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GLOBAL SCENARIOS AND FORECASTING

BUMPY ROAD TO CLIMATE NEUTRALITY: WHY THE 1.5 °C THRESHOLD IS CLOSE AND WHY THE TEMPERATURE OVERSHOOT WILL BE LONG

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The possible consequences of the decisions taken at the recent Conferences of the Parties to the UN Framework Convention on Climate Change COP26 (Glasgow 2021) and COP28 (Dubai 2023), for the world energy and future climate change are examined.

A set of scenarios of anthropogenic impacts on the global climate system is proposed, including the full implementation of the Glasgow decisions on decarbonisation of the world economy, reduction of methane emissions and reforestation, as well as alternative scenarios for world energy development based on low options for changes in world population, in order to prevent dangerous global climate change. The global carbon cycle and climate models developed at MPEI have been used to simulate changes in the chemical composition and thermal radiation balance of the Earth's atmosphere, as well as the global average air temperature for each of the scenarios.

It is shown that only the full implementation of the full range of measures proposed in Glasgow to reduce the anthropogenic impact on the planet's climate system, while maintaining the current growth rates in energy consumption and world population, will be able to keep warming below 1.5° C with reference to pre-industrial levels, but there are serious doubts about the practical implementation of the proposed program of decarbonisation of the world

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economy. At the same time, our findings suggest that the development of natural demographic processes can restrain growth and ensure a decrease in the atmospheric carbon dioxide concentrations even before the end of this century. In this case, the increase in global average temperature can be limited to a marginally safe level of 1.8 degrees above the pre-industrial period, without a large-scale restructuring of the world's energy sector. However, it is virtually certain that the 1.5 °C threshold will be exceeded within the next decade, and that the period of 1.5 °C temperature overshoot will last for more than a century. Already by the end of this century, global temperatures will have to be brought back down by explicitly removing carbon dioxide from the atmosphere: an immense task that will require a build-up of a negative-emissions economy.

Keywords: *energy, climate, atmosphere, demography, forest management, methane and carbon dioxide emissions, models, scenarios.*

Introduction

The year 2023 became the hottest one in the history of instrumental observations and ended with a striking record for the global mean temperature, exceeding (according to CRU) the pre-industrial (1850–1900) level by 1.46 °C. At the same time, the previous record of 2016 was exceeded at once by 0.17 °C, a huge margin at the planetary scale, which is an unprecedented event in the entire era of instrumental observations and brings about a serious alarm to the global scientific community (Schmidt 2024). In 2024, the streak of records continued and a unique 13-month series (from June 2023 to June 2024) of monthly maximums was recorded. Finally, against expectations, 2024 became even hotter than 2023 with temperatures 1.55°C above the pre-industrial level, thereby crossing the first critical threshold outlined in the Paris Agreement. And although this is only one year's temperature, the event that has occurred is an important indication and a warning to the global community that the dangerous warming level is very close. The climatically meaningful decade-averaged global temperature anomaly (over the 2015–2024 period) has reached 1.26°C, and thus the world is within one step of the 1.5 °C threshold, which the global community definitely considers as an extremely undesirable event (King *et al*. 2023). Should the warming rate of about 0.2 °C per decade experienced over the past 30 years be maintained, the critical threshold will be crossed as early as the mid-2030s. In the current situation, the best and still reasonable scenario is a temporary overshoot of the 1.5 °C threshold, with a peak in warming followed by a decline in temperature as a result of the consistent implementation of the initiatives of the Glasgow (2021) (Klimenko *et al.* 2022a; Klimenko *et al.* 2023a) and Dubai (2023) (Klimenko *et al*. 2024a; Klimenko *et al*. 2024b; Klimenko *et al.* 2024c) summits or the implementation of low demographic scenarios (Klimenko *et al*. 2022a; Akaev, Davydova 2023). The overshoot is a significant threat to the stability of the global climate system, and the world community is aiming to minimize the residence time in the elevated temperature zone.

Over the past thirty years, the global community has made considerable efforts to control dangerous global warming by reducing the greenhouse gas (GHG) emissions, with the aim of achieving the so-called climate neutrality, when GHG emissions are

balanced by their sink in natural or anthropogenic reservoirs (Fragkos *et al*. 2021; Das *et al*. 2023).

Since the United Nations Framework Convention on Climate Change (UNFCCC) was signed in Rio de Janeiro in 1992, participating countries have met almost every year at conferences to discuss progress in implementing the Convention and developing new climate protection tools. The results of four such meetings, where the most important decisions were taken, are presented in Table 1.

Table 1

Objectives and proposed tools of the four key Conferences of the UNFCCC Parties

Conferences of the UNFCCC Parties	Goal	Proposed tools
Kyoto (1997)	Reducing the average global temperature increase rate	Commitments by the Group of 38 countries to control the greenhouse gas emissions in 2008–2012. The first economic mechanisms for international cooperation in the field of reducing greenhouse gas emissions control
Paris (2015)	Preventing the global average temperature from rising more than 2 °C above pre-industrial levels	Acceptance by more than 190 countries of voluntary commitments to control greenhouse gas emissions after 2020
Glasgow (2021)	Limiting the global warming to 1,5 °C above pre-industrial levels	1. Commitments by most countries, including all major greenhouse gas emitters, to attain climate neutrality by 2050–2070. 2. Commitments by a group of 109 countries (today already 160) to cut down the anthropogenic methane emissions by 30 % by 2030. 3. Commitments by 140 countries to stop deforestation by 2030 and then start reforestation
Dubai (2023)	Development of top-priority measures to control the greenhouse gas emissions	By 2030: 1. Tripling of installed renewable energy capacity. 2. Halving energy consumption per unit of gross national product. 3. Fourfold reduction in methane emission from fossil fuels combustion,

An analysis of Table 1 has revealed the increasing vigor of the measures taken by the world community to respond appropriately to dangerous climate change, driven by the continuing trends of global warming, a deeper understanding of the nature and danger of the ongoing processes, and the low rate of decarbonisation of the global economy.

In a number of our recent works, we have studied the consequences for the global climate system of different scenarios for reducing anthropogenic impacts on the Earth's atmosphere under the Paris Agreement (Klimenko *et al*. 2016a; Klimenko *et al.* 2016b) and the Glasgow Pact (Klimenko *et al*. 2022a; Klimenko *et al.* 2023a) as well as the capabilities of the world's leading economies (such as the USA, EU, Canada, Australia, Japan, Norway) (Klimenko *et al*. 2024b; Klimenko *et al*. 2024d), the largest developing countries (such as China, India, Indonesia, Brazil, Iran, Saudi Arabia) (Klimenko *et al*.

2024c; Klimenko *et al.* 2024d), and Russia (Klimenko *et al.* 2023b; Klimenko *et al.* 2024a) to solve the emerging problems in the field of climate control, including achieving carbon neutrality of national economies by 2050–2060. The obtained results suggest that, despite the great potential for reducing greenhouse gas emissions in various industries and the great efforts being made, all these countries face considerable difficulties in achieving these goals. At the same time, differences in the structure of the energy industry and in the standards of living in these countries determine the specifics of their paths to carbon neutrality.

The purpose of this work is to analyze the results of previous studies and to assess the potential consequences for civilization of global climate changes manifested at different scales.

1. Scenarios of Anthropogenic Impacts on the Climate System

1.1. 'Glasgow' and 'Paris'

To construct a range of potential scenarios for carbon dioxide emissions in the sectors of the global economy covered by the Glasgow Conference agreements, all the countries of the world have been divided into several groups according to their level of economic development and, to a large extent related to this, the level of ambition of their national long-term programs for reducing the anthropogenic impact on the climate.

The first '2050' group includes OECD (Organization for Economic Cooperation and Development) and EU countries, whose voluntary commitments envisage the attainment of carbon neutrality not later than by 2050. The second ('2060') and third ('2070') groups are the world's largest developing or emerging economies, whose national programs call for zero net greenhouse gas emissions by 2060 (Russia, China, Brazil, Argentina, Iran, and Turkey) and 2070 (India), respectively. The poorest countries in Asia and Africa, which do not currently have their own programs to considerably cut down the greenhouse gas emissions, are included in the fourth '2080' group, which is expected to achieve carbon neutrality by 2080 with financial and technological support from the world's leading economies.

The resulting emission estimates are presented in Figure 1, together with scenarios from (Klimenko *et al.* 2016a, 2016b), which were previously prepared based on the results of the Paris Conference of the Parties to the UNFCCC (2015). Here, the carbon coefficient is the ratio of carbon dioxide emissions (in carbon units) to commercial energy consumption (in coal equivalent units).

Implementation of the Paris Agreement will reduce CO_2 emissions by 5 % by 2050, 10 % by 2070, and 30 % by 2100 compared to the historical scenario. As shown in (Klimenko *et al.* 2016a, 2016b), these emission amounts will not limit the global average temperature increase to 2 °C compared to the pre-industrial period.

Much tighter limits on carbon emissions, as proposed by the decisions of the UNFCCC Conference of the Parties in Glasgow (2021), should offer much larger emission reductions (compared to the historical scenario [Klimenko *et al.* 2016a, 2016b]) – by almost 20 % by 2030, more than twice by 2050, and almost four times by 2100.

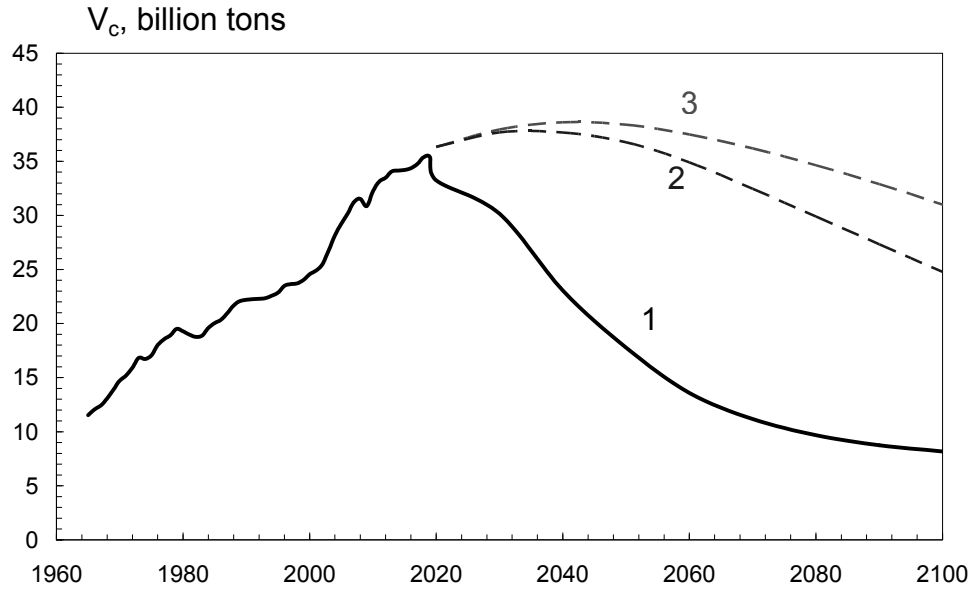

Fig. 1. Global carbon dioxide emissions Vc according to the Glasgow scenario (1) (Klimenko *et al.* 2022a; Klimenko *et al.* 2023a) as compared to the reference (2) and historical (3) versions of the Paris scenario from (Klimenko *et al.* 2016a, 2016b)

Among the most important results of the Glasgow meeting was the initiative to reduce anthropogenic methane emissions by 30 % by 2030. Unlike carbon dioxide, whose main anthropogenic source is the combustion of organic fuels, more than half of methane enters the atmosphere from agricultural sources, while the energy industry and waste management account for only 30 % and 20 %, respectively. As a result, the most densely populated countries – India and China – and the poorest countries in Asia and Africa are responsible for more than half of the world's anthropogenic emissions.

And finally, for the first time at the international level, the Glasgow conference adopted commitments to conserve and restore the planet's forests – the most important controlled carbon sink. The implementation of this decision should stop the centuries-long loss of the Earth's forest cover and launch a subsequent reforestation of the planet. This scenario is very close to the GEPL'97 biotic option for reducing the anthropogenic pressure on the carbon balance, proposed by the authors back in 1999 (Klimenko *et al.* 1999), which assumes that the area of the planet's forests should be restored to pre-industrial (before 1800) levels. An alternative to this Glasgow scenario for forests is the FAOSTAT option from our recent work (Klimenko *et al.* 2020), according to which the trends of recent decades in global forest use are maintained.

The changes proclaimed by the Glasgow Pact are unprecedented in history, and therefore a reasonable question arises: whether such large-scale transformations in the global economy are theoretically and technically feasible, in such a short period of time. This question should be addressed first and foremost, to the key sector of the global economy, the energy industry, which is responsible for 90 per cent of carbon emissions

and has been involved in large-scale reforms in recent decades, known as the 'global energy transition' (Klimenko *et al*. 2022c).

An analysis of numerous publications from leading scientific institutions in this field (Falk *et al*. 2018; IEA, 2020; Makarov *et al*. 2020; Vatalis *et al*. 2022; Olabi and Abdelkareem 2022) shows that the technical potential for reducing worldwide greenhouse gas emissions is more than 7 Gt C_{eq}/year and can be implemented through a wide range of process and institutional instruments, of which about half is related to the energy and transport sectors, with the renewable energy industry contributing about a quarter of the emission reduction.

1.2. Alternative Demographic Scenarios

Implementing the Glasgow path will require extraordinary efforts in all major sectors of the global economy – energy, transport, agriculture, and forestry – and can hardly be achievable today. We have repeatedly expressed our doubts that the global community has the real capacity to keep the increase in the global average temperature within the specified limits. Indeed, this problem seems almost unsolvable, but only if the world population continues to grow without any limitations until the end of the century.

This is exactly how the demographic picture of the world looks today, as demonstrated by the United Nations Population Division (hereafter referred to as the UN) (Figure 2), according to which the world population will stabilize at a level of 9–11 billion people by the end of the century, *i.e*. about a quarter higher than today. As a result, human impact on the environment is also predicted to increase in the coming decades (unless additional restrictive measures are taken). It is quite obvious that the scale of this impact depends critically on which of the scenarios presented in Figure 2 is to be activated. It so happens that the UN's ideas have dominated in the field of population forecasting over the last half century. Indeed, almost all the forecasts of energy, industry, agriculture, forestry, and transport that we know employ only one long-term demographic forecast[1]: the UN median projection, which has been published regularly every two years since the 1980s, and irregularly since 1951. Such unwavering faith in a single source of projections is found in no other area of modern knowledge, and is not least due to the fact that the UN still seems to be doing a good job of fulfilling its mission. For example, the world population of 7.79 billion in 2020 agrees almost exactly with the 1980 forecast (World Population… 1981), but it differs considerably from the 1973 forecast of 8.42 billion and even from the 1990 forecast of 8.09 billion (Buettner 2020). Thus, all we know now is that the UN is able to produce satisfactory forecasts with an accuracy of 5 % for horizons of up to 40 years (*Ibid.*), but nothing can be said today about the quality of more distant forecasts, since horizons of more than 50 years came into circulation only in 1994, and horizons of more than 80 years only in 2010. However, now, given the events of recent decades, it no longer seems unlikely that fertility[2] in many countries of the world will sharply drop to levels well below simple population replacement, and it is therefore worth taking a closer look at those demographic projections that study this possibility with adequate care and detail.

Several contemporary researchers have persistently drawn attention to the shortcomings of the UN forecasts (World Population 2014; KC and Lutz 2017; Vollset *et al*. 2020; Akaev and Sadovnichii 2010). The main drawback of these forecasts seems to be the very arbitrary assumption of the ultimate convergence of fertility to a single value of 1.75 for all countries in the world that have crossed in their development the critical

fertility threshold of 2.1, which corresponds to simple reproduction of the population. However, in the last quarter of the century, dozens of countries have appeared where the fertility has dropped well below 1.75 and has remained at this extremely low level for decades (Greece, Italy, Poland, Thailand, Taiwan, South Korea, *etc*.). It also turns out that the final fertility rates correlate well with two key social factors: years of educational attainment (0 to 18 years) and the availability of modern contraceptives (0 to 100 %) to women of reproductive age. Taking these new facts into account allows us to construct more reliable demographic models that predict that the world population will peak within just a few decades, that is, within the lifetime of one or two generations, followed by a pronounced depopulation by the end of the century. According to recent publications, the Earth's population is likely to be in the range of 6–9 billion people by the end of this century (Figure 2), which will undoubtedly affect the impact of our civilization on the environment. In this system of views, the UN median forecast is not the golden mean, as many would like to think, but the upper envelope of an entire family of alternative scenarios (Figure 2). This paper uses two such scenarios (Vollset *et al.* 2020) together with the conventional most recent UN median scenario (World Population 2024).

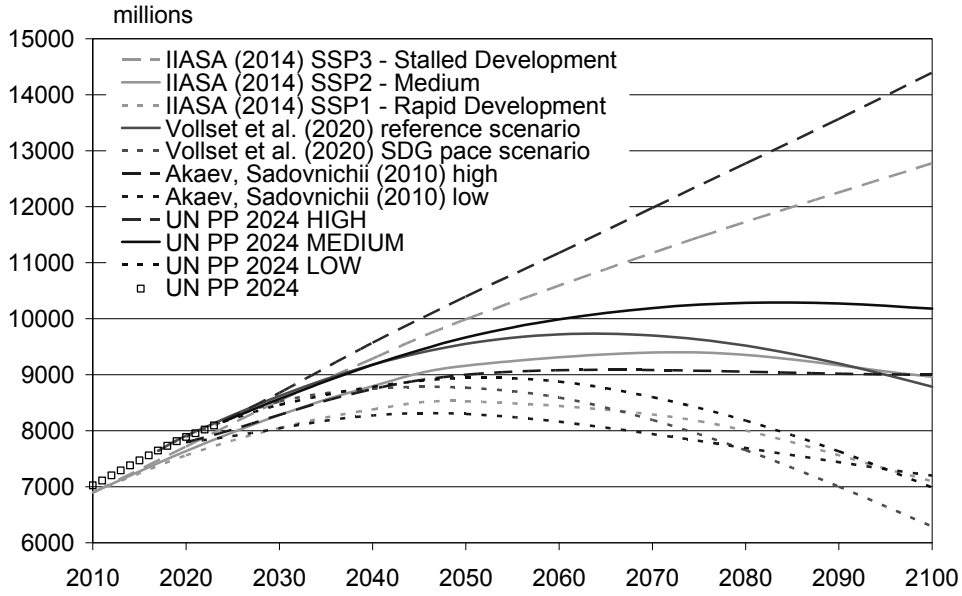

Fig. 2. Alternative scenarios for the world population with depopulation (World Population 2014; Vollset *et al.* 2020; Akaev and Sadovnichii 2010; World Population 2024)

The above-described demographic processes will first affect global energy consumption. As already shown in (Klimenko and Tereshin 2010), the post-industrial development has stabilized the per capita energy consumption at a level that is essentially determined by natural and geographical conditions, and which, on a global average, amounts to about 3 tce[3]/cap*year, which is hardly different from the current level. This

means that the dynamics of future energy consumption will be almost entirely determined by demographic factors.

The presented predictions were obtained for two demographic scenarios from (Vollset *et al*. 2020), namely, the high 'reference' scenario and the lower 'Sustainable Development Goal (SDG)' pace scenario as the most justified from a medical standpoint and located at the upper and lower ends of the range of depopulation scenarios (Figure 2).

In this case, depopulation will reduce global energy consumption (Figure 3), which, by the end of the century could be as low as 20–40 per cent down of the reference scenario level (around 30 billion tce by 2100). Moreover, according to the extreme SDG pace scenario, the gross energy consumption will stop growing by mid-century, and it will be even lower than current levels by the end of the century.

