



“Middle-income trap” - Environmental perspective and implications for Vietnam

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Getting rich and bringing the country to prosperity and wealth is the legitimate desire of every nation. Countries have been setting goals to become developed economies such as China by 2035, India by 2047... and Vietnam is a no exception. Our country is striving to enter the era of nation's rise, with the goal to become an upper-middle-income by 2030, and a high-income country by 2045. However, not all developing countries can overcome the middle-income stage to become high-income; on the contrary, most countries fall into the “middle-income trap”. From an overview of research documents, especially the World Development Report 2024 of the World Bank, this article aims to provide some information about the “middle-income trap”, analysed from an environmental perspective with challenges and solutions for Vietnam.

THE “MIDDLE-INCOME TRAP” ON A GLOBAL SCALE

According to the World Bank, the middle-income trap is a situation in which a middle-income country systematically slows down its growth because it fails to adopt new economic structures needed to achieve high-income levels (World Bank 2024). Of the 217 countries in the world, it is estimated that in 2023 there are 108 middle-income countries, accounting for 75% of the population, more than 38% of

GDP, 64% of greenhouse gas (GHG) emissions, and 62.5% of the world's poor in 2022 (Table 1). Since the 1990s, only 34 middle-income economies have succeeded in transitioning to high-income, while the rest - 108 economies by the end of 2023 - are stuck in the “middle-income trap.” Since 1970, the average per capita income of middle-income countries has never grown above 10% of the average per capita income of the United States.

Regarding the cause, the World Bank Report stated that the development of the economic scale leads to changes in economic structure; however, middle-income countries do not change their management methods, leading to being stuck in the middle-income trap. In the current context, achieving high-income status will be even more difficult because of high public debt and aging populations in developing countries as well as rising protectionism in developed countries, especially rising import tariff by the United States. It can be seen that developing countries often lack the capacity to innovate, invest in education and technology, and reform institutions to be able to break through and achieve high-income levels.

Regarding solutions to escape the middle-income trap, the Report suggests that it is necessary to implement the *3i Strategy (investment, infusion, innovation)* in 3 stages: (1) Low-income countries focus on policies designed to increase *investment - 1iStrategy*; (2) Lower-middle-income countries must shift and expand to *2i, investment + infusion*; (3) Upper-middle-income countries need to shift again - to *3i: investment + infusion + innovation* (Table 2).

The Report emphasizes that to move to high-income status, middle-income countries must engineer two

Table 1. Classification of countries by income and selected global indicators in 2022

Group of countries by income	Share of global population (%)	Share of global GDP (%)	Share of people in poverty globally (%)	Share of global CO ₂ emissions (%)
Low-income	8.9	0.6	36.5	0.5
Lower-middle-income	40.3	8.3	55.4	15.7
Upper-middle-income	35.1	30.3	7.1	48.6
High-income	15.7	60.8	1.0	35.2

Notes: According to the World Bank, in 2022 there are 26 low-income countries (GNI per capita below US\$1,135/year in 2022); 54 lower-middle-income countries (GNI US\$1,136-4,465); 54 upper-middle-income countries (GNI US\$4,466-13,845); and 83 high-income countries (GNI above US\$13,846).

(Source: World Bank, 2024)

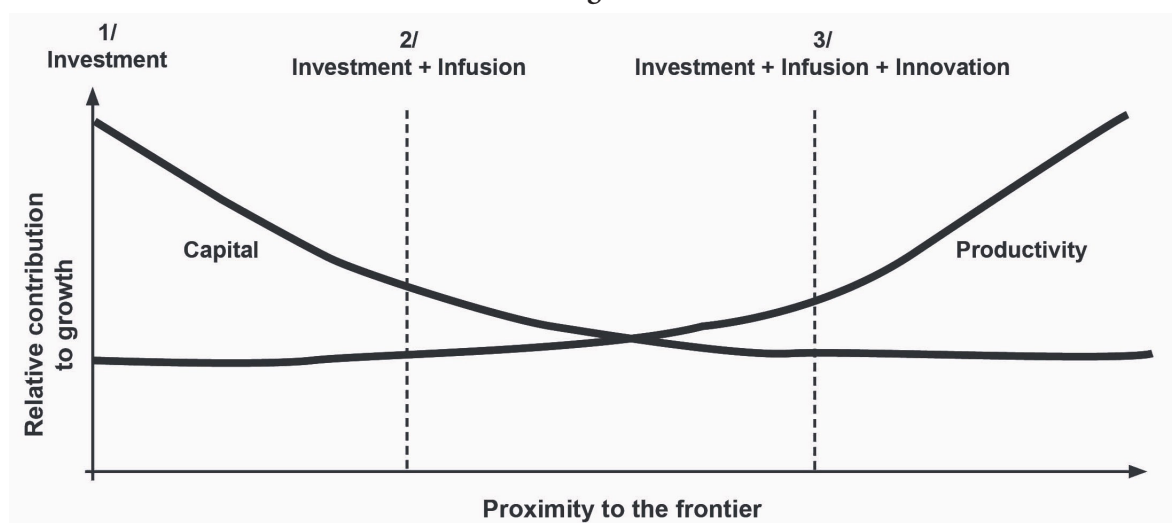


Table 2. To achieve high-income status, countries will need to recalibrate their mix of investment, infusion and innovation

