways, bridges and port systems (and to a lesser extent its roads and airports) are the keys to developing closer links with these markets. However, as the following subsections – labelled 'a' to 'e' – detail, the poor quality of these transport systems and lack of consistent planning are holding Russia back.

a. Overburdened railway network

Russia's vast territory and varied terrain mean that the railways have for more than 100 years been the staple of internal transport for passengers and freight. Railways are strategically significant for the economy, carrying freight traffic that mostly consists of coke, coal and ferrous metals.[67] Yet many planned projects to improve Russian railways have fallen by the wayside. The Transport Strategy of 2008 specifically referred to the construction of railways in Yakutia[68] and upgrades to the railways in the northern region of Sakhalin.[69] Government strategies do not always guarantee that a project will proceed, although earmarking state funds gives a more concrete indication of the government's interest in a project. But these plans were drawn up before the imposition of Western sanctions and oil price fluctuations, which prompted a devaluation of the rouble. Many railway construction projects have since come to a halt, and it is not clear whether the government still intends to follow through with this strategy.

A lack of competition for tenders in railway construction has allowed the entrenchment of companies such as Russian Railways (RZD), which dominates the sector and has been headed by Oleg Belozerov since 2015.[70] A close ally of Putin, Belozerov has held numerous positions in government, including that of deputy transport minister (2009–15). RZD tends to win most state contracts for railways, with such contracts worth millions of roubles. The company completely controls network services, tracks and management of train drivers, while its subsidiaries control freight cars and passenger rail.[71] There is some internal recognition of this monopoly – the Federal Antimonopoly Service has put RZD under sanctions several times[72] in the past few years for using its control over the railways to benefit itself and its subsidiaries.

In an important meeting in August 2019 with the heads of coal-producing regions of the RFE and other senior government representatives (as well as Belozerov), Putin discussed prospects for expanding the capacity of the Baikal–Amur Mainline (BAM) to ship coal products.[73] The Ministry of Energy has developed an optimistic plan to increase annual coal production to between 550 million and 670 million tonnes by 2035 – in 2018 Russia produced 440 million tonnes.[74] It remains to be

[67] Pittman, R. (2011), 'Blame the Switchman? Russian Railways Restructuring After Ten Years', Economic Analysis Group Discussion Paper, US Department of the Justice, https://www.justice.gov/atr/blame-switchman-russian-railways-restructuring-after-ten-years (accessed 19 Jan. 2020).
[68] Also known officially as the 'Sakha Republic', a federal district of Russia.
[69] Ministry of Transport (2019), 'Транспортная стратегия' [Transport strategy], 11 July 2019, https://www.mintrans.ru/ministry/targets/187/191/documents (accessed 5 Jan. 2020).
[70] RZhD (2020), 'Структура РЖД' [RZhD structure], http://www.rzd.ru/ent/public/ru?STRUCTURE_ID=5185&layer_id=5554&refererLayerId=5553&id=4998 (accessed 5 Jan. 2020).
[71] EBRD (2014), 'Russian Railway Reform Programme', Working Paper, http://www.ebrd.com/documents/evaluation/special-study-russian-railway-sector-evaluation-working-paper-1.pdf (accessed 5 Jan. 2020).
[72] Ibid.
[73] Latukhina, K. (2019), 'Тариф "Шахтерский"' [The 'mining' tariff], *Rossiiskaya Gazeta*, 22 August 2019, https://rg.ru/2019/08/22/reg-sibfo/vladimir-putin-obsudil-voprosy-razvitiia-ugolnoj-otrasli.html (accessed 6 Jan. 2020).
[74] Federal Press (2019), 'Минэнерго РФ до сентября обновит программу развития угольной отрасли' [Ministry of Energy of the Russian Federation will update the coal industry development programme by September], 23 August 2019, https://fedpress.ru/news/77/economy/2297338 (accessed 6 Jan. 2020).

seen whether the government will be able to expand railway capacity to meet the demand for increased coal shipments.

Russia's Transport Strategy stated the intention to expand railway capacity by laying tracks, increasing the number of freight wagons and, most importantly for the RFE, expanding the Trans-Siberian Railway in the east, at a combined cost of around R13.8 billion ($0.2 billion). But paying for these developments is complicated, and there is significant disagreement within the government about whether the Trans-Siberian Railway or the BAM should be a priority for funds. RZD is supposed to shoulder just under half the cost of upgrading the Trans-Siberian Railway, with the central government contributing around 20 per cent of the funding and private investors and regional governments expected to pay for the rest.[75] Attempting to attract investment from Russian private companies into projects such as the BAM is difficult, as it is not clear whether the BAM will even be able to accept the required level of cargo.