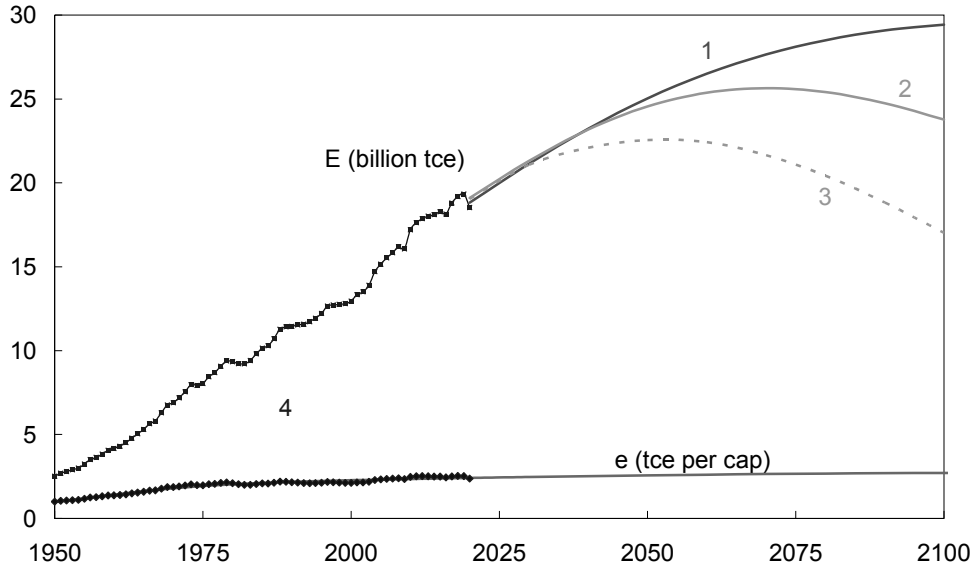

Fig. 3. Gross (E) and specific (e) commercial energy consumption for WPP2024 medium (World Population 2024) (1), reference (2), and SDG pace (3) (Vollset et al. 2020) demographic scenarios together with historical data from *UN/BP (4)*

Lower energy consumption inevitably yields lower emissions of the main greenhouse gas – carbon dioxide. Two main pathways for the development of the global energy industry in the current century are examined in this paper:

1) 'const CC rate' – it is assumed that the decarbonisation rate of energy consumption stipulated by the Paris Agreement (approximately 0.8 % per year) (Klimenko *et al*. 2016a; Klimenko *et al*. 2016b) will not change;

2) 'const nonCO2 rate' – it is assumed that the deployment rate of zero-carbon energy sources (hydroelectric power plants, nuclear power plants, renewable energy sources) necessary to meet the conditions of the Paris Agreement, yielding the annual

energy production from them of up to 20 billion tce by 2100, will not change (Klimenko *et al*. 2016a, 2016b).

Table 2

Combinations of demographic and energy scenarios

No.	Demographic scenarios (Vollset et al. 2020)	Energy scenarios from (Klimenko et al. 2022a)
1	Reference	'const CC rate'
2	Reference	'const nonCO2 rate'
3	SDG pace	'const CC rate'
4	SDG pace	'const nonCO2 rate'

As a result, the global industrial carbon dioxide emissions will fall considerably after 2030, by 15–40 per cent compared to the Paris reference scenario from (Klimenko *et al*. 2016a, 2016b), and even by a factor of 10 in the most extreme version by the end of the century (Figure 4).

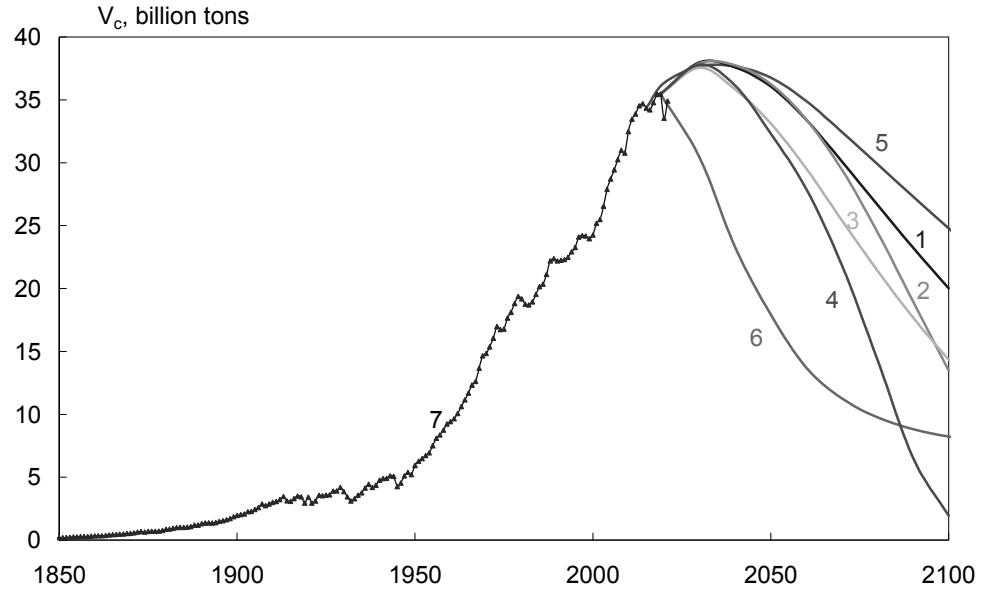

Fig. 4. Industrial emissions of CO_2: projections of the present paper for the demographic scenario options listed in Table 2 (1–4), 'Paris' reference scenario (Klimenko *et al.* 2016a, 2016b) (5), 'Glasgow' scenario (Klimenko *et al.* 2022a; Klimenko *et al.* 2023a) (6) together with historical data of CDIAC/UN/BP (7)

1.3. 'Net Zero'

The regularities of decarbonisation of the energy industry and the overall economy in key OECD countries (USA, EU, Canada, Australia, Japan, Norway) and other countries (Russia, China, India, Indonesia, Brazil, Iran, Saudi Arabia) were studied in (Klimenko *et al.* 2024a; Klimenko *et al*. 2024b; Klimenko *et al*. 2024c). Based on the analysis of current trends in the dynamics of greenhouse gas (GHG) emissions for these countries, GHG emission scenarios have been developed for the period up to 2100. The share of

the studied countries in their groups (OECD and other countries) in primary energy consumption, energy and total GHG emissions is within 60–85 per cent, which gives grounds to extend the obtained estimates to the rest of these groups.

A general approach to estimating future emissions is to extrapolate per capita emissions and calculate gross GHG emissions based on the UN median population scenario (World Population 2024).

For OECD countries, an extrapolation was made using the rates of decline in specific GHG emissions characteristic of the last two decades (Klimenko *et al.* 2024b) (Figure 5a). As a result, by the end of the century, this indicator will decline by almost five times in developed countries, from 10 t CO_{2eq}/cap to 2 t CO_{2eq}/cap, which, with minor changes in the population of these countries, gives approximately the same reduction in the gross emissions (Figure 5b).

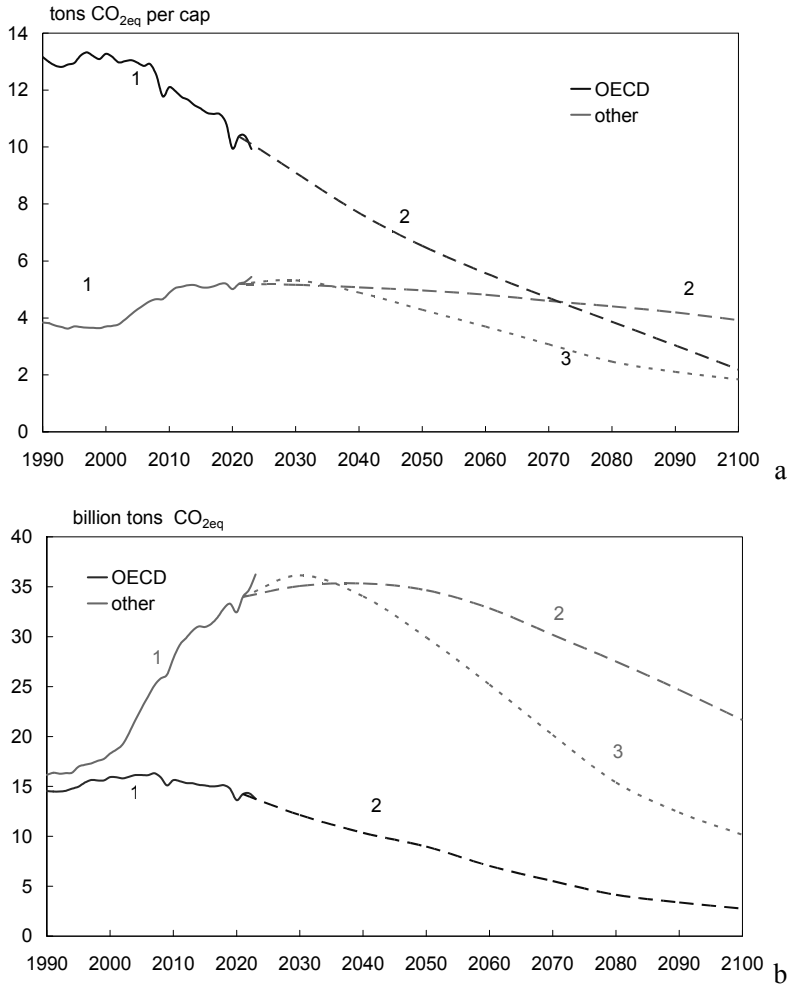

Fig. 5. Specific (a) and gross (b) total GHG emissions (excluding LULUCF and CCS) in developed (OECD) and other countries: history according to WRI and UN data (1) and NetZero Historical (2) and NetZero Intensive (3) scenarios from this work

A different procedure was used for other countries. The results of the studies (Klimenko *et al.* 2024d) yielded a dependence of the rate of reduction of national specific GHG emissions on the level of economic development, determined by the nominal value of GDP per capita. The regularities identified for seven representative countries (Russia, China, India, Indonesia, Brazil, Iran and Saudi Arabia) were applied to the whole group of developing countries and formed the basis of the 'NetZero Historical' scenario (Figure 5). Alternative scenarios for rapid decarbonisation have also been developed for China and India, which together account for 40 per cent of the global GHG emissions, based on the national energy transformation measures planned in these countries and considered in the International Energy Agency's STEPS[4] scenario (IEA 2023). For developing countries, they are included in the 'NetZero Intensive' scenario (Figure 5).

In further calculations, the concept of net GHG emissions is applied, which describes anthropogenic carbon dioxide sinks from land use, land-use change, and forestry (LULUCF) and carbon dioxide capture and storage (CCS) technologies.

To assess the contribution of the LULUCF sector, changes in the land use structure in the countries of the studied groups were analyzed. The OECD countries demonstrate a gradual decrease in the area of agricultural lands and a slow restoration of forests, mainly through afforestation, which contributes to higher carbon dioxide absorption. In other countries, the opposite trends are evident: in general, deforestation continues and is not compensated by new plantings, and the area of agricultural land continues to grow, although this process is considerably slowed down by the development of agricultural technologies and an increase in agricultural productivity. However, we should note that this large group of countries is very inhomogeneous. Thus, in addition to countries with high rates of deforestation (such as Brazil and Indonesia), there are also countries where the area of forest plantations is much greater than the area of deforestation (such as India and Iran) and, finally, China, which is the world leader in terms of the area of forest planted annually (Klimenko *et al.* 2024c).

It has been repeatedly pointed out previously (Chen and Wu 2022; Yang Shu *et al*. 2023; Akimoto *et al*. 2021; Filippov and Zhdaneev 2022) that climate neutrality cannot be attained in most countries of the world without the large-scale development of carbon dioxide capture and storage (CCS). Various estimates (Filippov and Zhdaneev 2022; Kearns *et al.* 2017) suggest that the world has sufficient geological resources to implement such projects.

These data were used as the basis for elaboration of two scenarios for the development of CCS: historical and intensive. The historical scenario envisages the achievement of carbon neutrality (taking into account CO_2 capture in LULUCF) by the end of the next century. This requires the CCS capacity to grow at a rate of about 9 per cent per year (slightly lower than the current CCS growth rate of 11 %) over the next 50 years to reach about 7 Gt/year by 2100, which, together with approximately the same amount of sink due to LULUCF, makes it possible to achieve a net emission value of 10 Gt CO_{2eq} compared to the total amount of GHG produced of 25 Gt CO_{2eq}. Subsequently, the need for CCS decreases, allowing carbon neutrality (full compensation of emissions by sinks) to be achieved by 2200. In the period up to 2050, the path of this scenario lies

between the moderate STEPS scenario (IEA 2023) and the Current Trajectory scenario (BP 2024) and almost matches the latter.

The intensive CCS development scenario is aimed at achieving negative GHG emissions (where sinks exceed emissions in absolute terms) by the end of the current century and assumes that maintaining the current extremely high growth rate of about 11 % per year, reaching capacities of 10–11Gt CO_{2eq} /year by 2075 and gradually declining to 2–3Gt CO_{2eq} /year by the end of the next century. In 2050, the CCS capacities under this scenario are somewhat lower than the estimates of the revolutionary APS scenario (IEA 2023) and almost half of the estimates of the 'zero' Net Zero scenario (BP 2024), which essentially has no chance of being implemented from a historical point of view. It should be remembered that negative GHG emissions are a must if the global community intends to move from a growth to a decrease in global average temperature within a century.

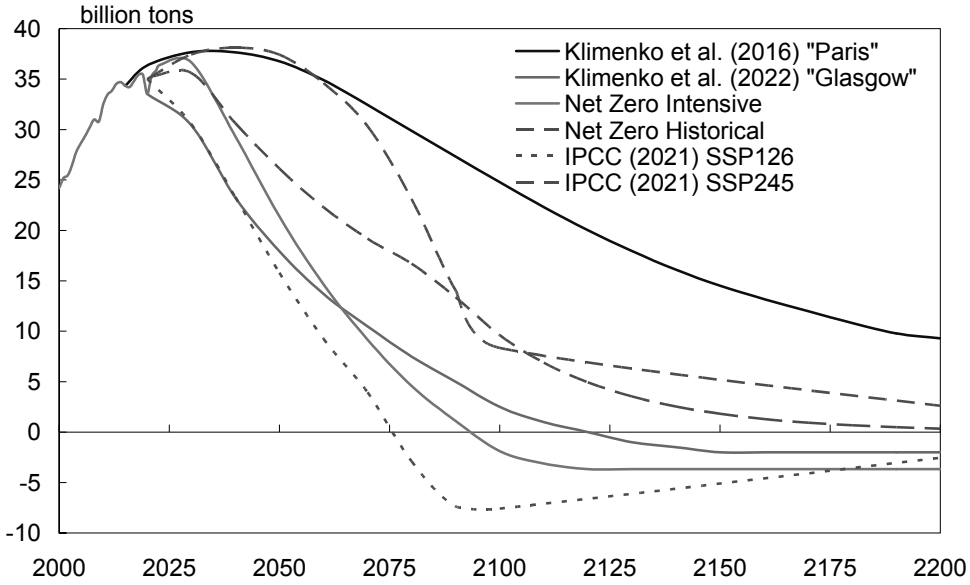

Fig. 6. Dynamics of industrial net emissions of carbon dioxide (including CCS) – history (BP), scenarios: SSP1-2.6 and SSP2-4.5 (Gidden *et al.* 2019; Meinshausen *et al.* 2019; IPCC 2021), and this work (Table 2)

Figures 6 and 7 compare the estimates of production and net emissions of greenhouse gases obtained in this work with the results of other studies carried out by leading global energy agencies [IEA 2023; BP 2024], as well as academic institutions within the scope of the IPCC activities [Gidden *et al*. 2019; Meinshausen *et al.* 2019; IPCC 2021].[5]

The time horizon of the energy forecasts (IEA 2023; BP 2024) is limited to 2050, therefore this time period is shown in Figure 7.

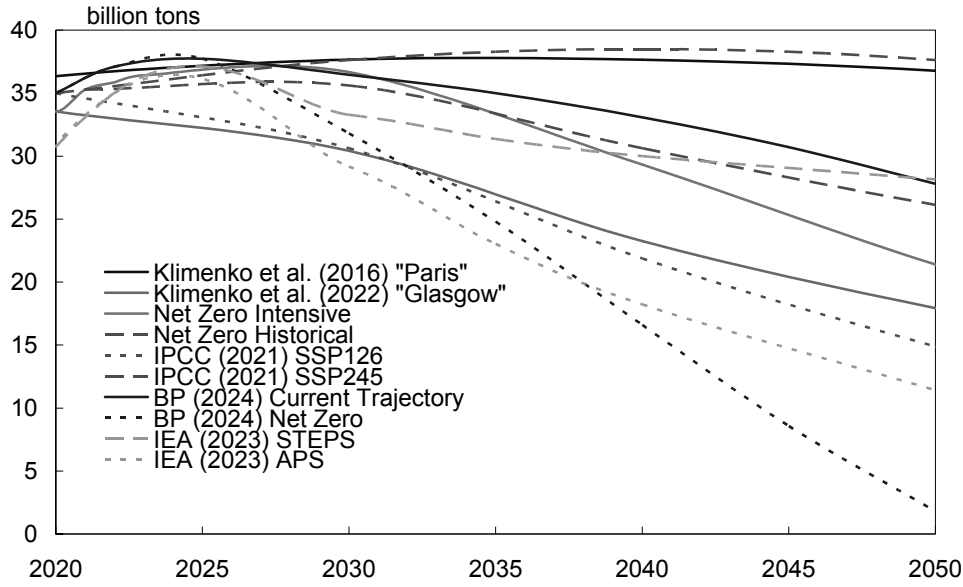

Fig. 7. Scenarios of industrial net-emission of carbon dioxide (considering CCS): SSP1-2.6 and SSP2-4.5 (Gidden *et al.* 2019; Meinshausen *et al.* 2019), STEPS and APS (IEA 2023), Current Trajectory and Net Zero (BP 2024), and this study (Table 2)

Despite the fundamental difference in approaches to simulating the development of energy and other areas of human activities, the scenarios for implementing the decisions of the UNFCCC Conferences of the Parties in Paris (2015) and Glasgow (2021) developed earlier by the authors of this paper, are consistent with the lower range SSP245 and SSP126 scenarios (Gidden *et al*. 2019; Meinshausen *et al.* 2019), respectively.

As to the estimates of this work, for the period up to 2050, they are found in a much narrower range, approximately halfway between the trajectories of SSP245 and SSP126. The 'NetZero Historical' scenario corresponds to the inertial forecasts STEPS (IEA 2023) and Current Trajectory (BP 2024) of the energy agencies that indicates a proper interpretation of the applicable trends in the global energy and the overall global economy within the scope of this work. Pronounced differences emerge when comparing more extreme scenarios. The APS (IEA 2023) and Net Zero (BP 2024) trajectories of fast decarbonisation assume excessive rates of reduction in the net GHG emissions, cutting them by several times (by three times for APS and more than ten times for Net Zero) in just two and a half decades. In such a system as inert as the world energy industry, such high rates of transformation can hardly be achieved at all.

Over a longer time period (to the end of this century and beyond – see Figure 6), the net GHG emission scenarios proposed here follow the trajectories of the long-term SSP scenarios. In fact, the emission value by 2100 under the NetZero Historical scenario is well in line with the SSP2-45 estimates, while under the NetZero Intensive scenario, just like in the SSP1-26 option, it falls into the negative area, but only 20 years later.

2. Model Projections for Global Climate Changes

Based on the estimates of net anthropogenic GHG emissions obtained using a combined climate model (Klimenko *et al*. 2017) coupled with a global carbon cycle model (Klimenko *et al*. 2020), simulations were performed for changes in the carbon dioxide concentration and global average temperature, and the predictions were compared with other scenarios – 'Paris' (Klimenko *et al*. 2016a, 2016b) and 'Glasgow' (Klimenko *et al.* 2022a; Klimenko *et al*. 2023a) scenarios, which assume the implementation of the decisions of the relevant Conferences of the Parties to the UNFCCC.

The simulations were performed using scenarios of net anthropogenic industrial emissions (emissions minus removals) (indCO2) and biotic CO_2 fluxes (bioCO2), as well as radiative forcing of other GHGs (nonCO2) and tropospheric sulphate aerosol (TSA) of anthropogenic origin. In addition, the effect of fundamental natural factors such as solar and volcanic activity and quasi-periodic processes in the world ocean – atmosphere system, were considered.

The results of the simulations are summarized in Figure 8.

