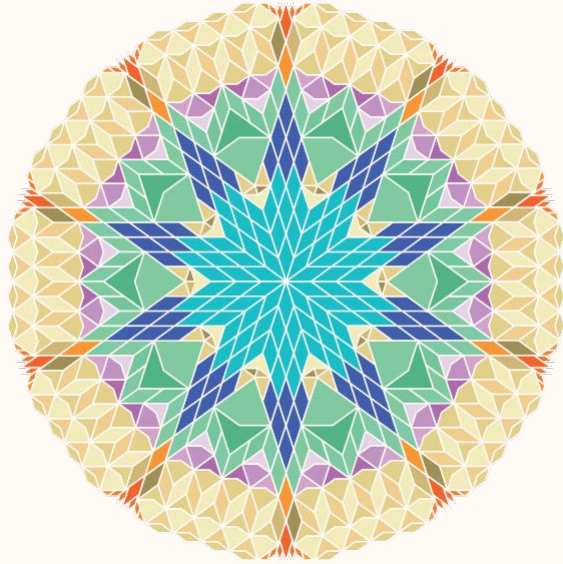


MIGA policy package “Path Diversity” for “No One Left Behind”

November 2024

GSRC
Global South Research Caucus

Musashino Institute for Global Affairs (MIGA)



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About the symbol of the Global South Research Caucus

In order to realize the world of "No One Left Behind", it expresses the creation of a true relationship between all beings through color in the form of connecting the "Ecophony" that envelops human beings and the earth.

I used Penrose tiles and the colors extracted from photographs taken at Buddhist temples in Laos.

Designed by Masashi Nakagawa

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Chapter 1

MIGA Policy Package

The Path Diversity Paradigm of the Development of the Global South

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1. the concept of the path diversity

One of the most notable phenomena in the international community today is the rise of the Global South (GS; the concept of developing countries is referred to here as the "Global South"). The GS states, which have succeeded in achieving rapid economic growth since the end of the 20th century, have begun to exert a strong political voice in the international community against the backdrop of their economic presence. The international regime up to the 20th century, which was constructed by a small number of limited developed countries, is coming to an end. In order for the international community to construct a new international regime that will exercise effective global governance in the second quarter of the 21st century and beyond, it is necessary to accurately understand the historical significance of the rise of the GS states through a deeper understanding of the views of the GS states toward the international community that they advocate.

In 1989, it was understood that the structure of the Cold War, which had been maintained for 40 years, would collapse, and the Washington Consensus, which laid out the structure of the international community after that time, centered on the development strategies of the countries in the transition economies that would newly join the "Western" developing countries, was announced. The Washington Consensus was a strong statement of neo-liberalism, which favored the market mechanism in all its aspects, since the West, with the market economic mechanism as the ideological pillar of the West, had won the Cold War.

Of course, there are fundamental doubts about the effectiveness of neoliberalism, the glorification of the market mechanism in all its forms. If we still adhere to it today, it could create a number of serious problems. However, the Washington Consensus should be justly evaluated for its effectiveness in showing the structure of the international community in the immediate future, at a time when the Cold War has ended and a great number of countries in the former planned economies have entered the category of developing countries as the transition economy states. This is a situation that should be duly appreciated. Even if it caused serious problems in the long run, the Washington Consensus was not put together in the first place as a universal prescription for the very long term, and many of those problems are beyond the scope of the project.

The current movement toward the full-scale rise of the Global South states can be seen as a major

movement in the history of modern civilization, not inferior to the end of the Cold War at the end of the 1980s. Therefore, following the example of the Washington Consensus, today's international community needs to formulate a manifesto that appropriately foresees the direction of the drastic changes in the international community that are expected to occur with the full-scale rise of the Global South states, and that outlines the basic structure of the international community after that.

With this in mind, the Musashino Institute for Global Affairs (MIGA) at Musashino University launched the Global South Research Caucus (MIGA-GSRC) in FY2024 to bring together the wisdom of not only Japan but the world to address this issue. Here are the conclusions shared by the participants of the study group.

(1) The Global South, which aims to build a new idea of international social development

We believe that the GS states are pursuing a new international regime based on the idea of development that reflects their own views, questioning the legitimacy of the developmental ideas of the developed countries that have defined the international regime to date, and jointly pursuing a new international regime based on the developmental ideas of the GS states.

Only a few developed countries played a leading role in the establishment of major international regimes in the post-World War II period, and GS states had no independent channels other than responding primarily in the context of North-South issues through the UN system. For example, in the Bretton Woods system, the representative international regime for international finance, although many countries, including today's GS, attended the conference itself (Allied Monetary and Financial Conference (July 1944)), it was the United States that effectively led the conference. That is, at the end of the 20th century, when the GS states began to increase their national power, the major international regimes had already been established and operated by others.

This old international regime does not guarantee treatment commensurate with the increased national power of the GS in recent years. For this reason, there is a certain persuasiveness in the idea that GS, in solidarity within the international community, seek improvement within the current international regime and demand rights and interests commensurate with their own national power. In this case, the basis of GS solidarity is the "acquisition of interests commensurate with increased national power" and does not represent a new contribution to human history in terms of philosophy. The current tendency to deride the emerging GS Solidarity as a "pressure group without a philosophy" reflects this way of thinking.

However, it is not appropriate to view today's GS states' claims as only about specific national interests, but rather as pursuing a new idea of how to govern the international community that underlies their claims. The GS states are making great strides in their economic and political rise, while at the same time pursuing epistemic rise.

A particular international regime is constructed on the basis of a particular philosophy. There is no international regime that is not influenced by a particular philosophy and that is universally and neutrally valid at any time and in any form of international society. After World War II, a number of international regimes promoting free trade were constructed. These international regimes were established at the initiative of countries that placed high value on the promotion of free trade. In 1989, the Washington Consensus was released, setting forth the direction of development strategies for developing countries, including those in the post-Cold War transition economies. It was based on a particular philosophy that placed an extremely high degree of trust in the market mechanism of neoliberalism that swept the world at the time.

In light of these facts, it is conceivable that while the claims of today's GS states appear to be concerned with the nature of interests derived from specific international regimes, at a deeper level they are actually questioning the legitimacy today of the specific ideas upon which these international regimes are based. In fact, it may be that deep down, these international regimes may be questioning the legitimacy of the specific ideas on which they stand today.

(2) A Comprehensive Global Common Target, through Path Diversity

When considering the construction of a new international regime that reflects the developmental ideas of the GS states, the 20th century idea that a particular ideology will construct the international regime will lead to a new conflict, such as choosing between the ideas of the developed countries and those of the GS states. We must break away from this 20th century thinking, and instead of asking which particular ideology should take hegemony, we must first build a consensus on a global common goal (we call this the "Global Common Target") that is shared by all countries that make up the international community, without dividing the developed countries and the GS states. We have come to the conclusion that we need to build a consensus on the Global Common Targets, recognize the diversity of pathways to reach them, and establish a concept of comprehensive support and cooperation from the viewpoint of global development, with each country taking the most appropriate measures. We call this concept of multisystemic nature "path diversity."

Global Common Targets are not a new concept. In today's global society, there are already common goals (Global Common Targets) shared by all countries, both developing and developed countries. Typical examples are the 17 goals listed in the SDGs, the reduction of greenhouse gases in the fight against global warming, and the promotion of free trade symbolized by the establishment of the WTO, etc. Some short-sighted arguments argue that GS states are questioning these common goals themselves, which were established at the strong initiative of developed countries. However, the Global Common Targets were not established by the developed countries for the purpose of domination of the entire planet by the developed countries, but were set and agreed upon by the developed countries and GS states for benefit of the entire global community, including the developed

countries and GS states, after repeated discussions. The GS states have substantially participated in the establishment of the Global Common Targets, and their achievement will benefit the global community as a whole, as well as the interests of the GS states.

On the other hand, the way in which the Global Common Targets are being realized in the international community today is not without problems from the perspective of GS states. Developed countries tend to consider their own path of economic development as the best one, especially in terms of economic development paths, and to strongly urge GS states to follow it. In the process of persuasion, they have provided enormous amounts of technological and financial assistance, and it can be said that they have a sense of responsibility as a matter of civilization history to make the GS states follow the path they have taken in the past in the same form as they have. However, we believe that in many cases, this is seen by GS states as a block that greatly restricts their freedom in making policy decisions.

As mentioned earlier, GS states have actively participated in the process of setting the Global Common Targets, and if the Global Common Targets were set as a consensus of the international community as a whole, they would fully recognize or not deny the importance of compliance with the targets. However, we should not be bound by the historical paths taken by developed countries, but rather recognize the various paths that GS states can take based on their own free ideas. We believe that this kind of thinking may lie at the root of the arguments of today's GS states.

This idea is summarized as a consensus of the Global South Research Caucus (MIGA-GSRC), A Comprehensive Global Common Target, through Path Diversity.

(3) Beyond preconceived notions of modernization path

In today's global society, all social systems are working toward a common goal: the promotion of modernization. Modernization is defined here as the process by which a social system is managed according to a modern system of thought, resulting in an increase in GNI per capita. The question of whether modernization is endogenous or exogenous is thus a matter of debate. In fact, the difference of views on this issue can be seen as the source of the current ideological conflict between the GS states and the developed countries.

The prevailing view in the current international regime is that the best path to achieving the Global Common Targets is for GS states to follow the path that developed countries have taken in the past, and that it is difficult for GS states to modernize endogenously, and that they can only do so through exogenous interventions of assistance and guidance from developed countries. The traditional path is a variety of policies based on the idea that the modernization of GS states can only be done exogenously under the direction of developed countries.

In contrast, the concept of path diversity is based on the idea of broadly recognizing the potential for endogenous modernization in the GS states. The endogenous development of the GS states is indispensable for the balanced development of the developed countries on a global scale, and as equal

partners in making this development possible, it is necessary to fundamentally reconsider what the developed countries have traditionally considered aid and guidance. The historical paths taken by the developed countries show the results of their endogenous modernization. If GS states promote endogenous modernization, they will not do so exogenously with the help and guidance of others, and their paths will naturally include their own. Therefore, it is only natural that the path will be different from that historically followed by the advanced countries that preceded them in time.

To summarize the discussion, the essence of the question we must consider today is the question of what phase of the evolution of modern civilization we are in today, a quarter of a century into the 21st century, from the long-term perspective of the evolution of modern civilization. It is clear that the origin of modern civilization is Western Europe, and for a long time there has been a strong negative view of the ability of the GS states to promote endogenous modernization. It is also true that the developed countries, with a strong sense of mission that their own assistance and guidance are indispensable for the modernization of the GS states, have strongly demanded that the GS states follow the same historical path that they themselves have followed. There were good reasons to justify this in each era. Today, this situation has changed, and endogenous modernization of the GS states is considered to be justified.

2. the current international regime of development assistance and the exogenous modernization of the Global South states

The international regime, especially international development regime, which has an important influence on the way GS modernization was constructed during the 20th century. The idea that runs through the GS is an exogenous idea of GS modernization.

Looking at the international development regimes still in operation from this perspective, there is indeed a strict distinction between developed and developing countries and between donor and recipient countries. The OECD's DAC List of ODA Recipients, which classifies developing countries into four categories based on a single indicator, GNI per capita, can be seen as a typology of developing countries based on such a distinction.

The Washington Consensus, published in 1989 by John Williamson, a research fellow at the Institute for International Economics and an international economist, identified ten conditions as the greatest common denominator that would enable developing countries to attract investment from developed countries and achieve self-sustained economic growth. The ten conditions are: reduction of budget deficits, reduction of government spending including cutting subsidies, tax reform, interest rate liberalization, competitive exchange rates, trade liberalization, promotion of direct investment, privatization of public enterprises, deregulation and establishment of property rights laws. This is simply the "developed countries' idea" of the GS development path proposed to the countries of the Global South from the side of the developed countries.

The Millenium Development Goals (MDGs), the predecessor to the current SDGs (Sustainable Development Goals), can also be seen as based on this sharp distinction. The MDGs emphasized focused aid to sub-Saharan Africa, a region that is typical of developing countries that have not yet begun to modernize, with grant in the social sector as the main modalities of aid.

3. Changing Phases of the International Community

It is true that during the 20th century, the international regime based on a structure that strictly distinguished developed countries from developing countries, as described above, was highly effective in many situations, although it contained many problems. However, we believe that the following changes in particular have had an important impact on the effectiveness of the international development regime, and as a result, the structure of distinction that once functioned effectively may be becoming meaningless today.

(1) Changes in the international development finance environment

Today's international community continues to face a major challenge that it shares with the 20th century. It is the need to build vast infrastructures in the developing world that will drive new modernization. Without invoking the Solow-Swan model of growth accounting, infrastructure construction is one of the greatest drivers of economic growth in developing countries. Without infrastructure construction, there can be no economic growth.

The biggest problem in infrastructure construction is financing.

Infrastructure, by definition, faces a market failure, so it cannot proceed if it is left to private companies in the marketplace; it must be financed with "public support" by the government. While some governments have established their own "official supported" financing schemes for infrastructure construction within their own countries, as was the case with Japan's FILP(Fiscal Investment and Loan Program) system after World War II, they are in the minority. The overwhelming majority of developing countries are unable to obtain a sufficient amount of financing within their own governments and turn to foreign countries and international organizations for assistance. In response to these requests, developed countries and international organizations provide "official supported" financing to developing countries for infrastructure construction, known as international development finance.

Comparing the international society of the 20th century with that of the 21st century, we can see that the international development finance environment has changed drastically. Therefore, in order to achieve the goal of promoting the smooth modernization of the entire world, including the GS, it will be necessary to provide developing countries with appropriate financing for infrastructure construction

based on the premise of this drastically changed international development finance environment.

In the 20th century, an extremely sophisticated system was established for financing infrastructure construction provided by developed countries and international organizations to developing countries. The question is whether the 20th century system can still function effectively in the 21st century, when the international development finance environment has changed dramatically. If its effectiveness is in question, we must build a new system of finance.

We can summarize the changes in the international development finance environment in the 21st century as three convergences.

The first is that the distinction between donors and recipients, between developed and developing countries, which was clear during the 20th century, is losing its significance, as evidenced by the functioning of the OECD's DAC list.

In the 21st century, not only China but also the BRICS countries and some G20 countries have emerged as developing countries that accept ODA funds from donors and at the same time provide large amounts of development assistance funds to many developing countries as donors themselves. It is no longer realistic to divide the world's countries into two categories: donors (\rightleftharpoons developed countries) and recipients (\rightleftharpoons developing countries). The share of countries that maintain their status as developing countries but have become major donors themselves is rising rapidly in the global flow of international development finance.

According to OECD-CRS (Common Reporting Standard) data, China has already far surpassed Japan, the largest contributor among the G7 countries, in terms of cumulative bilateral official loans (commitment basis) to developing countries from 2010 to 2021. India and Saudi Arabia have also surpassed all G7 countries except Japan, France, and Germany. The scheme in which developed countries provide development assistance funds and developing countries receive development assistance funds has already collapsed.

We call this loss of significance of the distinction between developed and developing countries the first convergence.

The second is the loss of significance of the distinction between commercial and officially supported financing.

During the 20th century, there was a clear distinction between the role of government and the role of the private sector in infrastructure construction. Infrastructure is by definition a project that faces a market failure (the amount of supply in market equilibrium is significantly less than the socially optimal amount of supply). Therefore, as a project, there will always be sectors of the project that lose money. The basic idea of the 20th century was to limit the role of the government strictly to this market failure or deficit sector, and leave the commercially viable sector to the private sector. In this case, since the government was to promote projects that would incur a deficit, "officially supported" financing was used to finance them, and if it could not finance them within its own borders, it would

rely on development assistance from developed countries. International development finance was provided by developed countries to developing countries in response to such requests.

In the 21st century, however, it has become common for infrastructure projects to be carried out in a mixed manner, without a strict distinction between the deficit and commercially viable sectors, and accordingly, new financial techniques such as project (non-sovereign) finance, securitization, and Land Value Capture (LVC) have been widely used. As a result, it is no longer practical today to tie a particular project to a particular modality of finance, and each project is financed through a mixture of many different modalities.

We call this loss of significance of the distinction between commercial and officially supported financing the second convergence.

Third, while corporate finance was the dominant form of financing in the 20th century, direct financing through securitization has expanded in the 21st century, and project finance, which does not require a corporate guarantee, has become more common. The era of corporate finance-centered approach in finance practice has come to an end, and various financing methods such as direct finance, project finance, and blockchain-based STO (security token offering) have become available, allowing the selection of the most appropriate financing method for each situation. We call this the third convergence.

At a time when corporate finance was virtually the only financing option available, finance practitioners only needed to assess the creditworthiness of the lender's corporate entity. Various rating agencies had already evaluated the creditworthiness of the corporate entity, and the creditworthiness of the corporate entity could be largely referenced by the various rating agencies. Furthermore, since the creditworthiness of a corporation is backed by collateral, finance practitioners could operate a sound financial business by focusing on the collection of collateral. In other words, finance practitioners were able to conduct financial business without having much knowledge of the financial system itself.

(2) Changing in Major Forms of States (nation building)

While nation-states were the dominant forms of nation building in the international community in the 20th century, in the international community since the latter half of the 20th century, integrated states, regional communities, and FTAs, which are different from nation-states, have come to play an important role. These are entities that have a structure that incorporates entities other than the traditional single nation-state, and that have come to play an important global governance function in the international community.

The first "integration" is horizontal integration, i.e., the bringing together of several nation-states. Its representative is, needless to say, the European Union (EU). This was the result of the Schuman Declaration of 1950, which was inaugurated on November 1, 1992.

On the other hand, even though the success of the European Union is certainly noteworthy in the history of modern civilization, the EU is not the only way to build an integrated state.

ASEAN, established by the Bangkok Declaration in 1967, initially had strong achievements as an anti-communist political coalition during the Cold War era, but it transcended the North-South problematic approach and actively promoted market integration policies since 1992, accelerating its growth after each of the many economic crises it has overcome, and by the end of 2015, the ASEAN Economic Community (AEC) was launched, creating a market-integrated development mechanism of its own. In the process, ASEAN has started to host important forums that deal with many issues in the Asia-Pacific region under the idea of ASEAN Centrality, such as starting the ARF (ASEAN Regional Forum) in 1994 and the EAS (East Asia Summit) in 2005, and today ASEAN can be seen as one of the key actors of global governance in the international community. In addition to the Economic and Social Community and the Political and Security Community, ASEAN has also made cultural diversity among its member states a pillar of its growth and development, as seen in its promotion of the Socio-Cultural Community.

Similar developments are also being seen in the African continent. In the African continent, the regional organization covering the entire continent is the African Union (AU), which was established in 2002 as an outgrowth of the Organization of African Unity (OAU) established in 1963. It has 55 member states.

There are many challenges that must be overcome before the African continent as a whole can become a single integrated state based on the African Union, and the outlook is not optimistic. In contrast, eight Regional Economic Communities (RECs) have been established under the African Union, and some of them have already achieved a high level of integration. The potential for a uniquely African style of integrated state can be discerned in these RECs, which differ from the European model of the EU and the Southeast Asian model of ASEAN.

For example, ECOWAS: Economic Community of West African States has established a system in which the decisions of the regional economic community have a strong influence on the national legislation of member countries. In the Southern African Development Community (SADC), regional cooperation among development banks has been greatly enhanced through the Development Finance Resource Center (dfrc), an organization established within SADC to coordinate the development banks of member countries. Regional collaboration among banks is making great progress.

Furthermore, although different from regional organizations, the movement to establish FTAs, which is being vigorously pursued in various regions in the 21st century, is also considered as a way to realize diverse trade, investment, and other forms of governance, as opposed to the uniform governance under the WTO.

Although the RCEP (Regional Comprehensive Economic Partnership), the world's largest regional economic partnership framework, was initially discussed only in the economic sectors related to FTAs,

the 10-year process of consensus building among member countries has resulted in the establishment of a sophisticated institution.

In South America, it is represented by the Union of South American Nations (UNASUR), even though a number of countries have had their status suspended since its establishment by the leaders of 12 countries in 2004. This is officially a South American intergovernmental organization formed in 2007 with the goal of "same currency, same passport, one parliament," and is intended to be a European Union (EU)-style political union.

On the economic front, Mercosur, established by the 1991 Asunción Treaty and the 1994 Ouro Preto Protocol, has made important progress toward the creation of a free trade zone in South America.

Another historical example is the United Nations Economic Commission for Latin America and the Caribbean (ECLAC: United Nations Economic Commission for Latin America and the Caribbean), which was established in 1948 as one of the regional economic commissions of the United Nations Economic and Social Council. It is characterized by a very large number of member countries (46).

Of course, it is not realistic to expect that all of them will become more cohesive and emerge in the international community as global governance actors on par with the EU and ASEAN. However, their emergence does indicate the expansion of path diversity efforts in the 21st century.

The second type of "integration" is vertical integration, i.e., the participation of entities that were considered private citizens in the nation-state and were not involved in the governance functions performed by the government in the governance mechanism of the social system. In this mechanism, the private sector is to take charge of the social system in cooperation with the government. The opportunity for this is the emergence of global platform players.

Technologically, global platform technologies are now capable of performing governance functions of social systems that were previously handled solely by the state governments at an overwhelmingly low cost. On the other hand, whether or not to actually incorporate them into the governance mechanisms of the social system is a complex political decision, and it is difficult to foresee the direction of this decision at this point in time.

(3) Transition of the Leading Industries

The status of the leading industries that support the world economy has changed dramatically between the middle of the 20th century and the 21st century.

The transition of the leading industries can be viewed from the perspective of the nature of the international economic division of labor as a transition of three phases, as shown in the following chart. The basic concept is unbundling, which can be summarized as follows. The unbundling concept described here is based on Richard Baldwin [2016] (Richard Baldwin "The Great Convergence", Harvard University Press, 2016), developed on the basis of ERIA [2022] (Economic Research Institute for ASEAN and East Asia (ERIA). (2022) The Comprehensive Asia Development Plan 3.0

(CADP 3.0): Towards an Integrated, Innovative, Inclusive, and Sustainable Economy. Drafted by Fukunari Kimura and ERIA team).

The first phase is called first unbundling, the unbundling of production and consumption. This movement is said to have taken place since the 1820s.

The second phase is called second unbundling, which refers to the international division of labor on a task-by-task basis, thus creating the International Production Network (IPN). This is a movement that has been taking place since the 1990s.

The third phase is called third unbundling, which refers to an individual-by-individual international division of labor that is established by unbundling tasks. This is a movement that has been underway since the 2015s.

These phase transitions will significantly change the status of the leading industries.

What moves in First Unbundling are goods, and the main industries that will develop the international division of labor in this phase are agriculture/fisheries/food, mining, labor-intensive industries, tourism, etc. The institutional connectivity to develop the international division of labor in this phase will be WTO-based liberalization, such as the elimination of tariffs on specific industries and the Generalized System of Preferences (GSP). In addition, intermediate logistics infrastructure (roads, ports, and airports) and infrastructure services will be important as physical connectivity to develop the international division of labor in this phase.

What moves in Second Unbundling are ideas (capital, technology, management competency, business people) in addition to goods. Main industries that will develop the international division of labor in this phase are machinery industries and industries based on the global value chain. The institutional connectivity to develop the international division of labor in this phase will be FTA-based liberalization, including general tariff elimination, trade facilitation, technical barriers to trade (TBT), B2B services liberalization, and liberalization of foreign direct investment in the manufacturing sector. In addition, as physical connectivity to develop the international division of labor in this phase, advanced logistics infrastructure (full-scale ports/airports, multi-modal) and urban/suburban development (logistics, large-scale infrastructure services) will be important.

What moves in Third Unbundling are data, in addition to goods and ideas. Main industries that will develop the international division of labor in this phase are services, outsourcing, and other industries. Institutional connectivity to develop the international division of labor in this phase will include sanitary and phytosanitary (SPS), standards and conformity, regulatory consistency, overall service liberalization, movement of people, intellectual property rights, data distribution, and other mega-FTA-based liberalization. In addition, the physical side of the response (physical connectivity) to develop the international division of labor in this phase will be digital connectivity, urban amenities (urban transportation, living environment, and the potential for consumption of various goods and services), and smart cities. And as disruptive technological innovation progresses, the level of massive

electrical energy consumption demand required by the vast semiconductor-based developments of the third unbundling will be far greater than in the past, when unbundling was supported by energy produced from fossil fuels. The core of this demand is the distribution of huge amounts of data, which requires far more energy than unbundling was once supported by energy produced from fossil fuels, and the energy problems required to overcome them must now be realistically addressed in the context of global environmental issues.

[Chart 1] Three unbundling

	The first unbundling	The second unbundling	The third unbundling
International division of labor	Industry-wise (prod. and cons. are unbundled)	Task-wise (an industry is unbundled); international production networks (IPNs)	Person-wise (a task is unbundled)
What moves?	Goods	+ Ideas (capital, technology, managerial ability, bus. persons)	+ Data and digitalized services
Typical industries	Agriculture/fishery/food, mining, labor-intensive industries, tourism	Machinery industries and industries in global value chains	Service outsourcing
Institutional connectivity	Tariff removal of specific industries, GSP [WTO-based liberalization]	Overall tariff removal, trade facilitation, TBT, B2B services lib., FDI lib. in manu. [FTAs]	SPS, standards and conformance, regulatory coherence, overall services lib., movement of people, IPR, flow of data [mega-FTAs+?]
Physical connectivity	Medium-grade logistics infrastructure (roads, ports/airports), infrastructure services	High-grade logistics infrastructure (full-scale ports/airports, multimodal), urban/sub-urban development (logistics, mass-scale infra. services)	Digital connectivity, urban amenities (urban transport, living environment, varieties of possible consumption of goods and services), smart cities
Digital technology as a game changer	Problem solving Enhance productivity Upgrade to the second unbundling	Further widening and deepening of international production networks	Explore frontiers of new businesses

(Source: ERIA2022, Material presented by Fukunari Kimura, member of the Global South Study Group)

4. The Path Diversity and the MIGA Consensus

(1) The idea of endogenous modernization

In light of the changes in the international community as described above, it is true that today the rationale for the former idea that exogenous modernization is optimal for GS and that the possibility of endogenous modernization is difficult to achieve is fading. The legitimacy of the structural understanding of development as the progression up the DAC ladder is also becoming questionable. The slogan of the Sustainable Development Goals (SDGs), 'No One Left Behind,' is a clear illustration of this idea.

Is the era of endogenous modernization in GS countries really coming to an end?

To consider this, it is useful to look at the per capita GDP of each country.

[Chart 2] GNI per capita in Asian and African countries

	1970	1985	2000	2010	2018	2023
China	160	280	840	4,382	9,608	12,514
Korea	250	2,260	9,010	20,591	31,346	33,192
Philippines	210	530	1,030	2,007	3,104	3,868
Thailand	200	810	2,010	4,992	7,187	7,337
Indonesia	80	530	570	3,015	3,871	4,942
Malaysia	380	1,940	3,390	8,423	10,942	12,570
Vietnam	200	130	380	1,174	2,551	4,324
India	110	290	450	1,265	2,036	2,500
Ghana	310	340	330	1,312	2,206	2,318
Mozambique	240	260	210	458	476	630
Zimbabwe	280*	760	440	594	1,712	1,993
Ivory Coast	310	640	690	1,036	1,680	2,572
Rwanda	60	270	260	562	791	1,039
Tanzania	100	240**	270	548	1,134	1,254
Kenya	150	300	350	809	1,857	2,113
Senegal	230	370	500	981	1,474	1,729
Morocco	230	610	1,180	3,249	3,359	3,889

(Source: the author based on World Bank Atlas (World Economic Outlook for 2010, 2018, and 2023)).

It is clear that there is a clear difference between the 20th century and the 21st century: during the 20th century, the economic growth of East Asia was remarkable, while Africa remained stagnant. Therefore, among developing countries, East Asian countries were considered "superior" and African countries were considered "inferior".

A notable trend in the 21st century is the rapid economic growth of African countries, which is believed to be due to the fact that African countries were not keen on adhering to the Washington Consensus during the 20th century, but began to adhere to it in the 21st century.

However, in the 21st century, when the international community is undergoing the changes described in section 3, it is not reasonable for the international community to leave the acquisition of wisdom on how to promote endogenous modernization to the developed countries, and for other regions to maintain a system in which they practice the guidance of the developed countries in terms of wisdom. The international community is not considered to be rational to maintain a system in which the rest of the world is left to the developed countries to practice their guidance in wisdom.

Of course, the content of modern civilization is profound and complex. There is little reason to believe that only modern civilization is overwhelmingly superior to all the wisdom that has been accumulated since the beginning of the history of human civilization, or that it is overwhelming in quantity. In particular, today, there are many problems, including global environmental issues, that can be

attributed to the systemic risk of the basic framework of modern civilization. In this context, the validity of strategies that continue in the 21st century to be based on the supremacy of wisdom constructed in accordance with the framework conceived by Western Europeans is considered to be shaky.

In the 21st century, Asia/Africa is achieving economic growth through modernization in a sufficiently sustainable manner, each in its own way. While it is of course fair to acknowledge that the wisdom of Western Europeans has played an important role in the success of the region today, it is also legitimate to recognize that the wisdom traditionally nurtured in Asia/Africa has also made a considerable contribution, which will be even more necessary for the future development of the world.

In the 20th century, developing countries could not raise the necessary funds for infrastructure construction on their own and had to rely on the support of developed countries and international organizations. In the 21st century, it is now possible to greatly reduce the ratio of projects that rely on support from developed countries and international organizations, depending on how the project is structured. Under such circumstances, if developed countries continue to try to lead developing countries as the forerunners of modern civilization with a "20th century perspective," developing countries will have the option to shun such financing from developed countries and consider other sources, such as private finance and developing countries with an increasing donor presence.

In view of the above, the role of developed countries in the 21st century is to build a platform that will enable them to make the best use of the wisdom traditionally inherited in Asia/Africa to overcome the systemic risks of modern civilization, and to promote serious discussions on the wisdom that will save the world in the 21st century, not as a leader with "the 20th century's gaze" but as a partner on this platform.

Some of the systemic risks posed by modern civilization may be difficult to solve effectively with only the wisdom of Western Europeans. Therefore, in order to solve them, we must consider the global integration of wisdoms, utilizing the wisdom that has been nurtured uniquely and traditionally in the Asian/African region.