These various factors – long-term neglect, lack of competition, low capacity and unreliable investment – mean that Russia's railway network remains overburdened and underfunded as it attempts to meet government quotas. The result is delays to cargo shipments. RZD's pre-eminent position also reduces interest from Russian private investors, who know that they must compete with RZD for any tenders. In the long term, unless the Russian authorities are prepared to move from this ultimately state-controlled model and increase competition, the rail infrastructure network is unlikely to improve sufficiently to meet the import and export needs of the Asian market.

b. Serious issues with bridges

Bridges are a fundamental part of the national infrastructure: without them it would be almost impossible to ship raw materials and goods around the country, let alone to export markets. However, efforts to improve the bridge network face multiple challenges. Among the most significant are geography and climate. Russia's bridges are required to service a territory through which more than 2.8 million rivers flow.[76] Yet there are relatively few bridges in the country – just 42,000 – and the total has risen by only 200 since Putin first came to power in 2000. Many bridges in the RFE are made of wood – around 60 per cent of all bridges in the far eastern Khabarovsk region are of wood, which is cheaper to use but warps in wetter seasons. There are few indications that Rosavtodor – the federal agency that oversees road management – is working to repair or construct new bridges in this region. For years, trains from the Trans-Siberian Railway and cars along the Kolyma highway have been unable to access Yakutsk (the regional capital of Yakutia) directly because there was no road or rail bridge. It was only announced in 2018 that a bridge would be constructed in 2020 across the River Lena – an idea mooted since the 1980s – at an estimated cost of R70–80 billion ($0.9–1.1 billion).[77] Although the River Lena project is technically still under way, many other road, railway and bridge construction projects have been proposed and shelved in the past.

[75] Ibid.
[76] Pavlova, S. (2018), 'Тотальный мостопад. Хроника и причины обрушения мостов в России' [Total collapse of bridges. The chronicle of and reasons for the collapse of bridges in Russia], Radio Svododa, 23 November 2018, https://www.svoboda.org/a/29614688.html (accessed 20 Jan. 2020).
[77] Regnum (2018), 'Мост через реку Лену в Якутии начнут возводить в 2020 году' [Construction of the bridge across the river Lena in Yakutsk will begin in 2020], 25 December 2018, https://regnum.ru/news/economy/2543915.html (accessed 21 Jan. 2020).

Procedural inconsistencies and shortcomings are also a problem. Upgrades to bridge infrastructure often focus on tourist-friendly areas. Vladivostok's Russian Bridge, completed in 2012 ahead of the APEC summit, links Russkiy Island to the mainland across the Golden Horn Bay. While the bridge has improved access to the previously inaccessible island, it is used by only a few thousand people and has done little to improve interconnectivity in the wider region.

In addition, many projects are simply left unfinished or have been stuck in the planning phase for years. One of the most infamous is the bridge between the Amur region of Blagoveshchensk and the northern Chinese city of Heihe.[78] Work has been in progress since 2016 and is now scheduled for completion in 2020, but the original agreement on construction was signed in 1995. The bridge is intended to facilitate border crossings between the RFE and China: the Chinese government maintains[79] that the project's completion would enable a tenfold increase in cargo traffic.

Other unfinished projects include the bridge at Nizhneleninskoye (in the Jewish Autonomous Republic of Birobidzhan), which was begun in 2013 to enable transportation of iron ore across the Amur River to Tongjiang. Although the Chinese partners in the project have already completed their side of the bridge, Russian contractors have yet to complete their work, and construction has now been delayed until 2021. This latest delay follows repeated postponements over the past seven years due to challenging weather and internal reviews of design decisions.[80]

The overall shortage of properly constructed bridges that results from these problems affects commercial supplies, as well as cross-border trade with China at a local level. The most successful Russia–China trade deals have gone ahead because they have had the support of regional actors, including local businesses. Bridges are not just symbolic structures to span political distances; they also facilitate more enduring people-to-people links that can support businesses.

c. Underdeveloped port systems

The effectiveness of connections between Russia's railways and port infrastructure is vital in determining whether trade runs smoothly. Many of the raw materials mined in the RFE (as well as in the west of the country) need to be shipped through the port system. In many cases, coal-loading ports in the RFE are owned by coal producers based in other parts of the country. Given Russia's dependency on the export of raw materials, this means that any failed projects in this sector tend to have a broader impact on economic security.

Many private companies have chosen to improve logistical infrastructure themselves. The East Mining Company (EMC) is a major thermal coal producer which has operations in parts of the RFE such as Sakhalin and Magadan. Coal is mined in the Solntsevskoye deposit in the Sakhalin region, for example, and then delivered to the Shakhtersk port by road to be loaded on to ships bound for

[78] DorInfo (2019), 'Строительство моста через Амур Благовещенск - Хэйхэ вышло на завершающую стадию' [Construction of the Blagovechensk-Heihe bridge across Amur has reached the final stage], 11 January 2019, http://dorinfo.ru/star_detail.php?ELEMENT_ID=77372 (accessed 26 Jan. 2020).
[79] Xinhua (2019), 'China Focus: Two sides of China-Russia highway bridge connected', 31 May 2019, http://www.xinhuanet.com/english/2019-05/31/c_138106426.htm (accessed 28 Jan. 2020).
[80] TASS (2020), 'Срок строительства моста из ЕАО в Китай перенесли на осень 2021 года' [Completion of the bridge from the Jewish Autonomous Oblast to China postponed until autumn 2021], 4 February 2020, https://tass.ru/ekonomika/7760395 (accessed 4 May 2020).

countries such as Vietnam, South Korea and India.[81] In July 2019, EMC announced that it would be investing R11.5 billion ($0.2 billion) in upgrading the Shakhtersk port to increase annual throughput.[82] EMC has also invested in constructing roads from the Solntsevskoye mine to the port – it is believed that these upgrades will increase the annual volume of coal transported along this route from 7.5 million tonnes in 2018 to 20 million tonnes in the coming years.[83] Russia is also attempting to develop the Northern Sea Route (NSR) – an Arctic maritime route that runs across northern Russia – as a key trade opportunity, capable of accepting a growing volume of cargo vessels from countries such as China and South Korea. In theory, use of the NSR would cut journey times by around 10 days, and would be of particular value for vessels transporting products with shorter shelf lives.[84] Russia aims to attract investment from Asian countries into key ports in the RFE so that these ports can expand to accept a planned increase in cargo deliveries.