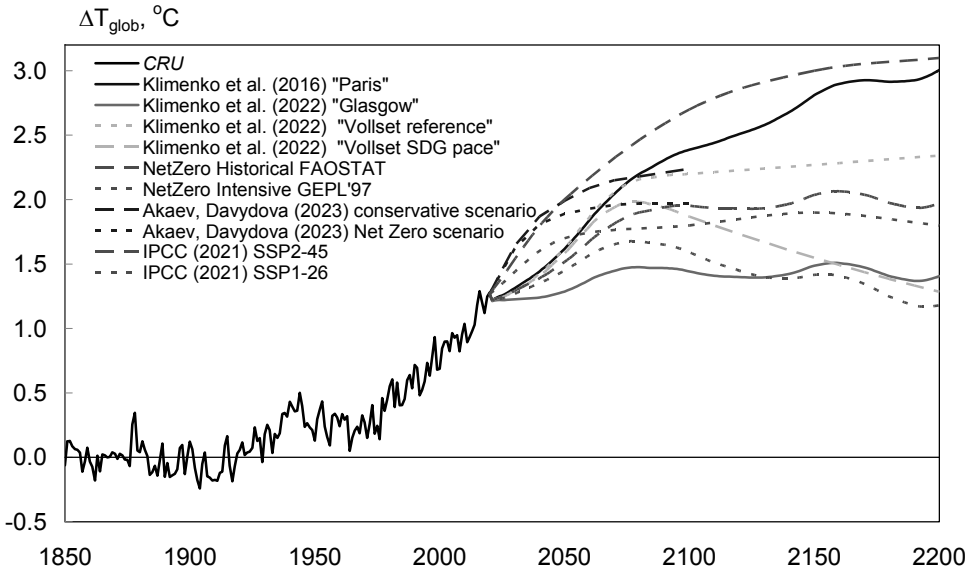

Fig. 8. Dynamics of the global average temperature (referenced to the average over 1850–1900) – history (CRU), model predictions according to scenarios from Table 2 and (IPCC 2021; Klimenko *et al.* 2016a, 2016b; Klimenko *et al*. 2022b; Klimenko *et al.* 2023a; Akaev and Davydova 2023)

According to the model projections, the Paris Agreement constraints do not prevent further temperature increases of up to 2.4 °C by the end of the twenty-first century and almost 3 °C by the end of the twenty-second century, and are absolutely insufficient. Meanwhile, as we have pointed out before (Klimenko *et al.* 2023a), even the relatively soft Paris Agreement limits are not being fully implemented today. As for the limits outlined in the Glasgow Pact, only their full and timely implementation will make it

possible to keep warming within the desired 1.5 °C. However, an analysis of modern trends suggests that the Glasgow scenario only demonstrates such a possibility, but in fact it can hardly be implemented since the developing historical trends cannot be disrupted (Klimenko *et al*. 2022b; Klimenko *et al.* 2023a). At present, the most revolutionary NetZero Intensive scenario, in which the temperature passes a peak at around 1.8 °C at the end of this century and then drops to the current levels as a result of the removal of excess CO_2 from the atmosphere, is still feasible. However, even if this most revolutionary scenario is implemented, the period of unsafe temperature exceedance, namely the residence time in the zone above 1.5 °C, will be longer than a century.

The results of model simulations of changes in the global mean temperature (MGT), performed with the authors' global climate system model suite and presented in Figure 8, are in good agreement with the estimates (IPCC 2021) obtained within the scope of the project for comparing the results of CMIP6 climate models for the corresponding scenarios. Thus, the growth of MGT under the Paris scenario broadly correlates to the SSP2-4.5 model simulations, according to which MGT will increase by 2 C by 2050 and by 2.7°C by 2100 compared to the pre-industrial levels. The simulation data for the NetZero Intensive scenario are close to the estimates for the SSP1-2.6 option, according to which MGT reaches a maximum of 1.7–1.8 °C above the pre-industrial levels in the second half of the current century.

The modeling results of conservative and NetZero scenarios of (Akaev and Davydova 2023) for the second part of the current century are very close to the simulations of 'Vollset Reference' and 'Vollset SDG pace' world depopulation scenarios from (Klimenko *et al.* 2022b) respectively. Also the NetZero scenario of (Akaev and Davydova 2023) demonstrates a similar climate effect to the NetZero Historical scenario of the present study with the FAOSTAT biotic carbon flux variant.

Thus, the historical-extrapolation approach developed by the authors for forecasting the development of the energy industry and other areas of human economic activities and their impact on the global climate system yields results that are quite consistent with the predictions of other methods of modeling socio-technical systems.

3. Possible Impact of Some Modern Aspects on Current and Future GHG Emissions

Today the world is experiencing a period of unprecedented geopolitical tension; comparable to the Caribbean or major oil crises (Korotayev and Khokhlova 2023). The most striking manifestation of the confrontation between the so-called 'collective West' and the 'global South' has become the recent military conflicts in Ukraine and the Middle East. Assessing their long-run consequences is currently quiet difficult. As for the immediate GHG emissions due to the military operations in the Ukrainian territory, a recent study (Bun *et al.* 2024) estimates them at 77 million tons of CO*2eq* for the first eighteen months, *i.e.* about 0.15 % of the global total. In addition, the reduction of Russian natural gas supplies to Europe has had a profound negative effect, which caused an increase in coal consumption and subsequent GHG emissions in the region.

At the same time, van Meijl *et al*. (2024) argue, based on model simulations, that in the long run the Russia-Ukraine military conflict may lead to an additional reduction in GHG emissions due to increased energy prices and a redistribution of export flows

which will result in a reduction in energy consumption and an accelerated transition to renewable energy sources.

Now there is no doubt that modern shocks have significantly affected the path of the world development: from the version of 'harmonious globalism' (SSP1 – Sustainability. Taking the Green Road in the terms of [IPPC 2021]), the world is currently moving towards fragmentation (SSP3: Regional rivalry. A Rocky Road and SSP4: Inequality. A Road Divided). According to the model estimates [IPPC 2021], this could lead to a slowdown in the pace of global economic development and ensuing growth in energy consumption, as well as to a slowdown in the energy transition.

There is one more factor that can affect global development – the progress of digital technologies (Grinin L., and Grinin A. 2021). The development of AI, block chain processes, and mining have caused the rapid growth of large data centers. According to estimates (CBRE 2024), the total installed capacity of data centers in the world's largest clusters currently exceeds 10 GW, with an annual growth rate of 15–20 per cent. In Russia, about 0.7 GW of data center capacity was installed by the end of 2023, and the mining capacity in the country was estimated at 2.3 GW. Taking into account the high degree of load (80–90 %), they significantly increase electricity consumption and GHG emissions associated with electricity generation. However, the high density of waste heat fluxes from these centers contributes to their efficient use (Yakovlev and Avdokunin 2023), which significantly reduces the negative effect. In addition, the use of modern digital technologies accelerates scientific and technological progress (Grinin L., and Grinin A. 2021) and improves the energy and environmental performance of the economy (Cowls *et al*. 2023), which, in turn, ultimately also reduces the burden on the climate system.

In general, there are similarities between these two problems: an increase in GHG emissions in the short term and a decrease over a long time horizon.

4. Potential Consequences of Global Climate Changes and the Need to Build the Global Economy with Negative GHG Emissions

A comprehensive analysis of current changes in the global climate system suggests that even the modern world with a warming level of 1.2 °C is no longer a safe place to live. Recent estimates of damages from extreme weather events attributed to global warming show exorbitant figures of US$16.3 million per hour for 185 events and a total of US$4 trillion for the period 2000–2019 (Newman and Noy 2021). Of course, these figures are already higher now, considering the series of record-breaking temperatures, wildfires, floods, and droughts that occurred in the 2020s. The latest science warns of the risk of crossing various 'tipping points' beyond 1.5 °C, with potentially devastating consequences for global ecosystems, human health and security. By now, 16 so-called climate tipping points (CTPs), which are global or continental in scale, have been identified (Armstrong McKay *et al*. 2023). By CTPs, we mean such states of the climate system at which an abrupt large-scale, irreversible transformation can occur, without any potential for reversibility even after the removal of the external disturbance (at present, this is the anthropogenically induced accumulation of GHG in the atmosphere). The critical CTPs that can occur with a temperature increase of (1.5–2) °C are as follows:

– Collapse of the Greenland ice sheet;

– Collapse of the West Antarctic ice sheet;

– Die-off of the low-latitude coral reefs;

– Thawing of permafrost;

– Slowing down and collapse of the Atlantic Meridional Overturning Circulation

– Dieback of the Amazon rain forest and its transformation into a savanna-like state.

Observations over the last few decades have revealed clear indications of the initial activation of all listed CTPs, except for the last one, and there is a risk that the Greenland and West Antarctic ice sheets have already lost their stability and may partially collapse even at the current levels of warming (Armstrong McKay *et al*. 2023). The activation of any CTP is not an isolated event, but is likely to trigger the others. For example, permanently frozen soils contain a huge amount (1035 Gt C) of carbon and methane, the release of which into the atmosphere will inevitably amplify warming and trigger other CTPs, the collapse of the Greenland ice sheet will slow down the Atlantic Meridional Overturning Circulation, *etc*. Therefore, the world community is faced with the problem of preventing the occurrence of CTPs at a minimum level of warming, which is currently considered to be the threshold of 1 °C (Rockström *et al*. 2023). Hence, the below-listed problems of climate protection in the current and next centuries follow directly from this information:

– Take measures to reduce the temperature threshold to a level of 1 °C;

– Make the residence time in the unsafe zone above 1.5 °C as short as possible.

In solving these problems, the attainment of climate neutrality is not the final goal, but an intermediate one. The world community will have to build a new economy with negative GHG emissions (net carbon dioxide removal) during the current century. Now, since the residence time in the zone of dangerous overshoot 1.5 °C or even 1 °C extends over at least a century, the implementation of measures for adaptation of and compensation for inevitable losses comes to the fore. This is especially true for low- and middle-income countries, which are both the primary cause and the first victims of future climate change.

Conclusions

1. Both groups of countries – developed and developing – are far behind schedule in their emission control activities, and none of them can achieve the climate neutrality on schedule.

2. In several relevant areas of human activity that are characterized by high inertia (like energy industry, agriculture, forestry, and other industries), certain historical regularities are active, which prevent the desired transformations to be carried out at arbitrary paces.

3. Military conflicts and the development of digital technologies increase GHG emissions in the short term and reduce them over a long time horizon.

4. The climate protection goals set by UNFCCC participants exceed their historical ability to transform their economies even in the face of increasing climate risk.

5. The window of opportunity is closed. The 1.5 °C threshold for conditionally safe warming will inevitably be exceeded within the next decade, and even if the most revolutionary scenario for emissions control were to be implemented, the period of turbulent temperature overshoot would last for more than a century.

6. The focus of the global community's efforts should gradually shift from mitigation to adaptation to unprecedented climate conditions based on proactive measures.

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NOTES

[1] Almost the only such exception is the penultimate report of the Intergovernmental Panel on Climate Change (IPCC 2018), which used an alternative demographic forecast from the Institute for Applied Systems Analysis (World Population 2014; KC and Lutz 2017).

[2] Fertility is a key demographic factor, defined as the number of births per woman of reproductive age (15–49 years).

[3] Tce (ton of coal equivalent) – energy unit, equivalent to 29.3 GJ (approximate calorific value of one ton of high quality coal).

[4] The latest IEA forecast (IEA 2023) includes two scenarios for the development of global energy: STEPS (Stated Policies Scenario), which takes into account existing and pending climate protection measures, and APS (Announced Pledges Scenario), which assumes that national goals under the Paris Agreement will be achieved in full and on time.

[5] With the publication of the IPCC's Sixth Assessment Report (IPCC 2021), a new group of SSP ('Shared Socioeconomic Pathways') scenarios of anthropogenic impacts on the atmosphere and climate has been developed, proposing different trajectories of greenhouse gas emission dynamics depending on the target level of impacts by 2100 and the paths of global socio-economic development (Gidden *et al*. 2019; Meinshausen *et al*. 2019). This paper deliberately does not consider the most severe of them – SSP3-7.0 and SSP5-8.5, which assume the maintenance and even acceleration of growth of anthropogenic emissions, as well as the unjustifiably optimistic SSP1-1.9, aimed at achieving global climate neutrality by 2050.

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GLOBAL AND REGIONAL PROJECTS

CHANGING OF GLOBAL KNOWLEDGE NETWORKS IN THE WORLD SYSTEM RECONFIGURATION: THE CASE OF RUSSIAN AND BRICS+ RESEARCH WITH INTERNATIONAL CO-AUTHORSHIP

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Global networks of knowledge diffusion are both among the major products of globalization and its strongest factors, contributing significantly to its further development. However, in the course of the ongoing reconfiguration of the World System, which is likely to intensify in the coming decades, global knowledge networks, as well as international cooperation in science and research in general, are bound to experience profound structural changes. The paper examines Russia's current position in these networks and the recent dynamic changes in this position and in the structure of Russian researchers' international collaborations by focusing on the networks of international research co-authorship. At the first glance, the ongoing re-structuring of the system of Russian academic links with foreign countries could be attributed to the impact of sanctions, but this viewpoint fails to take into account the dynamics of the global academic co-authorship network and Russia's position within it over the past decades, which has been defined by the post-Soviet legacy and the abovementioned reconfiguration of the World System. Increasing investment in the domestic R&D, improving research infrastructure, and enhancing the quality of research can all make the World-System semi-peripheral and peripheral countries increasingly attractive R&D partners for each other. This factor is likely to contribute to the growth of the share of research collaborations between the countries outside the World-System core.

Keywords: *international cooperation in science and technology, World System reconfiguration, Russian science, international research co-authorship, knowledge diffusion, global networks.*

Introduction

Globalization is a powerful force shifting the current global economic-political balance (Grinin 2021; Grinin, Korotayev 2014). Among the numerous approaches to the study of globalization, some of the most notable insights are provided by the network ap-

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proach through its focus on the structure (and substructures), topological properties, and dynamic changes of global networks of various kinds (Shulgin *et al.* 2019; Zinkina *et al.* 2013, 2019). Thus, the global trade network has been studied to reveal waves and patterns of globalization and de-globalization (Chase-Dunn *et al.* 2000; Li *et al.* 2021), globalization and regionalization (Kim and Shin 2002), and structural changes in the global economy (Smith and White 1992; Vidya and Prabheesh 2020; Antonietti *et al.* 2022; de Soyres and Gaillard 2022) including periods of its integration and disintegration (Kali and Reyes 2002). Another example would be international networks of capital flows – in the form of FDI, first and foremost (Bolivar *et al.* 2019; Li *et al.* 2019), but also in other forms, such as the network of bilateral investment treaties (Bandelj, Mahutga 2013). The late twentieth and the first decades of the twenty-first century have seen a growing interest in global networks that transfer non-material objects, such as knowledge, across national borders – the so-called *R&D spillover* effect (see, *e.g.*, Coe and Helpman 1995; Engelbrecht 1997; Coe *et al.* 2009; Maxwell and Stone 2004; Zhu and Jeon 2007). Such networks can be simultaneously viewed as drivers of globalization and its results, stemming from the emergence and vigorous development of international research and production teams, cross-border production chains, etc. The impact of R&D spillovers on the recipient countries is closely related to some profound changes in the global trends. Most importantly, these changes include the departure of the World System from the Great Divergence between the developed and the developing countries (which lasted for about 170 years) to the Great Convergence between these economies. Indeed, starting from the 1970s, developing economies began catching up with their developed counterparts, thanks to increased rates of economic growth in the former (Grinin and Korotayev 2015).

International cooperation in science and technology is a companion of globalization (often in parallel with economic integration) and one of its strongest facilitators. It is often referred to as 'science diplomacy' as a field of interaction between science and technology, on the one hand, and foreign affairs and international relations, on the other (Ruffini 2020). This sphere can traditionally be divided into 'diplomacy for science,' 'science for diplomacy' and 'science in diplomacy' (see, *e.g.*, Berkman 2019; Krasnyak and Ruffini 2020).

However, even given the increasingly globalized environment, the development and successful cross-border spillover of science, technology, and innovation (STI) is not guaranteed *per se*. UNCTAD, for instance, specifies three major pre-requisites for the successful adoption and implementation of foreign STI at the national level, including a robust digital infrastructure, the improvement of human capital, and the channeling of development assistance towards STI. Teams from various UN agencies emphasize the necessity to focus the activities of various stakeholders on maximizing the level of STI development for reaching the Sustainable Development Goals (SDGs) globally (UNCTAD 2023).

Moreover, the World System is currently experiencing profound transformations of its structure, and some of the countries previously subsumed under the label of 'developing economies' are at the epicenter of this structural re-shuffling – first of all, the BRICS (Grinin, Grinin, and Korotayev 2024), especially China and Russia. In order to

gain a holistic understanding of the ongoing transformations, the network approach could once again be relied upon, as the changes in the structure of the World System are highly likely to be reflected in the structure of global networks. Both material and non-material trans-border flows can be investigated in terms of such changes, but we expect the non-material flows (related to culture, information, knowledge etc.) to respond more deeply and rapidly to the changing global environment. We seek to contribute to the understanding of the dynamic changes in the structure of global knowledge networks by focusing on the networks of research co-authorship.

Methods

In order to study the global knowledge networks, we have chosen to focus on one particular aspect, namely the generation of knowledge by international teams of researchers and scientists. In the light of what has been said above, it is important to make international cooperation in STI a measurable category, so that one can trace changes in its volume and structure, as well as its effects. This is where the question of choosing the most feasible indicators arises, as there are many – ranging from availability of foreign funding and modern scientific equipment to easy access to exchange of ideas with peers all over the world, from the number of potential customers for R&D results to the possibility of high-quality independent assessment of research results.

Today, the legal regulation of international scientific and technological cooperation is often declarative in nature and does not contain universally accepted approaches to individual aspects of such cooperation.* Russia is no exception to this problem. This situation limits science to the territory of a particular nation-state and does not provide an opportunity to view the situation at a higher level of international research and technological collaboration. Meanwhile, such collaborations and partnerships are developing rapidly in the world as a whole and in Russia in particular. Their great potential makes it highly relevant to study their goal setting, principles, features, sources, and content.

Of particular interest for us is Russia's changing position in such global networks. So we focus on one indicator of such cooperation, namely international co-authorship of research articles published in academic journals. To achieve the goal of this work, we use the methods of bibliometric analysis. The Scopus and Web of Science databases have search engines that allow obtaining information on the level of international co-authorship in publications, both counted as a whole and/or categorized according to particular research areas.

Results

Figure 1 shows the results of the author's calculations of the annual number of research papers published by Russian scholars in Scopus-indexed journals in co-authorship with their foreign colleagues during the period 1990–2021.

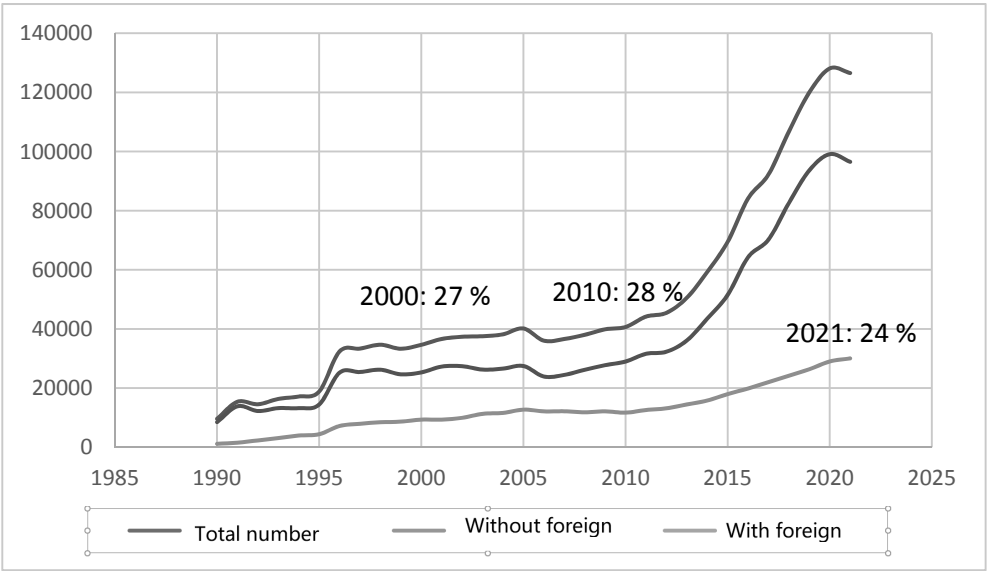

Fig. 1. Research papers published by Russian scholars in Scopus-indexed journals, 1990–2021 (total number; co-authored with foreign colleagues; not co-authored with foreign colleagues). Calculations were conducted on June 1, 2022

The most evident trend, clearly visible in Figure 1, is the very fast growth in the total number of research papers published by Russian scholars in Scopus-indexed journals since 2010; more than tripling in the decade between 2010 and 2020. At the same time, the intensity of international cooperation in science and technology (as measured by the number of Scopus-indexed papers by Russian researchers with international co-authorship) has remained more or less stable and has been subject only to a rather slight decline when measured as a percentage of the total number of Scopus-indexed publications by Russian researchers. At the same time, it has grown considerably in absolute terms, by 2.6 times since 2010. This means that the intensity of international cooperation in science and technology has grown more slowly than the Russian research publication activity in general. The former increased by 18 thousand research publications per year in the period 2010–2021. This means that the contribution of the intensity of international cooperation in science and technology to Russian research publication activity was no more than 20 % of the observed growth of the latter. In general, this was a period when Russian scholars greatly increased their publication activity in the Scopus-indexed journals, and a number of Russian journals began to be indexed by Scopus as well. Nevertheless, international collaborations contributed to this growth, although their role was probably not decisive. However, this role may vary considerably from one country to another, so it is necessary to investigate the dynamics international co-authorships by Russian researchers by partner country (see Figures 2 and 3).

