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Forum: SDC-2

Issue: Measures to promote sustainable reindustrialization in developed countries

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Introduction

Reindustrialization, the revival or expansion of industrial activity, has emerged as a critical policy focus in developed countries. The global economy faces a set of challenges that is unprecedented in many ways: climate change, geopolitical tensions, supply chain disruptions, and deindustrialization trends that have hollowed out many manufacturing sectors. In this light, sustainable reindustrialization tries to meet these challenges by fostering industrial growth that is economically competitive and environmentally responsible.

The importance of sustainable reindustrialization also consists in its contribution to the resolution of current and emerging global challenges such as carbon neutrality, economic inequalities, and the increase in resilience to global shocks. It is expected that, in a continuously changing environment, industries will contribute significantly to achieving the United Nations Sustainable Development Goals, particularly those referring to sustainable economic growth, innovation, and climate action. By leveraging green technologies, circular economy principles, and smart manufacturing, developed countries can set a precedent for balancing industrial growth with ecological stewardship.

Historical industrial decline in developed nations during the late 20th century, resulting from so-called globalization and offshoring, caused economic dislocation and job losses in industrial centers. Today, the global emphasis on carbon emissions reduction and energy security provides a timely opportunity to re-examine industrial strategies. Deliberate policies, international cooperation, and technological innovation will be needed to balance economic growth and environmental sustainability. The Member States should work towards sustainable reindustrialization, including investment in renewable energy, the adoption of advanced manufacturing technologies, fostering public-private

partnerships, and creating supportive regulatory frameworks. By examining these strategies, we can understand how developed countries might redefine industrial success while addressing critical global challenges.

Definition of Key Terms

Public-Private Partnerships (PPPs)

“Public-private partnerships involve collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects, such as public transportation networks, parks, and convention centers. Financing a project through a public-private partnership can allow a project to be completed sooner or make it a possibility in the first place. Public-private partnerships often involve concessions of tax or other operating revenue, protection from liability, or partial ownership rights over nominally public services and property to the private sector, for-profit entities (The Investopedia Team).”

Just Transition

“The concept of just transition has been around since the 1980s when it was used in a movement by US trade unions to protect workers affected by new water and air pollution regulations. In recent years, the concept has gained traction with reference to meeting climate goals by ensuring the whole of society – all communities, all workers, all social groups – are brought along in the pivot to a net-zero future. The International Labour Organization (ILO) defines it this way: ‘Greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind.’ While this provides a sound basis, perception does vary between countries and regions. What is important, though, is that each country fosters ongoing dialogue to develop a common vision for what a just transition means for their impacted workers, communities, and businesses (UNDP).”

Circular Economy

“The circular economy is a model of production and consumption that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products as long as possible. In this way, the life cycle of products is extended. In practice, it implies reducing waste to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible, thanks to recycling. These can be productively used again and again, thereby creating further value. This is a departure from the traditional, linear economic model, which is based on a take-make-consume-throw-away pattern. This model relies on large quantities of cheap, easily accessible materials and energy. Also, part of this model is planned obsolescence, when a product has been designed to have a limited lifespan to encourage consumers to buy it again (European Parliament).”

Eco-Design

“The integration of environmental aspects into the product development process by balancing ecological and economic requirements. Eco-design considers environmental aspects at all stages of the product development process, striving for products which make the lowest possible environmental impact throughout the product life cycle (EEA).”

Sustainable Finance

“Sustainable finance refers to the process of taking environmental, social, and governance (ESG) considerations into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects. Environmental considerations might include climate change mitigation and adaptation, as well as the environment more broadly, for instance, the preservation of biodiversity, pollution prevention, and the circular economy. Social considerations could refer to issues of inequality, inclusiveness, labour relations, investment in people and their skills and communities, as well as human rights issues. The governance of public and private institutions – including management structures, employee relations, and executive remuneration – plays a fundamental role in ensuring the inclusion of social and environmental considerations in the decision-making process (Overview of Sustainable Finance).”