Very few ports in Russia's High North or the RFE are capable of servicing ships or accommodating a significant increase in cargo. In the event of an incident at sea, such as an oil spill or an emergency on board a vessel, Russia does not have the search-and-rescue or other emergency capabilities to respond in a timely manner. Nor does it have repair stations in the High North – aside from in Murmansk – to assist large vessels in distress. Russia's lack of ice-class cargo vessels to traverse the NSR is also likely to be an issue. Russia is planning to expand its fleet[85] and already possesses light and medium icebreakers, but few of its vessels are able to cope with the Arctic's thicker winter ice.

Even if the authorities were able to order the construction of new ports in the High North and the RFE, support services around ports would also need to be set up. This would require an increase in the local population to manage the port systems, housing to accommodate the new workers, and in some cases the construction of settlements from scratch. The Agency for the Development of Human Capital in the Far East, as the name suggests, has entire programmes devoted to the resettlement of the population. The agency runs regional programmes to attract specialists – such as engineers to assist with the construction of infrastructure – and even offers to move homeless people into accommodation in the region; financial incentives are promised for each family member who joins a relocation programme.[86] Few people have decided to take the government up on such offers, however, and the RFE and High North still have serious population deficits.

Another issue is the lack of investment in port infrastructure. Ports in the RFE, such as Vladivostok, are overloaded and unable to expand much beyond their existing capacity. Cargo activity at Vladivostok is much lower, for example, than at major cargo ports such as Shanghai in China: in 2017 Vladivostok handled 112.9 million tonnes of cargo, whereas throughput at Shanghai was 812

[81] East Mining Company (2020), 'Логистика поставок' [Supply logistics], https://www.eastmining.ru/logistika/.
[82] Port News (2019), 'East Mining Company to invest RUB11.5bn in development of its coal project in Sakhalin', 19 July 2019, http://en.portnews.ru/news/280522/ (accessed 15 Feb. 2020).
[83] Interfax (2019), 'На Сахалине построят крупнейший в РФ угольный конвейер за 7,8 млрд рублей' [The largest coal conveyor belt in the Russian Federation will be built in Sakhalin for 7.8 billion roubles], 4 March 2019, https://www.interfax.ru/russia/652856 (accessed 20 Jan. 2020).
[84] Stashwick, S. (2019), 'Russian Northern Sea Route Faces Setbacks, Low Interest', *The Diplomat*, 24 October 2019, https://thediplomat.com/2019/10/russias-northern-sea-route-faces-setbacks-low-interest/ (accessed 25 Jan. 2020).
[85] Vorobyov, A. (2019), 'Крупнейший заказ на два атомных ледокола стоимостью 100 млрд рублей получит ОСК' [USC has received the largest order, for two atomic icebreakers worth 100 billion roubles], *Vedomosti*, 6 August 2019, https://www.vedomosti.ru/business/articles/2019/08/06/808231-krupneishii-atomnih-ledokola (accessed 28 Jan. 2020).
[86] Агентство по Развитию Человекэсково Капитала на Дальнем Востоке [Agency for the Development of Human Capital in the Far East] (2019), 'Программы переезда' [Relocation programmes], https://hcfe.ru/services/move-to-far-east/programs/list/ (accessed 25 Jan. 2020).

million tonnes.[87] Vladivostok lacks sufficient numbers of port workers to handle an increase in cargo to Shanghai levels, nor does it have the technology in place to increase its load-bearing ability.

Many proposed projects to upgrade ports in the RFE are unlikely to succeed, and investment deals often fall through. Existing ports with the scope for expansion – such as Nakhodka, Slavyanka and Zarubino – offer promising investment opportunities for foreign businesses, but uncertainty about throughput has made foreign partners wary. In October 2018, South Korea's Ministry of Oceans and Fisheries announced that it would be conducting a feasibility study to assess the viability of using the Slavyanka port, near Russia's borders with North Korea and China.[88] That study has now been completed. However, there has been little indication that South Korean companies are planning investments in Slavyanka, and any moves to enter the market are likely to take many years to complete.