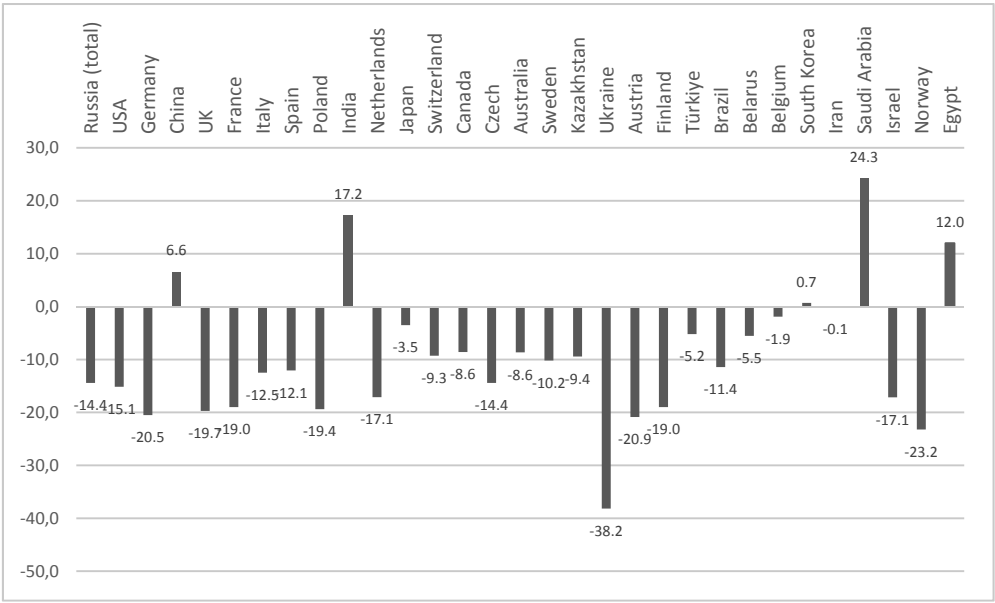

Fig. 2. The change between the share of internationally co-authored research papers published by Russian researchers in Scopus-indexed journals, 2022–2023

Source: author's calculations based on search results across the Scopus database obtained on October 1st, 2023.

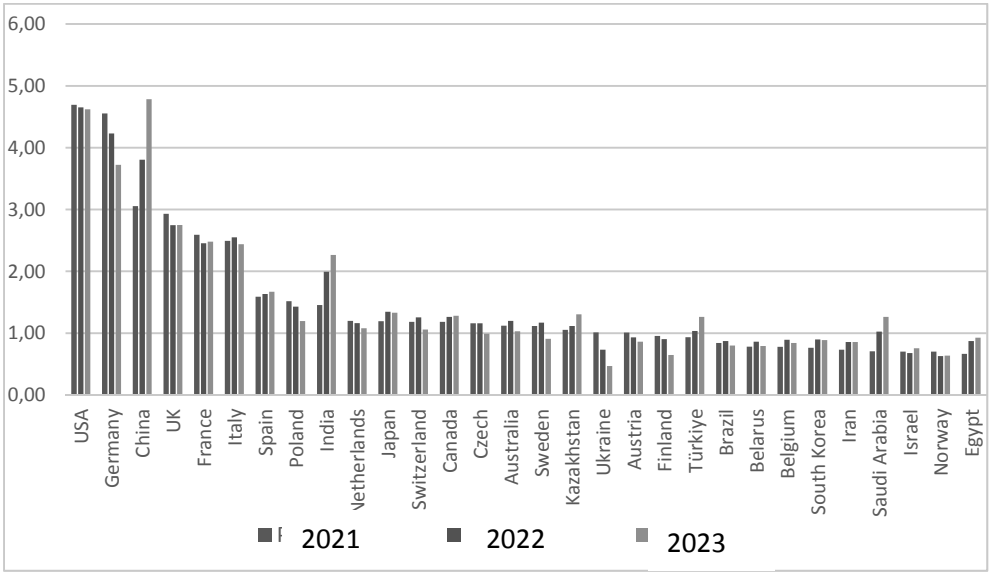

Fig. 3. Share of co-authorships with researchers from particular countries in the total number of international co-authored papers published by Russian researchers in Scopus-indexed journals in 2021, 2022, and 2023

Source: author's calculations based on search results across the Scopus database obtained on October 1st, 2023.

From Figure 3 we can infer that the steepest decline in the proportion of co-authored papers was observed between Russian and German researchers both in 2022 to 2021 and 2023 to 2022. Quite surprisingly, the proportion of research papers co-authored by Russian and US researchers has remained nearly stable – but this does not mean that it stayed intact in terms of absolute numbers, but rather that it declined at the same rate that the number of internationally co-authored papers by Russian researchers did. The most pronounced increase, meanwhile, was observed between Russian and Chinese scholars, with somewhat smaller increases in the cooperation of Russian scientists with their colleagues from India, Kazakhstan, Turkey, and Saudi Arabia.

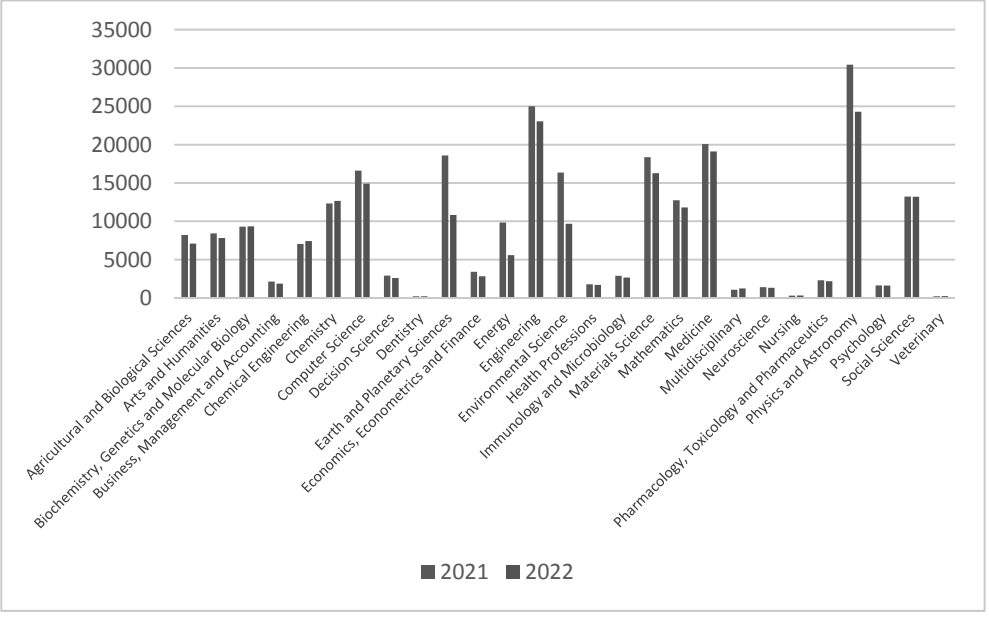

Fig. 4. Number of publications by Russian scientists in 2021–2022 by field of science

According to the data as of April 2024, using not the Scimago resource, but the direct search in Scopus (the final data may differ in different portals), 6,000 fewer Russian publications were published in Scopus-indexed journals in 2023 than in 2022, with only 20 % of them being written by international teams of authors. Thus, the level of international cooperation of Russian researchers on international scientific publishing platforms has decreased as compared to the previous period. The largest shares of international co-authorship were observed with China (3.7 % of joint publications by scientists from these two countries of the total number of Russian publications), the USA – 3.5 %, Germany – 2.9 %, the UK – 2.1 %, France – 1.9 %, Italy – 1.9 %, India – 1.8 %, Spain – 1.3 %, and Kazakhstan – 1.2 %.

Against the background of sanctions and intense geopolitical turbulence, it is reasonable to study the strengthening of cooperation between Russia and friendly countries in the sphere of science and research. For this purpose, let us consider the changes in the publication activity of Russian scientists together with their counterparts from the BRICS countries, including the new countries of the association (that joined it in 2024),

as well as with the United States. To this end, we will consider and compare the indicators for 2021 and 2023. First of all, it is necessary to find out the general change in the publication activity of these countries (Figure 5).

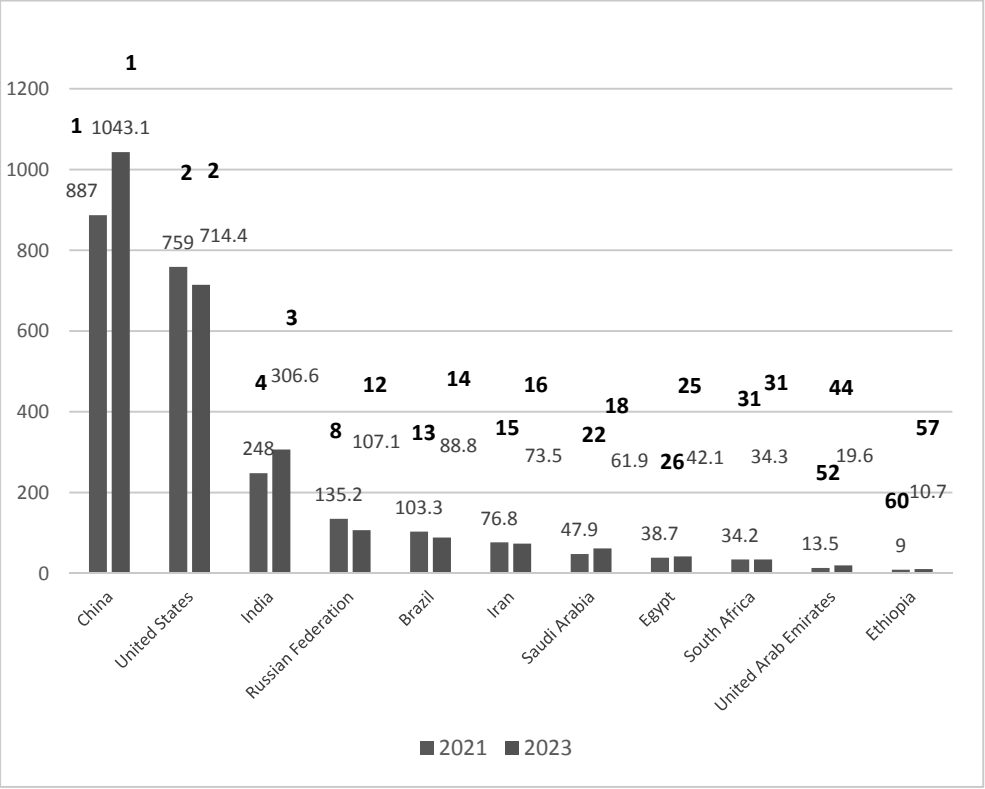

Fig. 5. Number of publications in Scopus (in thousand units) in the BRICS countries, including those that joined the association in 2024, and in the USA (for comparison) (2021 and 2023). The position of these countries in the ranking by the number of publications for each year is shown (highlighted in bold)

As can be seen from the data in the figure, the United States, Russia, Brazil and Iran show a slight decrease in the number of publications, while other countries, especially China, India, Saudi Arabia and the United Arab Emirates, show a significant increase in the annual number of publications from 2021 to 2023. In 2023, six BRICS countries are already among the top-20 countries in the world in terms of the number of scientific publications. Publication activity can grow both through purely domestic efforts and through their combination with active engagement in international research collaborations. In this respect, we consider the shares of publications written in international collaborations for these countries in 2021 and 2023 (data obtained by the author through the analytical module of the Scopus search engine on September 1, 2024) – Figure 6.

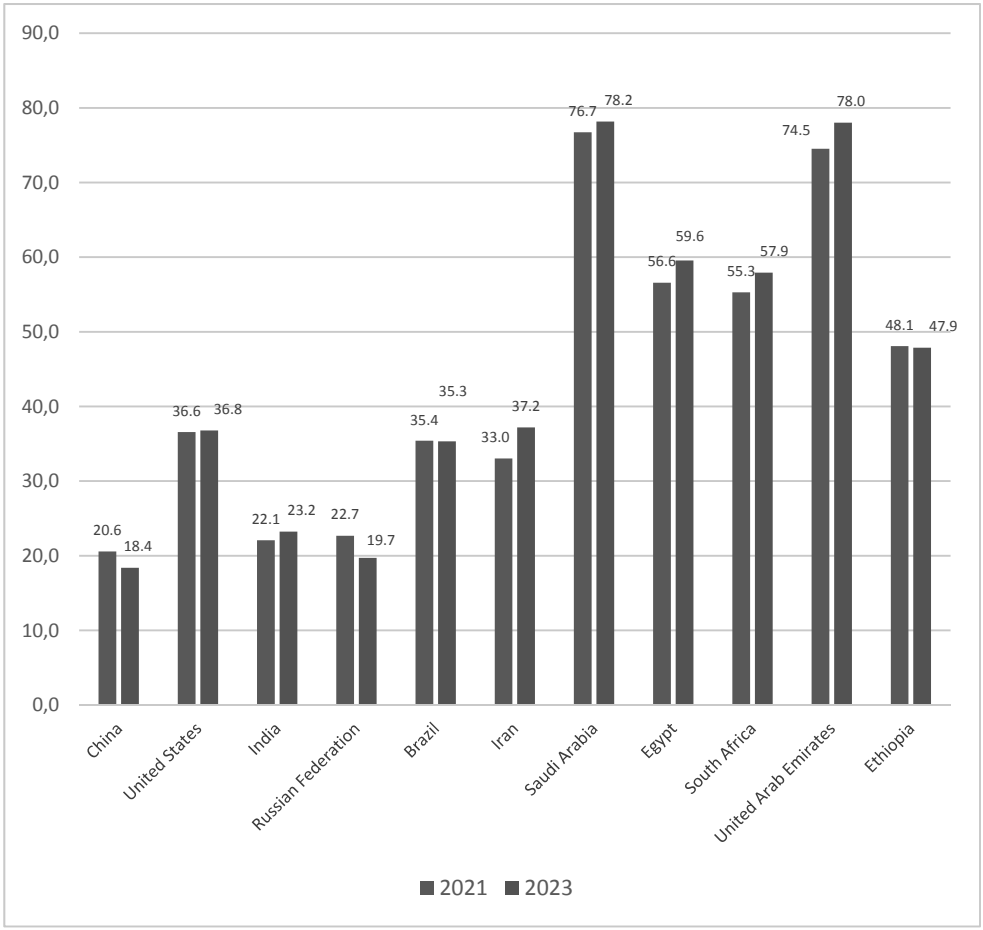

Fig. 6. Share of publications in 2021 and 2023 prepared in international collaboration, %

Data source: calculated by the author based on search conducted within the Scopus database – 09/01/2024.

Most of the BRICS countries and the United States have increased their level of international collaboration in research publications (even Iran, which is under heavy sanctions), but China and Russia, and to a lesser extent Brazil, have shown a fairly significant decrease in this level, especially Russia, where the total number of publications from 2021 to 2023 has decreased by 21 % due to the effects of sanctions pressure. However, there is no doubt that such pressure will cause a mutual desire to redirect international interaction towards friendly states in general and members of the BRICS and SCO in particular. In this regard, it is important to identify the 'fine structure' of the content of intercountry interaction in science as reflected in joint scientific publications. Table 1 presents the relevant data on international cooperation in research papers co-authored by the BRICS countries among themselves and by the United States in 2021 and 2023.

Table 1

Ranking and share of joint publications by researchers from BRICS countries with researchers from other BRICS countries, and publications co-authored with researchers from the USA in 2021 (A) and in 2023 (B)

A)

	Brazil	Egypt	India	Iran	China	UAE	Russia	Saudi Arabia	Ethiopia	South Africa	USA
Brazil		22–1.1	17–0.72	23–0.96	29–0.24	22–2.15	23–0.75	31–1.08	28–1.16	15–2.77	13–1.64
Egypt	45–0.42		16–0.7	27–0.81	25–0.3	5–8.4	37–0.47	1–20.1	31–0.99	45–1.02	34–0.45
India	15–1.7	5–4.6		9–2.02	15–0.6	3–10.4	10–1.1	2–13.9	1–12.5	6–4.98	11–1.8
Iran	30–0.72	18–1.6	21–0.63		23–0.32	24–2.1	34–0.51	22–1.67	24–1.3	26–2.65	23–0.7
China	10–2.05	3–6.9	4–2.2	3–3.73		6–7.6	3–2.7	5–9.4	4–4.5	8–4.7	1–8.07
UAE	54–0.28	8–2.9	26–0.57	44–0.37	44–0.1		63–0.16	13–2.8	41–0.81	48–0.95	43–0.28
Russia	21–1.1	12–2.3	15–0.78	13–1.3	20–0.46	19–2.4		20–1.96	39–0.84	18–2.22	19–0.82
Saudi Arabia	38–0.5	1–25.9	3–2.7	18–1.04	17–0.51	4–9.9	42–0.41		17–1.86	21–2.05	26–0.66
Ethiopia	83–0.1	80–0.23	30–0.46	69–0.16	60–0.05	66–0.55	87–0.04	62–0.35		46–1.0	61–0.12
South Africa	26–0.92	33–0.91	18–0.7	31–0.74	36–0.18	18–2.4	30–0.53	26–1.47	7–3.8		22–0.71
USA	1–12.1	2–8.95	1–5.5	1–6.96	1–6.9	1–15.8	1–4.4	4–10.4	2–10.1	1–15.9	

B)

	Brazil	Egypt	India	Iran	China	UAE	Russia	Saudi Arabia	Ethiopia	South Africa	USA
Brazil		28–1.1	24–0.6	21–0.91	33–0.2	27–2.2	27–0.6	38–0.98	31–0.95	15–3.1	14–1.58
Egypt	44–0.51		15–0.8	24–0.82	25–0.31	7–7.85	22–0.68	1–19.8	25–1.3	37–1.35	33–0.52
India	12–2.1	4–5.9		9–2.46	13–0.63	2–13.6	7–1.73	2–17.7	1–14.8	4–6.97	8–2.45
Iran	34–0.74	21–1.4	25–0.57		26–0.28	32–1.92	26–0.6	27–1.39	44–0.68	36– 1.39	21–0.77
China	10–2.4	3–7.6	4–2.1	2–4.04		5–8.6	1–3.6	4–10.5	6–3.9	8– 5.1	1–7.45
UAE	47–0.49	8–3.7	13–0.86	34–0.53	37–0.16		43–0.36	9–3.9	41–0.71	26–1.78	40–0.41
Russia	33–0.75	20–1.8	23–0.62	19–0.91	21–0.38	31–1.98		23–1.63	45–0.67	43–1.29	31–0.53
Saudi Arabia	38–0.67	1–28.8	2–3.5	16–0.17	14–0.61	4–11.96	13–0.9		8–3.2	18–2.4	19–0.86
Ethiopia	92–0.11	71–0.34	29–0.51	81–0.1	66–0.04	75–0.38	84–0.07	57–0.56		35–1.42	61–0.14
South Africa	22–1.2	24–1.1	18–0.77	31–0.67	36–0.17	19–3.1	37–0.4	28–1.35	4–4.6		20–0.78
USA	1–12.8	2–8.9	1–5.7	1–7.63	1–5.1	1–15.1	2–3.5	5–10.1	2–9.5	1–16.3	

Note: the first figure denotes the ranking in terms of the number of joint publications; the second number (separated by a dash) indicates the share of publications of scientists from the countries in the left column of the table in the total number of publications of the countries in the top row. A grey color indicates a decrease in the number of joint publications in a given pair of countries between 2021 and 2023.