ESG Criteria

“ESG investing refers to the practice of incorporating Environmental, Social, and Governance factors into the investment decision-making process. This approach goes beyond traditional financial analysis by evaluating how a company’s operations impact the environment, how it manages relationships with employees, suppliers, customers, and communities, and the quality of its leadership, audits, internal controls, and shareholder rights. Environmental criteria consider how a company performs as a steward of the natural environment, focusing on its energy use, waste, pollution, natural resource conservation, and treatment of animals. The criteria can also help investors evaluate any company’s environmental risks and how those risks are managed. Social criteria examine how it manages relationships with employees, suppliers, customers, and the communities where it operates. This includes labour practices, product safety, data protection, and privacy. Governance deals with a company’s leadership, executive pay, audits, internal controls, and shareholder rights. Investors who apply ESG criteria believe that these factors can provide critical insights into a company’s long-term prospects, making companies with strong ESG practices more resilient and potentially more profitable investments (ESG: Environmental, Social, & Governance Investing).”

Background Information

Green industrial policy

Green industrial policy operates through the same method of state-driven structural change, adding other broader social and environmental objectives. Through recent experiences and examples of green industrial policy, governments are in a position to operationalize this structural change that is important for economic growth, competitiveness, and new jobs. Meanwhile, they can speed up the greening of carbon-intensive economic and industrial sectors to progress the transition toward a green, more resilient global economy and position themselves to meet environmental challenges in the decades ahead. “Integrating green industrial policy approaches—and investments in green industries—into economic recovery packages can also help governments to operationalize a ‘green recovery’ from the socio-economic impacts of COVID-19” (UNEP).

Advanced manufacturing

Advanced manufacturing is revolutionizing product and process development and implementation at an unprecedented rate across industries. Coupled with the latest in technology, this concept marries machinery and digital and cloud-based technologies, from artificial intelligence to the IoT and augmented reality. These enable workers to rapidly pivot production to meet changing supply needs, raising efficiencies and ensuring competitiveness. “The core of advanced manufacturing revolves around innovative technologies that heavily lean on information, automation, computation, software, sensing and networking” (TWI). This transformational approach enables better quality products, as well as the economic and national security of nations. As we embark on this new era of manufacturing, new opportunities arise, opening doors to the development of sophisticated products and streamlined processes. At the same time, it is now our responsibility to grab those opportunities correctly. The right set of skills and knowledge can make us truly contribute towards advanced manufacturing. Keeping pace with technology, collaboration, and investing in research and development will go a long way in the integration and development of advanced manufacturing industries.

Carbon pricing

Carbon pricing is an instrument that captures the external costs of GHG emissions—the costs of emissions that the public pays for, such as damage to crops, health care costs from heat waves and droughts, and loss of property from flooding and sea level rise ties them to their sources through a price, usually in the form of a price on the carbon dioxide (CO₂) emitted. A carbon price helps shift the burden for the damage from GHG emissions back to those who are responsible for it and who can avoid it. Rather than dictating who should reduce emissions where and how, a carbon price provides an economic signal to emitters, allowing them to decide either to transform their activities and lower their emissions or continue emitting and paying for their emissions. Therefore, the overall environmental goal would have been achieved at the least cost and with the maximum flexibility to society. “Placing an adequate price on GHG emissions is of fundamental relevance to internalize the external cost of climate change in the broadest possible range of economic decision making and in setting economic incentives for clean development” (World Bank). It can help to mobilize the financial investments required to stimulate clean technology and market innovation, fueling new, low-carbon drivers of economic growth.

Green bonds

In a world where much focus is directed toward addressing climate change, among other environmental challenges, green bonds have become popular for investors to align their financial goals with their values and contribute to positive change. Green bonds are a fixed-income investment used to fund projects with positive environmental impacts. Similar to traditional bonds, green bonds provide an investor with a stated return and a commitment to utilize the proceeds to finance or refinance, in whole or in part, new or existing sustainable projects. Green bonds are issued by public, private, or multilateral entities to raise capital for initiatives that contribute to a more sustainable economy and generate identifiable climate, environmental, or other benefits. “Projects funded by green bonds include renewable energy, energy efficiency, clean public transportation, pollution prevention and control, conservation, sustainable water, and wastewater management, and green buildings that meet internationally recognized standards and certifications” (Segal). Green bonds are meant to encourage sustainability and support climate-related or other environmental projects. They help finance projects from energy efficiency to sustainable agriculture and protection of aquatic and terrestrial ecosystems. They also finance the cultivation of environmentally friendly technologies and climate change mitigation. Like other bonds, the green variety often has tax incentives in the form of credits and exemptions, making them more attractive than comparable taxable bonds. Green bonds are often verified by a third party, such as the Climate Bonds Standard Board, which certifies that the bond will fund projects that provide environmental benefits.