On the other hand, the problem is complicated by the fact that Asia/Africa, where traditional wisdom has been nurtured, are also part of the modern civilization, which has technological progress and globalization as its inherent nature. Therefore, what is required is not to view the framework of modern civilization originating in Western Europe and the traditional wisdom of Asia/Africa as exclusive, but to take a complementary perspective in the context of the great movement of technological progress and globalization that pervades modern civilization.

(2) the MIGA Policy Package

In light of the above changes in the status of the international community today, we present the MIGA Consensus as a set of policy packages to guide the smooth economic growth of the countries

of the Global South in the 21st century.

The idea that runs through the MIGA Policy Package is the path diversity to achieve the Global Common Targets based on the endogenous modernization of the Global South states.

In the most recent international community, there have been several policy packages that have been presented as providing comprehensive guidelines for the Global South. Typical of these is the Washington Consensus mentioned above, illustrating ten requirements that would allow them to maintain debt sustainability and economic growth. If each of these ten requirements is evaluated as an economic policy that promotes economic growth, they are all appropriate. On the other hand, if the Washington Consensus is taken as a comprehensive guideline for economic growth in the GS states, a fundamental problem arises. The reason is that the Washington Consensus does not envision almost all GS states promoting modernization simultaneously in the mid-21st century. In 1989, at the end of the Cold War, it was assumed that very few GS states would be able to adequately do the requirements set forth in the Washington Consensus.

As the number of GS states who have done their requirements as indicated in the Washington Consensus has increased dramatically, and we have entered what we call the Third New Modern Era, an era in which virtually all countries on the planet are steadily promoting economic growth, global-scale problems that we might call the systemic risks of modern civilization, such as global environmental problems, unacceptable uneven distribution of wealth, the emergence of a digital divide, and the construction of a huge consumption system led by the developed countries of electric energy, have begun to emerge. Naturally, no solution to these systemic risks of modern civilization can be found in the Washington Consensus.

The MIGA Policy Package is based on this background and includes a policy package that is a reference for economic development that will appropriately respond to the needs of the GS states today, while fully taking into account the systemic risks of modern civilization. In a sense, it is a reorganization of the Washington Consensus from the perspective of the GS states at the end of the first quarter of the 21st century.

The perspective of the GS states that is missing from the Washington Consensus but will be included in the MIGA Policy Package is the idea of the endogenous modernization capacity of the GS states and the path diversity to achieve the Global Common Targets based on that capacity.

The areas covered by the MIGA Policy Package are in accordance with the SDGs.

The 17 major goals of the SDGs can be summarized into four areas in terms of content. The first area is related to the social sector. Specifically, Goal 1 is "poverty," Goal 2 is "food security," Goal 3 is "healthy lives," Goal 4 is "education," and Goal 6 is "water and sanitation. The second area is related to the economic sector, specifically Goal 7, "energy," Goal 8, "economic growth," and Goal 9, "industrialization. The third area is global environmental issues, specifically Goal 11 "cities," Goal 12 "consumption and production," Goal 13 "climate change," Goal 14 "oceans," and Goal 15 "biodiversity.

The fourth area is social justice, specifically Goal 10 "inequality," Goal 16 "justice," and Goal 17 "global partnership."

While the MIGA Policy Package will cover similar areas, disaster reduction and social resilience in particular will be identified as core themes, and policies that contribute to both themes will be proposed based on a common format.

A common format is as follows.

The first is the content of the Global Common Targets, which the GS states participated in setting and which today the international community as a whole must unite to achieve.

Second, the Traditional Western Led Path is a path that has been proposed by developed countries to the GS states as a way to achieve their goals, is based on the historical path that developed countries have followed, and is now strongly recommended for the GS states to follow. If GS states decide that it is appropriate for them to follow this linear path, developed countries and the GS states will work together to achieve the Global Common Targets based on this linear path. In our terminology, this would be a linear modernization model.

Third, a possible path for the GS states to achieve its own Global Common Targets, if the endogenous modernization potential of the GS states is broadly recognized. We refer to this as the Diversified Global South Path. If developed countries do not inhibit the GS states from pursuing such unique paths, but fully recognize the value of these unique paths, the global community will follow a multisystemic model of modernization.

Fourth, we will lay out the content of the policy responses that are necessary for the GS states to follow such a diversity path.

[Special Article 1] International Trade Order

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1. Weakening of the rule-based international trade order under ongoing globalization

Globalization since the 19th century has always been led by technological progress. It has increased the mobility of goods, services, capital, human resources, technology, and ideas across national borders and enabled a new types of international division of labor. Especially since the 1990s, globalization has presented emerging and developing countries with a new model of development, and has realized a great convergence of income level between North and South through the task-based international division of labor (the second unbundling) (Baldwin 2016). The rules-based international trade order built around the GATT/WTO over the 70-plus years since World War II has remained an indispensable institutional infrastructure for countries seeking to actively use globalization to generate economic growth.

Now, as geopolitical tensions, especially between the U.S. and China, deepen, the very foundations of this relationship are being shaken. As the U.S.-China or East-West confrontation deepens, a significant portion of the various policy initiatives from both sides are in violation of WTO commitments or traditional trade policy norms. The Appellate Body, the second tier of WTO dispute settlement (dispute settlement), has ceased to function, as the United States has blocked the appointment and reappointment of its members. As of the end of 2023, there were 24 cases of "appeals into void," in which one of the countries that disagrees with the decision of the first tier panel appeals to the suspended Appellate Body. The number of cases brought to the WTO itself has been declining to a single digit per year since 2020. The loosening of policy discipline is not limited to the U.S. and China or countries belonging to the East and West, but is also extending to emerging and developing countries in the Global South, a situation that raises concerns about the weakening of the rules-based international trade order.

2 Importance of a rule-based international trade order

In globalization led by technological progress, new types of international division of labor became technologically possible, starting with the industrial term, then the task term, and finally the individual term. Around 1990, however, the first ICT revolution enabled the international division of labor in

task units term (the second unbundling), which connected the technologies of developed countries and labor in developing countries, and the income gap between countries, especially between North and South, began to narrow. Incidentally, with regard to income inequality within each country, there are countries that have both widened and narrowed (Kanbur 2019).

It is important to note here that while some developing countries were able to successfully ride the second wave of unbundling, others were left behind. In particular, in the international production networks of the machinery industry, only East Asian countries including Northeast and Southeast Asia, a few countries in Central and Eastern Europe, and Mexico can be cited as examples of success (Ando, Kimura, and Yamanouchi 2022). The threshold between successful and unsuccessful countries is formed by institutional connectivity and physical connectivity.

The second unbundling requires that the parts and intermediate goods that connect the production blocks responsible for each task can move quickly through logistics links. Physical connectivity means whether or not a quick, efficient, and reliable physical logistics infrastructure is in place. On the other hand, institutional connectivity must guarantee the liberalization of trade and investment, as well as the free movement of goods, services, capital, human resources, technology, and ideas. It has become indispensable as a guarantee of a minimum level of institutional connectivity. Further, in the context of regional economic integration, institutional linkages have been developed that extend beyond tariffs to various policy modes.

The more sophisticated forms the international division of labor takes, the more important it becomes to ensure confidence in international rules, as policy risks are reduced, along with a favorable trade and investment environment. The more actively a country seeks to take advantage of globalization for economic development, the more important it is to have a rules-based international trade order. Rules are also often good for smaller countries that tend to be swayed by the arbitrary international trade policies of larger countries. In the face of rising geopolitical tensions, many GS countries would like to remain passively or actively neutral and remain closely linked economically to both East and West. To make this possible, a rules-based international trade order must be maintained as broadly as possible.

3. Promote the development of creative industries while maintaining international trade order.

As the confrontation between Western countries and China deepens, GS countries should be proactive in working with free trade-oriented middle powers to preserve the rules-based international trade order as broadly as possible.

Needless to say, the international trade order, centered on WTO law, is not all exemplary in light of economic theory. In addition, from the standpoint of emerging and developing countries, it is understandable that they sometimes react that the rules are imposed by developed countries, as they

have not been able to actively participate in international rule-making to date. At the same time, however, the entire international trade order is being damaged by the successive disregard of international rules by Western countries and China, triggered by geopolitical tensions. The first priority should be to preserve the order as broadly as possible.

Specifically, we must first support the WTO, which has two aspects: the first is to revive its dispute settlement function. We need to work with countries around the world to resume the functions of the Appellate Body. If that does not happen soon, we would like to promote participation in the MPIA (Multi-Party Interim Appeal Arbitration Arrangement), which was started at the initiative of Europe and is intended to serve as a temporary replacement for the Appellate Body in a manner consistent with the WTO Agreement. The second is to strengthen the WTO's ability to promote new rulemaking. While various attempts have been made, the success or failure of the joint statement initiatives (JSI) is at issue. Currently, JSIs on e-commerce are attracting attention and cooperation is being sought.

There are many other issues on which GS and free trade and investment-oriented middle powers should cooperate. For example, cooperation to reduce various policy risks can be considered. Even if it is difficult to resolve the US-China or East-West confrontation itself, we could work to clarify as much as possible the boundary between those areas that are subject to restrictions due to geopolitical tensions and those areas that are otherwise left to free trade. It would also be effective to jointly deal with the economic coercion sometimes wielded by the major powers.

Even within the framework of the existing international trade order, it is possible to implement various industrial development policies through creativity and ingenuity. While it is sometimes argued that loosening discipline and expanding policy space is desirable, it is also true that a certain degree of discipline allows reforms to be promoted by overcoming various vested interests in the country. In the larger context, it would be more beneficial for the Global South countries to maintain the existing international trade order, and a proactive response is required.

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[Special Article 2] G20-T20 Process: Can Global South Shift the World Order?

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This paper highlights how the G20 as a grouping works against odds to bring forth voices from the Global South towards a post-Washington consensus on global governance while balancing the requirements of the Global North. It also highlights the focus of the G20 grouping in formulating alternate proposals under the engagement of Think Tank 20 as a knowledge partner and explains how they are slowly becoming a force to reckon with within the multilateral world.

1. Washington Consensus on Global Economic Governance, shortfalls and Emergence of G20

(1) Washington Consensus and Global South

In 1980s, the Washington Consensus evolved as a set of economic policy recommendations for developing countries in the Global South to guide their path for development based on open market principles. This often refers to the level of agreement between among the Washington based institutions namely the International Monetary Fund (IMF), World Bank, and U.S. Department of the Treasury on those policy recommendations. All shared the view, typically labeled neoliberal, that the operation of the free market and the reduction of state involvement were crucial to development in the global South. When the British economist John Williamson, who later worked for the World Bank, first used the term Washington Consensus in 1989, he claimed that he was referring to a list of reforms that he felt key players in Washington could all agree were needed in Latin America. However, much to his dismay, the term later became widely used in a pejorative way to describe the increasing harmonization of the policies recommended by those institutions. It often refers to a dogmatic belief that developing countries in the Global South should adopt market-led development strategies that will result in economic growth that will “trickle down” to the benefit of all.

The World Bank and IMF were able to promote that view throughout the developing South by attaching policy conditions, known as stabilization and structural adjustment programs, to the loans they made. In very broad terms, the Washington Consensus reflected the set of policies that became their standard package of advice attached to loans. The first stage was a set of policies designed to create economic stability by controlling inflation and reducing government budget deficits. Many developing countries, especially in Latin America, had suffered hyperinflation during the 1980s.

Therefore, a monetarist approach was recommended, whereby government spending would be reduced, and interest rates would be raised to reduce the money supply. The second stage was the reform of trade and exchange-rate policies so the country could be integrated into the global economy. That involved the lifting of state restrictions on imports and exports and often included the devaluation of the currency. The final stage was to allow market forces to operate freely by removing subsidies and state controls and engaging in a program of privatization.

(2) Global Financial Crisis and Emergence of G20

By the late 1990s when the financial crisis hit Asia, it was becoming clear that the results of the Washington Consensus were far from optimal. Increasing criticism led to a change in approach that shifted the focus away from a view of development as simply economic growth and toward poverty reduction and the need for participation by both developing-country governments and civil society. That change of direction came to be known as the post-Washington Consensus which included the formation of G20.

Founded in 1999 as Finance ministers meeting and elevated to Leaders' Summit in 2008, the G20 grouping has evolved into a distinct entity within the various multilateral forums on global economic governance prevalent today. In light of the BRICS- Brazil, Russia, India, China, and South Africa - expansion of emerging economies that were not part of the advanced North which were party to global order setting in development finance and powerful emergence of the global South and the inclusion of African Union (AU) addition to the G20, the grouping has received more attention from policy analysts and researchers interested in finding alternate pathways for sustainable and inclusive global governance based on multilateralist principles.

As its inception began in the wake of the Asian financial crisis, the focus of the G20 has primarily been on finance. Before being elevated to the Leaders' Summit in 2008, the G20 would only meet under the Finance Ministers and Central Bank governors to engage in discussions. The importance of the Finance Track was further solidified at the 2009 Leaders' Summit, where G20 designated itself as the "premier forum for international economic cooperation". The Finance Track within the G20 engages in crucial discussions taken by the Member States and the European Union. Some of the more recent successful outcomes of the Finance Track include the Debt Service Suspension Initiative (DSSI), a Common Framework for Debt Treatment Beyond DSSI, the G20 Sustainable Finance Roadmap, the G20 principles for quality infrastructure investment, and a proposal to create a Financial Intermediary Fund (FIF) for pandemic Prevention, Preparedness and Response (PPR). Success in the Finance Track does not mean that other aspects of the G20, such as the Sherpa Track and the different Engagement Groups (EG), that began in 2010, did not flourish in the last 18 years. Due to the unique model of G20 being a rotating Presidency without a permanent secretariat, each member State has chosen to add its flavor to the G20. Australia's presidency in 2014 focused on gender, with the Brisbane Leaders'

Summit Leaders endorsing the goal to reduce the gender gap in the labor workforce by 25 percent by 2025. Germany (2017), on the other hand, launched the G20 Compact with Africa during its Summit. Given the many necessities brought about by the pandemic, Italy's (2021) Presidency centered on the Matera Declaration, referred to as "a call to action in the time of the Covid-19 pandemic and beyond." Last year, India's (2023) Presidency brought the focus on sustainability from a lifestyle perspective with LiFE or Lifestyle for Sustainable Development.

Some researchers have chosen to question the legitimacy of the G20 process, given its arbitrary nature and no set rules of procedure. Nevertheless, this arbitrary nature is what has worked for the G20 – the first partnership between the industrialized global north and developing economies of the global south and is the reason why it is one of the most democratic multilateral forums that many States and groupings are keen to join and pursue a global new order. Decisions in the G20 are not binding, which sometimes means that implementation of the documents may not be at par with more structured multilateral organizations such as the International Atomic Energy Agency (IAEA), the United Nations Security Council (UNSC), or the World Trade Organization (WTO). Nevertheless, G20 meetings are followed with equal interest, if not more, and the discussions are given significant weightage in bilateral and multilateral settings.

2. New Global Consensus on Development and Evolution of Global South within G20

Because of its composition as well as agenda-setting role of the rotating presidencies, the G20 is one of the few multilateral forums on global governance that changes shape yearly. While this fact has confused many multilateral experts and made them question the legitimacy of the forum to represent the community of nations, it has worked well for this multilateral initiative. The former G8 of advanced north and now G7 -the defector custodian of global governance and the prime mover of Washington Consensus – in 1999 annual Summit, which committed "to establish an informal mechanism for dialogue among systemically important countries, within the framework of the Washington Consensus, led to the selection of the G20 countries. The first ten years of the G20, from 1999 to 2008, were relatively low-key as the meetings focused on the aftermath of the Asian financial crisis. The meetings concentrated on building a more robust and healthier global financial structure. The Finance Track of the G20 found its footing during this period. Even in 2009, after the G20's elevation to a Leaders' Summit, the importance of the Finance Track was maintained, with the leaders terming the G20 as the "premier forum for international economic cooperation" The Sherpa Track replicated the multiple meetings of the Finance Track planned throughout the year and has now outgrown the Finance Track in the number of meetings it holds throughout the year. However, the G20 Leaders' Summit was reduced to once a year from biannual meetings.

The Sherpa Track currently consists of 13 tracks, all of which have come into being over the years.

However, this is further changing with the Brazilian Presidency, which brought in women empowerment. Traditionally, many of the tracks would be introduced first as a Task Force and then brought in as a full-fledged Working Group a year later. The Task Force would assist in setting up the Terms of Reference for the Working Group, which would determine the agenda of each meeting. Over the years, some of the Working Groups that have come about in different Presidencies are: the Development Working Group (DWG) works towards the G20 development agenda since its inception during the Republic of Korea's Presidency (2010); the French Presidency (2011) created the Agriculture Deputies Group; the Leaders' Declaration under the Australian Presidency (2014) led to the creation of an Employment Working Group; German Presidency (2017) established the Health Working Group; Argentina's Presidency (2018) began the Education Working Group (EdWG); Saudi Arabia's Presidency (2020) brought in the Tourism Working Group and the G20 Culture Ministers meeting; the Italian Presidency (2021) created the Digital Economy Working Group; and most recently, India's G20 Presidency started the Disaster Risk Reduction (DRR) Working Group in 2023.

Additionally, several initiatives were also launched by the G20 presidencies to prompt conversations among Member States. Government agencies primarily lead these initiatives. For example, the Space Economy Leaders Meeting (SELM), initiated during Saudi Arabia's Presidency, was led by the Saudi Space Commission (2020), then by the Italian Space Agency (2021), and followed by the National Research and Innovation Agency of Indonesia (2022). India's Space Research Organization (ISRO) followed by organizing the 4th SELM under Indian G20 Presidency. A new "initiative" of India's G20 Presidency was the Chief Scientific Advisors Roundtable (CSAR). The G20-CSAR brings together Chief Scientific advisors of the G20 Heads of Government intending to create an effective institutional arrangement/platform to discuss global science and technology policy issues.

While the G20 has space to bring new "initiatives" or launch new Engagement Groups and Working Groups as per the current Presidency, it needs to constantly be mindful of discussions happening in other forums on topics such as education, climate and environment, and employment; for example, keeping track of developments in the International Labour Organization (ILO) for the Employment Working Group or the impact of the Transforming Education Summit (TES) on the Education Working Group.

If compared with other multilateral institutions under United Nations Systems shaping global governance, the G20 is an outlier. The mechanism of adding new Working Groups to the Sherpa Track, initiatives launched by host nations, and the non-government Engagement Groups participating and giving statements in government-to-government discussions and handing over suggestions to the leaders before their Summit meeting are not standard formats for multilateral organizations or forums. This, however, makes the G20 a successful forum to bring into discussion bold ideas of multilateral governance. It may not have a permanent Secretariat or defined rules of procedure to determine the contours of new global governance as an alternative to Washington Consensus, however, it provides

space for the advanced and developing economies together to take ownership of the Presidency in whatever manner they may deem fit. In other multilateral institutions, even if a member State becomes a chair, it is bound by the rules of procedure that limit the influence and agency of its chairmanship. This is not the case with the G20, which gives each member equal space to make the G20 its own. A case in point would be the Energy Sustainability Working Group, established during the Russian Presidency in 2013. The Working Group continued with its agenda until the German Presidency (2017) when it became a part of the Climate and Energy Sustainability Working Group. This was because Germany saw the two concepts as interlinked. However, during the Argentine Presidency (2018), the two concepts were delinked and discussed under separate working groups—the Environment and Climate Sustainability working group and the Energy Transition WG. Each change reflects the inputs of the past when Energy Sustainability and Climate Sustainability became Climate Sustainability and Energy Transition.

3. The Troika Global South Presidencies in G20 for Building Consensus on New Global Governance Mechanisms

The G20 comprises ten developing and ten developed members. This equal balance has worked intriguingly in the multilateral forum that works on global governance. One of the unique things about the G20 and its rotating Presidency is the process of choosing the Presidency.

The G20 Presidency is chosen based on a rotation model. A cluster of member States forms five groups: Group 1 (Australia, Canada, Saudi Arabia and the United States); Group 2 (India, Russia, South Africa and Turkey); Group 3 (Argentina, Brazil, and Mexico); Group 4 (France, Germany, Italy, and the United Kingdom); and Group 5 (China, Indonesia, Japan, and the Republic of Korea) The EU, the 20th member, is not a member of any of these groups. As a regional organization, it does not host the G20 but is a participating member and a penholder in all official documents. As per the different groups formulated, each year the G20 Presidency moves from one group member to another.

Another unique aspect of the G20 Presidency is the concept of the Troika. This Troika consists of the past, present, and upcoming Presidencies. The purpose of the Troika is to ensure a seamless transition from one Presidency to another. This is vital given the rotating nature of the Secretariat. Given the formation of each group and the division of members in each group, the G20 never had a Troika from the Global South until 2023. A Global North Presidency almost always follows a Global South country. The only time there were two continuous Global South Presidencies was in 2015-2016, with Turkey (2015) and China (2016). It was only during India's Presidency that the Troika was from the Global South (Indonesia–India–Brazil). This trend continues during current Brazil's Presidency, with the Troika consisting of India–Brazil–and South Africa.

Thus, the Global South is getting more space within the defined structures of the G20, where it can shape the agenda and bring new dialogue to the discussions. The impact of the collective Global South voice in the G20 could be seen most clearly during Indonesia's G20 Presidency. The suddenness of the Russia-Ukraine conflict deeply impacted Indonesia's G20 Presidency in this multilateral forum on global governance. The strong support sentiment towards Ukraine resulted in the Global North antagonizing and harping the Russian Federation – which was increasingly identified with Global South concerns. Walkouts during Russian interventions had become the norm in the Indonesian presidency, and pressure was exerted on all other member States to join in boycotting Russia. This was only semi-successful as many of the Global South States, such as Brazil, South Africa, and India, chose not to take sides.

In 2022, the Indonesian Presidency established 3 goals of priority and established a plan for the execution for each viz, transition Finance Framework and Improving the credibility of international financial institutions, scaling up sustainable finance Instruments with a focus on Accessibility and Affordability and Incentivizing Financing in support of Energy Transition all are highly relevant and priority areas of Global south.

In 2023, the Indian Presidency established 3 goals of priority and established a plan for the execution of each viz Mechanism for mobilization of timely and adequate climate finance, Enabling Finance for Sustainable Development Goals, and Capacity building of the Ecosystem for Financing towards disaster resilience – all again relevant to Global south.

India learned it from Indonesia and understood the value of G20 and created a G20 Virtual Secretariat as a follow-up to the past presidency which focused on health, energy transition, and sustainable financing. Following in the heels of Indonesia's complicated G20 Presidency, primarily due to the Russia-Ukraine conflict, the Indian Presidency built bridges between the global south and north on those issues. During Indonesia's G20 Presidency, States could not agree on language for ministerial documents, and all G20 Working Groups released a Chair's Summary.

A Chair's Summary, as the name suggests, summarizes the discussions and deliberation by the country holding the chair's position. It implies that member States delivering some of the vital outcome documents on Sustainable Development Goals (SDGs). Fortunately, the G20 leaders were able to negotiate the text of the Leader's Declaration, released at the Bali Summit in November 2022. The Indian Presidency's most meaningful victory was its theme of Vasudhaiva Kutumbakam, which translated into One World, One Family, One Future under the spirit of "the world is one family." The theme intended to make all parties understand that conflicts should not lead to a standstill in communicating with each other. It also centered on shifting the discussion from an "Us versus Them" approach towards a sense of shared community, which resonates more with the Global South. In light of Indonesia's G20 Presidency and the Russia-Ukraine conflict, all the G20 member States appreciated this theme.

Brazil is in the unique position of leading a Troika that is firmly rooted in the Global South before passing on South Africa. The impetus provided by India could lead to an even more impactful Brazilian G20 Presidency, with each Global South country bringing in more representative ideas that provide a legacy for the next one to take forward. Brazil's G20 presidency is a historic and emblematic moment in the country's resumption of prominence on the international stage and will mean that issues that are a priority to the global south include Fighting hunger, poverty, and inequality; The three dimensions of sustainable development- economic, social and environmental- and Global governance reform. Throughout Brazil's term at the G20 presidency, over 100 meetings of the working groups and task forces that make up the grouping are being held, both in person and virtually, at technical and ministerial level, in host cities across the five regions of Brazil. The highlight will be the summit, to be held in Rio de Janeiro on November 18 and 19, 2024.

4. Participation of Academia and Non-State Actors a in setting G20 Agenda Settings on Global Governance

When looking into the cumulative outcome of the G20 on establishing a new world order on development finance, climate change, food security, energy transition, and inclusive economic growth in the past 18 years, the G20 has worked like clay being molded by different potters every year.

In the G20, the mobilization of civil society organizations became evident during the first Summit - Washington, November 2008). It was amplified the following year in London, with a conference on human rights, development and environment. As in other multilateral forums, governments responded to this movement by gradually structuring interaction with non-state actors. To a large extent engaging non state actors was due to protests held in 2009 (London) and 2010 (Toronto), in a scenario of violent demonstrations and arrests of activists. This brought imperatives for G20 to engage different non-state actors to bring in perspectives of the global south in a more inclusive way.

The Republic of Korea's Presidency in 2010 -the first from the global South Asia to assume the Presidency led to the development of different Engagement Groups, which were designated non-government participants from each G20 member State, participating in the different working groups of the Sherpa Track, contributing towards the policy-making process and providing recommendations to the G20 leaders before the Leaders' Summit.

The idea for the Engagement Groups may have come through during the RoK's Presidency, but multiple G20 Presidencies added different Engagement Groups over the years. The Business20 came into being during RoK's Presidency (2010), the French Presidency (2011) recognized the importance of Labour20 in Cannes, established the Think20 to engage with think tanks and research institutions within the G20 countries, the Russian Presidency (2013) recognized Civil20 as an official

Engagement Group, the Turkish Presidency (2015) launched Women20, and most recently, during India's G20 Presidency (2023), StartUp20 became an official Engagement Group.

The Engagement Groups mirror the functioning of the Sherpa Track in varying degrees. One similarity between all the Engagement Groups (EGs) is that each has an Inception and Summit meeting, where the host country shares the outlines for the Engagement Group's Presidency at the inception and the outcomes from its Presidency during the Summit. Each country's addition to the EGs has provided an impetus to deeper ties between people from different walks of life, whether it is labor unions from the G20 countries that meet and discuss their issues or entrepreneurs who engage in collaborations as part of the StartUp20. The success of the EGs is also evident in some non-official Engagement Groups, such as Values20 or News20, that meet on the sidelines of other G20 meetings and develop further engagement until they become official G20 Engagement Groups.

While the Engagement Groups were a part of each Presidency's call to further non-governmental interaction in a specific area, the introduction of the Working Groups represented not just the Presidency's call but also a global South represented by the non-state actors need for discussions on the specific topic.

Think Tank 20 is a non-state actors engagement group that brings together academia and research communities. Think 20 (T20) attained the Mexican presidency in 2012 and acts as an expression of an active, innovative, interconnected global solution provider with an ability to create new space and ideas for trusted global cooperation. T-20 is multi-thematic in nature, not limited to addressing a single interest area or advocating a specific proposal. The initiative is considered the most influential group with the greatest potential to promote dialogue and coordination of joint proposals. Apart from Think Tank 20, other G-20 engagement groups include Business 20, Youth 20, Labor 20, Science 20, Women 20, Civil 20, and Startup 20.

The Think20 is one of the official Engagement Groups of the G20. The group met in Mexico City for the first time in February 2012 to discuss the Los Cabos G20 Summit agenda). The meeting brought together a small group of 25 think tank experts from a variety of countries. The Think20 continued to convene workshops and conferences in the following years, often mandated by the respective Presidencies of the G20. In 2017, under Germany's G20 Presidency, the Think20 process was put on a new structural footing by establishing issue-specific task forces that bring together experts from a broad range of countries to work on policy recommendations for the G20 and its various working groups.

The Think20 process usually starts with an inception conference to define priorities and bring together experts and ends with a Summit conference before the leadership role is handed over to the next Presidency. During these two landmark events, a number of side events were convened, topics of particular relevance identified, and co-authoring teams for joint-policy briefs formed. Since 2017, the

Think20 process has increased in size and depth of scientific debate during the subsequent Argentinian, Japanese, Saudi Arabian, Italian, Indonesian, and Indian G20 Presidencies. Especially in the past three years, the G20 and Think20 discussions were shaped by increasingly overlapping crises, such as climate change, biodiversity loss, ocean pollution, food security, social inequalities, and fiscal spaces. The dynamics unfolding at the interface of these multiple crises have been further aggravated by the Covid-19 pandemic, Russia's war in Ukraine, and, more recently, the war between Israel and Hamas in the Gaza Strip. Policy coordination to tackle the multiple crises takes place in an increasingly contested geopolitical environment with divergent alliances cutting directly through the G20. Yet, depending on the crisis at hand, the lines of division vary, and thematically specific alliances inside the G20, the African Union, and beyond are mobilized.

A distinctive feature of T20 is its multi-thematic nature since it is not limited to addressing a single interest area or advocating for a specific proposal. For this reason, T20 appears to be one of the Engagement Groups with the greatest potential to promote dialogue and coordination of joint proposals with its counterparts. This broad thematic scope poses a challenge to national organizing committees. During the Brazilian Presidency, the six task forces will discuss the following themes: combating inequality, hunger, and poverty; sustainable climate action and fair and inclusive energy transition; reform of the international financial structure; trade and investment for sustainable and inclusive development; inclusive digital transformation; and strengthening multilateralism and global governance. Gender and race will be cross-cutting issues, in the understanding that T20 may not have adequately addressed them in previous years. The national coordinators of T20 in 2024 will be the Institute of Applied Economic Research (IPEA), the Alexandre de Gusmao Foundation (FUNAG), and the Brazilian Center for International Relations (CEBRI), the first two being public foundations and the third an independent organization. Viewing inclusiveness and representativeness as factors of legitimacy and effectiveness, the committee has added to the T20 structure two "advisory councils"—one national and one international. This is an attempt to broaden the participation of the global think tank community, going beyond the regions that are usually better represented—Europe, North America, and, more recently, Asia.