Meanwhile, the Kremlin has been trying to turn the port city of Zarubino, formerly a fishing village, into a cargo export hub called the 'Big Port of Zarubino'.[89] The aim is to link up road, railway and energy infrastructure between Zarubino and the northern Chinese city of Hunchun, creating a transit area for freight services across China and for the export and storage of Russian grain. The facility was due to begin operating in 2020. Summa Group, a Russian port operator, claimed to have invested R41.6 billion ($562 million) in the R104 billion ($1.4 billion) project, leaving a shortfall that would have required significant input from Chinese investors to sustain work on it.[90] Further doubt was cast on the project in April 2018 when Summa Group's owner, Ziyavudin Magomedov, was detained on embezzlement charges for an unrelated construction project, prompting the dissolution of the Summa Group.[91]

Countries such as India are also interested in Russian natural resources. Most of Russia's exports to India consist of coking coal, energy and precious metals, despite Russian attempts to diversify its economic portfolio. As part of a bilateral economic agreement signed in September 2019, India's prime minister, Narendra Modi, proposed joint India–Russia investment to construct new port infrastructure along the NSR. The two sides signed an MoU on developing improved communications between the ports of Vladivostok and Chennai.[92] Passage along the sea route between Chennai and Vladivostok takes 24 days, compared to 40 days from Chennai to Europe, so if these slated investments come to fruition, Vladivostok could see a dramatic increase in cargo.[93]

[87] Garbar, A. and Majzner, N. (2018), 'Свободный порт Владивосток: проблемы и перспективы развития' [The free port of Vladivostok: Problems and development prospects], *Региональная экономика и управление* [Regional economy and governance] 2(54), https://eee-region.ru/article/5415/ (accessed 15 Jan. 2020).
[88] Yonhap News Agency (2018), 'S. Korea eyes development of port in Russian Far East', 15 October 2018, https://en.yna.co.kr/view/AEN20181015003800320 (accessed 28 Jan. 2020).
[89] Zrpress (2016), '"Большой порт Зарубино" в Приморье наполовину отойдет иностранцам' [Half of the 'Big port of Zarubino' in Primorie will go to foreigners], 2 September 2016, https://www.zrpress.ru/business/vladivostok_02.09.2016_79619_bolshoj-port-zarubino-v-primorje-napolovinu-otojdet-inostrantsam.html (accessed 18 Feb. 2020).
[90] RRC Rail Group (2016), 'Russian Freight Hyperloop Project Unveiled', 8 September 2016, https://www.rrcrail.com/single-post/2016/09/08/Russian-Freight-Hyperloop-Project-Unveiled (accessed 20 Feb. 2020).
[91] RBK (2019), 'Суд заочно арестовал новых фигурантов по делу братьев Магомедовых' [The court has issued arrest warrants for new defendants in the Magomedov brothers case], 3 March 2019, https://www.rbc.ru/society/03/03/2020/5e5e109a9a79477d25fbc45f (accessed 6 Jul. 2020).
[92] Devyatkin, P. (2019), 'Russia and India set to deepen trade and investment in Arctic energy', *High North News*, 4 September 2019, https://www.highnorthnews.com/en/russia-and-india-set-deepen-trade-and-investment-arctic-energy (accessed 18 Jan. 2020).
[93] Kapoor, N. (2019), 'India-Russia Relations: Beyond Energy and Defence', ORF Issue Brief, No. 327, December 2019, Observer Research Foundation, https://www.orfonline.org/research/india-russia-relations-beyond-energy-and-defence-58298/ (accessed 7 Jul. 2020).

d. Neglected roads in the RFE

Although Russia's roads are less commercially important than its railway, bridge and port systems, they remain integral to internal connectivity. In particular, the road network fulfils an important social function, enabling people, including much-needed workers, to travel more easily around the country.

The government has focused on improving road connectivity in western Russia. As a result, the so-called 'European part' of the country is relatively well connected by road. This is not the case in the RFE, for two main reasons.

First, roads in the region are especially vulnerable to the elements, as poorly constructed road surfaces tend to break up easily under the highly changeable weather conditions of the RFE. During winter, many roads in the RFE are impassable. Communities beyond the major cities are sometimes entirely cut off. These practical difficulties increase the financial burden on construction companies, which are unwilling to take on projects that are logistically challenging, such as most of those in the RFE. A good illustration of this can be found in the inhospitable region of Yakutia. Stone to build a bridge across the Tangnary River in 2016 needed to be transported by railway from the central Kemerovo region to a loading station, and then by road to the project site almost 460 km away.[94] Remote regions such as Yakutia have particularly poor road and rail connections, both internally and to other parts of Russia, and efforts to mitigate this problem have brought few tangible benefits.

The second reason for the lack of adequate road connectivity in the RFE is the prevalence of corruption and of cost-cutting by contractors. Road construction tenders lack transparency, and a handful of companies dominate the road-building sector. The Siberian region of Krasnoyarsk has more than 40,000 km of roads, but in 2017 only two companies, Novosibirskavtodor and Yeniseiavtodor, submitted bids to build new roads in the region – and those companies are actually part of the same firm.[95] Locals report that repairs to roads in this region are extremely poor, and that much of the asphalt is easily washed off by rainfall. Contractors often cut corners on quality, for instance using cheaper materials for paving. Where problems subsequently emerge, the general lack of accountability in the construction sector allows contractors to maintain that it is the suppliers that have provided poor-quality concrete.