Source: data obtained by the author through the search in the Scopus database (09/01/2024).

Discussion

At the first glance, the ongoing re-structuring of the system of Russian academic relations with foreign countries could be attributed to the impact of sanctions. However, when one considers the dynamics of the global academic co-authorship network and Russia's position in it over the past decades, this position seems to border on crude reductionism. Since the collapse of the USSR, significant changes have been observed in the Russian scientific infrastructure, which was largely inherited from the USSR. The intensity of collaboration between researchers from Russia and other post-Soviet countries declined sharply as all these countries went through an extremely turbulent period of social instability and severe economic crisis (Yegorov 2009). Other post-Soviet countries also experienced profound changes – for example, Eastern European countries of the former Warsaw Pact increased their scientific collaboration with Western countries more than among themselves during the 1990s (Kozak *et al.* 2015). Generally speaking, for a quarter of a century (1993–2018), the post-Soviet countries 'actively intensified scientific collaboration with other countries, eliminating the scientific isolation of Soviet science' (Matveeva *et al.* 2022: 1599), reaching higher indicators of collaboration than the average global values. At the same time, Russia (along with Lithuania) demonstrated the lowest share of international collaboration in its research sphere among all the post-Soviet countries, which could be a positive sign of the strengthening of national science. Thus, a part of the observed decline in the intensity of international co-authorship of research papers by Russian scientists could be attributed to the further development of Russian national science.

Apart from the development of Russian R&D *per se*, the global context of this development should be considered. The global World System is currently undergoing a major reconfiguration (including both structural and systemic changes) that is significantly weakening the World-System core countries. Leonid Grinin and Anton Grinin show that '[t]he main reason for this reconfiguration … is associated with a noticeable lag between the political component of globalization and its economic component' (Grinin and Grinin 2022: 263). As the gap between these two components cannot grow indefinitely, an intense catch-up of the political component is expected to take place in the coming decades, which will contribute significantly to the global geopolitical turbulence (Grinin 2022). Such a major reconfiguration is bound to influence the structure of all global networks, including the network of research collaborations. Indeed, the phenomenon of the Great Convergence mentioned in the Introduction implies that developing countries are catching up with economic frontier, which can only be paralleled by catching up with the knowledge frontier as well. Growing investment in the domestic R&D, improving research infrastructure, and enhancing the quality of research can all make the developing countries increasingly attractive R&D partners for each other, which is likely to contribute to the growth in the share of research collaborations between countries outside the World-System core.

The data presented in Table 1 show a general pattern that scientifically strong countries cooperate more actively with stronger countries, even despite political, economic, and other competition between them. Thus, China is the main partner of the US in terms of joint research publications, and both these countries lead the world in the number of publications. The US is the leading partner in joint research publications for 6 out of 10

BRICS countries, including even Iran, which is in a rather tough confrontation with the US. At the same time, however, the United States' position as a partner in joint research publications has slightly decreased for six out of ten BRICS countries in 2021–2023, which can only indirectly reflect the development of a network of scientific cooperation 'without America' within the world of developing countries as their economic and technological power increases. The relative decline in interaction with the United States particularly affects researchers from China and Russia (but not Iran). Russia's share in the number of publications of all the countries studied decreased between and 2023, but at the same time, Egypt, India, China, Ethiopia, Saudi Arabia and the UAE strengthened their positions in scientific co-authorship with Russia, and China generally took a leading position, displacing the United States. Similar, but somewhat less pronounced changes occurred in Iran.

These processes reflect a certain heterogeneity of the BRICS; the science and research sectors in some BRICS members have stronger ties to the US (and the West in general) than in others. The development of networks of international cooperation in science within the world of developing countries is moving towards the formation of closely related clusters that are only secondarily associated with the leading countries in world science. For example, Saudi Arabia is the most important science partner for Egypt and the second most important for India in 2023, while the role of cooperation with the United States has relatively decreased over two years. Within the BRICS, there are two strongly interconnected clusters: 1) India-Egypt-Saudi Arabia-UAE-Ethiopia, and 2) China-Russia-Iran, and interaction within them is clearly increasing. At the same time, the two clusters are closely interconnected. Brazil and South Africa tend to focus on traditional ties with Western science and are rather weakly interconnected in scientific terms.

Thus, scientific cooperation within BRICS is actively developing, while its 'non-American vector' is clearly strengthening, which undoubtedly contributes to Russia's efforts to preserve and use international scientific cooperation to develop its research in the context of Western sanctions pressure.

How should the sphere of Russian R&D be managed in the context of the ongoing reconfiguration of the World System and the accompanying global political turbulence it? A rather widespread view among Russian policymakers is to focus on the subordination of the R&D to solving the social and economic problems that need to be solved to maintain Russian national security. This is a pragmatic viewpoint that expects the R&D sphere to generate new knowledge and skills that are of high practical value.

However, this viewpoint suffers from some serious omissions in its perception of the potential of Russian science. First, applied research projects with the ultimate goal of maintaining national security and solving specific development problems can provide multi-use results that are of practical interest to other countries as well. This means that such projects can be supported through joint projects with foreign or transnational actors. In this case, knowledge and skills generated by such projects should also be of value to these actors.

Second, one of the main strengths of Russian science is the traditionally high level of fundamental researches, whose results are of global importance and can be applied in global development projects in order to meet the global challenges more efficiently.

Science has already achieved the ability to calculate certain scenarios of world development that are beneficial to humanity as a whole, using purely pragmatic approaches. Although the complexity of these calculations is such that it is still difficult to defend the value of their results at the level of universal human imperatives, nevertheless, world science has been following this path for more than 50 years and has been directly influencing the world agenda since the first reports to the Club of Rome.

Conclusion

International co-authorships of Russian research papers in particular and international cooperation of Russian researchers in general are important and can be considered within the framework of Russian approaches to maintaining international cooperation in the field of science and technology. It should be noted that international scientific and technical cooperation in itself is part of cooperation in the field of innovation. At the same time, it is necessary to understand the cross-border nature of knowledge generation in science in order to develop a strategy of international innovative cooperation, which is part of both economic cooperation and cooperation in the field of science and technology.

NOTE

* For a wide range of possible indicators please see: UNESCO Science Report: The Race against time for smarter development// UNESCO, 2021. 736 p. URL: https://unesdoc.unesco.org/ark:/48223/pf0000377433 (date of access: 1.01.2024).

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UPDATING COGNITIVE SECURITY IN A GLOBAL DIMENSION*

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The idea is substantiated that the advent of the Anthropocene epoch as a modern stage of global history and global evolution, in all its diversity of natural and socio-economic trends, has led to the aggravation of global risks (environmental, geopolitical, economic, social and technological) and the phenomenon of global security in all its manifestations (international, economic, food, military, information, spiritual, cognitive, etc.). The current situation necessitates the development of a theoretical and methodological basis for the study of global security in these areas, and the development of specific recommendations that are positioned in asphatronics as a theory of global security. Over the past two decades, risks associated with the development of artificial intelligence and the expansion of cognitive operations in the military and civilian spheres have been actively 'implanted' into the global risk group.

Special attention is paid to the actualization of the problem of countering cognitive operations, which has led to the emergence of a new, sixth, domain of hybrid warfare, namely cognitive. Cognitive warfare poses global risks of a purely technological and geopolitical, economic, socio-anthropological and existential order. Cognitive warfare is interpreted as a war of ideologies, and the essence is to take control of people, organizations, nations, and to manipulate a person's consciousness and subconscious.

The article substantiates the position that asphatronics, which claims to be a theory of global security, should be developed in close connection with cognitology (a system of cognitive sciences), one of the research areas of which is information, psychological and cognitive security.

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Keywords: *globalization studies, asphatronics, anthropocene, global risks, cognitive warfare, cognitive security.*

Introduction

In the interdisciplinary structure of globalism at the present stage of its development, the search for solutions to the problems of preventing global risks and ensuring global security is beginning to occupy an increasing share. Moreover, these searches are justified, firstly, by the methodology of global history, which, as Patrick O'Brien predicted, focuses on the development of two principles of the modern picture of the world: *connections* and *comparisons*, through which a global perspective of the historical process opens up (O'Brien 2006: 3–39). Secondly, it is necessary to identify the essence of the phenomenon of security in the processes of global evolutionism, whether it is the geological history of the Earth or cognitive processes at the 'peak of biological evolution' (Ilyin, Ursul A., and Ursul T. 2012: 282–313). Thus, the natural connection of the phenomenon of global security in all its manifestations (geopolitical, economic, social, technological, cognitive, *etc*.) with the Anthropocene seems explicable, since each of them (manifestations) is actualized as threats and global risks escalate, which determines the content of the '*era of insecurity*'. Moreover, a number of publications present ominous data on the critical state of the Earth's biosphere, characterizing the onset of a new geological epoch in global history – the Anthropocene (Grooten and Almond 2018; Laffoley and Baxter 2019; Pörtner *et al.* 2019).

The Davos Economic Club has been actively and systematically monitoring the dynamics of global risks (environmental, geopolitical, social, economic and technological), and since 2006 has published annual reports called the Global Risks Report. The latest one was released in January 2024, in which we meet serious warnings:

– 'environmental risks can reach the point of no return';

– 'technological risks remain uncontrollable';

– 'increasing geopolitical tensions combined with technology will create new security risks';

– 'the use of artificial intelligence technologies for military purposes'.

These risks (along with others) are expected to disrupt global stability in the next decade, and the uncontrolled, in many ways, development of artificial intelligence will pose a serious threat (WEF 2024). Therefore, the problem of ensuring global security implies not only the need to develop a theoretical and methodological basis for its research and the development of specific recommendations, as was proposed earlier in the work positioning asphatronics as a theoretical justification for global security (Kefeli 2020), but also to pay attention to the problem of ensuring information, psychological and cognitive security that has arisen in recent years.

Global Risks from the Perspective of the Anthropocene

Back in 1992, the American ecologist and journalist Andrew E. Revkin pathetically declared that humanity was entering an era 'which one day could be called, say, the Anthrocene. After all, this is the geological age of our creativity. Perhaps many readers ignored the minor linguistic difference and read the term as anthro(po)cene!' (Revkin 1992: 55). In 2000, the Nobel laureates (for their research on ozone holes in the atmosphere) Paul J. Crutzen and Eugene F. Stoermer, in a short note entitled 'The Anthropo-

cene,' unequivocally stated that human activity in the holocene epoch gradually developed into a significant geological force. They rightly pointed to the contribution of Vladimir I. Vernadsky, who recognized the growth of the power of humankind as part of the biosphere and, together with Pierre Teilhard de Chardin and Pierre Leroy, coined the term 'noosphere' in the course of their scientific discussions and suggested using the term 'Anthropocene' to denote the current geological epoch, the onset of which is associated with the first industrial revolution (Crutzen and Stoermer 2000: 17–18). In 2016, Martin Rees made

> the darkest prognosis for the next millennium is that bio, cyber or environmental catastrophes could foreclose humanity's immense potential, leaving a depleted biosphere… But there is an optimistic option… The dawn of the Anthropocene epoch would then mark a one-off transformation from a natural world to one where humans jumpstart the transition to electronic (and potentially immortal) entities, that transcend our limitations and eventually spread their influence far beyond the Earth… Anthropocene has begun… (Rees 2016).

Concerns about global risks was rather sharply voiced in the 50th anniversary report to the Club of Rome, 'Come On!', prepared by two former leaders, Ernst Ulrich von Weizsäcker and Anders Wijkman, who, following the recommendations of geologists and ecologists, recognized the Anthropocene as the beginning of the 'era of human domination over all spheres (all aspects) of our planet, including its biogeochemical composition' (Weizsäcker and Wijkman 2018: vii).

However, all expectations of a final resolution of the controversial issue of the recognition of the Anthropocene as the 'official unit of the geological time scale' ended in March 2024 with the adoption of a joint statement by the International Union of Geological Sciences (IUGS) and the International Commission on Stratigraphy (ICS), which reads as follows:

> It is with the delegated authority of the IUGS President and Secretary General and on behalf of the International Commission on Stratigraphy (ICS) that the vote by the ICS Sub-commission on Quaternary Stratigraphy (SQS) to reject the proposal for an Anthropocene Epoch as a formal unit of the Geologic Time Scale is approved. The voting members of SQS have extensive experience and wide expertise in Quaternary stratigraphy and chronology. Their vote was approved by the ICS executive, and that approval was overwhelmingly supported by the chairs of the ICS sub-commissions. Despite its rejection as a formal unit of the Geologic Time Scale, the Anthropocene will nevertheless continue to be used not only by Earth and environmental scientists, but also by social scientists, politicians and economists, as well as by the public at large. It will remain an invaluable descriptor of human impact on the Earth system (Joint statement by the IUGS and ICS… 2024).

Such a correct attitude to the 'unit of the geological timeline', unrecognized by geologists, retained the right to use it in global discourse, as Jacques Grinevald pointed out, considering it necessary to distinguish between the concepts of the Anthropocene and the noosphere (Grinevald 1997: 20–32; Will *et al*. 2011: 842–867). In our case, the agreement of such respected organizations as the IUGS and the ICS that the Anthropo-

cene should be used by 'sociologists, politicians and economists, as well as the public in general' to describe the human impact on the Earth system confirms the dominance of the integrative trend in the cumulative processes of global security. The information space of the Earth is a global information system for aerospace monitoring of the Earth (exploration of natural resources, control of man-made accidents and natural disasters, navigation and communication), the primary basis of which was the creation of the global space information and control system of the Russian Aerospace Defence (VKO), the theoretical, technological and structural foundations of which were laid in the 1960s–90s by Academician of the USSR Academy of Sciences Anatoly I. Savin.

Large-scale work in this field has determined the substantive part of one of the socio-economic trends of the Anthropocene – telecommunications (more broadly, computer science and communications) (Steffen *et al*. 2015: 81–98; Ian 2015). The phenomenon of cognitive security as one of the key areas of global security has a 'kinship' with the Anthropocene and its socio-economic roots, and cognitive warfare should be considered as a marker of the onset of the Anthropocene, embodying the 'dark side' of the digital world.

Cognitive Warfare as a Sign of the Beginning of the Anthropocene Epoch

In the early 20s of the twenty-first century, the issue of the formation of another area (domain) of military operations – cognitive warfare (a more accurate translation is cognitive operation, Cognitive Warfare) – began to be widely discussed in the NATO military analytic community. The technology of cognitive operations, sponsored and controlled by NATO as a 'way to harm the brain,' began to be developed in 2013 at the NATO Innovation Center (iHub, Norfolk, USA). The developers called it 'cognitive war,' the purpose of which is to harm not only military personnel, but also the civilian population. The possibility that civilians could be 'sleeper cells,' 'fifth columns' challenging the stability of 'liberal Western democracies' was identified as a potential threat. 'Cognitive warfare,' as the head of the aforementioned center, François Du Cluzel, put it

> is a war of ideologies that seeks to undermine the faith [and trust] that holds any society together… In a world riddled with technology, cognitive warfare mobilizes a wider range of combat spaces than physical and information dimensions can do. Its very essence is to seize control over people (civil and military), organizations, nations, as well as ideas, psychology, especially behavioral, thoughts, as well as the environment (Du Cluzel 2020).

In the same year, another NATO document was released, prepared in collaboration with a team of authors from Johns Hopkins University, in the form of a kind of guide to action with the remarkable title ('Cognitive Warfare: An Attack on truth and Thought'), which openly states that cognitive warfare 'pursues two separate but complementary goals: destabilization and influence… The targets of cognitive warfare attacks can range from entire populations to individual leaders in politics, economics, religion, and academia.' Here we are talking about criteria for recognizing cognitive threats, proposals to amend the UN Charter, for which NATO and its allies should identify acts of cognitive (non-kinetic) warfare and create 'cognitive organizations within their law enforcement and military organizations with communication channels operating throughout the Alliance, the armed forces and between the government and local law enforcement agencies' (Bernal *et al*. 2020: 11, 19–20). The main provisions defining the goals, opportuni-

ties, and conditions for the implementation of cognitive warfare, as proposed by Du Cluzel and his colleagues, and expressing the official position of the military and political leadership of the North Atlantic Alliance, are presented as follows:

1. According to the concept of 'cognitive warfare,' another dimension of combat appears on the modern battlefield – the cognitive dimension, which complements the physical (land, sea, air, space) and information dimensions. In a world full of NBICS technologies (nano-, bio-, info-, cognitive and social technologies), Kluzel clarifies, war in the cognitive field mobilizes a wider range of hostilities, exercising control over people, social institutions and peoples, over public and individual consciousness, mass psychology and the environment.

2. The implementation of the concept of 'cognitive warfare' requires knowledge not only of the natural and technical sciences, but, to the full extent, of the humanities – philosophy and psychology, philology and ethnology. Neuroscientific methods can be used for both medical and non-medical (educational, professional, life, military) purposes, and brain science itself is divided into both fundamental and applied, which is particularly attractive for use in the field of security, intelligence and military operations.

3. In this case, the study of the cognitive domain focused on a person is a new serious task that is necessary for any military strategy related to the formation of combat power in the future. In the armed forces, the author argues, knowledge in the fields of anthropology, ethnography, history, psychology, among other fields, will be more necessary than ever for cooperation with the armed forces, for example, to obtain a qualitative understanding from quantitative data. In other words, if pointing to a modern battlefield proclaims a new meaning for man, then it is more about rethinking the interaction between the exact and social sciences.

Du Cluzel approaches the disclosure of the content of his project by stating that in the twenty-first century, the strategic advantage will be how to interact with people, understand them and gain access to political, economic, cultural and social networks in order to achieve a relative advantage that complements a single military force. These interactions are not limited to the physical boundaries of land, air, sea, cyberspace and space, which tend to focus on geography and terrain characteristics. These same interactions represent a network of networks that define power and interests in an interconnected world. The participant who best understands the local context and builds a network around relations that take advantage of local opportunities is more likely to win. 'Victory will be determined more from the point of view of capturing psychocultural rather than geographical heights. Understanding and empathy will become an important weapon of cognitive warfare' (Du Cluzel: 2020: 28). The aim of cognitive warfare is to harm not only the military, but also the whole society (opponent, rival, enemy), and this type of war resembles actions 'in the gray zone,' where influence becomes the main weapon. As a result, the author gives a number of recommendations and assurances to the NATO leaders:

– Cognitive warfare, which blurs the line between peace and war, includes NBICS technologies for use in specific operations to provide 'a reliable way of military superiority in the near future' (Du Cluzel 2020: 33);

– NATO can play a role in promoting the creation of an international legal framework that meets the ethical standards of NATO countries (Du Cluzel 2020: 34, 35).

– Tactical and operational victories can be achieved in the first five domains; only in the human domain is it possible to achieve a final and complete victory.

Cognitive operations represent the sixth domain of hybrid warfare, so they are generally grouped under the single concept of 'cognitive warfare,' waged in the most vulnerable place – the human brain. Cognitive operations are subject to human consciousness, its spiritual world, values, and worldview at the substrate and functional levels.

All this convinces us that cognitive warfare involves global risks not only of a purely technological order, but also of a geopolitical, economic, socio-anthropological and existential order, which is confirmed by the above-mentioned 'Global Risks Report for 2024,' the conclusion of which sounds rather optimistic: the world is undergoing many long-term structural transformations: the development of artificial intelligence, climate change, a shift in the geopolitical distribution of power and demographic transitions. These structural forces are global, pervasive, and charged with momentum. Against this background, it is necessary to mitigate known risks and be prepared to manage emerging risks (WEF 2024: 92).