The T20 process starts with an inception conference calling for policy briefs on the topic of focus. The inception conference is then followed by a midterm conference with members in which discussions concerning Co-Chair deliberations, key policy recommendations, communique, and out-reach to sherpas, and ministerial working groups are reached. The process commences with a Think Tank summit in which the finalized implementation plan and policy dialogues are presented. Side events are held during the summit in which similar initiatives are presented to the chair which requires a similar degree of global attention. T20 produces policy briefs - new and bold perspectives and ideas for G20 and North & South Cooperation. For example, debt, climate energy and social justice; free trade, health prosperity and well-being. Think 20 communique influences are set and used in G20

leaders' final documents.

A shared interest of Brazilian organizing committees of G20 is to deepen the coordination among Engagement Groups and to mutually reinforce their proposals to the official tracks. Several national coordinators expect this collaborative dynamic to be a differentiator of the Brazilian Presidency. Also anticipated as a distinctive feature of the Brazilian Presidency is the intention to add to the agenda the promotion of racial equality in several aspects, such as combating structural racism, the economic empowerment of the black population, and the unequal impact of climate change on vulnerable groups. Activities of non-state actors during the Brazilian Presidency the General Secretariat of the Presidency of the Republic, a body with ministerial status responsible for assisting the President in the government-civil society dialogue. The Secretariat has encouraged interaction between Engagement Groups from Global South and has announced a new concept under the "G20 Social" title. This concept would encompass Think Tank 20 activities; joint initiatives with the Sherpa and finance tracks, self-organized NGO activities, and a Social Summit on November 18th and 19th immediately preceding the G20 Summit scheduled for 16-17 November in Rio de Janeiro.

5. Global South's Challenge in G20 in Building Alternative to the Washington Consensus

In the recent years, G20 has morphed from a crisis management committee into a steering group, which broadened its agenda beyond financial issues but proved much less effective in tackling slow onset events such as the climate crisis and biodiversity loss or more structural concerns including transregional migration or social inequalities – where global south and north positions greatly differ. The past two and the current G20 presidencies resembles a hybrid focal point that provides a forum for a variety of non state actors and public to address global challenges through deliberation, coordination, and myriads of bilateral meetings on the fringes of the official Summit agendas in Bali, New Delhi and Rio.

Due to this thematic opening of the G20, it became more inclusive and receptive to inputs from the global South and engagement of non-governmental actors, such as think tanks, academia, civil society, business . In addition, during the G20 Presidency of India in 2023, the African Union was invited to become a formal member. The addition of the African Union has the potential to increase the Global South inclusiveness of the G20 and further broaden its thematic scope, especially regarding the development challenges of low and middle-income countries.

Responses to the debt crises, for instance, are demanded from within the G20 and call upon both the G7 countries as the hosts of private creditors and China as the largest public creditor to help relieve

the debt burden of low and middle-income countries, to free public funds to support sustainable development-oriented policies. Regarding the reforms of the international financial institutions such as the World Bank and the International Monetary Fund, effective encouragement for structural reforms has been built up by non-G7 global South groups within G20 countries, and the G20 platform under Indonesian, Indian and Brazilian Presidencies used to build up pressure for reform. The reforms themselves, however, have yet to be taken forward by the institutions and their largest shareholders viz G7 countries.

Finally, alliances are also further developed outside of the G20 context. The extension of the BRICS+ Group here serves as an example. From January 2024 onwards, the founding members—Brazil, Russia, India, China, and South Africa—has extended the group to include Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates. Thus, on the one side, strengthening of the G20 as a platform representing Global South bringing G7 countries, the large transition economies, and the African Union together and enabling joint decision-making outside the context of formal multilateral institutions. On the other side, there is also a observe a proliferation of different groupings in group-based governance, allowing for a flexible building of alliances and utilization of different alliance constellations depending on the topic of relevance to Global South and issue at hand .

In this dynamic alliance building and re-buildings agendas that provide alternatives to new Washington consensus on, think tanks organized in the Think20 play an increasingly important role in offering science-based policy recommendations based on expertise and deliberation processes across the think tank communities of the G20 countries and beyond. Beyond this basic function, the Think20 serves, as a platform for transnational and transdisciplinary exchange, can also provide a space for Track Two Diplomacy and, more fundamentally, international trust building. There is also a growing need to help bridge the gap between the G20 and the G7, for example, through close cooperation with the Think7, the think tank process of the G7. However, this role of the Think20 is conditional to an efficient and inclusive process and a focus on impact that requires close and continuous interactions with policymakers.

The questions of three years into a four-year stretch of the G20 Presidency being held by global south economies of ‘witness a uniquely “Southern” type of leadership unfold in the G20 could be seen from the leaders statements and communique issued by engagement groups such as Think 20.

From the perspective of government to government, Business to Business and think tank cooperation, the question arises whether there is such a thing as “Southern” and “Northern” policy advice—in general and as part of the G20 Process. To reflect on this we need to look their deliberations of G20 into four different categories of leadership: economic, political, intellectual, and symbolic. In a second step, the role of leadership unfolded by the different Presidencies—here

relating it to the leaderships observed within the G7. The focus on “intellectual leadership” is chosen as it is the field of leadership to which the advisory processes directly contribute. Contributions to the other types of leadership are, of course, aimed at and made through the advisory processes, but the political, economic, and symbolic resources required for their implementation do not lie with the community of think tanks and research institutes carrying the G20 related but Global South processes.

The framework conditions for the work of G20 presidencies and the engagement groups such as Think 20 rapidly changing. In light of the multiple and overlapping crises, G20 Sherpa and fiancne track are required to develop effective policy proposals that take into account the complexities of today’s social, political, and economic systems and the planetary, and non-negotiable, boundaries of ecosystems and climate. Rising geopolitical rivalries make deadlocks in international negotiations more likely and, therefore, require global south to analyze and propose new models of international cooperation or even engage in Track Two Diplomacy to bridge disagreements and misconceptions among G7 and G20 governments. In addition, the safeguarding of so-called “legacy topics” becomes more and more important, thus ensuring that previous commitments of G20 and G7 are not forgotten and, furthermore, that G7 and G20 commitments align or—at least—do not contradict each other.

In the past three years under Indonesian, Indian and Brazilian Presidencies, substantial political and intellectual leadership unfolding representing pathways that represent Global South aspirations. The Indonesian Presidency was substantially challenged by a world only slowly moving out of the Covid-19 pandemic, closely followed by tensions revolving around Russia’s war in Ukraine. In this difficult situation, the Indonesian government’s approach around the theme of “unity in diversity” and with repeated reference to the Bandung Conference in 1955—a moment of newly independent countries coming together in the so-called “non-aligned movement,”—allowed for the careful reestablishment of dialogue beyond difference. The Indian Presidency built on this and used it to carry global governance topics and awareness into the wider Indian society, Under its Presidency’s theme—One Earth, One Family, One Future—the Indian government mobilized interest, support, and awareness for the future in a multi-polar world amongst its own citizens, academia, and private sector, as well as in relation with its international allies, neighbors and competitors. As part of a plural, diverse country with authority to address fundamental, issues of global governance such as climate change and the fight against hunger and poverty,

Brazil has created the G20 Social which would ensure space for many voices, struggles and demands of populations and non-governmental stakeholders from member countries and global south that are the world's largest economies. The Brazilian G20 presidency wants to strengthen discussions on the many different topics must reflect the global character of the common challenges of Global South. Furthermore, Brasil wants civil society collaborations to be analyzed and, whenever

appropriate and with consensus, incorporated into the Leaders' Declaration. The 13 engagement groups that are a part of the G20 Social are the following: C20 (civil society); T20 (think tanks); Y20 (youth); W20 (women); L20 (work); U20 (cities); B20 (business); S20 (science); Startup20 (startups); P20 (parliaments); SAI20 (supreme audit institutions); and the newest J20 (supreme courts) and O20 (oceans).

These groups must provide a broad structure to forward the demands and aspirations of Global South within G20 countries' societies to their leaders and influence grouping decisions. More than 50 engagement group meetings and other activities involving societies from the grouping's countries have been planned during the Brazilian G20 presidency. In addition to the activities that are inherent to the 13 engagement groups, the G20 Social will also include initiatives and events to be carried out in coordination between the political (Sherpa Track), financial (Finance Track), and said groups, as well as non-governmental initiatives outside the latter's contexts.

In the past three Presidencies and the accompanying advisory processes, which has witnessed increasing employment of language that works with geographic identity markers such as “the Global South,” “Southernizing Global Governance” or “Southern Think Tanks” The term “Global South” is not new, but a term that has received increasing attention in the past three years . Its usage in the G20 and engagement group deliberations ranges from a shorthand term for countries in Africa, Asia, and Latin America, as well as Small Island Development States in the Pacific and Indian Ocean, to a term replacing World Bank terminology based on levels of GDP or along the Human Development Index of the United Nations concerning a wider range of criteria relevant to assessing the status of human development besides GDP, also including indicators such as access to health, educational and social infrastructures among others. On the other hand, this term has also been criticized widely for neglecting the heterogeneities that exist in the Global North as well as in the Global South, working with a binary. In the past three years under Indonesian Indian, Brazilian Presidencies, we have seen substantial political and intellectual leadership unfolding. But it is receiving increasing attention and seems to be increasingly used by actors from large middle-income economies located either in the South (i.e., South Africa, or large parts of Indonesia) or also North of the Equator (i.e., China). Yet, some “Southern” countries, such as Australia or New Zealand, are rarely considered “Global South.” Some authors even go so far as to argue that the increasing self-identification as the Global South of some countries on the one side goes back to slow down economic growth rates and thus a replacement of the term “emerging economies” It is a fact that while only around 1/8th of the world's population live in South of the Equator – so called global south that spread across Asia, Africa, and Latin America, their development experiences have been featured far too little on the level of global governance. The future of G20 has a responsibility to carry the aspirations for multiple pathways of the future present in the “South” into the level of global governance. At the same time, it is responsible for conducting research on the

alternate pathways in an empirical, evidence-based, and differentiated manner. A geopolitization of geography in which some countries in the South are not included in the “Southernization” while others in the North seem to at times even dominate the definition of “Southernness” should be answered with great caution. Research-based policy advice and science diplomacy are always as good as the quality of expertise and epistemic friendship carried into the processes. It is the contribution that Think20 can and has to make to ensure that, in the future will all live in post Washington census a multipolar – new world that constructively cooperates in the interest of a global common good for all.

6. Conclusion

The G20 is a constantly evolving multilateral grouping that keeps it updated on international discussions of every topic, on issues of relevance for countries in the Global North and Global South, and the requirements of the developing and developed States. In recent years G20 has become a vibrant network bringing together increasing numbers of global South recommendations as a part of Post Washington Consensus Governance model. G20 and its engagement groups such as Think 20 are producing increasing number of recommendation in economic, finance, trade, energy, climate, digital, health, labour and other social pillars based on working group deliberations producing increasing numbers of policy briefs that provide recommendations for topics on the agenda of the respective G20 Presidency and beyond. Further, a growing number of experts, research institutes, and think tanks from a wide range of disciplines and thematic orientations, and across the countries belonging to the G20 and beyond, are involved in the deliberations of the in the meetings such as the inception conference or the Summit. While this can be seen as a clear success of building this platform for Global South Aspirations – their impact, continuity, and its ability to foster dialogue and exchange with original authors of Washington Consensus was not successful.

In order to be more impactful, academia, business and G20 official process should establish closer relations. An important prerequisite is maintaining close, continuous, and trust-based connections to the official G20 process and, in particular, its various working groups, task forces, and initiatives. Through closer connections with the official G20 process, engagement groups such as Think20 task forces are better informed about the priority issues of Global South discussed, the demands in terms of analytical input, and windows of opportunity for providing specific policy recommendations such as that of MIGA - Musashino Institute for Global Affairs - Global South Research Caucus – **Proposal**. It is indeed the expertise of the experts, research institutes, and think tanks that carries the Post Washington Consensus forward and constitutes the foundation of policy interface and the technical advice itself.

For the G20 and Think20 processes under Brazil and South Africa G20 this means: first paying attention to the process, fostering and harnessing the best of the recommendations in an

inclusive, scientifically independent, politically impactful manner; second, Cherish long-lasting networks grown over many years between institutes, experts, and think tanks involved in order to build on a slowly emerging joint language on Post Washington consensus with a multi-perspective analytical lens and the third, develop a discourses that focus on complimentary convergences within G20 and G7 so that “Global South ” proposals for global governance is fully understood and reacted.

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Chapter 2

Global Environmental Issues

Policy Recommendations I: Global Warming Issues

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1. The Global Common Targets

The Global Common Target on global warming in the context of sustainable development is SDG 13: "Take urgent action to combat climate change and its impacts." With the adoption of the Paris Agreement in 2015, which aims to "strengthen the global response to the threat of climate change by pursuing efforts to limit 1.5°C, improving adaptation capacity, and ensuring that financial flows are adapted to pathways toward low emission and climate resilient development," these temperature targets has come to be regarded as the Global Common Target on global warming.

Since the adoption of the Glasgow Climate Pact at the COP26 in 2021, the 1.5°C target has become the de facto standard while the Paris Agreement temperature target has a range of "2°C to 1.5°C".. At the COP28, a decision text on Global Stocktake was adopted with a view to "keeping the 1.5°C target within reach"

However, the adoption of this document does not mean the Global North and Global South are on the same page with regard to their respective commitment to 1.5°C stabilization as the Global Common Target. Rather there is a striking difference, which is evident from the G7 and G20 messages on climate change.

2. The Traditional Western Led Path

The orthodox pathway advocated by the developed countries is encapsulated in the Leaders' Communique of the G7 Hiroshima Summit in May 2023. The Hiroshima Summit Communique emphasizes the urgency of peaking global GHG emissions by 2025 and reducing them by 43% by 2030 and 60% by 2035 compared to 2019 levels in order to address the climate crisis and achieve the 1.5°C target. It also calls on major economies whose 2030 NDC targets or Long-Term Low Emission Development Strategies (LTS) are not consistent with the 1.5°C or net-zero target by 2050 to reconsider and strengthen their 2030 targets and commit to a net-zero target by 2050. Furthermore, in order to achieve net zero in the energy system by 2050 at the latest, it calls for accelerated phase-out of unabated fossil as well as phasing out of unabated coal-fired power generation to achieve full or predominant decarbonization of the power sector by 2035. Like the case for mitigation targets, it also

calls for similar actions in the Global South, including major economies.

3. The Global South Diversity Path

In contrast, the perspectives of the Global South is encapsulated in the G20 New Delhi Joint Declaration in September 2023: unlike the G7 Summit, the G20 Summit viewed the global warming issue not in the context of a "climate crisis" but in the context of "green development for a sustainable future". As opposed to the G7 Summit's emphasis on the 2025 peak-out, G20 Joint Declaration states "We also take note of the finding of the IPCC AR6 Synthesis Report, based on global modelled pathways and assumptions, stating that global GHG emissions are projected to peak between 2020 and at the latest before 2025 in global modelled pathways that limit warming to 1.5°C with no or limited overshoot and in those that limit warming to 2°C and assume immediate action. This does not imply peaking in all countries within this timeframe; timeframes for peaking may be shaped by sustainable development, poverty eradication needs, equity, and in line with different national circumstances" While the G7 Summit called for a review of NDCs and long-term targets in a manner consistent with the 1.5°C target and 2050 carbon neutrality, the G20 Summit simply "urged all countries that have not yet aligned their NDCs with the temperature goal of the Paris Agreement, to revisit and strengthen the 2030 targets in their NDCs, as necessary, by the end of 2023, taking into account different national circumstances. This means that the G20 Summit does not regard the 1.5°C stabilization as absolute target.

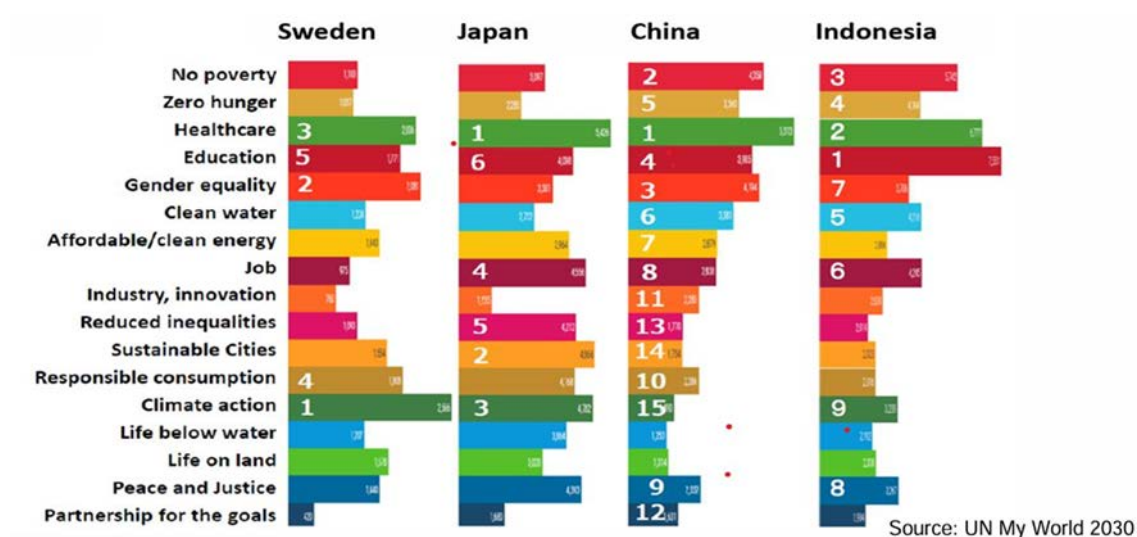
This is due to the significant difference between the reduction pathway aligned with the 2°C target and the one aligned with the 1.5°C target: the IPCC Sixth Assessment Report states that global CO₂ emissions need to be reduced by 22% by 2030 and 37% by 2035, compared to 2019 levels with a view to achieving the 2°C target with more than 67% certainty, On the other hand, with a view to achieving the 1.5°C target with little or no overshoot with more than 50% certainty, global CO₂ emissions need to be reduced by 48% by 2030 and by 65% by 2035, which are significant increases from the 2°C pathway.

In 2020, when the world was devastated by the COVID 19, global CO₂ emissions were reduced by 5.5% year-on-year. To achieve the 1.5°C target, global CO₂ emissions must be reduced by 9.0% per year in 2023-30 and 7.6% per year in 2030-35, with much faster pace compared with the COVID shock.

Developed countries are aiming to almost halve their emissions by 2030 and achieve carbon neutrality by 2050 for achieving the 1.5°C target. For the above emission reduction pathway to be realized, not only developed countries but also countries in the Global South must start reducing their emissions in absolute terms from now, with the prevention of global warming as the supreme goal.

However, countries in the Global South face multiple development challenges such as hunger

eradication, poverty eradication, quality education, improved health and sanitation, energy access, and employment opportunities. Unlike developed countries, climate action is not a high priority in the 17 SDGs.



4. Policies to achieve the Global South Diversity Path

Cooperation between the Global North and Global South is essential to solving the global warming problem. However, if the 1.5°C target and carbon neutrality by 2050 are set as supreme goals, it may lead to a sharp confrontation between the Global North and the Global South, and even among countries in the Global South over the share of the limited carbon budget. If we take 2050 global carbon neutrality as a starting point and force our country and other countries to make a rapid and unrealistic energy transition, ignoring the energy realities of each country and region, it will lead to higher energy costs and carbon leakage. This is not politically, economically, or socially sustainable in the Global South (see "Global South Energy," below)..

Looking at global CO2 emission trends, especially in the Global South, it is clear that the orthodox pathway, most notably 1.5°C target and carbon neutrality by 2050, is virtually bankrupt. Rather than sticking to overly ambitious and unrealistic 1.5°C target and carbon neutrality by 2050, we should pursue a realistic pathway that can be supported by the Global South.

Article 2 of the Paris Agreement aims at "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". Article 4 calls for "reaching global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to

undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty”. In other words, 1.5°C or 2050 carbon neutrality is not the absolute single targets. A realistic global target where the Global North and Global South can coexist would be to "achieve global carbon neutrality as early as possible in the second half of this century in light of the objectives of the Paris Agreement.

In order to induce the Global South to more ambitious mitigation actions, a significant expansion of financial flows is needed. Innovative financial mechanisms such as a tax on international financial transactions (FTT) should be considered. Up to now, while developed countries have been demanding developing countries to take more ambitious action, developing countries have been blaming developed countries for lack of financial support. While developed countries have been insisting on improving the business environment in developing countries in order to expand private investment, developing countries have been condemning developed countries for shifting responsibilities. If such negative loop continues, the global warming problem will never be solved.

In addition, climate finance flows that overfocus on mitigation should be redirected more toward adaptation: 67% of all climate finance flows in 2016-20 were directed to mitigation, while only 24% were directed to adaptation. Since the effects of GHG reductions through mitigation funding are spread evenly across the globe, countries and companies bearing mitigation cost do not immediately see the benefits of their efforts. On the other hand, the benefits of adaptation are more directly recognized in the countries and regions where adaptation finance is invested. Given global GHG reductions consistent with a carbon neutrality of 1.5°C by 2050 are unlikely to be realized and the impacts of global warming will be concentrated in countries in the Global South, refocusing on adaptation measures could also contribute to mitigating the conflict between the Global North and the Global South.

Policy Recommendation II: Energy

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1 The Global Common Targets

The Global Common Target in the energy sector is SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all. Targets 7.1-7.3 and 7.a, 7.b are set under SDG 7. Target 7.1 states, "By 2030, ensure universal access to affordable, reliable and modern energy services" indicating that improving access to electricity is the top priority, no matter whether it derives from fossil fuels or not. Target 7.a states that "By 2030 enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies". It should be noted that "clean use of fossil fuels" is clearly identified as a measure to improve energy access in SDG 7 while the role of fossil fuels tends to be negated in climate centric discussion at the COP.

In fact, the way to achieve SDG 7 differs greatly among countries and regions. For example, while in developed countries SDG 7 is understood as aiming for a shift to a predominantly renewable energy based energy structure, in many developing countries it means a shift from traditional biomass (animal manure, charcoal, fire woods, etc.) to modern electricity. From 2000 to 2015, 1.1 billion people had come to benefit from electricity access. Among them, 69% benefited from fossil fuel-fired power, of which 45% benefited from coal-fired power. Interpretations of SDG 7 also vary widely among resource producing and resource importing countries. SDG 7 has become a global consensus only because it allows for a wide range of pathways.

The problem is that SDG 7, which should allow diverse approaches depending on the level of development and the availability of resources in each country and region, has come to be superseded by SDG 13 "Take urgent action to combat climate change and its impacts" Furthermore, under the Paris Agreement, there is a growing tendency to place the highest priority on the specific temperature target of "1.5°C and carbon neutrality by 2050", This has resulted in tendencies to allow the pursuit of

SDG 7 only within the scope of the above time-bound reduction target.

In reality, there are both synergies and trade-offs between SDG 7 and SDG 13. It is obvious that fossil fuels will continue to play a role in the energy mix of the Global South, where continuous population and economic growth is expected. The elimination of fossil fuels could negatively impact energy access, energy cost burden, and energy security in the Global South. Affordable energy costs are especially critical in the Global South, where per capita GDP is below that of developed countries. Phasing out coal-fired power plants leaving life time of a few decades and replacing them with renewable power plants with storage facilities is likely to incur additional energy cost burdens. Even in developed countries, various price subsidies have been introduced on an emergency basis to prevent the adverse effects of rising energy costs on people's lives and industry. It is obvious that rising energy costs will not win public support in the Global South.

In recent years, the Global North tends to put the brakes on development of fossil fuel resources and fossil fuel related infrastructure in the Global South from the standpoint of placing the 1.5°C target as the highest priority despite the fact that the Global North has been accumulating their national wealth through abundant use of fossil fuels. In response, the Global South is increasingly criticizing these tendencies as double standards and eco-colonialism. This is intensifying the North-South conflict on the issue of global warming while international cooperation is needed more than anything else.

What the world needs now is a to seek realistic and diverse energy pathways based on the actual international political and economic situation and national circumstances of each country while sharing the overall direction of decarbonization ("One Goal, Various Pathways")

At the COP28, the first global stocktake was conducted with the aim of "bringing the 1.5°C target within reach," and energy transition became an important issue. In paragraph 28, Recognizing the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with 1.5°C pathways, and calling on Parties to contribute to the following global efforts in a nationally determined manner, taking into account the Paris Agreement and their respective national circumstances, pathways and approaches" under the chapeau statement, eight actions including "tripling global renewable energy capacity and doubling the global average annual energy efficiency improvement rate by 2030," "accelerating efforts towards the phase down of unabated coal power," and "transitioning away from fossil fuels in the energy systems in a just , orderly and equitable manner, accelerating action in this critical decade" were enumerated. In the discussion on energy transition, developed countries and small island states strongly insisted on "fossil fuel phase-out," while resource-rich countries strongly opposed it, causing a heated confrontation. Amid such deep rift, the final agreement could be achieved because specific actions were to be "decided by each country in consideration of its national circumstances, pathways, and approaches" while "recognizing the need for emission reductions along the 1.5°C pathway," This is the same approach with "One Goal. Various Pathways.

However, if the One Goal is limited to 1.5°C and 2050 carbon neutrality and backcasting approach is

applied from there, the diversity of pathways will be severely limited. The argument for eliminating upstream fossil fuel investments and fossil fuel power generation, as discussed above, also stems from regarding 2050 carbon neutrality as the supreme goal.

Article 2 of the Paris Agreement aims at "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change". Article 4 calls for "reaching global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty". In other words, 1.5°C or 2050 carbon neutrality is not the absolute single targets. A realistic global target where the Global North and Global South can coexist would be to aim at "achieving global carbon neutrality as early as possible in the second half of this century in light of the objectives of the Paris Agreement.

2 The Traditional Western Led Path

The idea of the orthodox pathway can be typically seen in the Net Zero Emission scenario (NZE) presented by the International Energy Agency (IEA). It is a pathway that assumes the realization of, carbon neutral by 2050, to limit the temperature rise to 1.5°C above the pre-industrial level" and in terms of means to achieve the goal, it emphasizes the electrification of demand, energy efficiency and conservation, and renewable energy while rapidly reducing the use of fossil fuels.

In terms of demand electrification, NZE envisions a future in which 53% of the world's final energy consumption will be electrified in 2050. It is a significant leap compared to the current 20% in 2022 and to the 30% in the Stated Policy Scenario (STEPS), which includes a feasibility assessment of current policies. A particularly large change is assumed for automobile sector, where battery electric vehicles expand rapidly under the NZE, resulting in a very small demand for petroleum.

In energy savings, the NZE expects an annual intensity improvement of 3.3% (final energy consumption/GDP (USD 2022, PPP)); meanwhile in STEPS, the improvement rate over the same period is 1.8% per year. In recent years, even in Japan, where energy saving efforts were made by every actors under intense necessity for energy saving after experienced energy crisis due to the Great East Japan Earthquake, the improvement over the 10-year period from 2010 was 2.4% per year. In light of these facts, the efficiency improvement estimated by NZE is quite ambitious.

In energy supply, NZE assumes very large growth in renewable energy, mainly solar photovoltaic and wind power. NZE envisions a 24-fold increase in global solar power generation capacity and an 11-

fold increase in wind power generation capacity in 2050, compared to the 2022 level. In addition, storage batteries and other equipment will be needed to accommodate fluctuating power output, and the power grid must be strengthened to connect distributed demand centers and generation sites. The total cost of these investments will be \$2.2 trillion annually worldwide through 2030, which is about 1.6 times the size of STEPS.

Fossil fuels, on the other hand, will reach peak demand before 2030: compared to 2022, oil and natural gas will be down more than 20% by 2030, and coal by as much as 45%. Currently, the Global South is still building new coal-fired power plants and selling large numbers of gasoline- and diesel-fueled vehicles. While the direction of change is correct in that demand for fossil fuels will decrease in the future, the speed of change envisioned by NZE may not conform with reality.

In terms of policy tools to bring about these changes in the energy system, along with strong regulation, market-based instruments such as carbon pricing and carbon markets are often suggested and employed.

3. The Global South Diversity Path

In contrast, the diversification pathway does not make "1.5°C temperature rise and carbon neutral in 2050" a given target. In considering the future of energy supply, it is important to consider both SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all" and SDG 13 "Take urgent action to combat climate change and its impacts. We believe that the composition of the energy mix should be allowed to be determined in accordance with each country's specific circumstances, taking into account the balance between SDG 7 and SDG 13. In this context, not only renewable energy, which is emphasized in the orthodox pathway, but also decarbonization measures such as energy conservation, co-firing of fossil fuels with ammonia and hydrogen, CCS and nuclear are also promising options. This does not preclude that the sum of emission pathways of countries pursuing the diversification pathway may not be consistent with the 1.5°C, temperature rise and 2050 carbon neutrality.

The Global South is expected to continue to experience high economic growth, and energy demand is expected to continue to increase along with it. The first measure to reduce emissions without increasing energy demand while continuing economic growth is energy conservation, or the decoupling of the economy and energy demand. There are two ways to promote energy conservation. Passive design is an activity that does not require a large investment in energy conservation, such as implementing energy conservation awareness campaigns, frequent switch-offs, installation of sunshades and use of natural light. In Cambodia, the Ministry of Energy has established the "Passive Design" program and has created an energy conservation campaign video that is aired during prime time. It is also very effective to create Passive Design pamphlets and hold energy conservation lectures at residents'

meetings and schools. As incomes increase with economic growth, households and offices will be equipped with more advanced electric appliances, so it is important to promote energy conservation in the Global South by first applying Passive Design. Next is Active Designing, which involves energy conservation activities with capital investment, such as the introduction of machines and appliances with high energy consumption efficiency, the spread of Zero Emissions Building (ZEB) and Zero Emissions House (ZEH), the installation of insulation materials, and the use of double-paned windows. For these activities to be successful, it is first essential to enact the Energy Conservation Act (EEC Act). The EEC Act sets energy conservation targets and encourages the introduction of various energy-saving technologies to achieve these targets. It is also important to design a system of incentives for the use of Energy Service Companies (ESCOs) and the introduction of energy-saving equipment. It is important to promote Active Design in countries in the Global South with relatively high economic growth, and to promote Passive Design in other countries first.