The Kremlin appears to be aware of the problem. Rosavtodor, the federal agency that oversees all of Russia's motorways and road infrastructure, has several initiatives under way to address corruption in road construction tenders as part of its Anti-corruption Plan for 2018–20.[96] These include measures to avoid conflicts of interest by identifying companies owned by relatives or friends of federal employees at the agency. Despite this, no firm plans are being discussed in the State Duma

[94] RBK (2016), 'Почему в России мало мостов' [Why there aren't enough bridges in Russia], 24 May 2016, https://www.rbc.ru/newspaper/2016/05/25/573de5139a79478774746561 (accessed 17 Apr. 2020).
[95] Международный Антикоррупционный Портал [International Anti-corruption Portal] (2017), '"Асфальтовые войны". Расследование российских журналистов о коррупции при строительстве дорог' ['Asphalt wars'. Russian journalists' research on corruption in road construction], 28 August 2017, http://anticorr.media/asfaltovye-vojny-rassledovanie-rossijskix-zhurnalistov-o-korrupcii-pri-stroitelstve-dorog/ (accessed 20 Feb. 2020).
[96] Rosavtodor (2019), 'Отчёт по плану противодействия коррупции на 2018-2020 годы в Федеральном дорожном агентстве за 2018 год' [2018 report on the 2018-2020 Federal Road Agency anti-corruption plan], 24 January 2019, https://rosavtodor.ru/about/upravlenie-fda/protivodeystvie-korruptsii/doklady-otchety-obzory-statisticheskaya-informatsiya/264881 (accessed 20 Feb. 2020).

(the lower house of the Russian parliament) for how to increase state control over the risks of corruption in the road construction sector.

As with many of the Kremlin's solutions, the main approach has been to increase funding to build more roads. However, the resultant projects are rarely aligned with the most pressing local needs.[97] In 2014, the Ministry of Transport declared[98] that by 2018 all main roads across the country would be upgraded, using funding from the Federal Road Fund; the allocation for 2014 alone was around R510 billion ($6.9 billion). But locals in the central Siberian region of Tyumen complained that despite government promises, insufficient funds were transferred for the repair of the main highway between Tyumen and Novy Urengoy,[99] and the project was not completed.

Sometimes funds are allocated unevenly across the country. In March 2019, Prime Minister Dmitry Medvedev approved funds for a national project to upgrade roads in 82 regions. However, of the R110 billion ($1.5 billion) officially allocated, in the end only around R96.8 billion ($1.3 billion) in government funds were dispersed to finance the project. Moreover, most of that money was sent to central Russian regions such as Tatarstan, not the RFE.[100] Other regions have been granted just R1–1.5 billion ($14–20 million), which is supposed to be sufficient to fund multiple large-scale road upgrades. It is unlikely this distribution of funds will adequately meet the needs of more isolated locations, particularly in the RFE.

e. Access by air

More isolated parts of the RFE rely on air transport to remain connected to the rest of Russia. However, internal airfares are expensive and seasonal weather conditions affect the frequency of flights. For the FIFA World Cup in 2018, airports in Russia's 11 host cities were either renovated or newly built. Russia spent more than $1.9 billion on aviation infrastructure for the event,[101] but the reconstruction of terminals and runways chiefly benefited airports in Moscow and western Russia, with very little tangible impact on the RFE.

In a highly critical report in 2019 to the Federation Council (the upper house of parliament), Russia's Civil Aviation Association noted that smaller airports in the RFE are significantly degraded, and that their dilapidated state could endanger passengers. Passenger traffic has declined since the collapse of the Soviet Union, and the number of smaller airports in Russia has fallen from 1,450 to just 226.[102]

[97] *Nezavisimaya Gazeta* (2019), 'Регионам приказано сдать планы дорожного строительства' [Regions ordered to submit road construction plans], 26 June 2019, http://www.ng.ru/economics/2019-06-26/4_7607_gossovet.html (accessed 16 Apr. 2020).
[98] Corrupcia.net (2014), 'Треть дорожного бюджета России оседает в карманах коррупционеров?' [Is a third of Russia's road budget sitting in the pockets of corrupt officials?], 11 June 2014, http://www.corrupcia.net/aboutnews/item-1465.html (accessed 16 Apr. 2020).
[99] Ibid.
[100] Pravitelstvo Rossii (2019), 'Более 70 миллиардов рублей направляется в регионы на развитие дорожного хозяйства и транспортной сети' [More than 70 billion roubles goes to the regions for the development of road infrastructure and transport networks], 3 April 2019, http://government.ru/dep_news/36250/ (accessed 15 Apr. 2020).
[101] *Global Banking and Finance Review* (2018), 'The Economics of the FIFA World Cup 2018', 22 June 2018, https://www.globalbankingandfinance.com/the-economics-of-the-fifa-world-cup-2018/ (accessed 15 Apr. 2020).
[102] Interfax (2015), 'Аэропорт Владивостока усилит меры безопасности перед проведением Восточного экономического форума' [Vladivostok airport increases security measures ahead of the Eastern Economic Forum], 27 August 2015, https://www.interfax-russia.ru/far-east/news/aeroport-vladivostoka-usilit-mery-bezopasnosti-pered-provedeniem-vostochnogo-ekonomicheskogo-foruma (accessed 6 Apr. 2020).