Income classification	Investment	Infusion	Innovation
Low-income	Higher priority	Lower priority	Lower priority
Lower-middle-income	Higher priority	Higher priority	Lower priority
Upper-middle-income	Higher priority	Higher priority	Higher priority

(Source: World Bank, 2024)

Figure 1. Middle-income countries must engineer two successive transitions to move to high-income status



(Source: World Bank, 2024)

fundamental transitions, including reducing dependence on capital and increasing productivity to drive economic growth (Figure 1). Some key solutions that countries need to implement are, first of all, eliminating group interests, ensuring equality under the law and creating a fair competition regime. Middle-income countries need to focus on developing human resources, improving the efficiency in using human resources through talent utilization mechanisms. In addition, it is necessary to take advantages of and turn challenges into opportunities, including energy conversion, energy saving and efficiency to reduce emissions; from climate change and emergency situations to create the necessary consensus for tough policy reforms.

MIDDLE-INCOME TRAP- ENVIRONMENTAL PERSPECTIVE

Economic growth is closely related to environmental pollution and degradation. According to the “Kuznets curve” theory, this relationship has an inverted U shape. Accordingly, in the early stages of development, environmental pollution and degradation increase with economic growth (usually expressed through GDP per capita), however, at a certain threshold of GDP per capita, economic growth leads to improvements in environmental quality (Cole, 2003).

The question is, how are environmental pollution and degradation related to the “middle-income trap” through their impacts on economic growth? A study by Acheampong and Opoku (2023) attempted to analyse this issue from three perspectives: human health; foreign direct investment (FDI) and; science, technology and innovation, and pointed out some key findings as follows:



Firstly, *environmental degradation negatively impacts human health, thereby reducing the labour and productivity.* Environmental degradation and climate change impact biodiversity, quality of air, water resources, food and infrastructure, thereby greatly affecting human health. Air pollution increases stroke, respiratory diseases, chronic obstructive pulmonary disease (COPD), cardiovascular disease, and lung cancer (Prüss-Üstün et al., 2016; WHO, 2021). Currently, it is estimated that 90% of the world's population is exposed to PM2.5 and 7 million people die prematurely due to air pollution (IQAir, 2019), with 400,000 people in Europe alone (EEA, 2022). Environmental pollution and degradation increase the burden of disease, increasing costs for governments and households. Environmental impacts on human health have negative impacts on economic growth due to reduced number and productivity of workers.

Secondly, *environmental degradation has a reciprocal effect on FDI, which in turn affects economic growth.* Since 2003, some scholars have proposed the “pollution haven” hypothesis, implying that developing countries are more likely to suffer from environmental pollution/degradation due to lax environmental regulations (Eskeland and Harrison, 2003). Advanced countries (with strict environmental regulations) often transfer polluting industries to developing countries through FDI. Therefore, environmental degradation due to low environmental protection standards and requirements has also increased the attraction of trade and FDI in developing countries (Cole, 2003; Copeland, 2008). Opoku et al. (2022) have shown that environmental degradation increases FDI in low- and lower-middle-income countries (such as in Sub-Saharan Africa, South Asia, Latin America and the Caribbean), while discouraging FDI in upper-middle-income countries (Europe, Central Asia, the Middle East and North Africa regions); due to the stricter environmental regulations in upper-middle-income countries.

In the current context, the green transition is taking place strongly, with commitments to reduce greenhouse gas emissions to respond to climate change under the Paris Agreement, creating a clean environment, ensuring full environmental conditions will attract high-quality FDI. Multinational corporations are paying more attention to environmental sustainability and are more likely to invest in countries with the best environmental sustainability practices (Acheampong and Opoku, 2023).

Thirdly, *strict environmental regulations can promote science, technology and innovation, thereby positively affecting economic growth.* According to many scholars, environmental pollution and degradation are often associated with inefficient use of resources. Therefore, strict environmental regulations will encourage companies to apply science, technology and innovation, thereby saving costs and using resources and energy efficiently (Jaffe and Palmer, 1997; Lanoie et al., 2008). Innovation will promote the development of new technologies that increase productivity, reduce costs, increase profits, and increase the competitiveness of enterprises. In many cases, innovation will lead to the development of environmentally friendly technologies and products, thereby promoting economic growth while reducing environmental pollution and degradation (Chen and Lei, 2018; Fernandez et al., 2018). This is the direction that many middle-income countries want to take.