Next, fuel switching from coal to natural gas is another option that can effectively and economically reduce CO₂ emissions. Needless to say, natural gas is a fossil fuel, and CO₂ emissions cannot be eliminated without the use of carbon capture and storage (CCS), which is discussed below. However, compared to coal, natural gas can significantly reduce CO₂ emissions during combustion, and when used for power generation, natural gas can be used very efficiently by adopting a combined cycle system that recovers and utilizes waste heat. Unlike coal-fired thermal power plants, natural gas fired power plants can be started up for short periods of time and thus can be used as a backup power source to absorb fluctuations in power generation as the use of renewable energy expands in the future. Furthermore, natural gas emits very few toxic substances during combustion, and thus promoting its conversion from coal will not only reduce CO₂ emissions, but also help manage air pollution. Although the conversion of coal to natural gas cannot ultimately reduce CO₂ emissions to zero, it can certainly reduce CO₂ emissions, making it a promising emission reduction measure for countries in the global South, for example, which currently rely heavily on coal-fired power generation in their power supply mix.

From the perspective of reducing emissions while utilizing fossil fuels, co-firing hydrogen or ammonia as a derivative of hydrogen with existing thermal power plants is a prospective option. Hydrogen and ammonia are attracting attention as clean fuels that burn like fossil fuels but do not emit CO₂. By using these fuels as co-firing fuels for thermal power generation (hydrogen for gas-fired power generation and ammonia for coal-fired power generation), the power generation sector can be decarbonized while utilizing existing thermal power generation infrastructure, which can eventually lead to hydrogen or ammonia-only power generation to achieve zero-emission thermal power generation. At present, the production of clean hydrogen and ammonia and their utilization has not yet reached the commercial stage, but various public and private sector initiatives are being implemented. Hydrogen can be produced from a variety of feedstocks and manufacturing methods, including

hydrogen produced from coal and gas, hydrogen produced by electrolysis of water, and hydrogen derived from biomass. With regard to consumption, technological developments are being implemented for the use of power generation, industrial boilers, stationary fuel cell systems for cogeneration, and for the use of hydrogen for heat demand in building sector including restaurant. Currently, hydrogen is not used on a commercial basis due to its high cost, but this is expected to be lowered by private-sector initiative through innovative technological development and the expansion of hydrogen demand. In light of the above, it is essential for the Global South to participate in international and regional forums on hydrogen, and to monitor trends in the development of hydrogen utilization technologies that advanced countries are working on, such as co-firing with thermal power generation. The next step is to invite hydrogen projects from developed countries through carbon credit mechanisms such as JCM. The final step should be to participate in the hydrogen trade through a hydrogen supply chain (value chain) that connects hydrogen producers and consumers, and to use hydrogen as a clean fuel.

Carbon Capture and Storage (CCS) is a technology to physically capture and store CO₂ in underground formations for a long period of time. CCS is a versatile technology that can be applied to a wide variety of emission sources, but it is particularly appropriate to decarbonize demand sectors that require high heat temperatures, CCS is also useful for several industrial sectors such as steel and cement, where CO₂ is emitted not only from energy use but also from the manufacturing process. Additionally CCS also plays an important role in Carbon Dioxide Removal, which is the net reduction of CO₂ in the atmosphere, and is an essential technology for offsetting residual emissions, which are difficult to reduce. CCS is currently commercialized in many developed countries such as the United States, Canada, Australia, and Norway, but in the Global South, CCS has been introduced in Middle East oil-producing countries such as Saudi Arabia and the UAE. In Asia, Malaysia, Indonesia, and other countries are considering projects to store CO₂ received from domestic or overseas sources in depleted gas fields or aquifers in their own countries, and the legal systems to realize these projects are being developed at a rapid pace. In the future, if the Global South and the Global North can share their technologies, funds, and knowledge to jointly implement cross-border CCS and share the results, emission reductions can be achieved with mutual benefits. CCS is a powerful decarbonization tool that should be considered for future decarbonization in the Global South.

Nuclear power can also play an important role in the Global South in the long term. Nuclear power is an attractive option for the Global South, where energy demand is expected to increase significantly in the future, because it does not emit CO₂ when generating electricity, can provide stable power generation unlike renewable energy, and can supply large amounts of electricity over a small area of land. Nuclear power is also an attractive option for the Global South, where energy demand is expected to increase significantly in the future. Recent studies on Small Modular Reactors (SMRs) which are small-sized reactors built in a modular format, are underway, and if their introduction reduces costs, it

will lower the economic hurdles for countries in the Global South to adopt nuclear power generation. In island countries in particular, power generation facilities currently use mainly diesel oil as fuel, but these facilities are generally aging, have low energy efficiency, and fuel prices fluctuate widely due to geopolitical risks and other events. In addition, the cost of transporting the fuel, diesel oil, to each remote island is expected to be reduced. Nuclear power, especially SMR, is a promising option to realize stable power supply in such island areas. Needless to say, the introduction of nuclear power requires a very high level of management system for operational safety and safeguard for spent fuel and nuclear waste. Therefore, the lower cost of nuclear power does not necessarily make it feasible for all countries to adopt nuclear power. However, the recent introduction of nuclear power in the UAE has contributed significantly to the decarbonization of the emirate's power sector and the stabilization of energy supplies, and nuclear power may be a viable decarbonization option for countries with sufficient systems in place.

On the other hand, renewable energy is, needless to say, the main energy source that should play a leading role in decarbonization. However, in the diversification pathway, unlike the orthodox pathway, renewable energy is not a unique decarbonization tool, but rather a decarbonization option that should be chosen by each country based on its own circumstances. For example, there are many countries in the Global South that are endowed with abundant renewable energy resources, including biomass, and for these countries, decarbonization based on fossil fuel substitution with renewable energy, as envisioned in the orthodox pathway, is a reasonable option. On the other hand, there are many countries in the Global South in the Asian region that have a certain amount of domestic renewable energy resources, but have large populations and large energy demands, and these energy demands are expected to increase further in the future. While it is of course important that these countries continue to adopt renewable energy sources utmost, it will be very difficult to achieve carbon neutrality through renewable energy alone, and decarbonization measures other than renewable energy must also be adopted. Given that the role that renewable energy can play differs greatly from one country to another, the introduction of renewable energy should be considered while taking into account the balance between economic efficiency and security of supply.

4. Policies to achieve the Global South Diversity Path

The Global South occupies the dominant position in terms of quantity when considering the global energy transition. The diversification pathway described above never downplay the importance of renewable energy and energy efficiency and conservation, which are emphasized in the orthodox pathway. In fact, renewable energy and energy efficiency and conservation also play a central role in the energy transition that the Global South is pursuing. Therefore, in the diversification pathway, measures to strengthen energy conservation and renewable energy are mainly those that are common to the orthodox pathway. In the diversification pathway, carbon pricing and the use of carbon markets

will also be promoted (see Section I.2.3). (3) "International Market for Carbon Credits").

Energy is a public service that is indispensable for all people's lives and economic activities, and the three A's (Availability, Accessibility, Affordability), along with sustainability, are the prerequisites for energy transition. Especially in the Global South, while pursuing a diversification pathway, greenhouse gas reduction is not necessarily the highest priority. Even if the same measures as those in the orthodox pathway are pursued, the impact of such measures on energy costs, people's lives, and industrial competitiveness will be checked much more closely than in the Global North.

The biggest difference between the orthodox pathway and the diversification pathway is that the former, as represented by the IEA's NZE 2050, sets global carbon neutrality in 2050 as a given goal and backcasts the energy transition pathway from there, which tends to negate the role of investments in fossil fuel technologies and fossil fuel development. If we follow the orthodox pathway that assumes global carbon neutrality in 2050 as a given, coal-fired power plants must be shut down as soon as possible. In the Asian region, where electricity demand is growing rapidly, many young coal-fired power plants will have to be shut down leaving decades in operation. This is not a realistic option given the realities of the Global South, which is why India strongly opposed the UK's proposal to phase out coal-fired power generation at COP26. The G7 has committed to help accelerate coal phase-out in Asia through the Just Energy Transition Partnership (JETP), but the amount of JETP support is not comparable to the additional costs of shutting down vast amounts of coal-fired power plants in the middle of their lifetimes.

The first and most important step in achieving the diversification pathway is not to impose a top-down energy mix backcast from 2050 global carbon neutrality. Rather, the Global South countries themselves, in cooperation with regional think tanks such as ERIA, should formulate a realistic roadmap toward low-carbon and decarbonized energy structure. Such roadmaps should be diverse, taking into account the national circumstances and resource endowments of various countries, and should be regularly reviewed and, if appropriate, revised taking into account various factors such as the outlook for fossil fuel dependence, measures to lower the carbon footprint (energy conservation, co-firing of coal and ammonia, co-firing of natural gas and hydrogen, CCUS, nuclear power, introduction of non-fossil energy such as renewable energy, etc.), , the cost outlook for clean energy technologies, the supply and demand outlook for critical minerals essential to clean energy technologies, and the impact of low-carbon and decarbonization measures on energy costs.

Second, transition finance should be developed to provide the necessary investment funds for the diversification pathway. In the orthodox pathway, as typified by the EU taxonomy, funds tend to be allocated exclusively to green technologies such as energy conservation and renewable energy, and funds for fossil fuel-related technologies tend to be discouraged. However, it is inappropriate to apply the case of mature markets such as Europe directly to the Global South, where energy demand will continue to surge. Especially in emerging and developing Asian countries, in addition to the fact that

electricity supply cannot keep up with robust demand, there are many new thermal power plants that have only been in operation for a short time. While moving ahead with replacement with renewable energy, etc., it is necessary to reduce GHG emissions in existing thermal power plants by using hydrogen, CCUS, etc. In addition, although there are many manufacturing industries in Asia with high electricity consumption, low-carbon technologies that can reduce emissions at low cost have not yet been established, particularly in high-carbon intensive sectors such as steel, aluminum, cement, fertilizer, and chemicals, and significant investment and technology development will be required. It is essential to support the energy transition from a financial perspective, taking into account the realities of Asia and the global South. To this end, it is necessary for the public, private, and investor sectors in Asian countries to understand each other's unique situation and cooperate with each other. At the same time, given the norm-setting power of the Global North in the international financial system, it is also important to seek common approaches in possible areas while deepening discussions with global investors and experts.

Third, the Global South itself should actively communicate the necessity and importance of diversification pathways. While 80% of the world's energy supply is dependent on fossil fuels, the gap between the energy reality in the Global South and the discussions at COP is widening, as evidenced by the strong advocacy of fossil fuel phase-out at COP28. The fact that NZE2050 is recommended as the path forward in the IEA's World Energy Outlook is also a major factor in the mainstreaming of the Western-led orthodox pathway in international energy transition discussions. This trend has also led to a disincentive for fossil fuel-related investments necessary for economic development in the Global South in the international financial system, where the West has strong norm-setting power, such as in the lending policies of multilateral financial institutions. This leads to the criticism of double standards and eco-colonialism from the Global South, as mentioned at the beginning of this chapter, and may further aggravate the North-South confrontation. In order to prevent such a situation, it is necessary to voice the need for the Global South to make the energy transition based on a diversification pathway that takes into account the national circumstances of each country and the need for financing to support such a transition at UN conferences such as the COP, and at Governing Board meetings multilateral development banks (MDBs) such as the World Bank and ADB. It is necessary to voice these opinions not only individually, but also as a group. The Asian Zero Emissions Community (AZEC), which is a platform for various cooperation and projects, including the development of country roadmaps and the promotion of transition finance under the principle of "One Goal, Diverse Pathways," could serve as a platform where Asian countries voice their perspectives to the outside world.

Finally, we must not forget that existing technologies alone can not simultaneously secure a stable, low-cost energy supply and prevent global warming. Development of innovative technologies through innovation (hydrogen, CCUS, next-generation storage batteries, next-generation nuclear power

technologies, etc.) is essential. The Global North should play a leading role by increasing its R&D budget for innovative technology development, while the interested countries of the Global North and Global South should cooperate in technological development and demonstration in areas wherever possible, and support technology diffusion in the Global South.

Policy Recommendation III: Expanding the Carbon Credit Voluntary Market

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1. (The Global Common Targets) and 2 (The Traditional Western Led Path) follow the previous section

3. The Global South Diversity Path

In order to promote global GHG emission reductions, we believe that it is necessary to mobilize more actors in the global community to reduce GHG emissions. One of the methodologies to achieve this would be to expand the carbon credit market.

There are two types of carbon credit markets: compliance markets and voluntary markets. Compliance markets are those developed to contribute to the achievement of "Nationally Determined Contribution(s)" (NDCs) stipulated by each country under the 2015 Paris Agreement. In a voluntary market, standards and regulations are developed and operated by the private sector. In Singapore and other countries, voluntary markets can also be used to address carbon taxes.

The development of a voluntary market will expand the number of entities willing to sell their carbon credits on the market, and thus mobilize new entities that are not currently committed to GHG emission reductions, which in turn will lead to global GHG emission reductions.

On the other hand, looking at the status of market development, the compliance market has been considerably developed because it is for countries to fulfill the obligations they have committed to as governments. On the other hand, the voluntary market is expected to develop significantly, depending on the way the system is developed in the future. In particular, if the trend toward carbon taxes strengthens in each country in the future, the voluntary market will be expected to be further activated in order to respond to this trend.

According to the World Bank, carbon credit prices are falling. "State and Trends of Carbon Pricing International Carbon Markets (worldbank.org)" states that factors contributing to this decline include ambiguity regarding the legal nature of carbon credits. The lack of clear guidelines for financial and market credibility regarding credits and the lack of harmonization, interoperability, and auditing in the market infrastructure, are considered to be factors in this decline. In other words, the increased risk of fraud due to an uncertain investment environment is currently the main obstacle to market expansion.

In response to these issues, there have been recent efforts by international organizations to clarify the legal nature of credits and improve regulatory oversight. For example, the International Institute

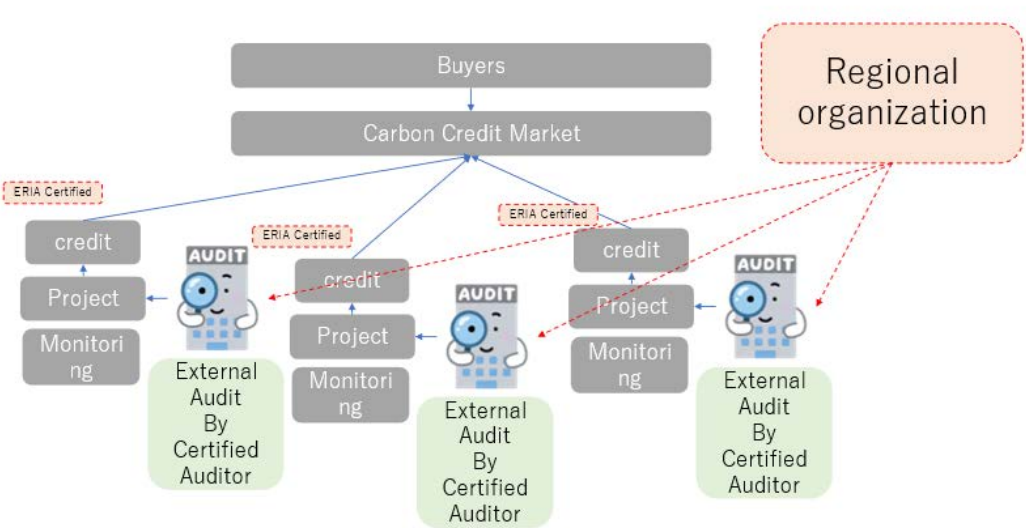
for the Unification of Private Law (UNIDROIT) has developed guidelines for determining the legal nature of carbon credits, and the International Organization for Securities Commissions has published a consultative document outlining good practices. On the other hand, guidance based on these efforts has not yet been finalized, and the possibility of adoption by national regulators has not yet been determined.

The root of the problem lies in the lack of a solid monitoring system for carbon credits. While carbon credits require strict measures in the methodology of measurement and management after establishment due to their nature of "crediting the reduction effect by comparison with the current situation," the possibility that the credits may become invalid after purchase cannot be ruled out if the monitoring system is not in place.

Against this background, we recommend that a new audit system for carbon credits be established for each of the regional economic communities (RECs) that exist in each region of the world today, in a manner that fully takes into account the specific characteristics of each REC, thereby promoting the activation of the voluntary market for each of these RECs.

4. Policies to achieve the Global South Diversity Path

Our proposal is presented in [Table 1].
 [Table 1] Certification System for Carbon Credit Auditors by RECs
 (Source: the author and Yoshiki ITO)



Currently, carbon credit projects are monitored by markets or certification bodies, which develop their own project methodologies. However, the current system does not ensure regular monitoring of projects that were initially certified as carbon credits, and therefore, there is no guarantee that projects

that have been certified for several years will be correctly adopted as carbon credits at this time.

Therefore, we propose that a REC (international organization) certifies carbon credit auditors every year, and that the certified auditors check the carbon credits in each country of the REC every year to assure the quality of the carbon credits.

This is expected to bring about a vitalization of the voluntary market and encourage more entities to initiate initiatives to reduce GHG emissions for the sale of carbon credits, thus contributing to the reduction of GHG emissions for the entire planet.

Policy Recommendation IV: The Role of Agglomeration on Diverse Paths to Sustainable Development

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1. Introduction

The Maddison Project Database¹ revealed that the acceleration of global economic growth started around 1820, coinciding with the spread of industrial technologies and the rise of industrial capitalism. The global urbanization rate jumped around the same period (Hoselitz, 1953; Davis, 1965; Kuznets, 1966). The seminal work by Kuznets (1966) explicitly linked the urbanization with the rapid industrialization. Agglomeration, or the concentration of economic activity in a particular geographic area, such as firms, workers, and infrastructure, plays a significant role in the unprecedented economic growth after the Industrial Revolution. Activity clustering generates various benefits that boost productivity, innovation, and overall economic performance.

Nevertheless, the impact of development on the environment also accelerated with the industrial revolution (McNeill, 2000; Steffen et al., 2007; Crutzen, 2016). Crutzen (2016) proposed the “Anthropocene,” a new geological epoch characterized by significant human impact on the Earth’s environment because of the Industrial Revolution. On the other hand, the industrial revolution has also substantially widened societal inequality (Lindert et al., 1985; Williamson, 1985; Picketty, 2014). Although inequality started to decrease as economic development progressed, inequality reversed to an increasing trend even in many developed countries (World Development Indicators²).

Agenda 2030, a global plan of action adopted by all United Nations Member States in 2015, responds to the shared concern that too rapid development may damage the global environment or societies. The core of Agenda 2030 is the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all developed and developing countries in a global partnership.

However, returning to the pre-industrial world is unlikely to be an acceptable option for anyone. The slow adoption of environmentally friendly but more costly technologies reveals how balancing the economy, environment, and society is easier said than done, even in developed countries. With

¹ <https://www.rug.nl/ggdc/overview-databases/>

² <https://data.worldbank.org/indicator/SI.POV.GINI>

fewer technological and financial resources, SDG hurdles should be several times higher in developing countries.

This chapter focuses on the complex agglomeration in search for diverse pathways to SDGs. The role of agglomeration, including urbanization, in economic growth and inequality is well-researched and coped with by academia and authorities in the industrialized world. Japan and Western European countries are primary examples of how a country can leverage the agglomeration effect by concentrating economic activity in certain places while addressing regional inequality with public spending. On the contrary, the role of agglomeration on environmental impacts needs to be further investigated. This chapter aims to examine the status of the understanding and summarize the known agglomeration impacts on environments and contribute to the search for diverse pathways to sustainability.

This chapter is structured as follows. After the introduction, Section 2 summarizes the effects of agglomeration on economic development. Section 3 discusses the known insights and practices to address inequality arising from industrial agglomeration. Section 4, the central part of this chapter, discusses the scholarly studies on the environmental impacts of agglomeration and proposes an interdisciplinary approach as a way forward to achieve sustainability. Section 5 concludes with policy recommendations.

2. The Pronounce Role of Agglomeration in Economic Development

Long-term time series databases, such as Maddison Historical Statistics and History Database of the Global Environment (HYDE), clearly illustrated how global per capita income and urbanization increased sharply after the Industrial Revolution. Asia's global GDP share was as high as 60% before the industrial revolution (Nakaso, 2015). But, it is important to note that the larger Asia population share was the main reason and that the per capita GDP of Asian countries was not much higher than that of the rest of the world. Western European countries did not rise because of the rapid increase of their global population share but because of productivity arising from agglomeration (Hoselitz, 1953; Davis, 1965; Kuznets, 1966).

The attempts to explain the agglomeration effects are as old as economics itself. Marshall (1920) introduced the concept of knowledge spillovers as a benefit of agglomeration. Jacob (1970) argued that input sharing is beneficial for cities. Helsley and Strange (1990) examined resource allocation in a system of cities. They concluded that there was an agglomeration economy in the labor market from a matching process between workers and firms. Several empirical analyses confirmed the previous hypothesis. For example, Glaeser et al. (1992) found that denser areas tend to have higher productivity and wages. Audretsch et al. (1996) examined the spatial distribution of innovation activities and argued that industries where knowledge plays a more critical role tend to concentrate more and benefit from

the agglomeration. New economic geography, also known as spatial economics, provides an integrated and micro-founded approach to explain the growth effects of agglomeration or uneven distribution of economic activity across space (Krugman, 1996; Fujita et al., 1999; Duranton et al., 2004; Glaeser, 2011).

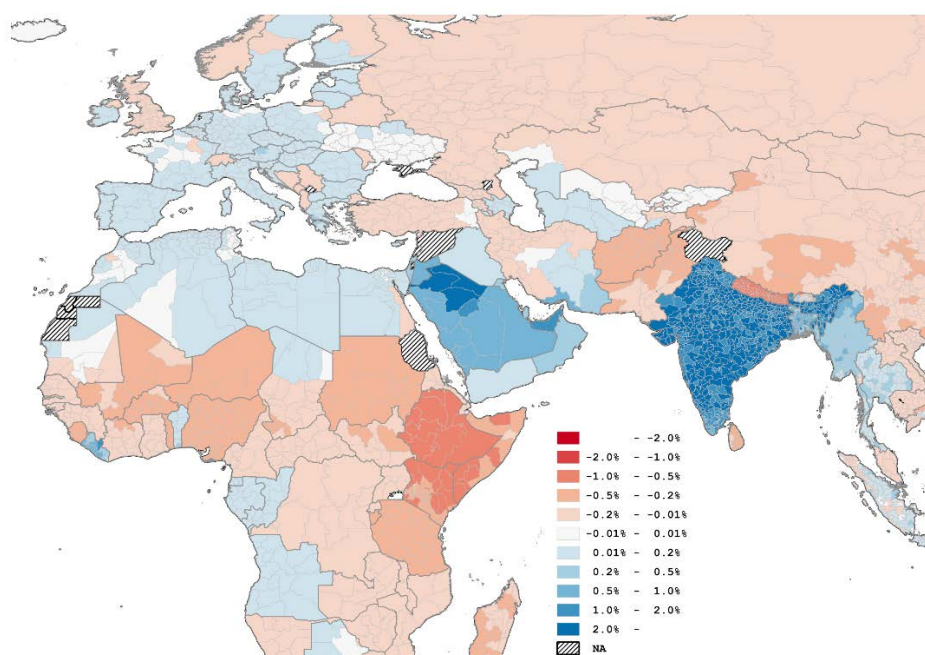
Yet, there are limits to agglomeration economies. There is a limit to agglomeration economies because of many factors, especially congestion and pollution (Selden & Song, 1994; Henderson, 1996; Glaeser & Kahn, 2004; Anderson & Duranton, 2005; Broersma & Dijk, 2008; Duranton & Turner, 2012). Roads may initially promote growth but can also lead to increased congestion and sprawl in the long run. Evidence of pollution due to agglomeration was found across developed countries. Some studies explain the limit of agglomeration economies due to their diminishing characteristics. For example, Glaeser and Gottlieb (2009) examined the relationship between agglomeration and productivity in the United States. While acknowledging the positive effects of agglomeration, the authors also point out that these effects may diminish as cities become larger and more congested. They suggest that there may be a point where the costs of congestion and high housing prices outweigh the benefits of agglomeration, leading to slower growth. Eekhout also found that smaller cities tend to grow faster than larger cities, meaning that agglomeration economies may weaken as cities grow larger, potentially leading to a slowdown in growth.

On the other hand, Au and Henderson (2006) suggested that many cities in China are undersized due to migration restrictions, resulting in significant income losses. Camagni et al. (2016) stressed the importance of sustainable urban planning to mitigate the negative consequences of agglomeration, such as congestion, pollution, and social inequality. The authors argue that without proper management, these challenges can hinder economic growth and reduce the quality of life in cities.

Next, agglomeration brings regional disparity (Myrdal, 1957; Krugman, 1991; Overman & Puga, 2010). Dealing with regional gaps requires logic beyond economics. The research and practices addressing regional disparities arising from agglomeration will be discussed in the next section. I would like to highlight here that the growth from the agglomeration effect and regional disparity is also predicted with simulation analyses. The growth originated from agglomeration, and regional disparities are evident from the simulation analysis that implements the concepts of spatial economics. IDE/ERIA-GSM (Institute of Developing Economies/ERIA Geographical Simulation Model) is one of the few global models that implement spatial economic concepts and bring them to policymakers and practitioners (Kumagai et al., 2013; Kumagai et al., 2021; Kumagai et al., 2023). A recent simulation of the IMEC (India-Middle East-Europe Economic Corridor) is depicted in Figure 1. IMEC is a connectivity concept similar to BRI (Belt and Road Development) but on a smaller scale, linking India with Western Europe via Middle Eastern countries, e.g., the United Arab Emirates and Saudi Arabia. Figure 1 shows that, on the one hand, sub-national regions along the proposed projects will gain (blue color) because of better connectivity and agglomeration economies, and regions further

away will experience smaller or sometimes negative growth (red color) compared to the baseline scenario. Note that baseline scenarios assume substantial growth in the first place; therefore, even red sub-national regions will still be better off than the present time. Nevertheless, the result suggests additional measures are needed if regional inequality is to be addressed.

Figure 1. Examples of Simulation Analyses of Impacts of IMEC



Source: IDE/ERIA-GSM.

3. Coping with regional inequality from industrial agglomeration

Although congestion and population impose limits on agglomeration, that will not automatically correct the regional disparity. The following are what developed countries have done to mitigate the regional disparity while benefiting from agglomeration.

In practice, there is the EU Cohesion Policy³ in Europe, i.e., an initiative aimed at reducing regional disparities within the European Union through investments in infrastructure, human capital, and business support in less-developed regions. Cohesion Policy targets all regions and cities in the European Union to support job creation, business competitiveness, economic growth, sustainable development, and improvements to citizens' quality of life. The fund earmarked to achieve these goals

³ https://ec.europa.eu/regional_policy/policy/what/investment-policy_en

between 2021-2027 is a staggering amount of €392 billion. Within the EU, Germany has the "Solidarity Pact" introduced after the reunification, a system of fiscal transfers between German states to ensure equitable distribution of resources and support economic development in lagging regions⁴. The source of the Solidarity Pact is tax, which was around \$21.2 billion in 2018. In Japan, the central government allocated a portion of tax revenues to local governments. The local allocation amount in 2021 was more than \$120 billion⁵. There is also a "Revitalization Strategy," a comprehensive plan to address regional disparities through decentralization, investment in rural areas, and support for local industries. Residents in Japan can also choose to donate a portion of their tax in exchange for tax deductions plus a locally sourced gift from that municipality of choice. Such donation reached surpassed \$6 billion in 2022⁶. Because of policies to address gaps, regional disparities in developed countries are generally lower than that of developing countries. For example, the per capita GRDP (Gross Regional Products) in Tokyo, the highest, is only about twice that of Okinawa. On the contrary, the difference between the top and bottom of 76 provinces in Thailand is more than 15 times in 2021⁷.

The effectiveness of policy to address regional disparity depends on many factors. Firstly, addressing regional disparities requires sustained political will and long-term commitment. Secondly, balancing economic growth and regional equity goals can be challenging. Without economic growth, there will be no financial resources to address regional disparity. In other words, while agglomeration is the cause of regional disparity, there is no resolution without materializing economic growth from agglomeration in the first place. Equality, where all regions are equally poor, is neither sustainable. Thirdly, policies should be tailored to different regions' specific needs and challenges.

4. Agglomeration Effects of Nature's Utilization: The Need for Interdisciplinary Approache

Consumption of nature is currently necessary for production. Almost all production processes require raw materials from nature, including everything from minerals, fossil fuels, water, timber, and agricultural products. Production requires energy, which is often generated from natural resources like fossil fuels, hydropower, or solar radiation. The study of agglomeration effects on the environment must consider the efficient utilization of nature in economic activity. However, in economics, the environmental impact of agglomeration is generally examined in the context of how to cope with diminishing benefits from concentration (See section 2). Although the aim is not unrelated to the

⁴ https://ghdi.ghi-dc.org/sub_document.cfm?document_id=3105

⁵ https://www.soumu.go.jp/iken/zaisei/r05data/chihouzaisei_2023_en.pdf

⁶ <https://mainichi.jp/english/articles/20230804/p2a/00m/0op/009000c>

⁷ https://www.nesdc.go.th/nesdb_en/main.php?filename=national_account

environment, the purpose is not the more efficient utilization of the environment in economic development. Thus, they differ from current attempts to achieve sustainable development with the balance of economy, environment, and society. Another difference between the economic approach and environmental studies in natural science is the involvement of people who make decisions based on different rules. For example, proponents of a compact or highly dense city think they are environmentally friendly because the transportation sector generates a large part of GHG (Green House Gases), which has also increased rapidly (Gaigne et al., 2012). However, the authors showed with a mathematical model that if firms and people change their locations because increasing-density policy affects prices, wages, and land rents, it is reasonable to expect firms and households to change places in order to re-optimize profits and utility. That may increase the transport demand and increase GHG. The psychological aspects, e.g., how people respond to policy, are fundamental to analysis in social studies.

The following studies focus more on the sustainable use of the environment. Using panel data of per capita GDP and various air pollutants of countries in the world, Selden and Song (1994) confirmed the existence of the Environmental Kuznets Curve (EKC) by showing that pollution initially increases with industrialization and agglomeration but may decline after a certain income level is reached. Liu et al. (2007) concluded from firm-level data in Shenzhen, China, that production-induced pollutants supported EKC while consumption-induced pollutants did not. Looking at 282 cities in China, Hong et al. (2020) found that municipality taxes designed to attract firms and promote agglomeration negatively impacted the environment.