Larger cities such as Vladivostok, Khabarovsk and Sakhalin do have modern airports, but smaller facilities such as Kamchatka's Yelizovo terminal are neglected, with plans to upgrade it repeatedly postponed. Numerous other plans have met similar fates: an airport in Blagoveshchensk requires a new runway; while Chinese businesses are thought to be interested in investing, there is no scheduled timeline for the project to begin.[103] Of the 31 regional airports in Yakutia and Magadan – both regions boasting significant quantities of untapped and potentially lucrative natural resources – 25 are due to be closed in the next four years. Most runways at airports in the RFE are not paved, and some cannot operate in certain seasons, which affects shift workers who travel to the region for work.[104]

Policymakers are aware that Russia's airports are not up to standard. The government has allocated around R200 billion ($2.7 billion) up to 2024 for upgrading 66 regional airports, and for improving links between the eastern and western parts of the country. Of this sum, R94 billion ($1.3 billion) is expected to be spent in the RFE.[105] In 2019 construction began on a R3.6 billion ($49 million), four-year project to renovate an airport in the RFE's northernmost territory of Chukotka, with six more airports in that region earmarked for reconstruction in the next three years.[106] Chukotka is particularly remote, and the territory has an abundance of natural resources. The Kupol mine there has significant reserves of gold and silver – more than 1 million ounces – and its output is sold all over the world, including to Asian markets.[107] During winter, only one road links the mine to the outside world. This road is used to bring in almost all supplies (including equipment and fuel), yet must be rebuilt every year. At other times, the lucrative mine relies on the nearby Arctic port of Pevek – operational for only three months of the year – or on air services for deliveries of supplies and personnel.

Improving regional airports would help to link companies that operate in inaccessible environments to road, rail and shipping routes. However, work on airport renovations is progressing slowly.

[103] *Amurskaya Pravda* (2019), 'Китайским инвесторам рассказали об агломерации Благовещенск — Хэйхэ и русском аналоге «ТаоБао»' [Chinese investors told about the Blagoveshchensk-Heihe agglomeration and the Russian version of TaoBao], 27 August 2019, https://www.ampravda.ru/2019/08/27/090551.html (accessed 5 Apr. 2020).
[104] Interfax (2015), 'Аэропорт Владивостока усилит меры безопасности перед проведением Восточного экономического форума' [Vladivostok airport increases security measures ahead of the Eastern Economic Forum].
[105] Fomina, R. (ed.) (2018), *Развитие региональных аэропортов и маршрутов в Российском Федераци* [Development of regional airports and routes in the Russian Federation], Информационное Агентсво 'ТехИнформ' [Techinform Information Agency], http://www.techinform-press.ru/images/stories/pdf/KATALOGAERO.pdf (accessed 6 Apr. 2020).
[106] RIA Novosti (2019), 'На Чукотке планируют начать реконструкцию самого северного аэропорта России' [The reconstruction of Russia's northernmost airport set to start in Chukotka], 29 January 2019, https://ria.ru/20190129/1550047432.html (accessed 6 Apr. 2020).
[107] *Canadian Mining Journal* (2009), 'Beating Tough Odds On Top Of The World', 1 June 2009, http://www.canadianminingjournal.com/features/beating-tough-odds-on-top-of-the-world/1000333244/ (accessed 7 Apr. 2020).

5. Impact of Infrastructure on Energy Exports

To date, the vast majority of Russian exports to the Asia-Pacific region have been of natural resources. In particular, the country's exports to China, Japan and South Korea are dominated by hydrocarbons (much as are its exports to the EU). Hydrocarbons account for around 75 per cent of imports from Russia in all three of these Asian countries.[108]

It should therefore be no surprise that the infrastructure that supports the export of hydrocarbons is more highly developed than that associated with other sectors. Trade data reflect this difference. For example, following the construction of the first phase of the Eastern Siberia–Pacific Ocean (ESPO) oil pipeline in 2009, Russian hydrocarbon exports to China grew sharply.[109] Indeed, supplemented by deliveries of crude oil by sea, pipeline exports of Russian oil to China increased so quickly that by 2016 Russia had displaced Saudi Arabia as China's most important supplier of crude oil. Russian oil exports look set to rise further, as construction of further capacity for the ESPO pipeline is under way.[110]

The construction of gas export infrastructure has proceeded more slowly. However, in May 2014 a 30-year pipeline construction deal, estimated to be worth $400 billion, was signed by President Putin and President Xi Jinping of China. The deal committed Russia to building the 'Power of Siberia' (*Sila Sibiri*) pipeline for the delivery of 38 billion cubic metres (bcm) of gas each year to China;[111] the first deliveries were scheduled for 2020. Additional gas is likely to reach China and the wider East Asia region from the giant Yamal LNG facility in the Arctic.

Nevertheless, while it is true that significant progress has been made in building infrastructure for the export of energy to East Asia (primarily China), this progress can be placed in a less flattering context. Russia is the second-largest exporter of crude oil in the world, the largest exporter of natural gas, and the fourth-largest exporter of coal. At the same time, the three largest East Asian economies all import huge volumes of energy. This symmetry of supply and demand, and Russia's geographic proximity to the region, would suggest that Russia should be playing an even more active role in East Asian energy markets.