Sustainable supply chains

A sustainable supply chain is one that fully integrates ethical and environmentally responsible practices into a competitive and successful model. End-to-end supply chain transparency is key; sustainability initiatives should extend from raw material sourcing to last-mile logistics and even to product returns and recycling processes. Digital transformation and the growing sophistication of digital supply chain technologies are playing a major part in the evolution of supply chain sustainability. Big Data management, advanced analytics, artificial intelligence, and security tools like blockchain and RFID sensors have brought unprecedented visibility and accountability to the modern supply chain. “Companies now have a much greater ability – and obligation – to demonstrate corporate social responsibility and to share best practices for green supply chains and sustainable logistics. As ethical supply chain practices become a greater and more immediate priority for businesses, compliance goals and sustainability benchmarks are also becoming more standardized” (SAP). The United Nations Global Compact has laid out 10 criteria to measure supply chain sustainability in areas of environmental responsibility, labour practices, human rights, and corruption. These principles are based on the realization that socially responsible practices and products are not only good for people and the planet but also good for building positive brand awareness, competitiveness, and long-term profitability.

Reshoring

Reshoring is the process of returning the production and manufacturing of goods back to the

company's original country. Reshoring is also known as onshoring, inshoring, or backshoring. It is the opposite of offshoring, which is the process of manufacturing goods overseas to try and reduce the cost of labour and manufacturing. Even though offshoring provides a financial advantage due to cheap labour and low costs of production, reshoring helps to strengthen an economy. Reshoring means the creation of manufacturing jobs, hence strengthening the workforce and lowering unemployment rates to balance trade deficits. In many instances in the U.S., companies even find that the extra cost to manufacture in the states is so slight that the benefits would outweigh the labour costs, particularly considering the fees involved in customs and shipping from overseas. "Reshoring does not always have positive results for the companies involved, however. If the effort is poorly managed or if the circumstances are not conducive to a smooth transition, reshoring efforts can fail. Often, a company underestimates the costs and the logistical planning involved. To avoid failure, companies often call in consultants that specialize in reshoring" (Kenton). Companies may bring in consultants who specialize in reshoring to avoid failure. While reshoring is a way to stimulate the domestic economy, companies must remember that some products are best left offshore, especially native to other countries. For example, crops grown locally in China should also be processed there so that they remain close to the source.

Major Countries and Organizations Involved

United Nations and International Community

The issue of sustainable reindustrialization has been addressed through various initiatives, resolutions, and programs by the United Nations and other international organizations. The 2030 Agenda for Sustainable Development includes Sustainable Development Goal 9, which emphasizes the need to build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation. Declaration on the Global Agenda for Industrial Development encourages industrial development that aligns with environmental and economic sustainability. Kyoto Protocol to the United Nations Framework Convention on Climate Change introduced mechanisms for reducing industrial emissions relevant to reindustrialization efforts. United Nations Industrial Development Organization supports member states in achieving sustainable industrial development through capacity-building and technology transfer. Green Climate Fund finances projects aimed at transitioning industries toward lower carbon emissions.

United States of America

The United States has traditionally supported industrial development while being challenged by sustainable practices. In the last couple of years, the U.S. has made extensive efforts to align its industrial growth with environmental objectives. It passed the Inflation Reduction Act (2022), which provides considerable funding for clean energy programs and industrial decarbonization. The U.S. has been advocating for international agreements on industrial sustainability, such as rejoining the Paris Agreement under the Biden administration in 2016. It has repeatedly stressed the use of innovation and public-private partnerships to engender sustainable industrial growth, as was done during its remarks at the 76th UN General Assembly. Domestically, the policy has ranged from tax incentives for green technologies to support for research into advanced manufacturing, underlining the country's commitment to its reindustrialization in a manner aligned with sustainability. Nevertheless, with the election of President Trump to the White House, these policies may be subject to change.

People's Republic of China

As a leading industrial power, China has taken significant steps to align its industrial growth with sustainable practices while maintaining economic competitiveness. China is the world's largest producer of renewable energy technology and has introduced its Made in China 2025 strategy, which emphasizes green and high-tech industrial development. Internationally, China supports the Paris Agreement and actively collaborates with the green development framework of the Belt and Road Initiative. China called for equal industrial policies with due consideration to economic growth and sustainability, especially in developing countries.