Besides air pollution, water resources are another major concern in the sustainability of agglomeration. Gleich (2003) discussed the challenges of managing global freshwater resources in the face of growing demand, including the pressures from urbanization and agglomeration. It advocates for "soft path" solutions, such as water conservation, efficiency improvements, and sustainable water management practices, to address water scarcity in urban areas. Grimm et al. (2008) examined the ecological impacts of urbanization, including the effects on water resources. It argued that agglomeration can lead to altered hydrological cycles, increased water pollution, and greater vulnerability to water scarcity, particularly in rapidly growing urban areas.

Similarly, McDonald et al. (2011) highlighted the growing pressure that urbanization and climate change placed on freshwater resources. They concluded that agglomeration in urban areas could lead to increased water demand, which, coupled with climate change impacts, can exacerbate water scarcity and stress on water resources. Bai et al. (2014) had a more forward-looking view on agglomeration, calling for innovative water management solutions and policy interventions to ensure sustainable water use in Chinese cities. Using hydrological models, Wada et al. (2011, 2016) modelled the global consumption in detail. They found high demand of water in areas with large population, high economic growth, extensive irrigated agriculture. However, water stress is not necessary predicted in areas with

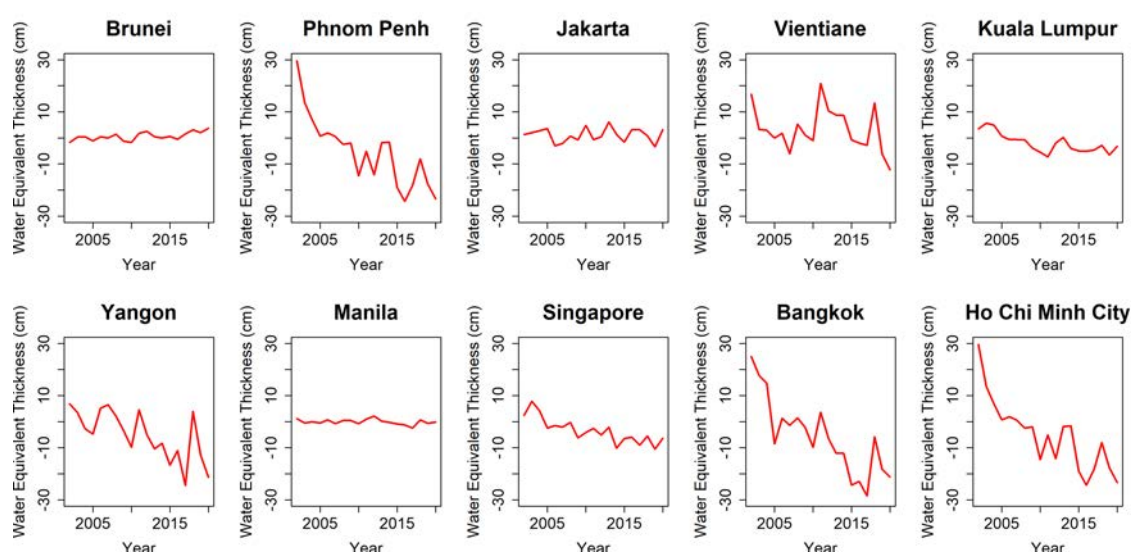
higher water demand. Instead, regions with high water stress are often characterized by a combination of high water demand, limited water availability, and inefficient water use practices.

Most of these analyses have in common the need for more consideration of the possible interaction of firms and people who constitute agglomeration in the first place. Agglomeration is a reason for firms' and individual decisions to relocate in space. Without understanding the logic behind firms' or individual decision-making, one risks examining the environmental impacts of agglomeration that may disappear or not exist in the future. The evidence that people continue to live in disaster-prone areas is overwhelming⁸.

The foundation of economic modeling lies in the abstraction of firms' and individuals' quest to maximize something, e.g., profits and utilities. A spatial economic model such as IDE-GSM is one of a few that considers the locations of firms and individuals as well as their movements over space. Combining spatial economic models with energy and hydrological models is a potential way to examine sustainability.

Lastly, this chapter will highlight the environmental changes in ASEAN (Association of Southeast Asian Nations), one of the regions where industrial agglomeration has advanced substantially since the 1980s.

Figure 2. Average Annual Water Level in the Largest Economic Regions in ASEAN.



Source: GRACE Monthly Mass Grids Release 6.1 Version 3 - Global Mascons.

Figure 2 presents the yearly average amount of water measured by satellites in 10 member states of ASEAN (Association of Southeast Asian Nations). The changes in water level show a complicated

⁸ See for examples <https://www.rte.ie/brainstorm/2017/1013/911604-why-do-people-stay-living-in-disaster-prone-cities-and-areas/>, <https://blogs.worldbank.org/en/nasikiliza/why-do-people-live-in-flood-prone-areas-reflections-from-dar-es-salaam>

situation requiring further investigation. Firstly, water levels in the economic capitals of continental ASEAN show a clear decreasing trend between 2002 and 2021. The decrease is of the highest magnitude, i.e., from around 30 cm to -20 cm in Phnom Penh, Bangkok, and Ho Chi Minh City. Yangon and Vientiane experienced less reduction or between 20 cm to -10 cm with more significant fluctuation.

On the other hand, the situation is different, if not opposite, in maritime ASEAN. The water level in Brunei, Jakarta, and Manila slightly increased. The decrease in the water level in Singapore and Kuala Lumpur is clear but of rather small magnitude compared to cities in the Mekong region. The location of manufacturing industries, major agricultural areas, and the impacts of sea level because of climate change are among the important factors that need further in-depth investigation.

5. Concluding remarks

Agglomeration, the concentration of economic activities in urban areas, has been a key driver of economic growth and development since the Industrial Revolution. It fosters productivity, innovation, and higher living standards. However, it's crucial to understand that agglomeration also presents challenges, including regional disparities and environmental concerns. While agglomeration drives economic growth, it can lead to an unequal distribution of wealth and strain on natural resources. Being informed about these challenges is the first step towards addressing them.

Policymakers need to adopt a comprehensive approach to address these challenges. The policies must promote sustainable and balanced development, considering economic growth, environmental protection, and social equity. Investing in green infrastructure, implementing strict environmental regulations, and promoting innovation in green technologies are crucial steps. Additionally, the influential role of strengthening regional development policies in addressing disparities and ensuring that the benefits of agglomeration are more widely shared cannot be overstated. Achieving a balance between economic growth and environmental sustainability requires a long-term commitment and ongoing efforts from all stakeholders.

Conventional approaches in each discipline are unlikely to be able to derive pathways toward sustainability. Combining practical wisdom across fields in social and natural sciences is strongly called for.

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Policy Recommendation V: the Watershed Ecosystem-Enhancing Urban Development

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1. The Global Common Targets

For today's global society, the issue of global environmental problems has become an issue of civilization-historical importance. The escalation of various global environmental problems caused by global warming due to the increase in greenhouse gas emissions from human industrial activities can be seen as one of the systemic risks of modern civilization.

Based on this recognition, the international community has been dealing with this issue in a constructivist manner over the past several decades. Coping with this global environmental problems caused by global warming needs to be regarded as the typical Global Common Target.

2. The Traditional Western Led Path

The international community's response to global environmental problems over the past several decades can be broadly divided into mitigation measures and adaptation measures. Mitigation measures seek to reduce greenhouse gas emissions and limit the resulting rise in temperature. Adaptation measures do not address greenhouse gas emissions per se, but allow temperatures to rise and focus on responding to the resulting natural disasters (disaster prevention measures).

The international community has long invested trillions of USD annually in mitigation measures. In the power generation sector, the government has imposed strict regulations on the construction of new thermal power plants, while at the same time providing significant subsidies for the promotion of renewable energy. Today, under the regime of the Paris Agreement, each country is still obligated to reduce emissions, and the international community is working together to achieve this goal. Nevertheless, the effect has not been positive.

Despite the United Nations' goal of limiting the increase in global temperature to less than 1.5 degrees Celsius above pre-industrial levels, the most recent increase has been 1.45 degrees C. Some estimates suggest that in order to achieve carbon neutrality seriously by 2050, more than 500 trillion yen of investment will be required annually.

In the face of this harsh reality, the international community is moving away from a focus on mitigation measures and is now turning its attention to the expansion of adaptation measures, with COP27 in Sharm El Sheikh in 2022 being the pioneering event, and since then the international

community has been actively discussing the expansion of adaptation measures. Since then, the international community has been actively discussing the expansion of adaptation measures.

In other words, the current situation can be summarized as a situation in which various adaptation measures are being discussed in addition to the strong regime of the Paris Agreement, which is the core of mitigation measures. This is an architecture of the Traditional Western Led Path.

3. The Global South Diversity Path

In addition to the above Traditional Western Led Path, we present the idea of the following Global South Diversity Path.

The basic direction of the project is to present a new adaptation strategy that responds immediately to the current Global Common Targets by utilizing the wisdom nurtured in the traditions and historical backgrounds of the countries of the Global South and modernizing that wisdom with the latest digital technology (Digital Transformation: DX).

Mitigation measures are the first challenges that humankind has faced in history, and they question the nature of industrialization itself, which is the very nature of modern civilization. In contrast, adaptation measures are based on disaster prevention. Peoples around the world, including those in the GS, have been coping with natural disasters since the pre-modern era by establishing their own systems of disaster-prevention measures. Of course, the nature of natural disasters is very different from that of today, when global environmental problems are becoming more acute. On the other hand, many of the systems that have been historically developed in the GS in terms of consensus building, participation of local residents, and administrative responses are still basically effective today. In particular, when these institutions are enhanced with the latest digital technology, their effectiveness will be extremely high.

Among such adaptation measures backed by the traditional wisdom of the GS, we focus on one of the adaptation measures that Japan is currently taking the lead in co-hosting seminars in several GS states: the Watershed Ecosystem Enhancing Urban Development.

In summary, it promotes disaster prevention measures, especially flood control, from the viewpoint of enhancing watershed ecosystems as an adaptation measure. The idea of promoting disaster prevention based on the concept of watershed ecosystems was developed in the 1980s by Yuji Kishi, based on a long tradition of disaster prevention measures in Japan.

Ecosystem enhancement is another one of coping with the systemic risks of modern civilization that the global community faces today. The international community today is within the regime of the Kunming-Montreal Biodiversity Framework established in 2022. The Watershed Ecosystem-Enhancing Urban Development focuses on the concept of a watershed, defined as "a topography of converting rainfall to a water system or a river in accordance with the law of gravitation". A watershed, as defined, is the flow of water that converts rainwater into a river and ultimately pours into the ocean,

which is considered to be of critical importance for biodiversity enhancement. Focusing on preserving watersheds will result in efficient biodiversity enhancement. Conversely, if biodiversity efforts are made without regard to watersheds, such efforts will inevitably run the risk of fatal flaws in the details.

The root of the concept of disaster prevention measures that place watersheds at the core of the concept is the SATOYAMA concept, which is unique to Japan. The core of the OECM (Other effective area-based conservation measures) concept is the watershed. The appropriate conservation and management of watersheds, which are modified by humans on a daily basis, will not only enhance biodiversity, but also produce flood control effects that benefit human social activities. In other words, the concept is based on the idea that humans themselves are one of the organisms that make up the ecosystem, and that disaster prevention measures whose main purpose is to enhance the convenience of human life are viewed not only from the perspective of humans, but also within the framework of ecosystem enhancement.

4. Policies to achieve the Global South Diversity Path

The Watershed Ecosystem-Enhancing Urban Development will be driven by three policy pillars, as follows ;

The first pillar is the zoning of the region into three categories of areas: ecological conservation areas, integrated flood control areas, and urban development areas.

Ecosystem conservation areas are areas where construction of housing, commercial facilities, etc. is strictly restricted in order to protect the ecosystem. Urban development areas are areas where such restrictions are not imposed in principle, and where urban development is allowed to proceed freely in order to contribute to human economic activities.

These two types of zoning are common throughout the world. In Japan, the City Planning Law also establishes these two types of zoning.

In contrast, what makes the Watershed Ecosystem-Enhancing Urban Development unique is the establishment of a zone called the "integrated flood control zone" between the ecological preservation zone that is usually located upstream and the urban development zone that is usually located downstream. This is an area that is used as farmland in normal times, but is flooded as a detention basin in times of flooding. In other words, these are areas that are expected to be flooded in times of emergency.

The idea of a comprehensive flood control area is a traditional one in Japan, and is widely known as the Kasumi Dike, which was implemented by Shingen Takeda, one of the warlords of the Warring States Period (late 15th century to late 16th century). In this method, a break is cut in a river bank in advance to prevent flooding, and water is discharged from the break into a reservoir when a flood occurs, thus sparing the area downstream from flood damage.

Due to the increase in extreme weather events associated with global warming, heavy rainfall disasters will become more frequent in the world in the future in a more intensified manner. Reinforcing levees as a flood control measure for such disasters will require enormous cost, but its effectiveness will be limited. On the other hand, setting up a flood control reservoir in advance, which is used for normal purposes such as farmland during normal times but is flooded and submerged during flooding, can produce enormous flood control effects at relatively low cost. A typical example of this type of integrated reservoir system in Japan is the one implemented in the Tsurumi River in Kanagawa Prefecture since the 1980s.

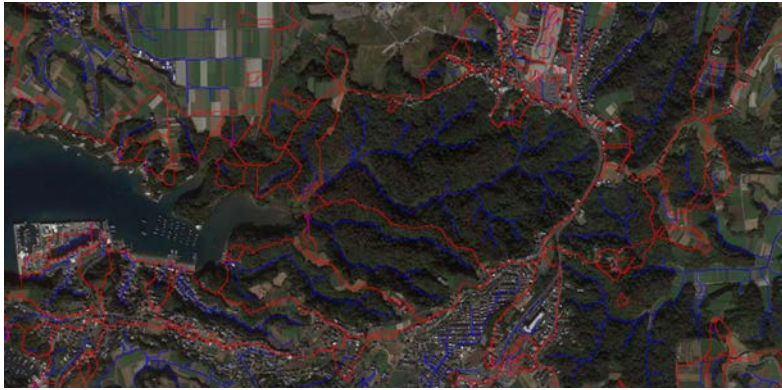
The second pillar is watershed based zoning, i.e., setting the above zoning within a watershed-appropriate range.

As mentioned earlier, the zoning of riverfront areas into ecological conservation areas and urban development areas has been implemented in many parts of the world, including Japan's urban planning legal system. In other words, ecosystem conservation areas have already been established in many parts of the world.

The problem, however, is that these areas are basically defined by administrative units. In other words, the ecological preservation area is in the 00-town, village △△△ area, while the urban development area is in the 00-town, village ◇◇◇.

In this case, of course, the boundaries of the administrative units are set without any regard to the watershed. Therefore, even if a large area is designated as an ecosystem conservation area, the entire watershed will die if the upstream or downstream portion of the watershed that flows through the area belongs to another administrative unit, is designated as an urban planning area, and urban development takes place there. From an ecological standpoint, a watershed is meaningless unless all areas of the watershed are preserved, from the point where rain first falls to the ground surface to the point where it finally reaches the sea, including the area where it flows as a river. If a road is built through any part of the watershed, the entire watershed will die from an ecological standpoint. For this reason, the ecological conservation areas should be set up as watersheds that run through several administrative units, rather than as areas designated by administrative units. A watershed that is designated to protect an ecosystem is meaningless with respect to the ecosystem unless it completely protects the entire area from the point where rainwater falls to the ground to the point where it passes through the river area and finally reaches the sea.

[Chart 1] Watershed zoning



(source : Japan Bosai Platform)

(Note: The blue line is the flow of water. The extent of the watershed based on it is inside the red line. The red line straddles the extent of several administrative units.

On the other hand, this type of zoning based on watershed units is usually practically difficult, including in Japan, because it runs through multiple administrative units and includes only a portion of those administrative units. In Japan, there are examples of this being accomplished. This is the Koajiro area on the Miura Peninsula in Kanagawa Prefecture.

[Chart 2] Koajiro area



(source : open source)

(Note: Roads will avoid and pass outside of ecological preservation watersheds. Roads will not pass through estuary areas in close proximity to residential areas.

The third pillar relates to financing urban development.

Needless to say, financing is the most important issue for infrastructure development. Although the

Watershed Ecosystem-Enhancing Urban Development may be less expensive than global environmental mitigation measures or other adaptation measures such as levee reinforcement, the construction of integrated reservoirs, etc., still entails enormous costs. On the other hand, in order for this approach to be widely adopted in the GS states, a financing mechanism that is feasible for the GS states must be incorporated.

The Watershed Ecosystem Enhancing Urban Development seeks to achieve this through Advanced Land Value Capture (LVC) based on land readjustment projects under Japan's Urban Planning Law.

LVC is a method for public institutions to raise funds for infrastructure development, typically by securitizing land and other real estate values that will rise in the future due to infrastructure development, typically through the construction of railroads, and by discounting these future increases back to the present. In the case of the Watershed Ecosystem-Enhancing Urban Development, this method will be used in urban development areas at the mouths of watersheds, where land and other real estate values that will increase in the future due to the Watershed Ecosystem-Enhancing Urban Development will be discounted back to the present, and funds will be raised through securitization and other means.

The question that arises here is that the typical successful example of LVC is railroad construction, and while railroad construction can be expected to ensure future increases in land and other real estate prices, this case is for flood control, so future increases in land and other real estate prices cannot necessarily be assured.

To address this issue, we propose to introduce land readjustment projects based on the Japanese Land Readjustment Law as an Advanced LVC method. A land readjustment project is a project to rationalize land owned by private citizens through land conversion in order to improve the efficiency of land use, which will certainly increase the value of land owned by private citizens.

This project will allow future increases in land and other real estate prices to be discounted back to the present and financed through securitization or other means, and is an Advanced LVC in the Watershed Ecosystem-Enhancing Urban Development.

In order to actually promote the Watershed Ecosystem-Enhancing Urban Development, which consists of the above three policy pillars, it will be necessary to implement the following policies.

The first is the development of a legal system that provides the basis for zoning. In Japan, the City Planning Law classifies areas into urbanization zones and urbanization control zones, and regulates urban development in the latter. Applied to the framework of the Watershed Ecosystem-Enhancing Urban Development, urbanization zones correspond to urban development areas, and urbanization control zones to part of ecosystem conservation areas. In addition to this, as mentioned above, the Watershed Ecosystem-Enhancing Urban Development establishes a third category of comprehensive flood control zones. In order to implement these three categories of zoning, it is necessary to develop a legal system to serve as the basis for such zoning.

The second is to develop the legal system necessary to implement zoning on a watershed basis. The zoning currently in place around the world, including Japan's City Planning Law, are all based on administrative zoning. There are currently no examples of watersheds being implemented as independent zoning units. In addition, the scope of a watershed is not clear throughout the world. Today, technically, it is possible to clearly delineate watersheds through analysis by inputting land slopes, etc., as shown by the red line in the Koajiro area described above. First, it is necessary to carry out this work throughout the vast GS states. Second, the area of the watershed will penetrate parts of several administrative areas. Within a particular administrative area, depending on the type of watershed, there will be a mix of ecosystem conservation areas, comprehensive flood control areas, and urban development areas. The current legal systems of various countries make it extremely difficult to take policy measures based on such a mix of zoning within the same administrative area. Therefore, it is necessary to develop a legal system to enable such a policy response.

Third, a legal system for an Advanced LVCs needs to be developed. As mentioned earlier, an Advanced LVC is modeled on land readjustment projects in Japan. Although there is a guarantee system through land readjustment and the landowner can eventually enjoy the benefits of higher land prices, a certain range of private rights cannot be avoided in the process. Furthermore, a problem unique to the GS states is that some countries do not have well-developed legal systems for land ownership.

It is necessary to overcome these various problems and develop a legal system to promote smooth land readjustment projects. In addition, an Advanced LVC envisions securitizing future real estate price increases back to the present and thereby generating funds for the entire the Watershed Ecosystem Enhancing Urban Development project, which will require the development of a legal system for the financing system. For the time being, we are assuming that the financing system will be regular project bonds. On the other hand, even if financing is to be provided through regular project bonds, several institutional arrangements will be required in practice. For example, it is necessary to establish a project evaluation method and, if necessary, a project-specific rating system. Furthermore, as was pointed out in the Asian Bond Markets Initiative launched by former Prime Minister Thaksin at the end of the 20th century, Asian countries, including Japan, still lag behind in the development of bond markets. Therefore, in order to vitalize the project bond market for evolving LVCs to cover the costs of the Watershed Ecosystem-Enhancing Urban Development, it will be necessary to establish an institutional framework, including the development of related legal systems.

Furthermore, if this method is to be widely used in the GS states in the future, a wide range of possibilities should be considered for the financing system, not only the usual project bonds. We should consider the possibility of adopting various methods that are currently under consideration as new methods for infrastructure construction in the GS states. For example, security token offerings (sto) based on blockchains would be a good candidate.

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Chapter 3

Development Strategies

Policy Recommendation VI: "Leapfrog" Development Strategy

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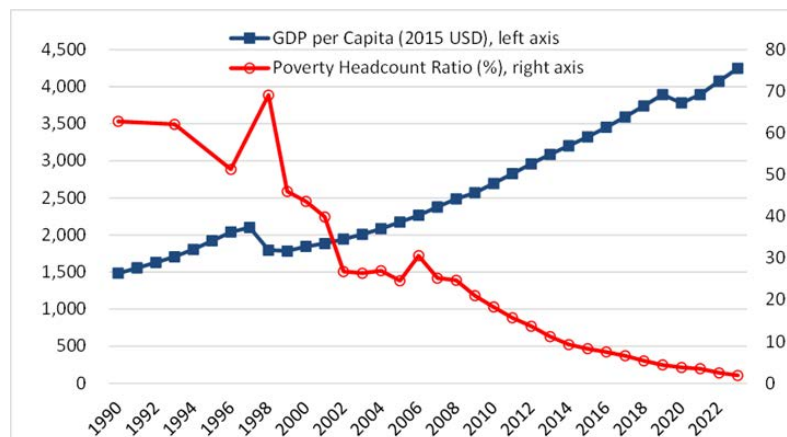
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1. 1 The Global Common Targets: Sustainable Economic Growth in the Global South

Among the countries of the Global South, many are categorized as developing countries. Low-income countries, defined by the World Bank as having per capita income of US\$1,085 or less, are predominantly found in Sub-Saharan Africa. Lower-middle income countries, with per capita income of US\$4,255 or less, extend beyond Sub-Saharan Africa into South Asia and Southeast Asia. The populations of low-income and lower-middle-income countries are estimated to be about 720 million and 3.4 billion, respectively. Thus, about 50% of the world's total population lives in developing countries.

Over the past two decades, developing countries have also achieved economic growth and reduced poverty. In 2000, the combined population of low-income and lower-middle-income countries was about 80% of the world's total population, but the number of poor people has decreased significantly. Particularly strong economic growth has occurred in the South Asian countries of India and Bangladesh, as well as in Southeast Asian countries. For example, Indonesia, with a GDP per capita (real, 2015 USD) of \$1,845 in 2000, has increased to \$4,248 by 2023, joining the ranks of emerging economies with high growth potential. In step with the increase in GDP per capita, the percentage of the poor in Indonesia living on less than \$2.15 per day is also steadily declining (see Table1. below).

Table 1: Indonesia's Real GDP per capita and Poverty Ratio



Source: World Bank, "World Development Indicators."

Despite this progress, there are concerns about whether the countries of the Global South, which have experienced such economic development, will be able to achieve sustainable economic growth in the future. Particular attention is paid to the phenomenon known as the "middle-income trap," where countries that were able to escape extreme poverty experience a long-term stagnation of per capita GDP at the level of middle-income countries. Historically, only a few countries and regions, such as Japan, South Korea, Taiwan, Hong Kong, and Singapore, have successfully transitioned to developed countries or regions without falling into the middle-income trap. Some argue that certain Global South countries, such as Thailand, may have already fallen into the middle-income trap. The key challenge is to find new strategies for sustainable economic development as a common target for Global South countries.

2. The Traditional Western Led Path: Following the "East Asian Success Story"

The key to economic development in the Global South lies in the development of home-grown industries that create job opportunities. East Asian countries have achieved economic growth by successfully fostering internationally competitive industries, especially manufacturing. To achieve this, Japan and South Korea took the time to focus their efforts on accumulating the necessary capital stock required for their manufacturing industries. The types of capital stock needed to foster industry include human capital (quality workers), physical capital (machinery, equipment, and buildings in the private sector), infrastructure (public capital such as roads, railroads, ports, and airports), social capital (efficient contract systems and trust), and intellectual capital (scientific, technical, and managerial knowledge), which are complementary to each other. Countries in the Global South are also accumulating these capital stocks, and Japan International Cooperation Agency (JICA) and other organizations have actively supported the building of these capital stocks. The underlying assumption is that without such stock, manufacturing will not develop.

Historically, economic development has followed a pattern of gradual transformation of industrial structure, shifting from agriculture to manufacturing, and eventually from manufacturing to services, as incomes increase (Petty-Clark's law). However, countries in the Global South are facing the issue of "premature deindustrialization" (Rodrik 2017), in which the share of the manufacturing sector begins to decline before income increases sufficiently. Some argue that premature deindustrialization prevents future economic growth because it hampers spillover effects within and beyond the manufacturing sector and hinders the accumulation of human capital and technological capacities. For this reason, proponents of orthodox economic development strategies argue that the priority should be put on the development of the manufacturing sector.

How, then, should industrialization that fosters manufacturing be implemented? What existing intellectuals on this issue advocate is a phased approach, called "step-by-step industrialization." In the early stages of development, many workers in developing countries tend to have low levels of education and are often unskilled. Therefore, it is necessary to develop unskilled labor-intensive light industries as the first step in launching the manufacturing sector. Key light industries include textile and apparel, leather and footwear, food processing, metalworking, and electronic components (which, though once knowledge-intensive, are now increasingly manufactured with unskilled labor). Examples of successful light industry industrialization include the textile and apparel industries in Bangladesh and Vietnam, and the leather shoe industry in Ethiopia.

The next phase of industrialization involves the development of capital-intensive, heavy, and chemical industries. It is hoped that the process of fostering light industries will lead to the development of the necessary capital stock (especially infrastructure) to enable a smooth transition to the heavy and chemical industries. These industries include the automobile, steel, nonferrous, and metal product manufacturing, machinery, chemical, and petroleum product manufacturing industries.

The final stage in manufacturing development is the transition to knowledge-intensive industries, which require advanced human capital and scientific knowledge. These industries include information and communication technology, biotechnology, nanotechnology, artificial intelligence (AI), robotics, and automobiles (electric vehicles and automated driving technology also have knowledge-intensive aspects).

Some Global South countries had made efforts to foster heavy and chemical industries in the 1970s and 1980s by leveraging import-substitute industrialization strategy. However, many of these efforts are nowadays regarded as failures. Based on the lessons learned from these experiences, Southeast Asian countries have pursued a step-by-step industrialization approach, relying on foreign-capital dependent and export-oriented industrialization strategy. This is how Indonesia, Malaysia, and Thailand have successfully increased the ratio of heavy and chemical industries. On the other hand, African countries have a high ratio of light industry, and the full-scale industrialization described above has not been achieved yet. The ratio of heavy and chemical industries remains high in developed

countries, but in recent years they have been shifting to knowledge-intensive industries.

In East Asian-style economic development, it was the unbundling of the global economy that drove step-by-step industrialization (Baldwin 2016). Prior to the 1980s, the series of production processes (tasks) from the manufacture of intermediate parts to the production of final products were geographically located closely together on the need to exchange information between processes (adjustment and coordination). Subsequently, the development of information and communication technology (ICT) in the 1980s loosened the restrictions on the proximity of production processes that had been concentrated in developed countries. Production processes began to be separated (that is, unbundled) across national borders, including in developing countries, resulting in the so-called international division of labor by task level (ERIA 2022). This international division of labor facilitated the use of the comparative advantage of each country's production resources and enabled developing countries to develop labor-intensive industries leveraging low-cost unskilled labor and export their products, which formed a typical model for economic development. The linkages to global supply chains and the acquisition of foreign markets were emphasized when exporting manufacturing products. This is because exporting to foreign markets also had the advantage of technology and knowledge spillover from partner companies in the developed countries.

In East Asia, there was a trial-and-error process of how to fill the technology gap with Japan (which was catching up with the U.S.). A chain of economic development with rapid catch-up was observed in South Korea, Taiwan, China, and ASEAN countries followed (the so-called "flying-geese theory"). Behind the rapid economic development that has been described as the "East Asian Miracle" are: foreign direct investment (promoting technological imitation), development of realistic industries that adopt appropriate technologies (avoiding hasty heavy and chemical industrialization), and aggressive investment in human capital, e.g., training institutes, vocational training schools, and technical colleges. Following Japan's example in these respects, Asian countries have successively achieved East Asian-style economic development, starting with labor-intensive manufacturing and achieving step-by-step industrial sophistication by raising the technological level. In addition, this East Asian-style economic development had the side effect; modern institutions permeated countries and societies as industrialization progressed, such as financial markets, intellectual property systems, science and technology systems.

While this step-by-step industrialization model suggests that developing countries should follow a similar path, progressing through the stages of the labor-intensive, capital-intensive, and knowledge-intensive industries, in that order. However, whether countries of the Global South must also follow the same development path as East Asian countries has recently become a matter of debate.

3. The Global South Diversity Path: Leapfrogging Economic Development Strategy Based on Digital Technology

Among Global South countries, there are low-income countries that face difficulties in launching industrialization, including light industry, and middle-income countries where the middle-income trap problem is serious and the transition to high-income countries is an important issue. Although these countries differ in the degree of progress of industrialization, none of them are making a smooth transition to the next stage of industrialization at the same speed that industrialization in East Asia has been achieved. For these Global South countries, therefore, there are growing expectations for a "leapfrogging" type of economic development strategy that differs from the conventional step-by-step industrialization discussed in Section 2. In other words, what this new economic development strategy intends to do is to aim for industrial development that catches up with high-income countries at once, instead of advancing industrial sophistication, especially in the manufacturing sector. To come right to the point, the key driving force for this economic development is considered the promotion of a modern service industry and innovation through digital technology.