In this context, Russia's energy export footprint in the region has been relatively modest to date, at least compared to its energy footprint in Europe. China, Japan and South Korea accounted for around 28 per cent of Russian crude oil exports in 2018, whereas shipments to Europe made up 66 per cent of the total. In the same year, only 8.9 per cent of Russia's shipments of refined petroleum, 15 per cent of its natural gas exports and 35 per cent of its coal exports were sold into these three

[108] International Trade Centre database (2019), http://www.intracen.org/itc/market-info-tools/trade-statistics/ (accessed 21 Oct. 2019).
[109] Transneft (undated), 'Pipeline system "Eastern Siberia-Pacific Ocean"', https://www.transneft.ru/about/projects/realized/espo/ (accessed 28 Jan. 2020).
[110] Dotsenko, I. (2019), 'Единица мощности. К нефтепроводу "Восточная Сибирь - Тихий океан" подключили новую НПС' [Power unit. A new pumping station connected to the East Siberia-Pacific Ocean oil pipeline], *Rossiskaya Gazeta*, 27 September 2019, https://rg.ru/2019/09/27/reg-dfo/k-nefteprovodu-vostochnaia-sibir-tihij-okean-podkliuchili-novuiu-nps.html (accessed 21 Apr. 2020).
[111] Topalov, A. (2014), 'Путин продиктовал Китаю цену' [Putin dictated the price to China], Gazeta.ru, 21 May 2014, http://www.gazeta.ru/business/2014/05/21/6042329.shtml (accessed 9 Apr. 2020).

East Asian markets. (In contrast, Europe was the destination for the bulk of Russia's exports of refined petroleum and natural gas, accounting for 57 per cent and 80 per cent of the total respectively.)

This untapped potential is perhaps even more vividly illustrated when viewed from an importer's side. China is the world's largest importer of oil, yet just 14 per cent of its crude oil imports come from Russia. Angola (12 per cent) and Saudi Arabia (13 per cent) both account for similar shares of China's oil imports, despite Russia's natural advantage in terms of proximity as a supplier. Equally, the Chinese government is making considerable efforts to import more natural gas to help shift towards a less carbon-intensive model of economic development.[112] However, Russia currently accounts for less than 1 per cent of Chinese gas imports, far below the shares for Turkmenistan (which supplies 19 per cent of China's gas imports), Australia (also 19 per cent) and Qatar (14 per cent).[113]

The picture of unfulfilled potential is replicated when it comes to trade with Japan and South Korea.[114] In 2018, Russia supplied just 4 per cent of Japan's imported crude oil, and 6 per cent of South Korea's crude oil imports. As for natural gas, Russia supplies just 6.5 per cent of Japan's natural gas imports, an astonishingly small share considering that Japan is the world's largest importer of natural gas. South Korea, another major market, received just 3.4 per cent of its natural gas imports from Russia in 2018. Again, efforts to expand Russian LNG exports to East Asia should cause the Russian share to rise over time. However, there is a long way to go before Russia can be considered a major player in the East Asian oil and gas markets. For now, Russia is punching well below its weight.

Even after the capacity expansion of the ESPO pipeline (due for completion in 2020) and the construction of the Power of Siberia pipeline (with full deliveries of 38 bcm per year scheduled to be achieved in 2025), there will remain considerable scope for increasing oil and gas exports to East Asia. In 2018, China imported around 125 bcm of gas (both LNG and pipeline gas), with Russia supplying only a nominal volume.[115] Projections from the International Energy Agency suggest that China will need to import 242 bcm per year by 2025.[116] Even on the assumption that the Power of Siberia pipeline is operating at full capacity by 2025 (by no means assured), and even if Russia ships around 10 bcm of LNG to China each year, this will account for only around a fifth of projected Chinese gas imports. In a tacit admission that existing supply infrastructure needs to be expanded significantly, the Russian government's Energy Strategy to 2035, approved in April 2020, targets the construction of energy transportation infrastructure so that Russia can become a 'major

[112] Thomson, E. and Horii, N. (2009), 'China's Energy Security: Challenges and Priorities', *Eurasian Geography and Economics*, 50(6): 643–64.
[113] International Trade Centre database (2019), http://www.intracen.org/itc/market-info-tools/trade-statistics/ (accessed 21 Oct. 2019).
[114] Bradshaw, M. and Shadrina, E. (2013), 'Russia's Energy Governance Transitions and Implications for Enhanced Cooperation with China, Japan and South Korea', *Post-Soviet Affairs*, 29(6): 461–99.
[115] O'Sullivan, S. (2019), *China: Growing import volumes of LNG highlight China's rising energy import dependency,* Oxford: The Oxford Institute for Energy Studies, University of Oxford, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/06/China-growing-import-volumes-of-LNG-highlight-China%E2%80%99s-rising-energy-import-dependency.pdf (accessed 7 Apr. 2020)
[116] Ibid.

player' in the Asia-Pacific market.[117] This is defined as increasing energy shipments to the region from 27 per cent of Russia's total energy exports in 2018 to at least 50 per cent by 2035.[118]

Thus, even in the sector in which RFE infrastructure is at its most well developed, capacity constraints will limit the extent to which Russia can achieve greater integration with Asian economies. The export of large volumes of oil and gas requires huge investment in energy deposits, on-site equipment, and transportation infrastructure such as pipelines and gas terminals. Such facilities take a long time to build. Only once these are in place will the minimum requirements exist for Russia's role in Asia-Pacific energy markets to match the leadership's ambitions, and it should not be forgotten that favourable and enduring geopolitical conditions will also be needed.

Moreover, even if Russia does successfully expand the volume of its energy exports to East Asia over the next decade, this will only accentuate the country's position as a supplier of raw materials to the region. As with its trade with advanced economies in the West, Russia does not enjoy a comparative advantage in higher-value-added production relative to most Asian economies. These fundamental challenges need to be addressed if the Russian economy is to become more diverse and resilient, and its growth prospects more sustainable. Merely selling basic commodities to more competitive trading partners is not what Russian policymakers have in mind when they speak of using economic integration with Asia to boost the dynamism of the Russian economy.