European Union

The European Union (EU) is at the forefront of sustainable reindustrialization, driven by its commitment to achieving net-zero emissions by 2050 and fostering green innovation across member states. The European Union launched the European Green Deal in 2019, an encompassing strategy aimed at industries, circular economies, and clean energy innovation. Under the Fit for 55 package of 2021, the EU has adopted policies to cut greenhouse gas emissions by at least 55% by 2030, with specific measures addressing energy-intensive industries. The Recovery and Resilience Facility gave significant funding in the post-COVID-19 period for the development of more sustainable industrial projects, highlighting digital transformation and green technologies. The EU has actively supported SDG 9 and other related goals, advocating for international cooperation on climate-resilient industrial policies. It is a major contributor to the GCF and works closely with UNIDO on global industrial sustainability initiatives. EU policy provides a model for integrating economic growth with environmental responsibility and underlining the role that regional and international collaboration can play in reindustrialization.

Japan

Japan prioritizes high-tech innovation and resource efficiency in its approach to sustainable reindustrialization. The country has adopted policies under its Green Growth Strategy, 2020, for decarbonizing key industrial sectors and fostering the development of hydrogen energy technologies. Japan is a strong supporter of international initiatives like the UNFCCC and works with UNIDO on the promotion of sustainable industrialization in Asia. During UN forums, Japan has also stressed technology innovation and international cooperation on global sustainability goals.

Federative Republic of Brazil

While the state of Brazil is most often associated with environmental concerns over deforestation, it, too has started to engage in issues of sustainable industrial practices. Brazil favours policies that introduce the principles of bioeconomy into industrial activities and encourage the use of renewable energy based on the large potential of biofuels and hydropower. It is an active participant in UNIDO and supports SDG 9 initiatives geared toward developing economies. Brazil has emphasized the importance of inclusive industrial policies during debates in the UN, pushing for solutions that deal with economic inequalities while fostering industrial growth.

Timeline of Events

Date	Description of event
April, 22nd, 1970	The very first Earth Day is held, marking a growing awareness of environmental issues.
June 3rd, 1992	The United Nations Earth Summit is gathered in Rio de Janeiro, introducing the concept of sustainable development.

December, 11th, 1997	Kyoto Protocol is adopted, emphasizing carbon reduction in industrial activities.
December, 12th, 2015	The Paris Agreement is adopted, setting global climate goals and encouraging sustainable practices in industries.
January 1th, 2016	The Seventeen Sustainable Development Goals of the 2030 Agenda for Sustainable Development — adopted by world leaders in September 2015 at an historic UN Summit — officially came into force.

Previous Attempts to Solve the Issue

A major step has been the launch of emissions trading schemes, such as the European Union Emissions Trading System (EU ETS), which was initiated in 2005. This cap-and-trade facility encourages industries to pursue the reduction of carbon emissions by trading carbon credits among them. It resulted in measurable reductions in industry emissions across Europe, although critics say that if it were stricter and extended to many more sources, it would be more valuable. The same was found in the Clean Power Plan in the United States, proposed in 2015 but repealed, which sought to reduce emissions in energy-intensive industries through shifts in generating electricity using cleaner sources such as natural gas and renewables. Although not without meeting political hurdles, the plan has incited discussions to integrate sustainability into industrial policies.

Countries such as Germany have taken the lead in initiatives such as the Energiewende (Energy Transition), which was mooted in the early 2000s. To decarbonize energy production, Energiewende involved investment in wind and solar energy. It is remarkable that the policy has promoted growth in renewable energy technologies and encouraged industries to shift to cleaner energy sources. However, this cross-cutting success is limited due to its high costs coupled with grid integration challenges. Examples of agreements include the protocol of Kyoto (1997) and the Paris Agreement (2015). These pave the way for sustainable industrial practices. It required emissions reduction targets among developed countries, thus compelling industries to adopt cleaner technologies. While it has led to progress in awareness and collaboration across the globe, these agreements still experience challenges, such as uneven compliance and enforcement.