To begin with, we will review the mechanisms by which digital allows emerging and developing economies to close the development gap with developed countries. According to the standard growth accounting in economic growth theory, most of the differences in income levels with developed countries can be explained by total factor productivity (TFP) (in a broad sense, the level of technological level). The difference in TFP is attributable to, firstly, a disparity in the technology level between the world and the country, and secondly, a disparity in efficiency related to production and resource use, caused by differences in property rights and other systems. On these two points, the disparity in technological levels will be filled if countries can use cutting-edge digital technology, and the use of digital technology may also contribute to improving institutional efficiencies. Specifically, digital technology is expected to improve the quality of markets, matching, and law and institutions related to property rights by reducing information asymmetries and enhancing transparency. However, this requires prerequisites such as the existence of a government with good governance capable of enforcement and a high level of social acceptance of digital.

Next, we look at some of the typical characteristics of the modern digital services economy. In today's emerging and developing economies, innovations in the service sector triggered by digitalization are lowering the cost of matching workers and creating new employment opportunities, such as ride-sharing services using mobile apps (e.g., services offered by Gojek and Grab in Indonesia). In addition, digital technology is helping to create new employment opportunities in the financial services sector.) Digital technology is also driving innovation in financial services that allow individuals to conduct financial transactions via their mobile phones (M-PESA, launched by Safaricom in Kenya). These developments are precisely the embodiment of the leapfrogging economic development strategy, which is a transition to a digital-service economy based on innovation, but not on manufacturing. Another derivative of leapfrogging is "feedback." Digital technologies are not always deployed in new service industries but are applied in unique ways in existing traditional industries. Examples include

the use of drone technology in agriculture (e.g., management of cultivation) and the Internet of Things in manufacturing (e.g., remote control of household appliances via smartphones). The latter example is called servitisation of manufacturing industries.

It is notable that, combined with the creation of digital infrastructure, these digital-service economies can be deployed in developing countries too. The fact that imitation of digital innovation is straightforward compared to manufacturing industrialization generates for latecomers a benefit that makes leapfrogging possible. Certainly, the immediate development of advanced digital technologies (AI, robotics, quantum computers, etc.) may be difficult for many developing countries. But it is not necessarily required that these countries develop their own digital technologies and services. Rather, some believe that the dissemination of digital service knowledge advanced by other countries and companies may be sufficient. In fact, digital services such as ride-sharing that are in operation in developing countries are diffusion of systems evolved in developed countries such as the United States. However, companies in developing countries are not simply disseminating imitations in their countries. Though being based on imitations, ride-sharing applications realize unique innovations, such as providing financial services to users. From the past experience, even in developing countries, demand for services expands and innovation in the service industry accelerates as economies grow and living standards improve. Thus, developing countries may be able to achieve economic growth without going through manufacturing industrialization stages if they can harness the vitality of the service industry using digital technology (Aghion et al. 2021).

The key to facilitating the development of a digital service economy is innovation in identifying and solving social challenges. Countries in the Global South have many challenges related to the Sustainable Development Goals (SDGs) (in areas such as the environment, energy, education, and health). Proactively addressing these challenges using digital technologies will accelerate digital innovation (Ito 2020). For example, a new educational system using digital technology (Ed-Tech) is expected which enables to provide tailor-made educational opportunities according to individual characteristics, which has not been succeeded by conventional school education. Ed-Tech has the potential to fundamentally transform educational standards and human capital in developing countries through the widespread use of the digital tools. Moreover, other urgent needs in developing countries are responding to severe disaster risks. Services such as the sharing of disaster prevention and information via smartphone apps, and maintenance and inspection of core infrastructure using digital technology, are also effective innovations to protect people in developing countries from disasters.

Further, not all views are positive on the development of the digital-service economy in developing countries. Some believe that sectors of the service industry, such as tourism, are unlikely to achieve the same productivity and efficiency improvements based on technological development as the manufacturing sector. Others argue that modern digital service industries such as ICT, which create employment opportunities primarily for the wealthy people with a university education, including

English education, will not bring about inclusive growth and poverty reduction (Otsuka 2020). If this view is correct, then the provision of higher education to citizens would be the basic policy that should be adopted, but this may be a hurdle in developing countries where the spread and improvement of initial education is a major challenge. For example, high-tech industries are emerging in Indian cities such as Bangalore and Hyderabad, however, it is necessary to closely monitor whether the development of the ICT sector will lead to poverty reduction throughout the country and sustainable economic growth in the future.

The direct effects, opportunities and potential, risks and vulnerabilities, and policy responses required to promote digitization in emerging and developing countries can be summarized in the table below (Ito 2020). It should be noted that while the opportunities and potentials are higher in these countries than in developed countries, the risks and vulnerabilities are also greater, and the systems to ensure policy responses are not necessarily in place.

Table 2: Opportunities and risks offered by digitization

Direct effect of digital technology	Opportunity and potential (+)	Risk and vulnerability (-)	Policy Response
Improvement of search and information access	Inclusiveness through the elimination of information asymmetries	Information control due to lack of accountability	Greater access to information, protection of privacy and citizen participation in policymaking
Diffusion of automation technology	Improved efficiency of businesses, livelihoods and government	Non-regular work and growing inequality in the absence of skills training	Promotion of skills education and lifelong learning in the digital economy and arrangement of social security
Rise of platform companies	Innovation through economies of scale and network externalities	Oligopoly due to lack of competition	Implementation of regulations to promote entry and competition

Source: Ito (2020).

Let us summarize our assessment of the feasibility of a leapfrogging strategy based on a digital-service

economy. The East Asian model of economic development centered on manufacturing, discussed in the previous section, appears to be the most solid development model for the countries of the Global South to launch industrialization and break out of the middle-income trap. The drawback, however, is that it requires the accumulation of stocks at all levels and decades of economic development. In contrast, the leapfrogging strategy anticipates that economic development without manufacturing is possible if the digital service industry is activated in response to each country's social challenges. However, it is subject to conditions. The development of absorptive capacity to disseminate digital knowledge is essential to this strategy, and educational policies targeting the public will be important. It will also be necessary to ensure that the benefits of digital technology reach all levels of the population, not just a few digital elites. As indicated in the table above, the diffusion of automation is a particular threat in developing countries, where inequality is expected to increase further without appropriate skills education (Acemoglu and Johnson 2023). Although it is not easy for developing countries to control the direction and diffusion of automation and other technologies, they should actively promote skills education, lifelong learning, and social security in line with the digital-service economy. As in the process of manufacturing industrialization, digitalization should facilitate the accumulation of human and social capital and the penetration of modern institutions into the country and society. Without these initiatives, leapfrogging economic development would be unlikely. Finally, we would like to touch upon how developed countries, including Japan, should approach the Global South. Since around the 1960s-1970s, shortly after the end of World War II, North-South problems such as economic disparities between developed and developing countries have been discussed, and Official Development Assistance (ODA) has been provided to date to reduce poverty and support industrialization. As industrialization in developing countries has been launched, foreign direct investment (FDI) and infrastructure investment to expand production networks, as well as the development of consumer markets targeting the middle class, have progressed with the proactive involvement of the private sector. In the era of the digital-service economy since the beginning of this century, the approach of developed countries to the Global South must also change. Specifically, since developed countries are tackling social challenges such as declining birthrates and aging populations, environmental degradations, and disaster management, ahead of the rest of the world, they need to demonstrate effective measures using digital technology to address these social challenges not only for the development of the Global South but also for the development of the world through the ties between developed countries and the Global South.

4. Policies to achieve the Global South Diversity Path:

In Section 3, we presented the leapfrogging economic development strategy for the Global South. In this section, we will consider specific policies to realize that strategy. In the following, we will discuss:

(1) Small business promotion and large business organization,

The promotion of small businesses using digital technology can be considered by analogy with the East Asian economic development strategy described in Section 2. In other words, the initial goal is to make a "light industry" in the digital service economy, since it is difficult for small firms in developing countries to immediately become start-ups that innovate digital technologies. A typical example can be seen in the traditional service industry of India and the Philippines, for example, the contracting of telephone operating services from companies in developed countries. In the digital-service economy, relatively simple digital processing outsourced tasks by global firms can be considered: small IT-related firms do not need physical capital other than office buildings, computers, and the Internet, making it relatively easy to start such operations. Human capital does not require either advanced digital skills or education at the outset, except for some managers. Currently, such digital outsourcing services are emerging in developing countries such as the Lao PDR, where workers can be hired at low wages.

The next stage of development is the "heavy and chemical industry" of digital services. As the accumulation of stock to promote the digital service economy progresses effectively, it is expected that some firms will succeed in transforming themselves from small-scale enterprises into large corporate organizations. At this time, it will be possible to provide more advanced digital services in the global economy and to expand overseas including developed countries. This will require a greater reserve of workers who have acquired more advanced digital skills, and toward this objective, it will take time to accumulate human capital through educational policies above a certain level. Nevertheless, the accumulation of other capital (physical capital and infrastructure) is expected to be less than in the case of manufacturing industrialization. In sum, this is a leapfrog since some stages of economic development can be compressed. Such sophistication in the digital-service industry can be seen in the case of FPT, a Vietnamese company. While this company has taken advantage of Vietnam's low labor costs to undertake digital offshore operations for major companies, it has now expanded and sophisticated its operations to the point where it is now collaborating with companies in Japan and other developed countries.

(2) Participation in the renewal supply chain of existing manufacturing companies

In Global South countries, it is likely that existing manufacturing firms will need to participate in renewed supply chains, as will firms in developed countries. Some local firms in Southeast Asia and other countries are linked to global supply chains through transactions with local multinational companies (MNCs). In recent years, this trend has become irreversible as MNCs seek to renew their supply chains to decarbonize in response to environment, society, and government (ESG) and climate change issues. For example, Apple Inc. in the US is shifting its manufacturing base from China to Southeast Asian countries such as Vietnam and Thailand. At the same time, with a view to quickly

reducing its supply chain's CO2 emissions to zero, Apple is requiring its suppliers to manufacture all of their products using renewable electricity by 2030, and almost all suppliers, with the exception of U.S.-based semiconductor companies, are complying with this requirement (source from Apple). From a policy perspective, if the Carbon Border Adjustment Mechanism (CBAM) by the EU becomes fully operational, companies will not be able to compete in the huge European market unless it reduces CO2 emissions during manufacturing, which will hinder the economic growth path through the acquisition of global markets.

To prevent such a situation, countries in the Global South need to create an environment where global companies and their suppliers can facilitate and invest in Green Transformation (GX). Digital technology is closely related to this point. For example, it is first necessary to visualize the amount of CO2 emissions in terms of reducing CO2 emissions. Since CO2 is invisible, digital tools can be used. Even after visualization, CO2 emissions can be reduced cost-effectively through “GX Kaizen”, which eliminates wastefulness not only in the production process but also in the energy supply. To visualize wastefulness and implement GX Kaizen, developing human resources with a certain level of literacy in GX and Digital Transformation (DX) is also necessary in energy-using companies (support by governments and global companies is necessary in some cases). If digital technologies such as AI and big data are used to facilitate the use of GX Kaizen know-how onsite, it will eliminate the need to accumulate Kaizen know-how on site over many years, as has been done in developed countries. This could serve as an opportunity for countries in the Global South to achieve leapfrogging.

Additionally, renewable electricity, the cost of which has declined rapidly in recent years, can be a powerful tool to promote decarbonization at the corporate level if it is well utilized (subject to preconditions such as sustainable development of power sources and ensuring sufficient regulating power to withstand output fluctuations and achieve stable power supply, though). Renewable electricity will be one of the major tools in attracting global companies to the region. Renewable energy is expected to use digital technology to accurately forecast electricity supply and demand and to aggregate and control distributed resources like a Virtual Power Plant (VPP). If countries in the Global South are more willing to adopt such technologies than advanced countries that have achieved low-cost and stable power supply using conventional technologies, they may be able to achieve leapfrogging because they do not need to take a long time to accumulate know-how on power system operation, etc. Such an enabling environment could be one in which national-level power infrastructure can be built based on a sound system with few vested interests, as well as one with many restrictions in the early stage of implementing digital technology, for example, maximizing power supply only with variable power sources such as solar power and storage batteries in areas without electrification.

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Policy Recommendation VII: Creation of a New International Development Finance System

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1. The Global Common Targets

One of the biggest challenges to economic growth in the Global South is financing infrastructure development. Many Global South states on the threshold of economic growth require an enormous amount of infrastructure construction. The economic growth of developing countries cannot be promoted without smoothly carrying out the construction of a vast amount of infrastructure. The success or failure of infrastructure development is of paramount importance for the future of the countries of the Global South.

According to the UN "Financing for Sustainable Development Report 2024," developing countries currently face a financing gap of USD 4 trillion annually. The report also states that the 2015 financing gap was USD 2.5 trillion, while it will reach USD 4 trillion by 2023 and is on the rise.

The problem, on the other hand, is that infrastructure development is an area where market failure occurs, where "the amount of supply in the market equilibrium falls far short of the socially optimal amount of supply". Therefore, in principle, it is not possible to allocate funds through normal market mechanisms.

Since this is an area where market failures occur, the source of funds is generally the government. The problem is that the GS states are developing countries, and unless they are fortunate enough to be rich in natural resources, government finances are usually so strained that it is impossible for them to raise sufficient funds to build the infrastructure they need on their own.

When a developing country is unable to finance domestic infrastructure construction on its own, it relies on international development finance, i.e., concessional finance from developed countries or MDBs (Multilateral Development Banks). Developed countries are often willing to provide concessional development finance to developing countries because it strengthens their diplomatic power. The OECD has established the ECG (Export Credit Group) as its core committee, and it is well known that development funds, which are considered as ODA (Official Developmental Assistance), actually lead to the strengthening of the diplomatic power of the advanced countries on the donor side. Historically, a number of international "regulatory" regimes have been established and put into operation, most notably the OECD Arrangement on Officially Supported Export Credits (1978). It is

clear from the fact that a number of international "regulatory" regimes have been established and are in operation.

Therefore, from the perspective of the GS states, which are the borrowers of funds, this reliance on funds from abroad will create debt sustainability problems, which will require extremely prudent measures.

The problem of accumulated debt of developing countries, which became apparent with the declaration of Mexico's default in 1982, has remained an important issue that has shaken the foundations of the international economic system throughout the 20th century. As shown in [Table 1], since the end of the 1980s, the G7 summits have regularly held major debt relief for developing countries.

[Table 1]

history of Paris Club debt rescheduling schemes

1988 Toronto Term (33% reduction for LLDC)
1990 Houston Term (rescheduling for low and medium income countries)
1991 London Term (50% reduction for LLDC)
1994 Naples Term (67% reduction for LLDC)
1995 Lyon Term (HIPC Initiative)
1999 Koln Term (expanded HIPC Initiative)
2000 Okinawa Initiative (100% reduction for HIPC)
2003 Evian Approach

(source : the author)

The 21st century has brought with it a new and more serious problem than during the 20th century. It is the rise of China as a new and very powerful international development finance provider. The use of diplomatic influence by China in exchange for the implementation of more extensive loans is known as 'the Debt Trap'. According to a study by a private U.S. research institute (Aid Data), by 2021 there are 42 countries whose debt to China exceeds 10% of their gross domestic product (GDP). This threat of 'the Debt Trap' by China is becoming more serious today as the One Belt, One Road policy is in full swing.

In other words, today, the GS states need to provide trillions of dollars a year in "unallocated" infrastructure development funds in a way that avoids 'the Debt Trap' imposed by China and other developed countries, i.e., while ensuring debt sustainability. Addressing the challenge of financing massive infrastructure development in the GS states while ensuring debt sustainability is the current global common target of the international community.

2. The Traditional Western Led Path

One path to meeting the Global Common Target is to ensure debt sustainability by reinforcing the current sovereign-type international development finance regime. Sovereign-type international development finance regimes are basically loans provided by developed country governments and MDBs to developing countries to finance infrastructure development that they are unable to finance domestically. Since these funds are provided by governments and international organizations, the interest rates and maturity terms are much more concessional than those of market finance, even though they are in the form of loans.

However, even though the terms and conditions are more favorable than market financing, it is still a loan, and the borrowing developing country is obligated to redeem the loan. If a developing country fails to meet its redemption obligations, it will default, and the problem of accumulated debt will become apparent.

As shown in [Table 1], developed countries have had to work very hard in the 20th century to deal with the accumulated debt problems of developing countries. Under these circumstances, the following international regime has been established at the initiative of developed countries to ensure the debt sustainability of developing countries.

The first is the Paris Club. Created in 1956, this is an informal meeting of major creditor and debtor countries that meets almost monthly at the French Ministry of Finance to discuss bilateral rescheduling. The major creditor members are the major industrialized countries and Russia. It should be noted that China is not a member.

The importance of this international regime for the sustainability of developing countries' debt is that the conference will reveal the affordability of individual developing countries to service their debt. In the 21st century, the Paris Club's may be less effective since this does not include China, India, and other emerging donors. In the 20th century, however, the cessation of loans from all Paris Club member creditor countries effectively meant that the way to raise funds from abroad would be blocked.

The second is the IMF signaling system. In this system, the IMF sequentially attaches a green, yellow, or red signaling to the debt repayment capacity of individual developing countries.

Countries with green signals are those whose debt repayment capacity is expected to be sufficient even after stress tests (e.g., price increases for oil and other imports from abroad, slumps in international prices of major exports, etc.) are applied. Countries with yellow signals are those that are judged to have the ability to repay their debts as long as the status quo is maintained, but are judged to have problems with their ability to repay their debts when subjected to stress tests. Red signal countries are those whose debt servicing capacity is considered problematic even if the status quo is maintained.

While this is a voluntary IMF decision, this decision has become a de facto binding obligation for national finance ministries in their lending decisions to developing countries. In other words, national finance ministries are to extend new loans only to countries with the green signal, while they are to

refrain from extending new loans to countries with the yellow signal, even though the red signal is out of the question.

This principle has been maintained quite firmly in each country. For example, the 2008 TICAD (Tokyo International Conference on African Development) was an opportunity for the Japanese government to consider expanding ODA to African countries, but the signal yellow light had already been turned on in many of the target countries, and new large-scale yen loans were not granted.

The Traditional Western Led Path is to utilize these mechanisms to ensure debt sustainability of developing countries while continuing the current sovereign-type international development finance regime. The biggest problem with this path, needless to say, is that this approach, which was constructed during the 20th century, does not incorporate emerging creditor countries such as China and India, which were not major creditor countries during the 20th century. The challenge is to build an advanced international regime by addressing these emerging creditor countries.

3. The Global South Diversity Path

In contrast, MIGA-GSRC proposes the establishment of a new infrastructure development financing system that, in principle, does not create an accumulated debt problem. That is, a security token offering (sto) system that raises private funds on the blockchain.

The problem of accumulated debt arises when the government of a developing country incurs debts that exceed its own debt service capacity. Therefore, in principle, the problem of accumulated debt does not occur as long as governments do not incur debt. In other words, it is judged that the promotion of infrastructure construction through the use of private funds should be considered.

Can the use of private capital be an appropriate response to the enormous infrastructure development demand in developing countries that is currently needed?

When developing countries with limited natural resources begin to grow, government finances are usually strained, and it is unlikely that they will be able to finance necessary infrastructure development solely through their own government finances. Japan, as we recall, followed such a path, starting as early as 1878 with a system whereby private funds collected in the form of postal savings were used to finance infrastructure development, which was important for the nation's economic growth. This is the Fiscal Investment and Loan Program (FILP). It should be remembered that the FILP system has not only supported infrastructure construction in Japan with private-sector funds collected in the form of postal savings, but also supported infrastructure construction throughout Asia as a source of funds for the yen loan system, thereby supporting the development of Asia afterwards. The Yen Loan Program was Japan's unique international development finance system by using FILP funds to finance ODA in order to fulfill its reparations obligations to Asian countries, as mandated by the San Francisco Peace Treaty. This is what made it possible for Japan to provide development assistance to Asian countries amid the economic turmoil that followed the end of the war. The use of

FILP funds meant that the funds were denominated in yen rather than dollars, contrary to the trend at the time, and that the modality was in the form of loans rather than grants.

Looking at the current status of private finance today, it is expected that, in terms of volume, there is enough to contribute to the promotion of infrastructure development in developing countries. According to a survey of private firms (<https://www.visualcapitalist.com/the-109-trillion-global-stock-market-in-one-chart/>), the private investment market is expected to be a whopping US\$109 trillion in 2023.

On the other hand, several difficult issues must be overcome in order to mobilize private funds for infrastructure development in developing countries.

The first is the issue of profitability. Private funding must always guarantee profitability. Infrastructure projects are by definition subject to market failure. Even if the government is losing money on the infrastructure project as a whole, there is a positive externality that justifies the implementation of the project as a public project, but this is not possible with private funding.

To address this issue, we propose to use the concept of project bonds.

In the case of infrastructure projects, the project can be divided into two parts: one that can never be considered profitable and one that can be expected to be profitable. The latter can be independently financed as project bonds. Using this concept, private-sector funds can be mobilized only for the portion of the project that can be financed by the project bonds.

The second is the procedural issues associated with smaller amounts. One of the advantages of mobilizing private-sector funds compared to sovereign funds is the smaller size. Because the size of private investors' investments is extremely small compared to that of governments, it is possible to raise large amounts of funds in small lots.

On the other hand, the ability to reduce the number of units means that it is necessary to assemble a huge number of investors. For example, in the case of a power plant project requiring 1 billion USD, in the case of a sovereign, a single entity, the government, would supply the entire project, whereas if the project were to be reduced to 100 thousand USD per unit, 100,000 investors would be required. It would be necessary to establish a rational procedure to bring together this huge number of investors at a low cost.

In this case, there will be two procedural issues: investment procedures and information sharing. Investment procedures refer to the establishment of a system that allows a large number of investors to make investments inexpensively and easily. The information sharing problem refers to the establishment of a system to provide a large amount of information about a project to a large number of investors at a low cost, which is necessary for them to make investment decisions.

Third is the issue of liquidity. Unlike sovereign funds, private investors generally require liquidity for their invested funds. In other words, private investors cannot be expected to invest if the invested funds must be held until maturity while accepting changes in risk. In order to expect private investors

to invest, it is necessary to prepare a mechanism that allows for constant exits due to changes in risk, in other words, a secondary market.

To address these three issues while directing private investors' funds to infrastructure development in developing countries, we propose the development of an institution that utilizes the sto (security token offering) method on the blockchain.

The idea of financing infrastructure development through sto is not an outlandish one, and it is still practiced today, especially in the field of real estate development. Our proposal is to build on these examples to establish a system that is not limited to real estate development, but can be widely applied to infrastructure development.

[Table 2] Examples of Real Estate Development by sto

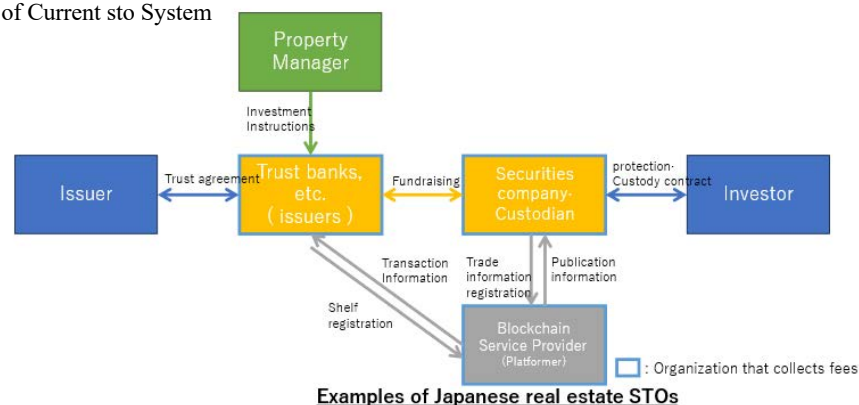
	Examples in Japna	overview	URL		Global Overseas Cases	overview	URL
1	Nomura Securities	Real Estate Security Token	link	1	Aspen Coin	Project for a luxury resort hotel in Colorado, USA	link
2	Sony Bank and SMTB collaboration	Dollar-denominated Green Finance ST	link	2	Hydrominer	Austria's hydroelectric cryptocurrency mining project	link
3	Marui Group	Group's digital bond	link	3	Neufund	Tokenizing investments in startups	link
4	Mitsui & Co.	ST	link				
5	Daiwa Securities	Real Estate Security Token	link				
6	SBI	Real Estate Security Token	link				

(Source: the author and Kazuya Takano based on publicly available information)

4. Policies to achieve the Global South Diversity Path

The following is a graphical representation of the sto system currently in place in Japan for real estate development, etc.

[Table 3] Overview of Current sto System



(Source: the author and Kazuya Takano)

We believe the following are issues that need to be addressed in order to apply this current system to infrastructure development in general

First, in the current sto system, large fees are charged by several firms, resulting in higher investment costs for individual investors.

In the current system, the issuer, such as a trust bank issuing the project bonds, the blockchain platform, and the brokerage firm selling the sto to retail investors each charge a fee. The fees charged by the issuer and the brokerage firms are estimated to be around 5% of the market price.

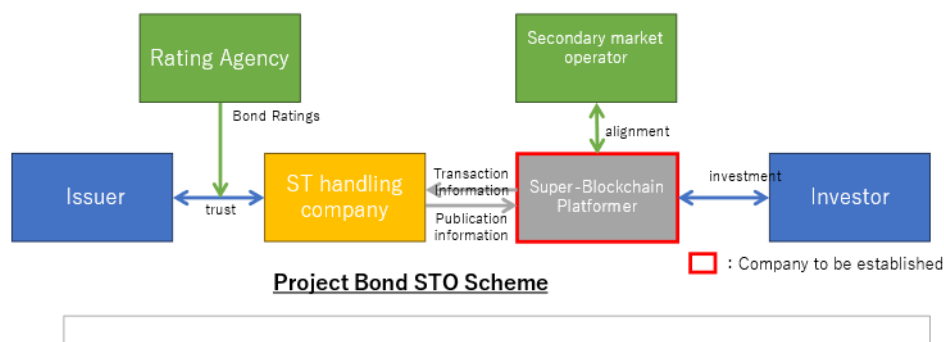
Second, the secondary market is not well developed.

Third, there is no information-sharing system in place that provides individual investors with a vast amount of information about investment projects at low cost.

As an overcoming of these problems we propose the following system

[Table 4] Newly Proposed Project Bond sto Scheme

(Source: the author and Kazuya Takano)



The gist of our proposed scheme (Project Bond STO Scheme) is as follows

First, the blockchain platformer shall simultaneously sell sto to private investors, and such a new platformer shall be established as a super-platform.

Under the current system, the blockchain platformer merely operates the blockchain system and is not responsible for selling the financial product of sto to private investors. On the other hand, as long as the blockchain system is used, private investors can decide whether or not to invest based on the information provided on the blockchain, and they can purchase a "sto" (i.e., invest) by clicking on a site on the blockchain, and once again, the current role of securities firms, such as explaining the product and acting as an agent for purchase procedures, does not occur. The brokerage firms do not need to explain about the product or handle the purchase procedures on behalf of the customer, which are currently handled by securities companies. The blockchain platformer can easily handle these

ancillary services, and the high fees associated with such services can be significantly reduced. However, unlike the current platform, the super-platformer would be required to obtain a license under the domestic legal system for financial securities transactions, and would also need to have knowledge of financial securities transactions.

Second, establish and develop a secondary market for sto, which is not well developed under the current system.

In order to combine secondary markets in this manner and to fulfill the purpose of specializing in infrastructure development funds through sto, it is considered difficult for the current electronic stock exchanges in the GS states to operate properly, and therefore, in principle, it would be necessary to establish a new electronic stock exchange specializing in sto.

Third, in order to facilitate smooth investment by private investors around the world, ample information on the relevant infrastructure projects must be provided. To this end, a layer of information sharing on the blockchain should be established with a fee-based membership system.

Chapter 4

Social Sector

Policy Recommendation VIII: Building Inclusive and Sustainable Value Chains Achieved by Leveraging Diversity in Agricultural Systems

From commodities to crafts: Diversity in agricultural value chains toward developing inclusive sustainable agricultural system

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1. The Global Common Targets

The role of agriculture is one of the central themes in the development of developing countries. Agriculture is an activity that produces the minimum amount of food necessary for people to survive and the materials needed to secure the environment (i.e., clothing, shelter, health, and medicine). Agriculture is a daily production activity that exists everywhere in the world at all times. Therefore, since the Industrial Revolution development has meant modernizing agriculture and moving away from the industrial structure centered on agriculture. Developing countries have sought to strengthen food and agricultural security, increase national income, eradicate hunger, and improve the quality of life through the improvement of agricultural productivity and the promotion of new industries (i.e., manufacturing and services).

The modernization of agriculture in developing countries can be traced back to the colonial period. Under colonialism, European countries introduced plantation agriculture in tropical and subtropical regions, utilizing private capital as well, in order to cultivate commodity crops at low cost and in large quantities. Plantation agriculture under colonialism caused serious human rights violations and other problems, such as the use of slaves and low wages and long working hours for indigenous people. Nevertheless, plantation agriculture has continued in developing countries that have achieved decolonization, contributing to the economies of developing countries through technology transfer, job creation, and foreign currency earnings.

Plantation agriculture pursues low cost, high efficiency, high competitiveness, high profitability, and increased production of agricultural products. Plantation agriculture achieves these goals by cultivating vast tracts of farmland, applying large amounts of machinery, chemicals, and other materials, and specializing in the mass cultivation of specific crops (i.e., monoculture farming). Combined with the development and spread of small-variety, mass-production systems in the

manufacturing industry symbolized by "Fordism" (Bonanno & Constance, 2001), plantation agriculture in developing countries has become an essential component of the value chains that support mass consumption societies in developed countries. Plantation agriculture benefits both developed and developing countries in the modern era when developed countries provide developing countries with stable markets for agricultural products.

However, plantation agriculture also has disadvantages. An economic drawback that it will lead to making development disparities entrenched and larger. Although plantation agriculture encourages the development of corporate farming and agricultural trading companies, its specialization in commodities reduces the price bargaining power of farmers and increases the vulnerability of households and the economy to the effects of price fluctuations. Small family farms are particularly vulnerable to being at a trading disadvantage. Under conditions of high dependence on foreign capital and exports, developing countries will have structural difficulties in escaping poverty. As a result, poverty and hunger eradication becomes more difficult for developing countries.