A seemingly fleeting and non-binding phrase about mitigating already known risks found a response only last year in the analytical work of the NATO scientific community. The report, published by the NATO STO HFM Exploratory Team in March 2023 and presented to the NATO leadership, was entitled 'Mitigating and Responding to Cognitive Warfare,' and according to the authors, 'science and technology needed to mitigate the effects of cognitive warfare and protect against it' (Masakowski and Blatny 2023). According to the authors of the report, CogWar (as in the text of the report), based on the convergence of cognitive technologies, bio- and neurotechnologies, artificial intelligence technologies and big data processing has become a powerful means of spreading disinformation. CogWar poses a threat to national and global stability and security at the economic, geopolitical, social and cultural levels, as it targets the vulnerability of people as a means of creating chaos and confusion in the mass consciousness of different countries and within the armed forces. CogWar does not focus on 'information,' but on 'cognition,' i.e. on what the brain does with information. Therefore, the report focuses on the issue of CogWar protection:

> We must anticipate the impact of new technologies and the intersection of scientific fields in order to be effective in our CogWar protection strategy… Countries (members of NATO – *I. K., R. V., O. P.*) should consider protection from CogWar as an imperative of national and global security. CogWar is a weapon in the enemy's arsenal used to achieve their goals, shift our attention, change the human understanding of events, provoke civil unrest, undermine democracy and change the geopolitical and economic environment in the interests of their country. Education should also play a key role in the development of future critical thinkers (Masakowski and Blatny 2023: 73).

Conclusions

Focusing on the actualization of cognitive security in the global dimension, the authors concentrated on identifying the internal links between the global risks discussed above and those that have filled the global information space due to the development of artificial intelligence, the technological capabilities of big data analysis and the intensive use of achievements in cognitive sciences and technologies. This primarily involves the use of cognitive psychology and linguistics, neurobiology and cognitive anthropology, socio-

logical and cultural practices, that is, the entire range of natural sciences and humanities in military science and methods of conducting cognitive warfare. The response to these acts consists in the development of theoretical and methodological foundations for cognitive security, a set of cognitive technologies and practices, the publication of scientific and educational literature, the training of scientific personnel, the organization of research centers and laboratories for conducting multidisciplinary activities. It is always difficult to get started, but the first steps are already being taken (Kefeli and Yusupov 2017; Kefeli 2023).

Nevertheless, the main intellectual link in the connection between asphatronics and cognitology should be recognized as globalism, a global style of thinking, which was pointed out quite specifically by the above-mentioned Anatoly Ivanovich Savin:

> It was necessary to replace earthly thinking with cosmic one, …this is already global thinking… The system should be global, because it is necessary to control all the space near the Earth. The transition to a global type of consciousness is very difficult for anyone. A person is used to thinking concretely, but at present this is not enough. I have managed to overcome this barrier… (Kefeli 2020: 87).

It must be assumed that the claims of asphatronics to the status of a theory of global and cognitive security, revealing many secrets of the Anthropocene, including the 'dark side of the digital world' (Antonio Guterres), are not without reason. A promising part of it should be that part of cognitive science, which is devoted to the whole range of problems of ensuring information, psychological and cognitive security. The 'Statement by the Council of the Parliamentary Assembly of the Collective Security Treaty Organization in connection with the development of artificial intelligence technologies,' adopted on June 3, 2024, was quite timely, not only recognizing that artificial intelligence technologies can be widely used to achieve sustainable development goals and solve global problems, but also calling for 'strengthening information and cognitive security' (Statement by the CSTO PA Council... 2024). In August 2024, the European Union's regulation on Artificial Intelligence (The AI Act) came into force, which is based on an awareness of the risks associated with the use of artificial intelligence-based systems.

NOTE

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GLOBAL AGING AND DEMOGRAPHIC POLICIES: A RECONSIDERATION*

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Population aging is expected to affect large parts of the world in the coming decades, leading to profound changes in various social, economic and financial institutions and infrastructure networks. Raising the old-age retirement (pension) age has been the most common response of the affected countries to this challenge, but it has proven neither sufficient nor popular with the respective populations. In this paper we analyze the projected magnitude of global aging under different fertility trajectories. It is shown that the sustainability of national pension systems will become untenable for many countries of the world unless they manage to achieve substantial increases in fertility. Thus, these countries should implement effective fertility-supporting measures in the near future in order to avoid major social crises. As we can see, fertility-supporting policies have the potential to be a remarkably powerful tool for offsetting some of the most adverse consequences of population aging.

Keywords: *global aging, demographic policies, fertility, pension system, demographic forecasting.*

Introduction

The United Nations has declared the current decade (2021–2030) the Decade of Healthy Aging.[1] Global aging, its consequences, and methods to counteract its most adverse effects are currently attracting the attention of many researchers and policymakers in high-income countries, but their importance in low- and middle-income countries is also growing. Grinin's thorough review of population projections from academics and major research institutions and think tanks reveals that they 'unanimously anticipate the dramatic global aging in the coming decades' (Grinin, Grinin, and Korotayev 2024:

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236; see also Grinin, Grinin, and Korotayev 2023). By 2050, for the first time in human history, people aged 65 and over will outnumber children (Grinin, Grinin, and Korotayev 2024: 230). However, global aging is a truly global challenge not only because of its scale, but also because of its speed. While it took many developed countries about a century (or even longer) to experience an increase in the share of people aged 65+from 7 to 14 per cent of their population, many developing countries will make that shift in just 20–30 years (Gilroy 2007: 250; see also Korotayev *et al.* 2023). As might be expected, a global challenge of this magnitude is multifaceted in nature; Johnson and associates (2005) identify three dimensions of aging that relate to the aging person themselves (aging body, aging mind, and aging self), and two 'external' dimensions of aging, namely relationships and society. Some of the institutions and types of infrastructure that are likely to experience the greatest strain and most profound changes to accommodate the changes associated with population aging are briefly described below, along with some global issues that are likely to be exacerbated.

National pension systems are probably the first area that comes to mind when one thinks of the adverse consequences of population aging. World Bank analysts identify two main purposes of pensions from an individual point of view, namely '(a) consumption smoothing over the life cycle and (b) insurance against risks, notably the uncertainty of life expectancy after retirement' (Holzmann and Hinz 2005: 27). Two objectives from the society's point of view include '(c) poverty alleviation among the elderly and (d) income redistribution by using the public pension scheme to achieve a more equal distribution of income through transfers from the rich to the poor' (*Ibid.*). All four objectives are likely to become more difficult to achieve as the proportion of people of working age declines, leading to lower contributions to pension systems, while the growing proportion of people beyond working age increases the demand for pensions. These two simultaneous processes are bound to put severe strain on existing pension systems, especially those with a significant pay-as-you-go component (Colin and Brys 2019: 17).

Population aging is not confined to high-income countries, but is expected to occur in a significant number of middle-income and some low-income countries (Powell and Khan 2013), many of which have yet to establish comprehensive old-age pension systems (Bloom *et al.* 2015) as only one-third to two-thirds of their elderly people are currently covered (Amaglobeli *et al.* 2019: 12). Their ability to support the growing age group of retired people seems doubtful at best, a dire prospect given that family-based care of the elderly is declining with modernization. This has been the case since the late nineteenth century, when pensions began to emerge 'when the process of industrialization and urbanization eroded the family networks that originally served as social safety nets for the elderly' (Grünewald 2021: 101; see also Hinrichs and Lynch 2012; Zinkina *et al.* 2019: 171–178). China, for example, has attempted to legally secure the responsibility of adult children to support their parents in various ways, but the implementation of this law faces many obstacles (Hu and Chen 2019). Indeed, even in the best case, family-based care is unfeasible in a society characterized by the lowest-low fertility and high life expectancy, as a married couple would have to take care of two pairs of parents and four pairs of grandparents, i.e. 12 elderly people. At the same time, when a

society views elderly care as a family matter and the field of paid care services is underdeveloped, women who provide unpaid care for their relatives are more likely to be pulled out of the labor market, exacerbating the shortage of workers who contribute to pension systems and pay taxes (Ince Yenilmez 2015).

National health systems are likely to face pressures similar to those faced by pension systems, as older people bear the greatest burden of disease and disability. However, the impact of global aging on health care goes beyond this direct effect. For example, health care systems may need a fundamental redesign to reduce their dependence on contributions from the labor market, which are likely to shrink as the large cohorts of older workers retire and the emerging labor force vacuum cannot be filled by the smaller groups of younger workers. Profound changes in tax policy will be needed to compensate for these losses (Cylus *et al.* 2019). In addition to 'quantitative' changes in health care, 'qualitative' changes can also be expected, such as a reallocation of health care resources towards research, prevention, and treatment of the disabilities and disorders that are more common among the elderly, such as 'cancer, fractures, cardiovascular diseases, depression, and dementia' (Bloom *et al.* 2015: 652; Klug *et al.* 2021; see also Grinin, Grinin, Korotayev 2024).

Fiscal policy will have to undergo serious changes to cover increased spending on pension systems and health care. For European countries, 'tax revenues would have to be between 14 and 28 per cent higher than they are today … just to offset the increased costs of aging populations' (Amaglobeli *et al.* 2019: 12; see also Lee and Mason 2017). Again, apart from the direct impact of population aging on taxation (fewer tax-paying workers, more elderly people dependent on government spending from tax-funded budgets [Yoshino *et al.* 2019: 25]), there are some other important effects. For example, the population is aging in the context of ongoing technological progress, which includes, among other things, automation and digitalization of the economy. This may imply 'a shift in the tax mix away from taxes on labor, which are often levied at high rates, towards taxes on capital, which are often levied at lower rates' (Colin and Brys 2019: 17).

Capital and savings. Population aging is likely to deplete the savings that aging people have accumulated during their working years and will spend on health care and long-term care in their old age (Amaglobeli *et al.* 2019: 10). Meanwhile, the demand for capital will increase to compensate for the shrinking labor force. The situation will be exacerbated by the fact that aging investors 'tend to prefer "safe," but unproductive, government debt instruments over more productive, but volatile, equity in high-growth sectors. … The result can be an alarming collapse of capital productivity' (Hewitt 2002: 479). The aging population is also likely to be slower to learn new technologies, which can hinder overall productivity (Yoshino *et al.* 2019: 25). Scholars suggest that the internationalization of capital markets can at least partially mitigate some of these effects (Börsch-Supan and Ludwig 2009; Attanasio *et al.* 2016; Barany *et al.* 2023). Other scholars emphasize the importance of endogenous human capital formation (Vogel *et al.* 2017).

Inequality. Older people may face inequalities across countries; for example, those living in high-income countries may face a lower burden of disease, have more finan-

cial security in retirement, and have a greater variety of elderly care services available to them than their counterparts in low- and middle-income countries (Higo and Khan 2015: 144). However, even within OECD countries, there is considerable variation in measures of 'healthy aging' (Rapp *et al.* 2022). Within a given society, differences in education and other socio-economic parameters can exacerbate inequalities in living standards, health, and life expectancy among the elderly (Bjursell *et al.* 2017). Income distribution also becomes more unequal with age due to the decreasing share of labor income and the increasing share of capital income, as the former tends to be more equally distributed than the latter (Luo *et al.* 2018: 885).

Given the global challenges posed by global aging, it is not surprising that researchers and policymakers around the world are interested in the ways to offset or, at least mitigate, the burden of aging on various types of institutions and infrastructure. Probably the most actively discussed (and not infrequently very much opposed) means of addressing these challenges relates to various increases in the retirement age; such increases are justified by the longer and healthier life expectancy of populations around the world (Sanderson and Scherbov 2005, 2010, 2019), but can also provoke massive protests.

Along with reduced mortality and increased life expectancy, fertility decline is widely recognized as one of the primary factors contributing to the growth of the elderly population (Coale 1964; Kinsells and Phillips 2005; Lee 2011; Powell 2010). Moreover, many researchers have indicated the possibility that increased life expectancy itself contributes to fertility decline (for a review see, *e.g.*, Yakita 2017: 3–4; see also Acemoglu and Johnson 2007). In this paper, we aim to analyze global aging under different fertility trajectories and to illustrate the potential impact of fertility on this issue in order to contribute to the discussion on whether fertility-related policy interventions can be useful in mitigating the most profound effects of global aging.

Data and Methods

For population estimates and projections (UNPD 2024), we use the World Population Prospects (WPP) 2024 dataset. This United Nations-led initiative provides estimates of a range of demographic indicators from 1950 to 2023 for all countries, as well as projections for different scenarios up to 2100. In this study, we use three fertility-dependent scenarios of population projections calculated by the United Nations Population Division to illustrate the issue of global aging in relation to fertility. These scenarios include a medium projection, a low projection (–0.5 child per woman at the end of childbearing years), and a high projection (+0.5 child per woman at the end of childbearing years). It is important to note that this type of projection does not show the probabilistic trajectories of future population growth. The lower and upper bounds of future population estimates overestimate the uncertainty. However, the purpose of this paper is not to present the most likely demographic future with a certain level of confidence. Rather, it aims to analyze global aging under different scenarios and to illustrate the potential impact of fertility on this issue.

To illustrate the projected demographic trajectory of the world's population, we have aggregated data from the WPP using a number of well-established demographic

indicators, such as the old-age dependency ratio defined by the Organization for Economic Cooperation and Development (OECD) as 'the number of individuals aged 65 and over per 100 people of working age defined as those at ages 20 to 64.'[2] Using this indicator, we propose a methodology for estimating a potential retirement age that assesses the impact of global aging on national pension systems.

It is assumed that in 2023, the latest year for which population data are available, the retirement age is the same in all regions and for both sexes, with an average age of 65. While this estimate is not entirely accurate, it is reasonably close to the actual situation. For example, according to Trading Economics,[3] the average retirement age for men is 64.85 in the European Union, 65 in Mexico, 60 in Turkey, and 67 in Israel. Over the projection period (2024–2100), the potential retirement age is the lower age of the old-age group that keeps the old-age dependency ratio at the level of 35 elderly persons per 100 persons of working age. This cut-off point is broadly in line with the level in Western Europe (37.7 in 2023), whereas a number of Western European countries have recently implemented reforms to raise the retirement age,[4] suggesting that this level of burden on the pension system is critical and requires a reduction in the share of pensioners by increasing the working population. Moreover, the projections assume that this age will not be lowered in the future (which is highly probable).

Thus, the potential retirement age (for ease of notation, we will refer to this variable as *Age*) can be written in the following form:

$$\mathrm{Age}_{\mathrm{i,t}} = Age_{i,t-1} + \delta_{i,t},\ Age_{i,2023} = 65 \forall i,$$

where *Age* is the potential retirement age in region *i* in year *t* (assumed to be 65 in 2023 for all regions); *Delta* is an increase in *Age* from the previous year *t–1* that is defined as a natural number, so that it is a non-negative integer, in line with the initial premise that the retirement age cannot be lowered. *Delta* is defined as:

$$\delta_{i,t} = \begin{cases} n,\ g\left(Age_{i,t-1}, Population_{i,t}\right) > 0.35 \\ 0,\ g\left(Age_{i,t-1}, Population_{i,t}\right) \le 0.35 \end{cases},$$

where function *g* provides an output in the form of an old-age dependency ratio with respect to a specified lower age of the elderly population *Age* for a given *Population.* If the calculated old-age dependency ratio exceeds the reference level of 0.35, then the *Age* is increased by *n* years in order to maintain an old age dependency ratio below or equal to the reference level. Conversely, if the old-age dependency ratio is below the reference level, the potential retirement age remains unchanged.

Results

Figure 1 shows the estimated and projected demographic structure of the world's major regions and political/economic unions. The population is divided into four age groups: youth (under 20 years old, at the bottom), people of working age (20–64 years old, second area from the bottom), elderly people (65–84 years old, third area from the bottom), and the new, gradually growing group of people aged 85 and over (at the top). It is clear that the world population will start to decline in the middle of the twenty-first century. East Asia and Europe are already experiencing rapid population decline and aging, as

evidenced by the increasing proportion of people aged 85 and over and the decreasing proportion of young people. The only regions projected to experience significant population growth are Sub-Saharan Africa, North Africa, West Asia, Central Asia, and South Asia. However, these regions will also experience a significant increase in the elderly population and the onset of population decline in the second half of the century. By the end of the century, the number of people aged 65 and over is projected to increase tenfold, reaching about 25 % of the world's population. In other words, about one in four people on the planet will be 65 or older by the end of the century.

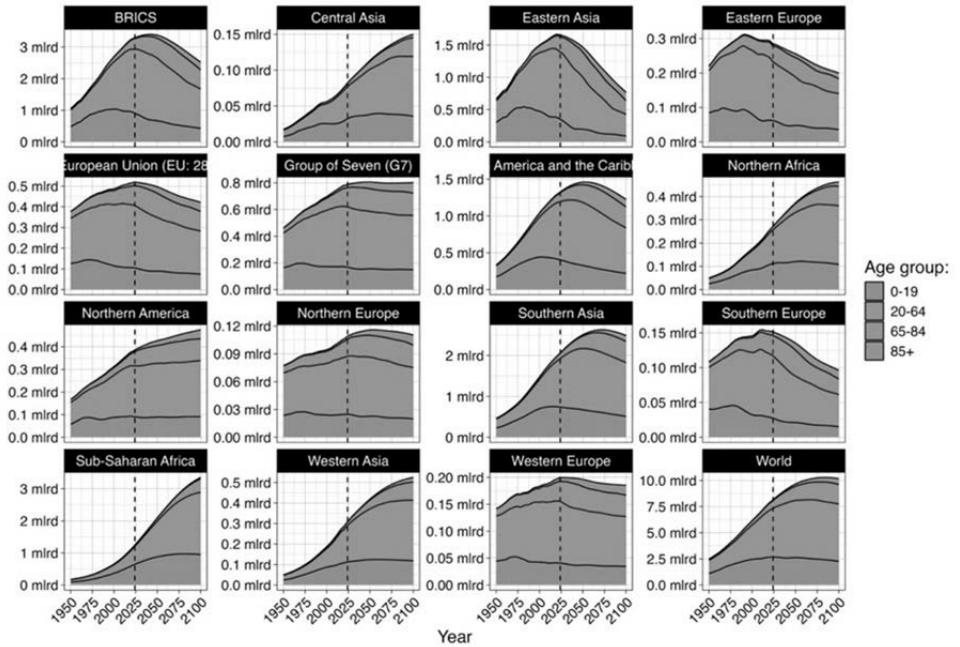

Fig. 1. The estimated (1950–2023) and projected (2024–2100) demographic structure of the world and some regions

Data from UNPD 2024, the forecast is according to the medium scenario.

The median age, which is another reliable indicator of the aging process, is projected to increase steadily worldwide from about 30 years in 2023 to 43 years in the middle scenario and 38 or 50 years in the high-fertility and low-fertility scenarios, respectively (see Figure 2). The most significant increase is projected to occur in Eastern Asia, with a rise from 40 to 60 years by the end of the century (or to 50 or 75 years in the high and low scenarios, respectively). It is noteworthy that the projected increase in the median age in Western Europe in the medium scenario is relatively modest, rising from 45 to just under 50 years. This is mainly due to the projected large positive net migration and a slight increase in fertility rates by the end of the century.

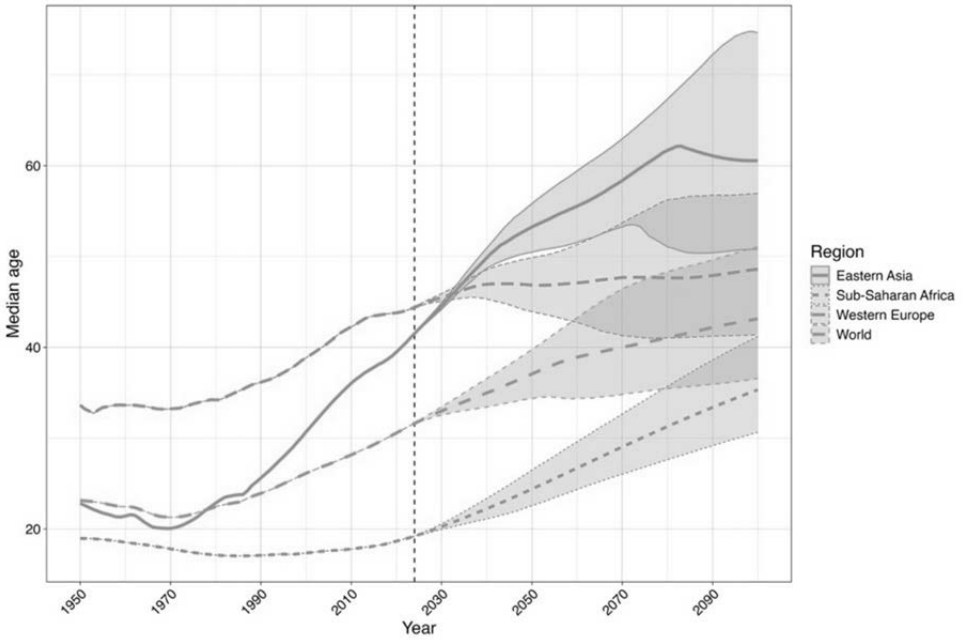

Fig. 2. The estimated (1950–2023) and projected (2024–2100) median age of the world and some regions

Estimates are based on data from UNPD 2024, the line is an estimate under medium scenario, bottom and top of shaded area are estimates under high-fertility and low-fertility scenarios respectively.