Member States like Canada and Germany have installed retraining processes for workers who are to move from declining to emerging green sectors. For instance, the Canadian Just Transition Task Force has focused on the coal miners of the country as it phased out coal power. Social equity in industrial transition is acknowledged here, but it meets obstacles such as finances and the disparity of the areas concerned. Modern states have mold-spraying subsidy programs and financial incentives to lure industries to take onto themselves sustainable technologies. The USA's Inflation Reduction Act of 2022 provides tax credits and green manufacturing for renewable

energy projects. Similar grants were given to industries adopting energy-efficient technologies under the Top Runner Program, initiated by Japan. However, these tasks have prompted green transitions but still need continual investment for sustainability. Regional strategies, such as the Midlands Engine Strategy in the UK, will enable these industrial regions to be re-energized with investment in innovation and clean manufacturing. Similarly, Japan's Green Growth Strategy aims at market decarbonization in new core sectors such as hydrogen production and carbon capture. In this way, such policies offer an opportunity for tailored approaches to solving the specific challenges posed by specific industrial regions.

Possible Solutions

By implementing these multifaceted solutions, developed countries can achieve a sustainable balance between industrial growth, environmental preservation, and social equity, laying the foundation for a resilient future.

Green infrastructure investments

Investment in sustainable infrastructure constitutes one of the important pillars for sustainable reindustrialization. Governments should put in massive funding toward the modernization of industrial parks with green technologies at both renewable energy systems and waste management facilities, and energy-efficient buildings. Eco-industrial parks that deal with symbiotic relationships among industries can help reduce waste and optimize resource usage. For example, energy surplus heat from one factory can be diverted and connected to another factory and thus, it manages to create a circular system to minimize environmental impact. All these include reduced carbon footprints on the one hand and attraction of investors who will look at Environmental, Social, and Governance (ESG) standards on the other hand.

Incentivizing green technology adoption

Financial incentives are a major driver for industries to adopt green technologies and processes. For example, very often, companies receive subsidies, tax breaks, or low-interest loans for installing energy-efficient machinery or renewable energy systems. These will help cut the initial costs of converting to sustainable operations. Governments could also issue "green certificates" or carbon credits for investment by companies into renewable energy projects wherein the company will be able to offset its emissions. Finally, create innovation hubs targeting R&D around clean manufacturing technologies to catalyze new fodder for sustainable industry.

Developing a skilled workforce for sustainable industries

Reindustrialization initiatives should also focus on the developmental aspect of human resources by sponsoring education and training programs particularly oriented towards sustainable industries. Trade unions should liaise with either the governments or private sectors to establish vocational institutions and accreditation programs for such disciplines as green engineering, renewable energy, or

even advanced manufacturing. Mainstreaming sustainability and climate education in curricula ensures that the workforce is prepared to face the challenges posed by sustainable production. It helps transition employees from declining industries into emerging green sectors with minimum social disruption.

Strengthening international cooperation and standards

The harmonization of international standards regarding sustainable practices in industries brings not only an even playing field but also a strong impetus for global movement toward their adoption. Developed countries should take the initiative by launching green trade agreements that favour low-carbon goods while imposing penalty rates on imports that are harmful to the environment. Such collaborative platforms sharing green technologies and best practices across boundaries could accelerate global action. For instance, a “Green Marshall Plan” should provide an impetus to the transfer of technology from developed to developing industries towards global industrial sustainability.

Enhancing energy transition policies

Preferring renewable energy in industries is an important issue. Governments will need to enable decentralized renewable energy grids whereby industries are able to transition from fossil fuels to clean energy. Providing incentives to adopt green hydrogen as a fuel source could decarbonize major heavy industries using fossil fuels, such as steel and cement manufacturing. Developing green corridors for energy where industries can share access to renewable energy sources would reduce costs and improve efficiency.

Leveraging digital transformation for sustainability

Installing Industry 4.0 technologies allows effective resource management and environmental sustainability. Artificial Intelligence (AI) and the Internet of Things (IoT) control supply chains as efficient energy consumers, while their predictions for equipment maintenance by industrial processes will minimize waste and improve equipment downtime. Governments should make regulations promoting a digital twin—virtual replication, comparing real-world systems, which allows testing and optimization of processes without real-world waste.

Strengthening community and stakeholder engagement

Reindustrialization must be socially equitable. Initiatives should involve local stakeholders in making plans and decisions, which means communities ally with each other for industrial growth. Governments should fund social impact assessments and offer incentives to industries for more inclusive hiring. Transparency in reporting will enable such dependencies on trust and accountability, where industries would commit to sourcing sustainably and development within the boundaries of the community.

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