The end of the Cold War, the Washington Consensus, the liberalization of trade and investment through the GATT/WTO negotiations, and economic globalization have strengthened the governance of the global commodity chains (GCC) (Gereffi, 1994) or global value chains (GVC) (Gereffi, Humphrey, & Sturgeon, 2005), which were established in the 20th century and led by large corporations. Lead firms of the GCC/GVC have contributed to the capacity building of suppliers through knowledge transfer, while forcing suppliers to comply with their own technical standards and other requirements. However, their dominance has deepened North-South conflicts (conflicts between firms from developed country and firms, producers, and residents in developing country), public-private conflicts (i.e., the rise of global firms and struggles for leadership between the public and private sectors), and corporate conflicts (between large firms and small and medium producers).

There is a persistent criticism that high-input agriculture, as typified by plantations, has been a cause of environmental destruction. Its adverse effects on climate change¹, increased risk of disasters and other environmental destructions and ecosystem damages include deforestation for large-scale farmland development, smoke pollution caused by burning of fields, depletion of water resources, soil degradation (i.e., depletion of land nutrients), and large-scale use of chemicals (i.e., chemical fertilizers, pesticides, herbicides, and so on). In addition to these negative environmental impacts, there is growing criticism of the social problems associated with development of plantation, such as human rights abuses (e.g., conflicts between developers and indigenous peoples over land ownership, health hazards for local residents) and the disruption of traditional culture, as well as other negative impacts on local residents and communities.

The 20th century agricultural system contributed to increased production of commoditized crops, poverty reduction, and profitability, but left behind sustainability challenges. The international goal is to redesign this agricultural system to create an agricultural system that can simultaneously solve the

social challenge of eradicating poverty and hunger and achieve development, inclusiveness, resilience, and sustainability of agriculture and related industries.

2. The Traditional Western Led Path

Sustainable Agricultural Systems (SAS), which the international community seeks to establish in the 21st century, meet the needs of present and future generations for agricultural products and services while ensuring profitability, environmental health, and social and economic equity (FAO, 2014: 12). These needs for agriculture include all four pillars of food security (availability, access, utilization, and stability) and its contribution to the dimensions of sustainability (environmental, social, and economic) (FAO Website on Sustainable Food and Agriculture).

The establishment of such sustainable agricultural systems is also consistent with the achievement of the United Nations Sustainable Development Goals (SDGs) (United Nations, 2015). The Food and Agriculture Organization of the United Nations (FAO) states that developing and implementing policies and actions in line with the five principles² for the transition to Sustainable Food and Agriculture (SFA) will achieve the promotion of the various SDGs as well as the balance between social, economic, and environmental dimensions of sustainability in agriculture (FAO, 2014; 2018). In other words, the approach to building sustainable agricultural systems will consider the diverse functions³ of agriculture and rural areas (MAFF Rural Development/Multifunctionality of Agriculture and Rural Areas website). The policy approach to building sustainable agricultural systems will be more sensitive to environmental and social aspects than the policy approach of the 20th century, which focused on expanding productive capacity and increasing productivity of agriculture and related industries.

Sustainable agricultural systems incorporate agroecology (Altieri, 1989, 2024; Ewert, Baatz, & Finger, 2023; Gliessman, 2018) or agroecosystems, which focus on the harmony and interaction between agriculture and ecosystems. In their approach, a holistic and integrated approach that simultaneously applies ecological and social concepts and principles is taken to design and manage sustainable agriculture and food systems. Their approaches recommend efforts to optimize the interactions between plants, animals, humans and the environment, while at the same time building socially equitable food systems in which people can choose what they eat and where and how it is produced (FAO Agroecology Knowledge Hub website). FAO's Globally Important Agricultural Heritage Systems (GIAHS) program aims to achieve the policy goal of conserving biodiversity and reducing the environmental impact of agriculture by inheriting traditional agricultural, forestry, and fisheries systems that have been carefully adapted to local climates and natural environments and created in rich integration with local cultures and biodiversity. The program identifies and safeguards GIAHS and their associated landscapes, agricultural biodiversity and knowledge systems and supports such systems and enhances global, national and local benefits derived through their conservation,

sustainable management and enhanced viability (FAO GIAHS website).

However, there are criticisms and challenges to such policy approaches that emphasize harmony between agriculture and ecosystems. According to Mugwanya (2019), the agricultural practices recommended by agroecology are not much different from those widely practiced by small farmers in sub-Saharan Africa. Therefore, their promotion leads to the status quo of the problem of unproductive agricultural practices and poverty in Africa. The anti-corporate and anti-industry sentiments underlying the agroecology argument also diverge from the current economic realities in African countries. Any discussion of which path African agriculture should take need to be based on a clear understanding of the realities of African agriculture. Africa still needs to modernize small farmers and improve their access to necessary materials and infrastructure for agriculture. Similarly, some critics argue that the preservation of traditional agriculture, with its low productivity, leads to environmental destruction on a global scale and does not solve the problem. This environmental degradation happens because promoting the conservation of traditional agriculture in one region where demand for food is increasing will lead to increased food production through deforestation in other regions, resulting in increased imports of agricultural products to the regions where traditional agriculture is encouraged (Fuchs, Brown, & Rounsevell, 2020; see also Bateman & Balmford, 2023).

The realization of sustainable agriculture requires a system in which the social and environmental benefits of agriculture are widely recognized by both society and producers who engage in sustainable agriculture are rewarded commensurate with their social and environmental contributions. However, farmers are in the markets where cannot always recognize the economic benefits from biodiversity (Velado-Alonso, Kleijn, & Bartomeus, 2024).

3. The Global South Diversity Path

At the root of the criticisms and challenges to sustainable agriculture is the situation that discussions on structural transformation of agriculture tend to focus on large-scale, high-input agriculture, typically plantation agriculture. To enhance sustainability, effective measures have been proposed and implemented to discipline corporate agriculture and trading companies, such as environmental, social, and governance (ESG) investing and carbon credits, but these measures are difficult for small-scale farmers to handle. To achieve sustainable agriculture, small-scale farmers must be motivated to become autonomously and actively involved in activities to achieve this goal.

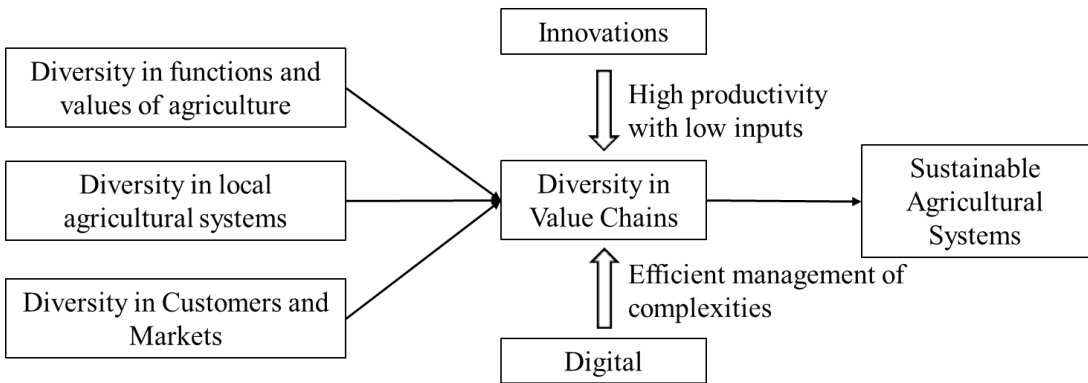
The society and environment surrounding agriculture are rich in diversity locally and regionally or have local and regional diversity⁴. Correspondingly, agricultural forms are also diverse and have a different history of development in response to regional diversity. Even if the international community reached an international consensus on the ideal agricultural form as a common goal, people would likely disagree with building a common measure to achieve it⁵. In such a condition, even if the goal is

the same, the paths to its realization should be diverse. Rather, by actively evaluating regional diversity and recognizing diverse pathways, it will be possible to implement realistic measures suited to local conditions. In particular, the more policy goals that emphasize the non-economic functions of agriculture, incorporating ideas of agroecology, are pursued to achieve, the more policy approaches that consider regional agricultural diversity and small farmers are required⁶. For farmers, however, it is difficult to satisfy the complex demands that society expects for agriculture in the business condition where they can only secure insufficient income.

In achieving sustainable agriculture and, through it, ensuring food security and eradicating poverty and hunger, it is a prerequisite to increase the profitability of agriculture and make it an autonomous and profitable activity. To achieve this, it is necessary to increase the value creation capacity along the entire agriculture-related value chain, which affects the value created by the agricultural sector significantly.

Incorporating diversity into value chains in accordance with to the diversity of agricultural forms and the diversity of non-economic functions of agriculture will enable to include small-scale agricultural businesses in the chains and promote different activities that aim to optimally respond to diverse market needs and maximize consumer satisfaction. Sustainable agriculture, which will achieve large-volume and high-variety food production, development of agriculture and related industries, food and economic security, sustainability, inclusiveness, and resilience simultaneously, will be achieved by promoting activities in diversified value chains. The activities for these goals will require the upgrading of the entire agriculture-related value chain through innovations that enable low-input, high-productivity agriculture, while at the same time leveraging digital technologies to improve the efficiency of diverse and complex value chain management.

Figure: Sustainable agricultural development through a combination of diverse value chains



Source: The author.

4. Policies to achieve the Global South Diversity Path

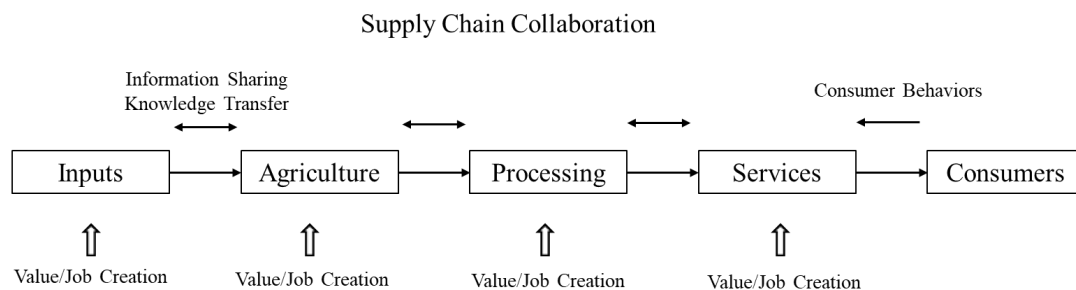
(1) Strategic thinking

Inclusive and sustainable agriculture through a combination of diverse value chains requires a mechanism to promote value creation by small farmers and small and medium-sized enterprises (SMEs). Policies for this purpose will be based on three strategic thinkings: (1) value creation through customer-oriented collaboration, (2) value chain differentiation by introducing a marketing perspective, and (3) leveraging value chain diversity⁷.

① Value and job creation through collaboration throughout the value chain

Value creation is realized not only through the innovation activities of individual entities, but also through knowledge transfer and collaboration among organizations participating in the value chain. Innovative activities by small farmers and SMEs are often dependent on knowledge transfer and collaboration due to their limited internal resources. Continuous knowledge transfer and collaboration can enhance the capacity of small-scale farmers and SMEs to meet customer needs. Conversely, the formation or participation of agricultural value chains that involve organizations open to collaborative activities is important for the business strategies of small farmers and SMEs.

Figure: Collaboration and value creation through a customer needs-driven agricultural value chain



Source: The author.

② Policy formulation and implementation corresponding to differentiated value chain from a marketing perspective

Agricultural policy tends to be discussed from the producer's perspective. However, in order for small-scale farmers and SMEs to survive, it is essential to differentiate themselves from corporate farming and plantation farming and to add more values to their products. Therefore, it would be effective to introduce a marketing perspective into policy discussions.

In marketing strategy, based on the external macro environment and environmental and other social requirements, companies are required to provide products and services that are worth purchasing for

customers, set prices adequate with the value, develop sales channels convenient for customers to buy, provide customers with necessary information, and build sales promotion methods. Firms need to arrange all of these to meet customer needs according to the type of customer segmentation.

As specific methods for this purpose, given the business environment such as politics, economy, society, and technology (PEST), firms will identify products and services, and competitors from the customer/consumer perspective, known as 3C (i.e., competitor, company, customer, customer), 4C (i.e., customer value, cost, convenience, communication), or 5C (i.e., 3C plus consumer and community) analysis. The differentiation of products, services, and customer value is analyzed from the producer perspective, known as 4P (product, price, place, promotion) analysis. Based on these analyses, companies conduct STP (segmentation, targeting, positioning) analysis to confirm market classification and target markets, and design positioning against competitors.

Figure: Differentiating the Agricultural Value Chain by Adopting a Marketing Perspective

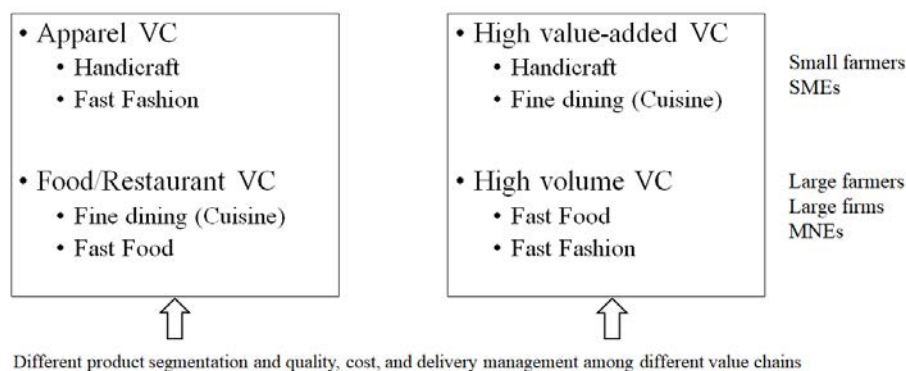
Producer	Customer/Consumer		Strategy Formulation	External Macro Environment
4P <ul style="list-style-type: none"> • Product • Place • Promotion 	4C <ul style="list-style-type: none"> • Consumer Value • Cost • Convenience • Communication 	3C/5C <ul style="list-style-type: none"> • Competitor • Company • Customer • Consumer • Community 	STP <ul style="list-style-type: none"> • Segmentation • Targeting • Positioning 	PEST <ul style="list-style-type: none"> • Politics • Economy • Society • Technology

Source: By the author from various sources.

Analysis of value chains from this perspective suggests that policy formulation and implementation based on a broadly categorized sectoral value chain is insufficient to realize the policy goal of building an inclusive agricultural system. This issue will be understandable by seeing the case of apparel value chains. For example, fast fashion and kimono are apparel value chains, while the producers of raw materials, final products, and services, management required to participate in the chains, and the customer segmentation and pricing targeted by the companies are different between the two products. Food value chains will have similar differentiations, exemplified by the comparison between chain restaurants and fine dining (Gualtieri, 2022).

Policies that emphasize the participation and inclusiveness of small farmers and SMEs need to link their knowledge and skills with value chains that can leverage them to provide high value-added products and services.

Figure: Shifting from Sectoral Value Chains to Value Chains by Customer Segmentation



Source: The author.

③ Contribute to the SDGs by leveraging diversity in the value chain

By guiding small-scale farmers and SMEs into high-value-added low-volume-production value chains, they can differentiate themselves from low-value-added high-volume-production value chains consisting mainly of large farmers, large corporations, and multinational enterprises (MNEs). Such policies will contribute to improving compulsory education completion rates and achieving gender equality by securing long-term economic benefits in rural areas (SDG 5), ensuring sustainable economic growth and decent work in rural areas (SDG 8), and providing access to innovative technologies for small producers (SDG 9). Policies that enhance the sustainability of low-value-added mass-production value chains can also contribute to achieving affordable food security (SDG 11) and sustainable agriculture in urban areas.

The use of more diverse value chains, not just those based on these two categories, will enable the achievement of a wider range of SDGs⁸ at a higher level.

(2) Direction of policy and international cooperation

Based on the above perspectives, the following policy areas need to be prioritized and promoted under international cooperation in order to realize a sustainable agricultural system.

- Human resource development: support for entry into value chains that create value and employment (priority is given to small-scale farmers and SMEs as targets of support).
- Innovation creation and technology diffusion for low-input, high-productivity agriculture.
- Infrastructure needed for a sustainable agricultural system
 - Vision/value sharing and promotion of mutual understanding: Creation of research projects or forums for mutual understanding and best practice sharing on the reality of non-economic values in agriculture.
 - Establishment of environmental conservation (monitoring and data maintenance) systems at local, regional, watershed, national, and global levels.

- Ecosystem protection and disaster prevention.
- Cross-sectoral corridor/cluster development for integrated development of cold chain and related infrastructure (e.g., telecommunications) (e.g., agriculture, health, tourism).

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Note 1. GHG emissions from food production systems (i.e., agriculture, forestry and other land use activities) are estimated to account for 23% of global GHG emissions (IPCC, 2022).

Note 2. Principle 1. Increase productivity, employment and value addition in food systems; Principle 2. Protect and enhance natural resources; Principle 3. Improve livelihoods and foster inclusive economic growth; Principle 4. Adapt governance to new challenges; Principle 5. Adapt governance to new challenges.

Note 3. The functions of agriculture and rural areas include disaster prevention (e.g., flood control, landslide prevention, soil erosion prevention), water resources conservation (e.g., river basin stabilization, groundwater recharge, water purification), mitigation of environmental problems (e.g., air quality control, organic waste degradation, prevention of excessive accumulation and deprivation of resources), environmental conservation (e.g., biodiversity conservation, land space conservation), cultural conservation (e.g., traditional culture preservation, community development), humanity restoration, and education.

Note 4. For example, while agricultural systems can be roughly categorized into subsistence farming and commercial farming or into family and corporate farming, Derwent Whittlesey gave agricultural classification 13 agricultural regions, based on 5 factors: crop and livestock association; cultivation methods; labor/capital intensity; disposal of the products for consumption; and ensemble of structures used to house and facilitate the farming operations (Whittlesey, 1936).

Note 5. Given the rampant greenwashing that undermines consumer confidence (Dröge, Verbist,

Maertens, & Muys, 2024), it will not be easy to design and implement necessary institutional arrangements and actions effectively.

Note 6. The United Nations has designated the period from 2019 to 2028 as the "Decade of Family Farming," calling on member states and relevant organizations to promote measures and share knowledge related to family farming, which plays a major role in food production, job creation, food security, poverty and hunger eradication, and the maintenance and development of local socio-economic, environmental, and cultural conditions (MAFF UN Decade of Family Farming website).

Note 7. Agricultural promotion utilizing the value chain is known in Japan as "sixth industrialization of agriculture (MAFF Agriculture, Forestry and Fisheries Policy Research Institute website).

Note 8. The diversity in agricultural value chains will contribute to: achieving peace through poverty eradication (SDG 1), hunger eradication and food security improvement (SDG 2); provision of nutritious and safe food (i.e., good nutrition) and promotion of good health and well-being (SDG 3); addressing social protection, land rights, resilience in rural areas efforts, and providing more food with less energy and cleaner energy (SDG 7); reducing food waste through roads (or facilitating the movement of agricultural products to markets and the movement of people to agricultural areas for local consumption) and cold chain development, and digital infrastructure development (SDG 12); addressing water scarcity (SDG 6); addressing climate change (disaster management) (SDG 13), protection of aquatic (SDG 14) and terrestrial biodiversity (SDG 15); and other social benefits associated with the SDGs (FAO OSG and SDGs websites).

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FAO Sustainable Food and Agriculture. <https://www.fao.org/sustainability/en/>

Website (Japanese)

Ministry of Agriculture, Forestry and Fisheries, Ministry of Agriculture, Forestry and Fisheries (MAFF), Rural Development/Multifunctionality of Agriculture and Rural Areas.

https://www.maff.go.jp/j/nousin/noukan/nougyo_kinou/

https://www.maff.go.jp/e/policies/rural_dev/index.html

Ministry of Agriculture, Forestry and Fisheries, Ministry of Agriculture, Forestry and Fisheries (MAFF), UN Decade of Family Farming.

https://www.maff.go.jp/j/kokusai/kokusei/kanren_sesaku/FAO/undecade_family_farming.html

MAFF Agriculture, Forestry and Fisheries Policy Research Institute.
<https://www.maff.go.jp/primaff/kanko/project/26rokuzi2.html>

Policy Recommendation IX: Health Care and Medical Care

Prof. Dr. Koji FUJIMOTO, Institute of Science Tokyo

1. The Global Common Targets

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The more research is conducted, the more it is understood that the growth and maintenance of the human body is carried out by extraordinary mechanisms. Health is a state in which these mechanisms of the human body are working in a comprehensive balance that is unique to each individual. Many people spend their lives engaging in a variety of activities without being aware of this total mechanism of the human body. When the inherent balance of a healthy state is disrupted for some reason and the body's systems fail to function properly, it is called a disease.

The Global Common Target in the area of health care is that people can each fully utilize the mechanisms of their bodies, better maintain their bodies, enjoy physical wellness, and live a life based on health. Health is the foundation for all human activity and for humanity being humanity.

2. The Traditional Western Led Path – Colonialism and struggle for health sovereignty

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(1) Colonialism in global health

Global health, as it evolved from tropical medicine or other forms like missionary medicine or international health, has roots in colonial history (Abimbola & Pai, 2020). Health services in colonies initially served settlers to protect them from disease threats (Bump & Aniebo, 2022), but were also extended to local populations, often to exploit labor or missionary objectives. The establishment of the World Health Organization (WHO) after World War II marked a turning point in global health, aiming to protect the health of all people. Notable achievements, such as the eradication of smallpox in 1980, exemplify the global cooperation driven by this organization. Both former colonial powers, largely high-income Northern countries, and former colonies, predominantly low- and middle-income

Southern countries, have aligned their health care policies with the WHO.

However, the influence of Northern countries on global health persists through vertical aid models that often focus on specific diseases or health priorities. While vertical initiatives are necessary in certain contexts, such as the development of health care infrastructure, they require alignment with the broader, horizontal development strategies of national government. Health systems, particularly low- and middle-income countries, frequently encounter ‘market failures’ where private supply falls far short of social needs. While vertical aids can address some immediate gaps, over-reliance on it can undermine long-term autonomy and sustainability.

Former colonial powers continue to exert influence over global health through foreign aids to low- and middle-income countries, that are provided for the donor governments to satisfy their interests overseas (Guo et al., 2024; Horton, 2013). For instance, Japan’s acceptance or rejection of grant aid or development assistance loans is deeply influenced by its domestic policies. While foreign aid has provided crucial support to low- and middle-income countries facing ‘market failures’, it can undermine the sovereignty of their budgetary system.

Northern primacy in global health is further entrenched by the rise of private foundations and hybrid public-private initiatives, such as the Bill and Melinda Gates Foundation, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the Global Health Innovative Technology Fund, and the Clinton Health Access Initiative, etc. The influence of these entities on recipient countries’ health policies demands closer scrutiny. Based on the author’s experience in Africa, while widespread frustration with weak national governance, external support is often welcomed. More investigation is needed to assess whether such entities contribute to stronger governance in low- and middle-income countries.

Pharmaceuticals and health care-related multinationals have long shaped global health policies, most notably in the context of HIV therapeutics, and their influence became even more pronounced during the COVID-19 pandemic. Low- and middle-income countries expressed strong demand for COVID-19 vaccines and therapeutics, yet unfair distribution prompted global debates on the decolonization of global health (Abimbola et al., 2021). While mRNA vaccines undoubtedly saved many lives, the true impact of vaccines and therapeutics in controlling the public health threat caused by COVID-19 in low- and middle-income countries remains uncertain, particularly in the light of the commercialization of health care. Expensive medical products and cutting-edge technologies, while beneficial, pose significant challenge to building sustainable and affordable health care systems in low- and middle-income countries. A thorough analysis of how commercial interests shape access to healthcare is critical for understanding these challenges.

(2) Internalizing health care

This section presents examples that illustrate successful disengagement from external resources or effective integration of such resources into local health care systems.

① China

From the 1990s to 2000s, the country transitioned from relying on external support to achieving self-reliance. Studies on this transition emphasize the importance of integrating external technical assistance into the local health care system. This approach fostered talent cultivation and promoted evidence-based policy advocacy grounded in local knowledge and experiences (Huang, Cao, et al., 2024). As China's economy grew rapidly in the 2000s, the government launched health care reforms aimed at enhancing basic health services. These reforms were influenced by the outcomes of the project aiming for strengthening rural health system, that had initially been supported by development partners (Huang, Zhao, et al., 2024).

② Rwanda

Rwanda's centralized governance has been crucial in ensuring the effective use of external support. A key example is the Community-Based Health Insurance scheme, where external resources are managed under the central government's control to align with national policies (Ifeagwu et al., 2021). Rwanda's extensive network of community health workers has also played a significant role in remarkable improvement in health outcomes. Additionally, studies suggest that Rwanda's political settlement contributed to the mobilization of sufficient financial resources, leading to the highest enrollment rate in social health insurance in Sub-Saharan Africa (Chemouni, 2018).

③ Cuba

Cuba is often cited as an example of a country that does not conform to the expected relationship between economic productivity and health outcome (Cooper et al., 2006). Following the 1959 revolution, with the technical support from the former Soviet Union, Cuba developed a unique health care system, that prioritized basic public health improvements, including sanitation and immunization. The health care structure was reorganized under the Ministry of Public Health and reoriented towards primary health care and the training of family doctors. In addition, the country invested in biotechnology industries, contributing to the vaccination efforts in other countries (Burki, 2021). However, some argue that Cuba's experience is not easily replicable due to its unique political system (Campion & Morrissey, 2013; Keck & Reed, 2012), and criticisms have been raised about potential human rights violations in achieving its health outcomes (Gómez-Dantés, 2018).

(3) Towards health sovereignty: Beyond colonial influence

Unfairness and inequities of health remain prevalent across the world. To challenge the supremacy and dominance of the Global North, it is crucial for low- and middle-income countries to build health care systems that are independent of external financial and intellectual support. However, in the cases where 'market failures' occur, such as the development of health care infrastructure and human resources, complete disengagement from external is not always feasible. As seen in the examples of China and Rwanda, policies that better manage and integrate external support are essential in

addressing health unfairness and inequities.

Universal Health Coverage (UHC) has become one of the most critical goals in global health with every stakeholder striving to ensure affordable, accessible and quality health care for all. Achieving this goal, however, poses significant challenges for many low- and middle-income countries which often lack sufficient financial resources. Furthermore, the notion of ‘quality’ healthcare can differ between the Global North and South. In resource-constrained settings, there may need to be a compromise in how UHC is implemented. This calls for re-evaluation of what constitutes ‘quality’ health care in such contexts. Nevertheless, even when the concept of ‘quality’ is adapted to local circumstances, health outcomes can still improve. Cuba, for example, demonstrates that despite economic limitations, progress can be made in key global health indicators, such as life expectancy, child mortality, and maternal mortality.

There are also arguments that promoting healthy lifestyle could help ease the burden on national health systems. While this is true, and efforts to encourage healthier behaviors should continue, the impact on the overall health care cost containment is limited. Numerous studies have shown that achieving sustainable behavioral change is inherently difficult.

The key to progress lies in building health care systems that ensure well-being for all, regardless of health status or disability. For the Global North, this means moving away from vertical aid models towards supporting the development and implementation of self-directed policies in the Global South. Only through this shift can we begin to overcome the deep-rooted unfairness and inequities between North and South in global health.

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3. The Global South Diversity Path

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The development of anatomy in the 19th century, the application of statistics by Nightingale, and the beginning of epidemiology by John Snow marked the transition from traditional Western medicine to modern Western medicine. Since then, modern Western medicine has created many added values. Modern Western medicine applies the scientific method of statistics, epidemiology, and fact-finding (anatomy) to accumulate and share universal and reproducible knowledge of facts classified according to certainty. This has accelerated the development of drugs and medical devices and the capabilities of medical professionals, and has enabled the accumulation of new facts on top of established facts in medical research.

Apart from ethical issues, with the patient's consent, a physician can perform any intervention on the patient's body that he or she deems desirable. Theoretically, therefore, there are as many approaches to medical care as there are physicians. However, usually, physicians want to provide better care, and the good reputation of their practice in their time will spread unless it is hidden as a secret, so there will be more physicians providing the same care, and as a result, the content of medical care will be equalized. Modern Western medicine, through statistics and epidemiology, has clarified the reputation of medical practice with scientific certainty and dramatically increased the speed of leveling. The most rigorous method of scientific certainty in the modern era is the clinical trial, the test for drug approval. A drug must have the same effects and results in patients with the same symptoms regardless of which physician administers it, and it can only be marketed if this is scientifically confirmed. In reality, drugs are only allowed on the market if they are statistically determined to work differently in different patients, and if they have passed the most stringent requirements of a clinical trial. This type of scientific evidence and the methods used to obtain it have been central to the development of modern Western medicine, and the results of these efforts have met the expectations of many people.

Until the 19th century, the era of so-called traditional Western medicine, in which interventions such as phlebotomy, which has no scientific evidence, were used when a disease occurred, lasted for about 300 years. The robustness of ideas that have taken hold in society and the slow pace of transition to new ideas can be said to be common to various fields, but historically, Western medicine has only very recently acquired the scientific method represented by clinical trials. The God's eye of statistics, the research method of epidemiology, and the clinical trial method that ensures the safety, usefulness, and reproducibility of drugs and other products in the most rigorous manner are the intellectual property of mankind, and as long as these approaches are appropriate for the event, so-called modern Western medicine will continue to increase in value.

And until now, many countries have invested resources to make this modern Western medicine take root in their societies. However, when considering people's health, modern Western medicine, which deals with diseases after they have occurred, is essentially a coping therapy that supports the human body's mechanisms, but its historical origins also indicate that it provides support only after a disease has occurred, i.e., when the workings of the human body are greatly out of balance and weakened. As a result, it is a very costly and time-consuming process. If we can intervene and provide support when the body's mechanisms are still functioning well, we can achieve the same or even greater results without incurring much cost.