IMPLICATIONS FOR VIETNAM

Risk of falling into the middle-income trap

Since the renovation in 1986, our country has achieved many successes, escaped the state of underdevelopment, became a middle-income country with an estimated GDP per capita of US\$4,700 in 2024, a model in the world in poverty reduction. However, many studies have also shown that the risk of Vietnam falling into the middle-income trap is very high, with the following manifestations: (1) Economic growth over periods tends to slow down, specifically the average growth of the whole country in the 1991-2000 period was about 7.6%; the 2000-2010 period was about 6.6% and the 2011-2020 period was about 6%; (2) The contribution of total factor productivity (TFP) is low, on average in the 2016-2020 period, TFP increased by 2.88%/year; growth is more capital-driven than labour-driven; (3) Labour productivity is still low, although it increased by an average of 5.4% per year in the 2011-2020 period, it is still low in the ASEAN bloc; (4) Economic restructuring is still slow; (5) National competitiveness is still low (Pham Ngoc Hoa, 2024). It can be seen that although economic growth in 2024 reached 7.09%, exceeding the set target, Vietnam is still at great risk of falling into the middle-income trap if there is no breakthrough in the coming time.

Environmental pollution and degradation, impacts of climate change and natural disasters pose major challenges to sustainable growth

Looking back over the past time, the results of the 10-year summary (2013-2023) of implementing Resolution No. 24-NQ/TW on active response to climate change, improvement of natural resource management and environmental protection show that, despite many achievements, our country's environment still faces many challenges. Air pollution in large cities, especially Ha Noi and Ho Chi Minh City, tends to increase. Water pollution in urban areas, industrial clusters, river basins, and craft villages has not been prevented. Marine pollution due to aquaculture and plastic waste occurs in some localities. Still 85% of urban domestic wastewater and most of the wastewater from rural residential areas have not been collected and treated. Environmental protection infrastructure for the collection and treatment of domestic wastewater and domestic solid waste has not met the requirements; 29% of rural domestic solid waste has not been collected and treated; the technology for treating domestic solid waste is mainly landfill (65-70%). The establishment of new and expanded areas of nature reserves is slower than the set target; by 2022, it will only reach about 2.6 million hectares in area. Environmental pollution, degradation have been causing damage to human health in Vietnam, with an estimated 70,000 people dying each year from diseases related to air pollution;



economic losses due to impacts on agricultural production, typically environmental pollution incidents that damage aquaculture such as the Formosa marine environmental incident in 2016... and; losses to tourism activities due to a decrease in the number of tourists, especially due to plastic waste.

In addition, climate change and natural disasters continue to become more and more complex while response infrastructure in some places has not met requirements; by 2022, 17% of dams have not been upgraded, nearly 50% of boat shelters have not been invested in; 91 dangerous landslides have not been handled. The damage caused by natural disasters is still large, it is estimated that in the 2013-2022 period, the average annual damage caused by natural disasters is about VND23,000 billion equivalent to US\$1 billion (MONRE, 2023). Typhoon Yagi in 2024 caused severe damage, estimated at about US\$3.3 billion, of which Yen Bai province alone had 54 deaths, 42 injuries, and damage of about VND5,738.2 billion, erasing growth achievements. Greenhouse gas emissions are increasing rapidly, reaching 284 million tons of CO₂e in 2014 and are forecast to reach 927.8 million tons of CO₂e by 2030 (MONRE, 2022).

SOME ENVIRONMENTAL SOLUTIONS

According to the World Bank's ranking criteria, Vietnam is currently at the threshold of transitioning from lower-middle-income to upper-middle-income. To escape the middle-income trap, according to the World Bank's recommendations, Vietnam needs to implement the *3i Strategy*, on the one hand, needs to continue to promote investment attraction and technology dissemination, on the other hand, needs to strongly promote science, technology and innovation. This is also the guideline, policy that the Party and State are implementing through the Resolution of the 13th National Congress and most recently Resolution No. 57-NQ/TW of the Politburo on breakthroughs in the development of science, technology, innovation and national digital transformation. From an environmental perspective, the following solutions need to be implemented:

- *Firstly, accelerate the improvement of environmental quality to minimize damage, increase labour productivity, promote sustainable economic growth.* Improving environmental quality will minimize economic damage, promote a strong increase in labour productivity, and increase the attraction of high-quality FDI. Preventing environmental pollution and effectively using natural resources will facilitate the development of agriculture, tourism, etc., increasing the competitiveness of the economy. Vietnam needs to have a plan with tasks and solutions in the short, medium and long term to minimize air pollution, especially in large cities such as Ha Noi and Ho Chi Minh City. Develop and implement policies to mobilize resources to invest in dealing with environmental pollution from industrial clusters, craft villages, and water pollution in urban areas; restore and revive rivers. Invest in infrastructure, successfully implement regulations on classification, collection, and treatment in the direction of limiting the landfill of domestic solid waste; reduce, collect, recycle, and treat plastic waste. Vietnam needs to continue to improve institutions, policies, and strengthen law enforcement on environmental protection.