[117] Ministry of Energy (2020), *Энергетическая Стратегия Российской Федерации на период до 2035 года* [Energy Strategy of the Russian Federation until 2035], https://minenergo.gov.ru/node/1026 (accessed 7 Jul. 2020).
[118] Ibid., p. 72.

6. Conclusion

As this paper has shown, although the government has tried to mitigate some of the problems with Russia's transport infrastructure in the RFE, its efforts to date have been mainly confined to increasing funding. Such funding is often misallocated and does not always translate into specific improvements in the quality of infrastructure. The reasons for this include fundamental structural weaknesses, such as corruption in tendering processes and shortages of skilled engineers.

Many of Russia's transport development strategies are not accompanied by specific indicators for what 'success' might look like, nor by guidelines for how the transport sector could be developed (aside from through increased funding). The piecemeal allocation of funds, the lack of policy alignment with nuanced regional needs, and the reluctance of foreign investors to take on high-risk projects mean that realization of the RFE's economic potential is being restricted. Moreover, the Kremlin has long since prioritized the promotion of grand infrastructure projects such as the Sochi Winter Olympics, the FIFA World Cup or the Crimea Bridge over smaller-scale projects that should generate greater connectivity within Russian territory.

These inhibiting factors are exacerbated by a dearth of scientific research on transport infrastructure in Russia, despite the historic importance of these networks in Russia's security thinking. Only three organizations in Russia specifically conduct research on road and railway construction, and they are based in Moscow and St Petersburg – none in the RFE itself.[119] This limits the scope for developing innovative construction materials, for finding ways of configuring roads, ports, railways and airports in remote territories, or for identifying new specialists. The fact that Russia has stopped investing in such scientific research organizations is to its detriment. While engineering was once a prized profession during the Soviet era, the growing knowledge gap and 'brain drain' (in terms of the departure of some of the country's best engineers to Europe) will mean that Russia's engineering sector will increasingly lag behind those of other countries. More specifically, this research gap is likely to have a deleterious effect on the future of the RFE's transport networks, which will have to rely on domestic expertise if foreign investment is not guaranteed in the coming years.

While an assessment is beyond the scope of this paper, Russia's infrastructure deficiencies will probably only worsen over time, especially as climate change begins to have a more tangible impact on the RFE. As the Ministry for the Environment and Natural Resources acknowledged in a 2019 report, severe flooding and forest fires are an annual occurrence across the country, and the melting of the permafrost that covers northern Russia means that the construction of railways and roads under more challenging environmental conditions will require significant technological advances.[120] Cognizant of this fact, potential investors from Asian countries are likely to hold off from making

[119] Galitskiy, Kh. (2019), 'Мосты не спрятать: почему конструкции в России рушатся всё чаще' [No hiding of bridges: Why Russia's structures are crumbling more often], *Izvestiya*, 18 March 2019, https://iz.ru/856855/khariton-galitckii/mosty-ne-spriatat-pochemu-konstruktcii-v-rossii-rushatsia-vse-chashche (accessed 18 Feb. 2020).
[120] Minprirodi (2019), 'Доклад о ходе выполнения в 2018 году комплексново плана реализации Климатишеской доктрины Российской Федерации на период до 2020' [2018 Report on the fulfilment of the comprehensive implementation plan for the Climate Doctrine of the Russian Federation up to 2020], 20 March 2019, http://www.mnr.gov.ru/upload/iblock/da1/Доклад%20по%20итогам%202018%20г..pdf (accessed 4 Apr. 2020).

large-scale commitments until the Russian government formulates a more coherent strategy towards the development of infrastructure – and is able to prove that Russian infrastructure projects are viable.

Although a comparative study has not been conducted in this paper, Russia could learn useful lessons on improving its infrastructure from territories and countries with similar geographical challenges. Alaska, Canada and Finland all have to deal with hostile climates, dispersed populations and interconnectivity problems. Finland in particular has difficulties arising from ageing and poor-quality infrastructure, an overconcentration of the population in urban areas, and sparsely connected rural regions.[121] However, the Finnish Ministry of Transport and Communications has established a specific company to develop the railway sector and help manage new major projects, which include the manufacture of new rolling stock and the development of high-speed rail links with neighbouring countries.[122]

Although the RFE has often been overlooked by Russia's policymakers as a domestic backwater, this seems likely to change. As recent constitutional reforms indicate, Russia's regions are likely to become increasingly important as key implementers of Putin's national projects, which are designed to stimulate economic growth and are in many ways intended as one of his main legacies. Aside from its importance in linking the RFE to Asia, if regional connectivity is not addressed as a priority, then Putin's legacy could be under threat.

[121] Ministry of Transport and Communications Finland (2002), *Transport Infrastructure 2030, Meeting the challenges of concentrating population and industrial changes,* https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/78399/transport_infrastructure_2030.pdf?sequence=1 (accessed 19 Feb. 2020).
[122] *Railway Gazette* (2019), 'Project company to support Finnish rail reforms', 4 February 2019, https://www.railwaygazette.com/europe/project-company-to-support-finnish-rail-reforms/47985.article (accessed 20 Feb. 2020).

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