Figure 3 illustrates the projected dynamics of the old-age dependency ratio, which shows the burden on the pension system under different fertility scenarios in selected regions (for projected estimates for all regions, see Table 1). As shown in the graph, the ratio of elderly to working-age people is projected to increase dramatically worldwide, from 18 elderly persons per 100 working-age people in 2023 to 44 elderly persons per 100 working-age people by 2100 under the medium scenario. However, there is a considerable discrepancy between the high-fertility (34 per 100) and low-fertility (61 per 100) scenarios, which is entirely due to differences in fertility (+0.5 children per woman and –0.5 children per woman, respectively). The largest difference between the high and low fertility scenarios is observed in Eastern Asia. Under the high-fertility scenario, the old-age dependency ratio is projected to reach 67.5, which is close to the world average under the medium scenario. Under the low-fertility scenario, the estimated ratio is projected to reach a staggering 188.8, meaning that the elderly population will outnumber the working-age population by almost a factor of two. The lowest values are projected for sub-Saharan Africa; while the number of people aged 65 and over will increase substantially (as shown in Figure 1), the associated pension burden is expected to remain relatively modest. Moreover, the slight increase in the old-age dependency ratio in this part of the world is projected to occur mainly in the second half of the century.

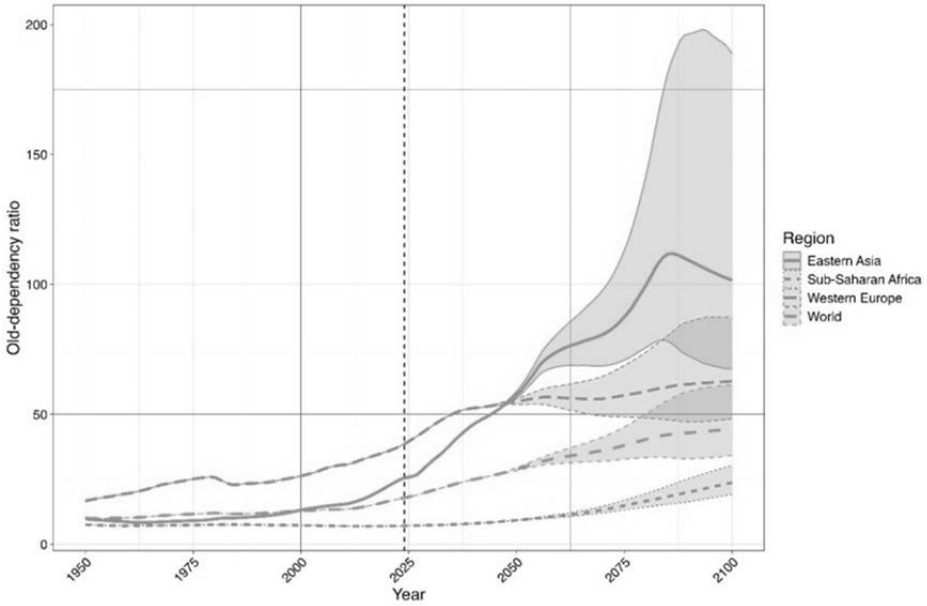

Fig. 3. The estimated (1950–2023) and projected (2024–2100) old-age dependency ratio for the world and some regions

Estimates are based on data from UNPD 2024, the line is an estimate under the medium scenario, bottom and top of the shaded area are estimates under high-fertility and low-fertility scenarios respectively.

Table 1

Old-age dependency ratio in the world, estimates and projections under different fertility scenarios

Region	2023	2050			2100		
	Estimate	High	Medium	Low	High	Medium	Low
Eastern Asia	24.9	56.2	57.5	58.7	67.5	101.6	188.8
Southern Europe	37.7	69.5	71.1	72.7	55.7	75.7	113.9
BRICS	17.6	36	36.7	37.5	48.6	67.7	106
Latin America	16	31.6	32.2	33	45.2	62.9	97.7
European Union (EU: 28)	36.5	56.1	57.3	58.5	50.2	66.3	94.9
Northern Europe	33.9	45.2	46.1	47	48.6	63.5	88.9
Western Europe	37.7	53.8	54.9	56.1	48.3	62.7	87.1
Eastern Europe	29.6	47	48	49.1	43.5	57.9	84.4
Group of Seven (G7)	36.6	50	51	52.1	46.7	60	81.6
Southern Asia	11.4	21.9	22.3	22.8	38	50.6	73.4
Northern America	30.1	41.2	42	42.9	43.5	55	72.6
World	**17.5**	**28.3**	**28.8**	**29.4**	**34.3**	**44.4**	**61.3**
Northern Africa	10.3	19.2	19.6	19.9	31.5	40.5	55.4
Central Asia	10.8	19.2	19.5	19.9	28.8	37	50.2
Western Asia	10.5	19	19.3	19.6	30.2	37.9	49.6
Sub-Saharan Africa	7	9.1	9.2	9.4	19.2	23.7	30.3

Data from UNPD 2024.

To facilitate the interpretation of these abstract indicators in a more practical manner, the figures and potential retirement ages in the different regions under the specified scenarios are presented (see Figure 4 and Table 2). Let us remind here that we assume the retirement age to be the same in all regions in 2023, *i.e*. 65 years. Over the projected period (2024–2100), the potential retirement ages represent the lower age of the elderly strata that maintains the old-age dependency ratio at 35 or fewer old-age dependents per 100 working-age people.

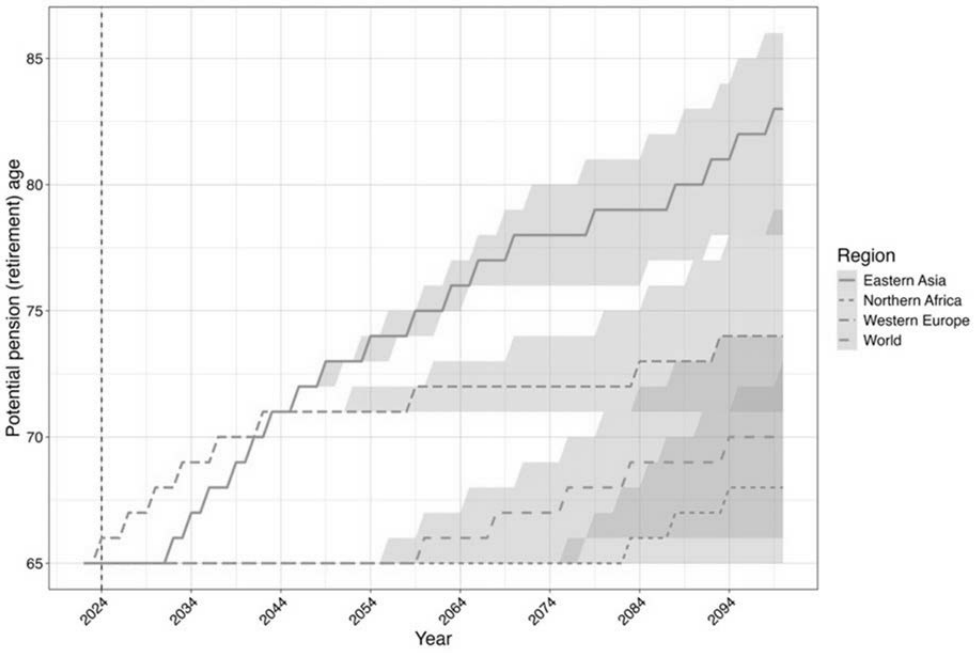

Fig. 4. Potential pension (retirement) age in the world and some regions

Estimates are based on data from UNPD 2024, the line is an estimate under the medium scenario, bottom and top of shaded area are estimates under high and low scenarios respectively.

The largest increase in the potential retirement age is projected for Eastern Asia, where it exceeds that of any other region of the world in all scenarios. However, the values of the potential retirement age vary considerably depending on the fertility scenario. By the end of the century, it will be 83 years in the medium scenario and 78 and 86 years in the high-fertility and low-fertility scenarios, respectively. On the contrary, sub-Saharan Africa will not experience an increase in the potential retirement age under any of the scenarios, largely because of the incomplete demographic transition. As regards the world average, the potential age of retirement is projected to remain at the baseline level of 65 years until the beginning of the second half of the century, after which it gradually increases in all scenarios. In the medium scenario, the potential age of retirement reaches 70 by 2100. In the high-fertility scenario, it will be only 66 years, hardly different from the current level. Meanwhile, in most of the selected regions, the retirement age is projected to be much higher than 65 years: on average, it will exceed 70 years by the end of the century even under the high-fertility scenario.

Table 2

Potential pension (retirement) age in the world, estimates (2023) and projections under different fertility scenarios (2050, 2100)

Region	2023	2050			2100		
	Estimate	High	Medium	Low	High	Medium	Low
Eastern Asia	65	72	73	73	78	83	86
Southern Europe	65	74	74	74	75	77	82
BRICS	65	67	67	67	72	76	81
European Union (EU: 28)	65	72	72	72	72	75	80
Latin America	65	65	65	65	70	75	80
Eastern Europe	65	70	70	70	72	75	80
Northern Europe	65	70	70	70	71	76	80
Western Europe	65	71	71	71	71	74	79
Group of Seven (G7)	65	70	70	71	70	74	78
Northern America	65	69	69	69	70	73	78
Southern Asia	65	65	65	65	67	71	76
World	**65**	**65**	**65**	**65**	**66**	**70**	**74**
Northern Africa	65	65	65	65	65	68	73
Western Asia	65	65	65	65	65	67	72
Central Asia	65	65	65	65	65	67	71
Sub-Saharan Africa	65	65	65	65	65	65	65

Estimates are based on the data from UNPD 2024.

Discussion

Increasing the statutory retirement age has been the most common response to the aging-related challenges for national pension systems implemented in the OECD countries. This measure can be complemented by a range of policies aimed at promoting active aging, longer working lives, and stricter early retirement provisions (OECD 2015; Alaminos *et al.* 2020). However, research on this issue shows that there is no 'one-size-fits-all' solution, as welfare states pursue different approaches to this problem (Aysan and Beaujot 2009).

As noted above, the extent of aging in a given population depends not only on gains in life expectancy and declines in mortality, but also on fertility dynamics. For example, Weil (1997) shows that at least two-thirds of the increase in the elderly population in the United States by the end of the twentieth century was due to fertility decline. Bloom *et al*. (2010) show that in the second half of the twentieth century and early twenty-first century, fertility declines in Asian countries (including China) had a much stronger impact on the age structure than gains in life expectancy.

Somewhat less attention has been paid to modeling how future fertility dynamics may affect the prospects for population aging and its consequences for social institutions and infrastructure (such as pension systems). Our research shows that the impact of global aging depends strongly on future fertility levels, as reflected in both the median age and the old-age dependency ratios. For many countries in Eastern Asia, Europe and Latin America, the sustainability of national pension systems will become untenable if their populations cannot find a way out of what has been termed 'lowest-low fer-

tility' (see Kohler, Billari, and Ortega 2002 for a discussion of this phenomenon). Thus, these countries should implement effective fertility-supporting measures in the near future to avoid major social crises.

Of course, from an economic point of view, higher fertility in the context of population aging will increase the total dependency ratio and the financial burden on working-age people in the short term, but will reduce the old-age dependency ratio in the longer term (Bairoliya *et al.* 2017). In this case, a certain proportion of working-age women will withdraw from the labor market to care for their children. Hence, fertility support policies need to be very carefully designed and targeted to minimize these consequences (including, first and foremost, a wide range of policies to help women reconcile work and family life). It should be emphasized here that providing sound research-based policy advice in this case is a difficult challenge for researchers, since 'assessing the welfare consequences of differences in fertility requires comparing the welfare of those not yet born to those who will never be born' (Lee, Mason, NTA Networks 2014).

Conclusion

Global aging is a multidimensional phenomenon that is bound to affect all spheres of human life, put great pressure on many socio-economic institutions and infrastructures, and exacerbate the problems of poverty and inequality on a global scale. Many countries are already facing the challenge of mitigating the negative effects of population aging, and many more will face it in the coming decades. The most common response to this challenge has been to raise the retirement (pension) age, but this is an extremely unpopular measure that has provoked strong protests from citizens in several countries across the world, particularly in Europe. Scholars are discussing a variety of responses to global aging, and our research contributes to this discussion by showing that for many countries around the world the sustainability of national pension systems will become untenable unless they manage to achieve substantial fertility increases in the near future. Thus, these countries should implement effective fertility-supporting measures to avoid major social crises. As we can see, fertility-supporting policies have the potential to be a remarkably powerful tool for offsetting some of the most adverse consequences of population aging.

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NOTES

[1] https://www.who.int/initiatives/decade-of-healthy-aging.

[2] OECD (2024), 'Old-age dependency ratio' (indicator), https://doi.org/10.1787/e0255c98-en (accessed on 29 August 2024).

[3] https://tradingeconomics.com/country-list/retirement-age-men.

[4] For example, the notorious reform in France and the less noticed reforms in Austria, Belgium or Switzerland that have been underway for several years.

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COUNTRIES AND REGIONS IN GLOBAL DIMENSION

STRUGGLE TO BALANCE NATIONAL INTERESTS: CHINA'S HIGH-SPEED RAIL DIPLOMACY IN SOUTHEAST ASIA

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Since China proposed the going-out strategy of HSRs in 2009, China's HSR diplomacy has sparked heated debates about China's intentions. From an economic diplomacy perspective, this article attempts to understand China's HSR diplomacy in SEA from four dimensions: context, process, theatre, and outcomes. Available second-hand data show that China's HSR diplomacy, with a consistent tendency as China's overall economic diplomacy over the past 70 years, tends to be more economic than political. In SEA, however, China's growing economic influence has been accompanied by a declining regional reputation. China's increasingly pragmatic approach to protecting its overseas economic interests without making sufficient efforts to handle local opposition mainly caused by environmental and social factors, has led to local Sinophobic sentiments. The conflict represents a microcosm of China's overseas railway projects under the BRI, where the country is attempting to balance the pursuit of economic benefits with the maintenance of a positive global image.

Keywords: *high-speed railway, economic diplomacy, Southeast Asia, China's intention, national interests.*

Introduction

Since the official launch of high-speed railway (HSR) development strategy in 2009, China's HSR has continued to achieve leapfrog development. China is expected to dominate the global HSR investment market between 2014 and 2030, attracting increasing international attention (Barrett 2014; Chan 2017). By 2022, China's overseas HSR network had exceeded 40,000 kilometers, ranking first in the world in terms of length (Luo 2022). China's overseas HSR strategy widely encompasses three orientations including Eurasia, Central Asia, and Trans-Asia, among which, in Southeast Asia (SEA), China has actively pursued competitive tendering processes for railway projects covering almost all ASEAN (Association of Southeast Asian Nations) countries, whose projects form significant parts of China's extensive pan-Asian railway network. According to the development goal in the Mid-to-Long-Term Railway Development Plan to create inter-

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nationally competitive Chinese HSR brands, there is a further tendency for China's HSRs to continue to be international (Barrett 2014).

Large-scale infrastructure, like railways, can be used as a primary foreign policy tool to achieve commercial interests or expand global influence. Okano-Heijmans (2011: 17) defines 'economic diplomacy' as 'the use of political means as leverage in international negotiations, to enhance national economic prosperity, and the use of economic leverage to increase the political stability of the nation.' Based on her definition, China's HSR can be comprehended as a government instrument to achieve economic and political effects. On the one hand, as an advanced engineering technology owned by only a few countries, HSR projects that are technology-intensive and monopolistic can boost a country's transition to high-value-added exports (Oh 2018; Leverett and Wu 2017; Ker 2017), provide opportunities to export domestic industrial overcapacity, and enhance Beijing's global image as a leader in high-value-added manufacturing (Zhang and Sun 2016; Ker 2017; Obe and Kishimito 2019; Zhao 2014). On the other hand, as a state-led initiative motivated by a combination of foreign policy and domestic economic objectives (Ker 2017) and intertwined with Beijing's key foreign policy initiatives, typically the Belt and Road Initiative (BRI), the internationalization of China's HSR has raised broad political concern and sparked heated debate about motivations and implications of the strategy (Pavlićević and Kratz 2017). Contrary to some views that the HSR outreach strategy is likely to promote mutual trust, respect, and benefit, and strengthen cooperation on security with neighboring countries (Xu 2018), many of the existing perceptions fit neatly into the premise of the China threat narrative, which understands the projects in a negative, alarming, and threatening way (Pavlićević and Kratz 2017; Pan 2012). Viewed as a 'political train' for China's ambitious connectivity to neighboring countries, the massive railway projects have been given symbolic political significance, including persuading host countries to accept China's increasing influence (Martin 2016) or shaping a more favorable environment for China's rejuvenation (Yan 2014). There is also a widespread suspicion that the HSR lines, which provide unimpeded channels to host countries, could be used for military purposes like transporting military equipment and personnel (Kratz and Pavlićević 2017).

Interested in exploring the potential intention and effect of China's transnational HSR expansion, this article departs from extant scholarship's predominant focus on recipient-state perspectives, and attempts to comprehend China's HSR strategy in SEA from Beijing's standpoint, based on a comparison with similar projects in other regions. The analysis was based on an economic diplomacy framework by Okano-Heijmans (2011), which consists of four basic dimensions –context, tools, process, theatre, and outcomes (see Figure 1), as well as a variety of second-hand sources, including existing literature, news, trade data from WITs, and project data from Aiddata. The findings imply that in comparison to similar projects in other regions, such as the China-Europe trains, the railway projects in SEA are subject to greater political controversy, but these projects actually take on a more pragmatic trend prioritizing economic interest over political influence. However, this does not mean that China's HSR diplomacy has a purely economic purpose. Instead, in the face of continuing territorial disputes in the South China Sea and threats from hostile foreign powers to curb China's regional influence, HSR projects are used as an economic tool to enhance China's soft power in the SEA

for national security. Unfortunately, current findings indicate Beijing's failure to use HSR to achieve higher levels of soft power while increasing economic prosperity and political influence, which hinders the long-term sustainability of China's pan-Asian railway network.

The following parts of the article will first briefly review the historical development of China's economic diplomacy to understand the context of Beijing's promotion of the transnational expansion of HSRs, and then outline the progress of the projects thus far, as well as the challenges faced. The third section will analyze the business side of China's HSR diplomacy, followed by an analysis of the potential impact of the projects on China's political standing in SEA, and the final section will provide a conclusion and discussion.

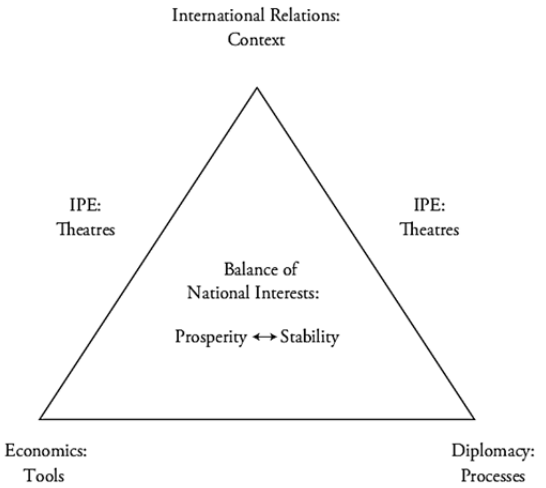

Fig. 1. Analytical framework

Source: Okano-Heijmans 2011: 21.

