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– Francesco PROFUMO, Compagnia di San Paolo, Turin, Italy

Image Source: The summit of the G20 Environment and Energy Ministers in Naples in July 2021. Image by G20 Italy, all rights reserved ©.

Francesco PROFUMO
president
Compagnia di San Paolo
Turin, Italy

Sustainable infrastructure in the Arctic? A paradigm for transformative and inclusive growth

The Arctic is changing. Over the past 50 years, Arctic's temperatures have risen twice as faster than the global average (EPSC 2019). While rapid melting of polar ice continues, contributing to sea level rise, evidence shows that global warming has been causing a rise in extreme warm events. Older ice that survived multiple summer is rapidly disappearing. Meanwhile, the average number of days with sea ice cover in the region declined at a rate of 10-20 days per decade over the period between 1979 and 2013, making Arctic waters navigable for longer period (AMAP 2017). All this confirms that the Arctic is shifting towards a warmer, wetter, and more variable environment. At the same time, the rapid changes underway have the potential to create social, environmental and economic consequences over the long run, with profound implications for people, resources, and ecosystems worldwide (Birchall and MacDonald 2019).

Somewhat paradoxically, climate induced changes are contributing to open unprecedented opportunities. Concerns over climate change are counterpoised by a seeming promise of social and economic development. With sea ice set to shrink, otherwise inaccessible portions of the Arctic Ocean will no longer be beyond reach. Oil and gas fields will become more accessible, unexploited fisheries will be available for grabs and new shipping routes will open between Europe, Asia and North America (Borgerson, 2008). If compared to traditional routes, Trans-Arctic routes can reduce travel time between certain destinations and allow a reduction in fuel and labor costs. As the region will no longer be considered a remote periphery, it is set to play an increasing pivotal role in global trade, with an estimated 25 percent of Asia-Europe container trade expected to travel through the Northern Sea Route by 2030 (Guggenheim 2019).

According to an inventory published by the global financial firms Guggenheim (2016), as much as $1 trillion investment over the next 15 years is required to develop the infrastructure needed to address the "infrastructure gap" that exist and bridge the distance between global markets. Countries like Russia, Finland, Canada and the US are articulating their interests through fostering new infrastructural connections across marginal and underinvested spaces within their own respective Arctic areas (Ferdinand, 2016). Included in the new development engines will be new ports and harbors, highways, airports, roads, and communi-

cation systems. The coming changes have caused these spaces to appear as strategic hubs lying at the center of global markets [1] and as logical next steps for investment in infrastructure also for a number of states far away from it. India, Korea, Japan, and China, despite not having territorial claims on the region, have implemented comprehensive infrastructure strategies. With the launch of its Polar Silk Road initiative, China has been a real game changer, demonstrating the region's growing global importance (European Parliament, 2018).

In the wake of the growing economic and environmental relevance of the Arctic, the wave of infrastructure development will demand a holistic sustainable approach directed to maximize long term human, social, economic and environmental benefits. The Arctic is home to important ecosystems and Indigenous communities that live and hold rights over these lands (Pass 2020). Several of these communities in the Arctic are facing significant infrastructure deficit, remaining disconnected from transport networks, economic activities and even running water and sewage treatment systems, all of which have very strong influence on community well-being. Infrastructure investments in the Arctic needs thus to consider the necessities and demands of the different groups that populate the areas. This means identifying and financing projects with strong economic, social and environmental returns on investments.

The Artic is the most vivid example of a global trend. Today, we find ourselves in a unique position to champion the most sustainable and inclusive design for infrastructure investment. It is imperative for the future of the Arctic region to develop sustainable and quality infrastructure, which can contain the impact of climate change and avoid social and economic loses. To do so, we must start thinking of fundamental reforms in the way infrastructures are funded, planned, delivered, and managed. First, a credible transition should priorities low carbon resilient infrastructure investments. Moreover, emphasis should be placed on the application of ESG considerations to investment decision making and risk management. Against this backdrop, digital technologies can be an important enabling factor towards a meaningful reduction of GHG emissions. To create the best and more equitable conditions for a level playing field, it is indeed crucial to expand the opportunities for respectful cooperation and dialogue with indigenous people. Such priorities are the necessary starting point to build infrastructures in a resilient, sustainable, and socially inclusive way. This is the path towards a sustainable development in the region and beyond.

1. An open route through the Arctic could reduce shipping time from Asia to New York by 25 to 35%, depending on the route.

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