At the heart of clinical trials, the highest scientific method of evidence, is the idea of first clarifying the mechanism by which a chemical substance works in the body, then testing for side effects from a safety perspective, and finally conducting large-scale trials to statistically confirm efficacy with greater certainty. The weakness of this approach, and the homework that must await scientific progress, is that modern science cannot be applied to events in which multiple substances are thought to act in

a complex and synergistic manner, because the mechanism cannot be clarified in the first place. Therefore, for example, it is virtually impossible to conduct a clinical trial for foodstuffs as well as for herbal medicines that are thought to act in a complex manner in the body. Of course, it is possible to conduct comparative studies that are not as rigorous as clinical trials, but in such cases, for example, it is not known whether the crude drug as a whole is effective, or whether it is effective if only certain components of the crude drug are present. This situation is often taken as a context in which the subject is unscientific, rather than toward a discussion of the incompleteness of the human scientific method. In the context that complexity and synergy may be the essence of the important mechanisms of the body, the subject is rarely taken up as a theme, partly because it is difficult to produce clear research results. It is difficult to describe which substances in herbal medicines are effective and by what mechanism, and it is difficult to conduct this as a clinical trial under the current rules of testing. It is difficult with current science to explain the overall mechanism for multiple substances, such as how a substance interacts with other substances and how its action as a single substance and its interactions with other substances cause the substance to act in the body. It is necessary to take a holistic view, which is an area in which research conducted according to the ideas that support the current modern Western medicine is not good at.

Another remaining challenge for modern Western medicine is that standard treatment is generally initiated with a definitive diagnosis, but the definitive diagnosis confirms a definite lesion, so intervention must occur after a significant degree of health imbalance. Since intervention in the body through treatment is usually invasive, it is understandable that it is not done unless there is some definite lesion. On the other hand, many of the physical problems that people experience are cases where the individual changes are not that deviant, and the changes are "too small" to be treated as events in the eyes of modern Western medicine. Therefore, the physical examination is suddenly more about finding lesions that can be labeled as diseases, and more about screening to find sick people. Unlike clinical trials, precise multidimensional measurement of the body's condition has progressed along with science and technology, whether or not intervention measures exist to treat or improve the condition found. For example, it is now possible to measure muscle, bone, blood vessel, nerve, hormonal, and stress conditions in a simple way, and to capture changes in physical conditions by comprehensively measuring proteins present in the body, as in the case of proteome. Although there have been many attempts to evaluate health by capturing such changes that cannot yet be given a disease name, systematization, standardization, and social implementation have not progressed. In addition, there is no scientific system for intervention in the case of changes in health, nor is there a scientific method for determining whether individual interventions can be considered effective. It is necessary to establish the rules necessary for comprehensive research that integrates not only medicine but also nutrition, psychology, and many other fields.

The role of medical care is to assist in restoring balance to the various functions of the body and returning to health after the appearance of undesirable symptoms and the naming of a disease due to infection, lifestyle, etc., but this is only to assist the human body in maximizing its innate ability to become healthy. From this perspective, it is effective to identify deviations while they are small, and to create and enhance a system of health assessment and gradual intervention methods to intervene. Modern Western medicine, which has developed rapidly, has not fully covered this direction because its primary goal has been to treat immediate trauma and disease, and it has been rather passive, waiting for the injured and sick. Of course, this is not acceptable from the standpoint of the state, insurers, and others who fund medical care, but it is also true that medical care itself, as an industry, depends on sick people to survive.

In addition to the 37 trillion body cells, the intestinal flora, which is said to contain 100 trillion bacteria, creates many scientific substances that are useful to the human body, and changes in the balance of good, opportunistic, and bad bacteria in the 100 trillion intestinal bacteria are thought to cause changes in physical condition and immunity. It has been suggested that the cecum is also a control center for immunity in the event of disease. It is also said that the gut-brain is closely correlated, and it is becoming clear that a complex world, which mankind has yet to see with the eyes of science, is in charge of its own health. Diet is another example of complexity and synergy at its most complex. There are many case reports of gentle interventions that capture the human being and his/her environment and help the human body function in a way that leads to fundamental health as well as necessary coping therapies, which have been shown to be effective enough to prevent and treat disease. This is not to denigrate modern Western medicine, which is a great scientific coping therapy, but rather, without fear of being misunderstood, to emphasize that in addition to modern Western medicine, which is a great scientific coping therapy, there is Eastern medicine, which treats the complexity and synergy of the body as it is, as well as traditional medicine rooted in various countries and regions, that uses scientific methods and traditional medicine that has been transmitted to every country, region, society and ethnic group. It is also important to establish new ways of thinking and methods to reduce the number of people who get sick, reduce dependence on modern Western medicine, and maintain human health by shining the light of science on the wisdom of healthy diet, exercise, rest, and sleep, which has been handed down from generation to generation in every country, region, and society.

The most important point to remember is that the human body is the source of health, a complex and mysterious mechanism that can be directly addressed in our daily lives through diet, exercise, rest, and sleep. When these are done properly, the human body autonomously produces a harmony of human functions called health. Therefore, for example, various efforts can be made to create an agricultural

and distribution system that provides food with sufficient nutritional content for diet, and to create an environment for proper exercise and walking for exercise. At the same time, it is necessary to provide clean air, water, sewage, and toilet facilities, as well as education and learning opportunities to increase people's health literacy. The development of such a social environment that enables the human body to function properly will also lead to the development of infrastructure for building a better society. Prioritizing maintenance from the perspective of creating people's health, which is the foundation of society, rather than focusing primarily on economic development, will also lead to the creation of new added value, which in turn will lead to economic development based on people's health.

In order to ensure people's efforts toward good health, it is important to promote a system as a social infrastructure to assess the health of healthy people, rather than health checkups to detect diseases. This will serve as a foundation for the promotion of beauty and straightening of one's posture, which are of strong interest to people as well as well-aging, which is also an interest of many elderly people. Health is the source of human beauty. For example, skin cells are constantly being replaced for up to 90 days, gastrointestinal epithelial cells for up to 3 days, blood cells for about 4 months, etc. In 1-3 years, all cells that can be replaced will be replaced. Therefore, the results of these health efforts can be measured and felt in as little as 3 days and as long as 3 years. Health is pleasant, and from the stage at which a certain realization is achieved, people's behavior change could be autonomous. Behavioral change in 20% of the total population can lead to significant changes on a societal level and significant improvements in well-being on an individual level. First, health checkups to ensure that there are no major illnesses, followed by daily health assessments and gentle interventions through diet, exercise, rest, and sleep as deemed necessary and enjoyable, should yield significant results on a society-wide macro level.

4. Policies to achieve the Global South Diversity Path

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As already mentioned, modern Western medicine has achieved a great deal of success in treating infectious diseases and traumatic injuries. However, when the root cause of a disease is a malfunction of the human body, such as so-called lifestyle-related diseases, it is necessary to introduce a health assessment system into society to detect the signs of the disease and being aware of agricultural and other food and distribution policies so that people can eat properly. In addition, it is more cost-effective to build a society that prevents infectious diseases and accidents than to invest in medical care. It is strategically important to invest social resources in diseases that can be avoided or prevented from becoming serious, and at the same time, countries of the global South should cooperate in researching

tactics and building the necessary tools. Most important of all are education and learning opportunities to improve public literacy about health. Many lifestyle-related diseases are preventable, prevent serious illnesses, and prevent recurrence. However, we should make efforts to reduce unreasonable stress in society and create a social environment that allows people to eat, exercise, rest, and sleep properly, for example, by promoting agriculture, which is the basis of food, and other related industries. In addition, it is necessary to invest in education and learning opportunities to improve people's health literacy and in research that comprehensively looks at human beings as well as in cross-disciplinary research.

In addition, health-related wisdom is often embodied in the folklore wisdom and traditional foods that have been handed down from generation to generation in many societies, countries, and regions. For example, fermented foods from Asia and other countries are often ingredients that are pleasing to the gut, which is the basis of living organisms. It is conceivable to hold an expo of such foods and ingredients from various countries to exchange wisdom and examples. It is important to study the traditional health intervention methods of each country and region from a scientific perspective, and to make them less unscientific, even if it is not possible to seek the rigor of clinical trials, which have limitations in their application.

In other words, instead of thinking of the central issue of health care and medical care in the Global South as responding to the sick, the central issue in the concept of promoting agriculture and other food-related industries, transportation, education, sanitation, and various other fields of industry should be rethought as the formation of an economic society in which the mechanisms of the human body are better exercised. The health of the Earth is the theme of the global environment. While the health of the earth is discussed under the theme of the global environment, human health is to be viewed as an environmental issue for society and industry. It is necessary for the countries of the Global South to bring together the wisdom of experts in various fields who are interested in taking a comprehensive view of human beings and society, including redefining the role of modern Western medicine, to make health care from the Global South, and to create and accumulate related industrial structures, rules, standards, and knowledge that will play this role.

The nutritional value of vegetables varies greatly depending on the environment in which they are grown, such as the soil in which they are grown. If the nutritional value of vegetables can be easily measured and priced according to the measurement results, and if sales and commercial competition can be conducted from this perspective, differentiation competition will take place, for example, in the distribution that supports vegetable retailing, especially in the introduction of cold storage systems, and related industries will engage in friendly competition for the purpose of "maintaining people's

physical functions in an appropriate manner. The result will be a reduction in people's dependence on modern Western medicine and the cost of treating lifestyle-related diseases, as well as the development of industry. It is hoped that the so-called non-Western countries will take the initiative in changing and implementing this way of thinking.

Each individual land has its own indigenous bacteria, such as *Bacillus subtilis*, which has created the intestinal microflora of the local people. It is also important to value foods that value such bacteria. It is possible that the mass production of single foodstuffs through so-called plantations has led to the loss of such indigenous foods. Bringing together indigenous and traditional foods and ingredients, including those that are almost forgotten, and exchanging knowledge and wisdom among countries should have the effect of increasing people's interest in these foods. It is often said that it is better to eat a whole living organism, such as a small fish, than to take various substances separately, even if they are necessary, which is something we understand from experience. This is a rule of thumb that even if the substances that make up the body and their respective roles and mechanisms are unknown, if all of them are taken together, there will be no omissions, which makes sense even to the layman. It would be meaningful to sublimate these rules of thumb and ideas into more scientific and universal concepts and shed light on them together with conventional Oriental medicine and regional health care methods handed down in the countries of the Global South.

Create a society where diseases, especially avoidable lifestyle-related diseases and their severity, can be easily avoided, thereby reducing the need for modern Western medicine. Of course, modern Western medicine is necessary for unavoidable diseases and traumas, but it should not be adopted by countries in the global South as a duplicate of modern Western medicine, but rather "to create a society that can maximize the function of the human body to become healthy, and then apply modern Western medicine. It is important for each country to cooperate in establishing a scientific approach that recognizes the complexity encompassing modern Western medicine from a broad perspective. Paradoxically, the determination not to make medicine a big industry can be realized by rethinking the axis of health in terms of the many fields of industry that support diet, exercise, sleep, and hygiene, which each country needs to promote anyway.

In fact, Hippocrates of ancient Greece, a B.C. man and the founder of Western medicine, said, "Man has a hundred great physicians in his body. All a doctor has to do is to help them. The first principle of medicine is to help the body to heal itself. The first principle of medicine is to activate the natural healing power, and the basis of medicine is to support the natural healing power. Modern Western medicine, which has developed to a high degree in certain specialized fields, has drifted away from the path indicated by this maxim, and it would be scientifically and historically meaningful for the

countries of the Global South to take the initiative in reestablishing this perspective.

Finally, I will list some of Hippocrates' maxims.

First and foremost, do no harm.

All disease begins in the gut.

Walking is the best medicine for man.

Diseases caused by a full stomach can be cured by an empty stomach.

If you fast once a month, you will not get sick.

God heals the sick and man receives the benefits.

[Special article 3] Building a Well-Being Civilization -The "Adapteeing" Evolution of the Modern Civilization

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1. The Global Common Targets

Today we live in the modern civilization, which is a unique way of operating social systems that originated in Western Europe in the mid-16th century. The problem is that continuing to run the entire planet according to the modern civilization causes several serious problems, such as global environmental problems and the loss of the sense of spiritual fulfillment and happiness in life that people have enjoyed under civilizations other than the modern civilization. Since these serious problems are caused by the very architecture of the modern civilization itself, it is impossible to deal with them by small measures, and they are therefore called the systemic risks of the modern civilization.

On the other hand, no matter how serious the systemic risks of the modern civilization are, today we cannot choose to abandon it and switch to another civilization in order to overcome them. This is because the modern civilization has gone through several phases during five centuries of its existence and is currently at its most powerful. We are now in the "Third New Modernity," in which all human beings on the planet, regardless of race, culture, or historical background, are considered capable of modernization. The slogan "No One Left Behind" of the SDGs (Sustainable Development Goals) is a simple illustration of this idea. Therefore, the only possible solution to the systemic risks of the modern civilization is to maintain the basic framework of the the modern civilization and evolve it into a form that can overcome the systemic risks exposed today. The evolution of the modern civilization is the challenge that mankind must address with all its wisdom today.

The idea that the inherent problems of the modern civilization can be overcome by evolving the modern civilization itself has been repeatedly expressed in the world since the beginning of the 20th century, and was especially strongly recognized in Japan in the 1970s, the first country in Asia and Africa to succeed in endogenous modernization. A major node in this movement was the International Science and Technology Exposition (Tsukuba Expo) held in 1985 under the theme of "Human, Settlements, and Environment. The Japanese government planned to use the exposition as an opportunity to present to the world the Japanese wisdom in social science, especially in the field of civilization studies, and in the early 1980s, the Human, Settlement, and Environment subcommittees

were vigorously organized. These subcommittees established a framework within which research on the evolutionary history of civilization could be developed into a social scientific discussion.

In these series of studies, we have worked to develop a concept for placing Eastern philosophy, as represented by Buddhism, in the framework of social scientific discussions on the evolutionary history of civilization, in contrast to Western philosophy to construct the modern civilization based on Eastern philosophy (Buddhism) that complements the modern civilization based on Western philosophy. This proposal relies on these achievements and considers the evolutionary strategy of the modern civilization as a strategy to overcome the systemic risks of the modern civilization. The Global Common Target is to evolve the modern civilization to overcome the systemic risks of the modern civilization.

There are two main strategies for achieving the Global Common Target.

The first is to evolve the modern civilization based on the framework of Western philosophy, which provided the ideological foundation for the modern civilization at its birth. In the study of the evolutionary history of civilization in the Applied Infosociconomics, which leads the lineage of the above research, Western philosophy is organized as "engineering" in terms of its ideological orientation. If we use this terminology, this strategy is the engineering evolution strategy of the modern civilization.

The second is to construct a new framework for a global mobilization of wisdom, an ideological hybrid, by adding the wisdom of Eastern philosophy to the framework of Western philosophy, and to evolve the modern civilization by standing on such a new framework. In the study of the evolutionary history of civilization in the Applied Infosociconomics, Eastern thought, as represented by Buddhism, is organized under the new term "adapteering" (応学), based on its ideological orientation. If we use this terminology, this strategy is the strategy of the adapteering evolution of the modern civilization.

Adaptation is sometimes called mental technology because it works on the human mind, and sometimes called adapteering because it allows humans to adapt to and feel satisfied with the existing state of the natural environment without changing it. Adapteering is a new term created by combining the words adaptation and engineering.

In addition to the reduction of the burden on the global environment caused by human existence, as described above, there is another important benefit of utilizing the methodology of adapteering. It leads to the recognition of an universal order that is invisible but certainly covers the world, which cannot be obtained by the analytical method (knowledge obtained by cutting up the world) represented by the modern science.

It is widely known in Eastern philosophical lineages that there exists a universal order in the world, though invisible, certainly covers the world. Buddhism teaches that the perception of the "unspeakable," or Buddha Dharma, cannot be reached by discriminating knowledge, which is object-based thought in which subjectivity and objectivity are in opposition to each other, but requires

nondiscriminating wisdom, which is wisdom that accesses the world as it is and emerges from it before usual cognitive functions begin to operate. It is necessary to have the wisdom of nondiscrimination.

In the Balinese Hindu religion, there are two concepts: Sekala and Niskala. Sekala means "visible," and is used in the sense of something perceptible, something manifest that can be grasped by the conscious mind. Niskala means the invisible, and is used in the sense of the latent that cannot be perceived and cannot be perceived by the conscious mind.

Of these, Sukara can be perceived by the usual logical and scientific methods. On the other hand, the method of perception of Niskala shows the characteristics of rural communities in Bali very clearly. Niskala can be perceived "only" through participation in festive performances such as religious dances, which are performed at festivals held regularly in rural communities. In Buddhism, Zen and other forms of practice are basically individual practices that lead to the attainment of nondiscriminatory knowledge, whereas this practice is centered entirely on the rural community. The independent individual is dissolved and buried within the rural community.

2. The Traditional Western Led Path

The Traditional Western Led Path, which extrapolates the conventional evolutionary path of the modern civilization, attempts to address the systemic risks posed by the modern civilization through engineering, including mental issues such as human happiness. It attempts to address the inner realm of human beings through analytical methods without compromising the principles of humanism.

3. The Global South Diversity Path

In contrast, the Global South Diversity Pathway seeks to address the systemic risks of the modern civilization, including the issue of human well-being, by incorporating the perspective of adapteering into the modern civilization and through the adapteering evolution of the modern civilization. Since it incorporates the perspective of adapteering into the modern civilization, which is a typical engineering civilization, and the modern civilization itself is subjected to the adapteering evolution, the form of the civilization after evolution may be viewed as a new adapteering civilization beyond the framework of the modern civilization, which is a conventional engineering civilization.

The civilizational evolution studies of Applied Infosocionomics views the evolutionary history of human civilizations as a history of alternation between engineering civilizations and adapteering civilizations, and examines the possibility that a new adapteering civilization will be born as a result of the evolution of the modern civilization. Such a new civilization is called the Wisdom Civilization in the studies of Applied Infosocionomics.

4. Policies to achieve the Global South Diversity Path

The task to be undertaken is a major one: to organize the many oriental methods widely inherited in Eastern thought, to incorporate them into the operation of the modern civilization, an engineering civilization, and to give all people on earth who live in the modern civilization the possibility of achieving wellbeing within the framework of the modern civilization. The construction of concrete strategies will require a series of detailed studies at research institutions.

A typical example of such efforts by a university can be found at Musashino University (Tokyo, Japan).

Musashino University opened the "Faculty of Data Science" in 2019 and further opened the "Faculty of Entrepreneurship" in 2021. In April 2023, the "Department of Sustainability" was established within the Faculty of Engineering. Based on these accumulations, the "Faculty of Well-being" was established. Well-being means happiness, and the Faculty of Well-being is dedicated to the pursuit of happiness.

The establishment of such a department as a university faculty has the following human historical significance

As we have repeatedly said, since the current modern civilization is fundamentally engineering-driven, the state of the human mind is not seen as the direct object of control of the social system. Happiness, despite its supreme value to people, is not directly addressed as a civilizational means of operation for this important value.

In contrast, addressing this issue in universities, which are constructed as institutions for the development of wisdom in the social system, will lead to the evolution of the modern civilization into one that is capable of appropriately dealing with mental issues as well. In this effort, work will also be undertaken to reorganize Eastern thought, centering on Buddhism, to make it compatible with the modern civilization.

It is expected to become a world center on the adapteering evolution of the modern civilization.

If we who live in the current modern civilization initiate such efforts, we will be delivering the "evolved" modern civilization to future generations.

We have a great responsibility today.

How We Can Become Better Ancestors?

Profiles

Dr. Teruma NISHIMOTO, President, Musashino University

Specialty: Philosophy (Keywords: Buddhist Studies, Chinese Philosophy, Indian Philosophy)

Born 1962 in Hiroshima Prefecture. He received his Ph.D. in Literature from The University of Tokyo in 1996. Since becoming a full-time lecturer in 1997, he has held a number of important positions, including Dean of the Faculty of Human Studies (currently Faculty of Human Sciences) at Musashino University and Dean of the Graduate School of Buddhist Studies at the same university. He has been President of Musashino University since April 2016.



Prof. Hidetoshi NISHIMURA, Director, Musashino Institute for Global Affairs

Specially Appointed Prof. Director of Musashino Institute for Global Affairs

Supreme Advisor to the President of Economic Research Institute for ASEAN and East Asia (ERIA)

Graduated from the Faculty of Law, the University of Tokyo and obtained a Master's Degree in International Development and Economics from Yale University. Joined the Ministry of International Trade and Industry in 1976. Has assumed numerous positions, Vice Governor for International Affairs of Ehime Prefecture, Director-General of the Business Support Department of the Small and Medium Enterprise Agency, Executive Managing Director of the Japan-China Economic Association. Assumed position of founding ERIA Executive Director in 2008 and subsequently was appointed as ERIA's first President in 2015, and was reappointed as President of ERIA till 2023. Haiku Poet as Gania Nishimura. Editor of The Matsuyama Declaration 1999. Representative of Haiku Magazine TEN I.



Prof. Mitsuhiro MAEDA, Musashino Institute for Global Affairs

Born in 1962. Graduating from Department of Law, University of Tokyo, Prof. Maeda has stepped up so-called 'a Revolving Door Career Path' between the Government and Academia. In the Government of Japan, he served as Director for International Finance, and Director of Financial Cooperation Division, Ministry of Economy, Trade and Industry. In Academia, he served as Associate Professor of University of Saitama, Visiting Professor of Graduate Institute of Policy Studies (GRIPS), Visiting Fellow of the Royal Institute of International Affairs (Chatham House, UK), Visiting Fellow of Johns Hopkins University School of Advanced International Studies (SAIS, USA) and Visiting Fellow of University of Cambridge. He is now serving as Professor of Advanced Institute of Industrial Technology (AIIT), President of ERISE (Epistemic Research Institute of Social Ethics), Vice President of the Global Society of Applied Infoscconomics (Glo-SAI), and Visiting Professor of Musashino University.



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Fukunari Kimura received his Bachelor of Laws from the Faculty of Law, University of Tokyo in 1982 and Ph.D. from the Department of Economics, University of Wisconsin-Madison in 1991. He worked for the Department of Economics, State University of New York at Albany as Assistant Professor in 1991-1994, the Faculty of Economics, Keio University as Associate Professor in 1994-2000 and Professor in 2000-2024, and Chief Economist, ERIA located in Jakarta, Indonesia in 2008-2024. Since April 2024, he has been Professor Emeritus and Senior Professor, Keio University, President, IDE-JETRO, and Senior Research Fellow, ERIA. He majors in international trade and development economics. His research topics include international production networks, economic integration and the World Trade Organization, and the digital economy in East Asia.



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Venkatachalam Anbumozhi is the Director of Research and Strategy and Innovations at the Economic Research Institute for ASEAN and East Asia (ERIA), Indonesia. His previous positions include Senior Capacity Building Specialist at the Asian Development Bank Institute, Assistant Professor at the University of Tokyo, Senior Policy Researcher at the Institute for Global Environmental Strategies, and Assistant Manager at Pacific Consultants International, Tokyo. He has published several books, authored numerous research articles, and produced many project reports on renewable energy policies, green infrastructure design, and private sector participation in low-carbon green growth. Anbumozhi was invited as a member of the G20 task force on Green Financing, APEC Expert Panel on Green Growth, the US-ASEAN advisory group on Smart Low carbon cities, and the ASEAN Panel for promoting climate-resilient growth. He has taught energy resource management, international cooperation for sustainable development, and finance for inclusive growth at the University of Tokyo. He obtained his Ph.D. from the University of Tokyo.



Prof. Jun ARIMA, Project Professor, Graduate School of Public Policy (GraSPP), University of Tokyo

Graduated from the University of Tokyo, Faculty of Economics in 1982, and joined the Ministry of International Trade and Industry (now the Ministry of Economy, Trade and Industry) in the same year. He has been serving for many positions in the field of international energy and climate issues including Counselor, Permanent Delegation of Japan to the OECD (energy advisor), Head, Country Studies Division at the IEA and Director, International Affairs Division, Agency of Natural Resources and Energy (ANRE), METI. From 2008 to 2011, he served as Deputy Director-General in charge of global environmental issues at the Minister's Secretariat, and from 2011 to 2015, he served as Director of the London Office of the Japan External Trade Organization (JETRO) and as a Special Researcher on Global Environmental Issues. Since August 2015, he has been Professor, Graduate School of Public Policy, the University of Tokyo. Together with Professorial position, he is also Consulting Fellow, Research Institute of Economy, Trade and Industry (RIETI), Senior Fellow, Asia-Pacific Research Institute (APRI); Senior Policy Fellow on Energy and Environment, Economic



Research Centre for ASEAN and East Asia (ERIA), lead author of the IPCC Sixth Assessment Report. He has participated in COPs 18 times.

Dr. Shigeru KIMURA, Senior Policy Fellow on Energy Affairs, Economic Research Institute of ASEAN and East Asia (ERIA)

He was graduated from the Faculty of Computer and Information Sciences, the Hosei University in 1973. After graduation, he started to work for Century Research Center Co. (CRC), one of Japanese think tanks and became manager of Economic Group, Research Institute of CRC in 1988. He joined the Energy Data and Modelling Center (EDMC), the Institute of Energy Economics, Japan (IEEJ) as head of Statistics Information Office in 1993 and became Senior Research Fellow in 2005. He has been engaged in preparation of energy statistics in APEC region as coordinator and energy modeling work applying econometrics and input-output approaches for a long time. Using these expertises, he has been conducting capacity building on energy statistics and energy outlook modeling in Association of South East Asian Nations (ASEAN) region for more than 10 years. He has been also in charge as a leader of Working Group for Preparation of Energy Outlook and Analysis of Energy Saving Potential in East Asia, Economic Research Institute for ASEAN and East Asia (ERIA) from 2007. From August 2013, he has been in charge of Special Adviser to Executive Director on Energy Affairs of ERIA additionally. He retired IEEJ in September 2015 and moved to ERIA completely keeping same position.



Dr. Ichiro KUTANI, Senior Research Director, Institute of Energy Economics of Japan (IEEJ)

Mr. Kutani has been engaged in energy policy analysis since joining IEEJ in 2007; his main field of research is analysis of global energy market and energy security issues with emphasis on Asia. The latest study project engagement includes development of energy master plan for Bangladesh, Japan-Germany joint study on energy transition, and economic impact of early retirement of coal power plant. He provided testimony to the Upper House Committee on Natural Resources, Energy and Sustainable Society in Japan in 2023. Prior to his current role, Mr. Kutani has held positions of Leader of Gas Group at IEEJ. Mr. Kutani began his career at JFE Engineering Corp. where he designed and managed natural gas pipeline projects. He holds a Master's Degree in Mechanical Engineering from Waseda University, Japan.



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Mr. Yoshikazu Kobayashi is Senior Research Director, Research Strategy Unit and Clean Energy Unit of The Institute of Energy Economics, Japan (IEEJ). He has extensive professional and research experience of the international oil and gas industry. He previously worked as an analyst at Tonen General Sekiyu, an ExxonMobil- affiliated company in Japan (currently merged to ENEOS Corporation), and covered refinery operation planning and marine transportation optimization. After joining IEEJ, he has conducted numerous research about Asian oil and natural



gas markets, and energy security issues in Asia. Since 2020, he has researched opportunities and policy solutions to realize decarbonization of fossil fuel use, such as carbon dioxide capture, utilization, and storage (CCUS), hydrogen and ammonia utilization for the power generation and hard-to-abate sectors, and carbon dioxide removal by negative emissions technologies (NETs). He has degrees of Master of Arts in international economics and relations from Johns Hopkins School of Advanced International Studies (SAIS) and Bachelor of Arts in Social Sciences from Hitotsubashi University in Tokyo.

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Masahito Ambashi served as an official of the Ministry of Economy, Trade and Industry (METI) of Japan and was experienced in various policy departments. He was also an Economist at ERIA from August 2015 to August 2020 and engaged with many ERIA research projects such as Lao PDR at the Crossroads, ASEAN@50, and Innovation Policy in ASEAN. He is currently an Associate Professor of Department of Human Life and Environmental Science, Nara Women's University in Japan. He obtained his Ph.D. in Economics from University of Essex in the United Kingdom, and his research interest includes industrial organization, innovation, and development economics.



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Ryosuke Fujioka is currently the Chief Representative of AEM-METI Economic and Industrial Cooperation Committee (AMEICC) Secretariat and responsible for ASEAN-Japan economic relationship including how to decarbonize global supply chain through facilitating private green investments. From January 2015 to June 2022, he worked in Agency for Natural Resources and Energy of Japan and dealt with various issues such as liberalization of power market, facilitating international collaboration in energy sectors, promoting distributed energy resources and hydrogen as a new energy source. He has a Master of International Affairs (MIA) in Finance from University of California, San Diego and Master of Engineering from University of Tokyo.



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Prof. Dr. Koji FUJIMOTO, Institute of Science Tokyo

Koji Fujimoto worked as an official of the Ministry of Economy, Trade, and Industry of the Japanese Government for about 35 years since 1987 including a career in the Cabinet Secretariat in late years. He has strong knowledge in various policy fields such as ICT, international economy, and healthcare. He is one of the key officials who contributed to establishing the Healthcare Industry Division in METI in 2011 that added new aspects of the approach to the Japanese Government to



maintain and enhance the Japanese medical system in a way introducing industry development methods, especially in the field of customer/patient-centric preventive healthcare that hopefully reduce the future demand for invasive medical treatments.

Prof. Osuke KOMAZAWA, Nagasaki University

Osuke Komazawa is a Visiting Professor at Nagasaki University and a Health Policy Advisor at Kenya's Ministry of Health. His work focuses on developing Kenya's social healthcare scheme to achieve universal health coverage. With a background as an ear, nose, and throat surgeon, he has held leadership roles in healthcare, including Senior Director of the Human Development Department at the Japan International Cooperation Agency (JICA) and Chief of the Research Planning Office at the National Institute of Infectious Diseases in Japan.



While at JICA, he oversaw numerous healthcare initiatives across Africa, Southeast Asia, and South America. During his tenure at the Economic Research Institute for ASEAN and East Asia, he published numerous works on population ageing, long-term care, and cross-border care workers. He also held the role of Deputy Director of the Vital, Health, and Social Statistics Office at Ministry of Health, Labour and Welfare of Japan.

He underwent specialized training in human ecology during his PhD studies, with his doctoral dissertation focusing on the community effect of long-lasting insecticide-treated bed nets in western Kenya.