- *Secondly, develop infrastructure, improve capacity to proactively respond to climate change, prevent natural disasters and minimize*

damage. Climate change continues to evolve rapidly, the year 2024 is assessed as the hottest year ever with the average global temperature having increased by about 1.6°C compared to the pre-industrial period (1850-1900), exceeding the target of 1.5°C by the end of the century. This will increase extreme weather events, causing major impacts on socio-economic development. Vietnam needs to continue to build economic and social infrastructure and enhance capacity to respond to climate change, prevent and mitigate natural disaster risks. The system of river dykes, sea dykes, lakes, dams, storm shelters for boats, etc. need to be upgraded and built. Build disaster-resistant residential areas; survey, assess, and relocate people from areas at high risk of landslides. Build irrigation infrastructure, develop agriculture that is adaptive and resilient to the impacts of climate change, especially in the Mekong Delta.

- *Thirdly, continue to innovate FDI attraction policies, shifting to high-tech, quality and greener industries; develop green infrastructure to attract green investment.* As a country starting to enter the upper-middle-income threshold, Vietnam should not focus too much on quantity but must focus on attracting high-quality FDI flows, focusing on high-tech industries such as semiconductors, digital technology, artificial intelligence, etc. Gradually limit and move towards not attracting FDI from industries with resource-intensive, energy-intensive, and environmentally polluting technologies such as textiles, dyeing, leather, etc.; do not let economic growth depend on industries with low added value that are harmful to the environment.

In the context of the whole world moving towards the Net-Zero goal, multinational corporations and large enterprises are implementing green production strategies to meet the green needs of the market. The strong development of the artificial intelligence (AI) field is promoting the development of big data centers with high energy demand. These enterprises require investment in countries with green energy infrastructure and low emissions. Vietnam needs to promote the development of renewable energy, clean energy, develop ecological industrial parks; promote sustainable forest management... as a foundation to attract green FDI.

- *Fourthly, greening manufacturing industries and products to meet the requirements of export markets.* Vietnam is a highly open economy, participating in many free trade agreements (FTAs). Besides the domestic market, exports will still be a major driver to promote economic growth in the coming time. In the context of green transformation, with increasingly high environmental requirements of major markets, besides creating green infrastructure, Vietnam needs to green manufacturing industries, especially export industries. It is necessary to implement legal

regulations on inventory and reduction of greenhouse gas emissions, and develop carbon markets in accordance with the provisions of the Law on Environmental Protection 2020 and Decree No. 06/2022/ND-CP. Vietnam needs to shift to a circular economy model, in which recycling, reusing resources, and reducing waste become core factors in production activities. This not only helps protect the environment but also reduces costs and increases competitiveness for enterprises when entering international markets.

- *Fifthly, create favourable conditions to promote the development of science, technology, innovation, and encourage green investment.* Strengthen the application of strict and stringent regulations, improve environmental protection standards, and additionally encourage and support the development of science, technology, innovation, and digital transformation to promote the application of green technology and the production of green products. Institutionalize the guidelines, policies of Resolution No. 57-NQ/TW to unleash creativity, develop science, technology, and apply digital transformation in the whole society. Strengthen institutional reforms and encourage green investment; it is necessary to soon issue criteria for classifying green projects to unlock investment capital flows into green projects, while applying strict regulations to protect the environment. Vietnam also needs to strongly implement digital transformation to contribute to the economical and efficient use of resources and energy, and minimization of environmental pollution.

CONCLUSIONS

The middle-income trap is closely linked to the level of environmental pollution and degradation reflected in aspects of human health, FDI, science, technology, and innovation. Overcoming the middle-income trap, becoming a high-income country and achieving sustainable development is not an easy task for many developing countries, including Vietnam. However, if Vietnam knows how to closely combine economic development and environmental protection, it can completely promote economic growth while ensuring a green and healthy future for future generations. To achieve that, it is necessary to prevent environmental pollution and degradation; develop infrastructure, improve capacity to respond to climate change, prevent natural disasters; innovate policies to attract FDI, develop green infrastructure to attract green investment; green manufacturing industries and products to meet the requirements of export markets; create favourable conditions to promote the development of science, technology, innovation, and encourage green investment. Entering the era of nation's rise, Vietnam not only attaches importance to escaping the middle-income trap to become a high-income country, but also must escape environmental pollution and degradation to become a liveable country, ensuring that every citizen has the right to live in a clean environment as affirmed in the Constitution ■

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