Context: The Trajectory of China's Economic Diplomacy over the Past 70 Years

The emergence of economic diplomacy can be traced back to ancient times when economic interests were already seen as a driver of diplomatic relations, although the influence of economic factors was then considered as secondary to political considerations (van Bergeijk, Okano-Heijmans, and Melissen 2011). However, with the increasing instability and uncertainty of global institutions and the rapid changes in the shifting balance of power under globalization, more and more countries are paying increasing attention to the potential impact of economic activities in international affairs. Against this background, a number of concepts such as 'commercial diplomacy,' 'trade diplomacy,' 'financial diplomacy,' and 'economic statecraft' have been explored, which are primarily concerned with the means, process and practice of a policy. Among them, 'economic diplomacy' consists of combined dimensions of economic activities, politics, diplomacy, and their interaction. It aims to achieve national goals using instruments in a non-coercive manner, with the state playing a primary role (Okano-Heijmans 2011).

So far, China's economic diplomacy includes the use of trade, investment, and financial policies to support its diplomatic, political, and strategic purposes, explicitly focusing

on securing resources, expanding export markets, and promoting China's soft power (Chaziza 2019). Looking back at the development of China's economic diplomacy over the past 70 years, it can be divided into four stages: the disassociation period, the return period, the integration period, and the leadership period (see Table 1). Along with the shift in China's role from a significant aid recipient country to a donor country after independence, there is a tendency for China's economic diplomacy objectives to change from more political-oriented to more economic-oriented. This trajectory of development reveals the influence of both the international and domestic context on the status of Chinese economic diplomacy and also the return and deepening of China's involvement in global affairs.

Table 1

China's economic diplomacy over the past 70 years

Period	Year	Political context	Status of economic diplomacy	Partners	Approaches	Objectives
Disassociation period	1949–1978	International: Cold War; the opposition of political systems Domestic: Planned economy	A relatively weak status in China's overall diplomatic framework; confrontational and revolutionary	Socialist countries such as the Soviet Union and Eastern Europe	Preferential loans Technical assistance Barter trade Promotion of diplomacy through aid, *e.g.* in 1950, China provided material aid to Vietnam and North Korea	Emerged from isolation status Anti-imperialism and anti-hegemony
Return period	1978–2000	International: the end of the Cold War; the trend of multipolarization Domestic: reform and opening up; the three–step development strategy;	The status that enhanced and served China's domestic strategy	New partner countries represented by Japan, Germany and Africa	Subsidized loans Aid project cooperation A grand aid strategy that combined aid with investment Accepted aid from countries like Japan and Germany Provided assistance to developing countries	Return to the international stage; Creation of a favorable international environment for domestic economic development
Integration period	2001–2008	International: join the WTO; the strategy of 'keep a low profile and make a difference'; Western dominated international political and economic order	Proactivity and aggressiveness; became official expression in 2004 White Paper on Diplomacy	The scope of recipient countries was expanded	Foreign aid Bilateral trade agreement and other agreements like the FTA Regional trade cooperation	Integration into globalization and regional integration

Table 1 continued

Period	Year	Political context	Status of economic diplomacy	Partners	Approaches	Objectives
Leading period	2008–present	The financial crisis; One Belt and One Road; Progress of RMB Internationalization	Became more and more important in China's foreign policy	Major countries in the world	Financial diplomacy Infrastructure construction One Belt and One Road Initiative Multilateral financial institutions such as the Asian Infrastructure Investment Bank and the New Development Bank	Protection of overseas interests

Source: author's compilation based on He 2019.

Before its reform and opening up, China was marginalized and behaved as an outsider to the world system. Thus, foreign aid to socialist countries like Vietnam was used as a primary instrument to help China emerge from its isolation and fight imperialism and hegemony, even though it faced persistent impoverishment and structural fragility at home. Later, after the turn of the twenty-first century, more tactics than loans or technical assistance (TA) were used to interact with a wider range of states to generate potential cooperation. Before 2008, China's economic diplomacy focused on how to serve the development of the domestic economy and promote integration into globalization and regional development. A milestone event was China's decision to join the WTO with an advocated concept of 'broad consultation, joint contribution and shared benefits' of global governance. After China's return to the international stage, the international environment has long been dominated by norms centered on Western values, in which Chinese companies are at a relative disadvantage. To create a more favorable international environment, China has tried to increase its influence and voice by setting its own leading norms like the principle of 'non-interference' and the 'Beijing Consensus,' which has become even more popular in parts of Asia, Africa, and Latin America than the previously dominant 'Washington Consensus' (Nye and Wang 2009).

After the 2008 financial crisis, when China became the world's second largest economy, the protection of overseas economic interests became Beijing's major concern. Infrastructure construction with supporting development banks or funds has become essential to China's latest approaches to economic diplomacy. Well-known multilateral financial institutions such as the Asian Infrastructure Investment Bank (AIIB), the BRICS Development Bank (BDB), the Silk Road Funds, and other multilateral financial institutions have indicated that China is seeking to increase its global influence. Just within the past few decades, infrastructure diplomacy has become the core part of China's foreign policy, in which HSR exports play a vital role (Chan 2016).

Process: China's tortuous HSR bids in SEA

China's HSR diplomacy refers to railway cooperation between countries, which is mainly carried out through inter-governmental negotiations and agreements (Hu, Liu, and

Kwak 2017; Huang, Ge, Ma, and Liu 2017). With the implementation of the HSR going out strategy, China has been an active bidder for HSR projects all over the world, among which, China's pan-Asian high-speed rail network in SEA stands out for its extensive connectivity, greater government sensitivity and China's growing economic influence. Compared to other flagship railway projects under the BRI, such as the Iranian High-speed Railway, the Two Oceans Railway, and the African Railway, which are not directly connected to inland cities in China, the 3,000 km network starting from Yunnan in Southwest China links nearly all the key countries in ASEAN, with the three lines running through Vientiane in Laos, Yangon in Myanmar, Hanoi and Ho Chi Minh in Vietnam, Bangkok in Thailand, Phnom Penh in Cambodia, Kuala Lumpur in Malaysia, to Singapore. By the end of 2023, Beijing had negotiated railway construction with at least nine ASEAN countries, demonstrating China's ambition to complete the transcontinental network.

Nonetheless, the unstable political context in the host countries has hindered the negotiation process. For the Sino-Thai HSR project, the whole process went from the Abhisit government (2008–2011) to the subsequent negotiations with the Yingluck government (2011–2014) and later Prayut government (2014–2023), with each regime change requiring a new round of negotiations (Jiang 2022). Similarly, in November 2016 and May 2017, China Communications Construction Group (CCCC) and Malaysian Rail Link signed separate agreements for the Malaysia East Coast Rail Link, comprising Phases I and II, with a total value of RMB106 billion. A groundbreaking ceremony was held in August 2017, with an estimated completion date of 2024. However, when Mahathir came to power in 2018, the East Coast Rail Link and HSR line from Kuala Lumpur to Singapore were temporarily shelved as one of the highlights of anti-corruption purges against the previous government (*Ibid*.). In response, China threatened to prosecute Malaysia for breaching a previously signed agreement to restart the East Coast Rail Link in 2021 after new rounds of negotiations. Still, there was no progress in constructing the Malaysia-Singapore line, a necessary part of China's Pan-Asian rail network, which was canceled. As shown in Table 2, among all the railway projects listed, only one was completed, while more than half of the projects were suspended/canceled or suspended before construction resumed. Even for the projects that were under construction, the negotiation process tended to be long and back-and-forth, reflecting the host countries' fluctuating support of the Chinese partnership.

Table 2

China's railway bids of the Pan-Asian railway network in SEA

Country	HSR Project	Length/km	Cost (US $ billion)	Progress
Indonesia	Jakarta–Bandung high-speed railway	143	7.85	Bid: 2008 Agreement: 2014 Construction: 2016–2023 Current status: completed
Vietnam	North-south high-speed railway (Hanoi-Ho Chi Minh City)	1545	58.7	Bid: 2010, failed Current status: suspended

Table 2 continued

Country	HSR Project	Length/km	Cost (US $ billion)	Progress
Laos	Laos-China railway	427	6.04	MoU: 2010 Construction: 2016–2021 Current status: completed
Thailand	Sino-Thailand high-speed railway (Nong Khai–Bangkok)	Phase1: 252 Phase2: 355	10	MoU: 2014 Construction: 2017– Current status: under construction
Malaysia	East Coast Rail Link	648	10.7	Agreement: 2016 Suspended: 2018 Restarted: 2019 Current status: under construction
Singapore & Malaysia	Kuala Lumpur–Singapore high-speed railway	350	26	Bid: 2017 Suspended: 2018 Current status: cancelled
Myanmar	China-Burma high-speed rail (Kunming-Rangoon)	1920	20	Contract: 2011 MoU:2011 Suspended: 2014 Current status: suspended
Philippines	Bicol rail scheme	565	2.8	Current status: Current status: negotiation
Cambodia	Kunming-Cambodia high-speed railway	n.a.	n.a.	Current status: planned

Source: author's compilation based on online sources.

Compared to the China-Europe freight train, which was initiated by local actors as a low-cost means of transport (Tjia 2020), the Pan-Asian rail network is a state initiative and therefore more politically contentious, especially for cooperation with smaller SEA countries, including those with which China is in conflict over the South China Sea. It is evident from Table 2 that China faces more challenges in promoting HSR diplomacy in countries with unfavorable diplomatic relations. For instance, in the 2006 bidding process for the North-South HSR, despite the Vietnamese government's request for China's assistance in sending experts to study the project, they ultimately chose Japan as their cooperation partner, a decision that was met with disappointment in China (Xing 2023). Besides, the China-Burma railway was shelved for more than a decade after the 2011 MoU, which scheduled the project to be initiated within three years and be completed in five and a half years. Myanmar's Ministry of Railways and Transport stated that the project would not be implemented, citing the expiration of the MoU and the absence of a renewal request from the Chinese side (Jiang 2022).

In addition, high debt levels and rising loan rates pose financial risks that could lead to project delays. Chinese projects under the BRI are strongly backed by state-owned policy banks, including the Development Bank (CDB) and the Export-Import Bank of China, as well as sovereign wealth funds (*e.g.*, the Silk Road Fund), which provide a range of financial instruments, typically grants and low- or zero-interest concessional loans, to support the development of recipient countries (Sejko 2016). A significant proportion of the funding, up to 85 per cent, has been provided by China to railway pro-

jects like those in Pakistan under the CPEC and the Hungarian-Serbian railway. Notably, despite the geopolitical importance of the SEA, China has not granted more preferential terms to related railway projects than to other counterparts (see Table 3). Specifically, while China rejected Thailand's request to lower the loan rate for Sino-Thai HSR (Chen 2016), it granted a significant concession on loans to Bangladesh, as low as 2 %, and also allowed Pakistan to successfully lower the interest rate on infrastructure projects worth about $11 billion from 3 % to 1.6 % through lobbing (Wikipedia n.d.).

Table 3

Chinese railway projects in non-ASEAN countries with a loan rate of up to 2 %

Start Year	Project	Recipient country	Financial provisions	Project status
2014	China Eximbank provides $1.6 billon preferential buyer's credit for Phase 1 of the Standard Gauge Railway Project	Kenya	2 % rate 20 maturity years 7 years grace period	Completed: 2017
2015	China Eximbank provides $36.9 million preferential buyer's credit and RMB 191.9 million government concessional loan for the Upgrade of the Vahdat-Yavan Section of the Dushanbe-Kurgantube Railway Project	Tajikistan	2 % rate/ 1.5% rate 20 maturity years 9 years grace period/ 11 years grace period	Completed: 2016
2015	China Eximbank provides $1.23 billion preferential buyer's credit for Lahore Orange Line Metro Train Project	Pakistan	2 % rate 20 maturity years	Completed: 2019 with delay
2017	China Eximbank provides $1286 million preferential buyer's credit for the Hungarian-Serbian Railway Project	Serbia	2 % rate 20 maturity years 5 years grace period	Implemention
2018	China Eximbank provides $2.67 billion preferential buyer's credit for Padma Bridge Rail Link Project	Bangladesh	2 % rate 20 maturity years 6 years grace period	Implemention with delay
2019	China Eximbank provides $150 million preferential buyer's credit for Railway Passenger Car Project	Cuba	2% interset rate 15 years maturity	Completed: 2023
2019	MOFCOM provides RMB 350 million interest-free loan — via ETCA, $461 million loan, and RMB 4.604 billion government concessional loan for Cairo to 10th of Ramadan Light Rail Transit (LRT) Project	Egypt	0 % rate/1.8% rate/ 2% rate 20 maturity years 10 years grace period	Implemention with delay

Source: Aiddata.

While negotiating on the Jakarta–Bandung HSR in Indonesia, China's first flagship HSR project in SEA, China offered to bear most of the cost, with CDB providing 75 per cent of the total financing on generous terms without requiring a sovereign loan guarantee from the local government. The interest rate on the total guarantee-free loans was as low as 2 % (Leverett and Wu 2017; Qin 2021), which outcompeted Japan that requested the Indonesian government to fund in bidding (Drache, Kingsmith, and Qi 2019). Moreover, China did not dominate the joint venture through high investment but left a larger share (60 %) to the Indonesian companies – China Railway Corporation (CRC) reportedly took over only 40 % of the joint venture.

However, this generosity gradually faded after the Jakarta-Bandung HSR project. For instance, in the construction of the subsequent Boten-Vientiane railway, even China Exim Bank announced to undertake US$480 million (70 % out of the total cost) in annual instalments over the medium term to the Sino-Laos joint venture company, the interest rate was 0.3 % higher than Indonesia's, and China held 70 % of the joint venture's shares. Before the groundbreaking in 2017, the Sino-Thai HSR experienced a five-year negotiation process without reaching a final consensus on the financial terms. Thailand was dissatisfied with the disparity in interest rates, with China demanding a 2.5 % interest rate for Thailand but only 2 % for Indonesia. The conflict over the loan interest rate led to the Sino-Thai railway being postponed three times before construction (Fu 2016). Finally, the Thai government had to finance the rail line itself (Pavlićević and Kratz 2017). When it comes to the recent railway bid in the Philippines, it was reported that China asked for a 3 per cent interest rate on loans sought by the Philippines to build three railway projects – two in Luzon, one in Mindanao – estimated to cost at least P276 billion. The former finance secretary Carlos Dominguez warned that China would demand higher interest rates than those offered by alternative financiers like Japan (as low as 0.1 %). Thus, Dominguez decided to directly cancel the application instead of suspending it (Rosales 2022).

Theatre: Why SEA? A Business Perspective

A number of studies have identified the economic impacts of HSR on along-route cities, including but not limited to increased productivity, reduced delivery costs and transit times of goods, increased consumption, and technological innovation under certain conditions (Kobayashi and Okumura 1997; Priemus 2009; Couto 2011; Chu, Wang, and Chen 2011; Zhao 2014). The economic benefits brought by the HSR projects, such as 'spatial development,' are evidenced to facilitate trade, new urban centers, and real estate development along the lines (Martin 2016). These benefits are expected to spill over from the cities along the rail lines to the surrounding areas, thus boosting the regional economy (Zhao and Zhang 2012).

Over the past decade, China has remained the largest trading partner in goods with ASEAN, and its share among all extra-ASEAN trading partners is steadily increasing year by year, reaching a quarter in 2020 (see Table 4). Over the past two decades, China's total exports to ASEAN have doubled more than 15-fold, reaching about US$289.9 billion (30 % of ASEAN's total imports) in 2020. Among major destinations, China's exports to Vietnam grew by 53 %, followed by Indonesia, Thailand, and Malay-

sia (Nugroho 2015; WITs Data n.d.). Also, China's imports from ASEAN also increased significantly. In 2000, China's imports from ASEAN were only US$16.4 billion, 3.8 % of ASEAN's total exports. However, in 2021, the volume reached US$280.8 billion, with China's share rising to 21 % (The ASEAN Secretariat 2022). Overall, Singapore, Thailand, Malaysia, Vietnam, and Indonesia are China's most important ASEAN trading partners in terms of value, with Vietnam showing huge potential for growth.

Table 4

China's rank and share in trade in goods with ASEAN, 2009–2021

	Value (US$ Million)	Share (%)	Rank
2009	178,049	15	1
2010	234,296	16	1
2011	294,989	16	1
2012	319,390	17	1
2013	351,583	18	1
2014	366,711	19	1
2015	363,497	21	1
2016	368,567	21	1
2017	440,973	22	1
2018	478,535	22	1
2019	507,963	23	1
2020	503,302	25	1
2021	669,200	25	1

Source: ASEAN Secretariat 2022.

In particular, Yunnan, which borders Myanmar, Laos, and Vietnam, has become an important hub city in the Pan-Asian rail network, connecting the SEA countries with the inland areas of southwest China. In the early 2000s, trade between Yunnan and ASEAN countries surged by 26 % year-on-year, and the trade value in 2004 (US$1.28 billion) accounted for 34.1 % of the province's total foreign trade, with Myanmar and Vietnam coming first and second among the top ten trading partners (HKTDC 2005). Meanwhile, the Yunnan government has attracted famous Chinese and foreign logistics companies (*e.g.*, China's Shunfeng Express and Singapore's MapletreeLog) to settle and set up overseas logistics companies widely in Laos, Thailand, Myanmar, Vietnam, and other countries to establish a cross-regional logistics network connecting China and the SEA. The Yunnan provincial economic work conference held in 2021 indicated that the logistics driven by corridors was only the first step. The Yunnan government emphasized that trade with logistics should be further promoted and that industries should be developed on a larger scale via trade (Department of Commerce of Yunnan Province 2022). Yunnan's economic weaknesses in a geographical location far away from China's three economic cores (the Yangtze River Delta, the Pearl River Delta, and the peripheral sea region) are expected to be turned into an advantage by importing various goods and vibrant natural resources from Indo-China Peninsula to China's hinterland (Zhao

2014). So far, shuttle trains launched by China have demonstrated the economic potential of China's cross-border railways to generate economic returns. For instance, the expansion of China-Europe freight trains has outpaced the growth of global trade – a total of 8,641 China-Europe freight trains ran in the first six months of 2023, up 16 % year-on-year, carrying about 936,000 standard containers of goods, an increase of 30 % during the same period last year (Global Times 2023). Similarly, from January to February 2023, the cross-border goods on the Laos-China railway reached 600,000 tons, of which 510,000 tons were imports, which presented a fivefold increase year on year. The total value of international freight transport exceeds 600 million RMB in six months, with goods from seven provinces, including Hebei, Shandong, and Jiangsu, being transported to Laos, and further to Myanmar, Thailand, and Singapore by train (Guo and Huang 2023).

Besides, China has manifested a 'resource for technology' approach to HSR cooperation with some underdeveloped countries. One example of this is the construction of the China-Laos railway, for which the loan was supported by revenues from five potash mines in Laos. Furthermore, the government granted extensive concessions to Chinese investors for a wide range of business opportunities, including rubber plantations, banana estates, and casino operations (Leverett and Wu 2017; Reuters 2021). 'China builds high-speed railways for other countries when it has funds, or it takes something else for change if the recipient country does not have enough money, which is a fair way of trading,' said a relevant person in charge from the Ministry of Railways in an interview with the Southern Weekend (Han 2014). While China provides construction funds, technology, and equipment for the HSR projects and allows the host countries to participate in the operation, it negotiates for a local resource in exchange for the HSR construction fees, such as oil and gas resources in Central Asia and potash mines in Myanmar, thus establishing a long-term cooperation mechanism.

For the host countries, HSR, as a core component of China's overseas investment under the BRI, provides opportunities to create new jobs, increase foreign currency income, train workers, and generate spill-over effects for local development (Bräutigam and Tang 2011). However, as recipient countries' exports to China are growing much more slowly than their imports, the deepened cooperation has further widened the trade deficit. This has led many critics to question whether China's OBOR is a 'win-win cooperation' that will benefit all stakeholders (Scobell 2018). Indeed, a considerable number of China's overseas railway projects have met with resistance from local communities. For example, in Africa, the construction of the Standard Gauge Railway project in Kenya was met with local resistance and sparked considerable controversy. The public outcry arose from concerns about Beijing's potential acquisition of strategic assets such as the port of Mombasa. In South Asia, popular protests suspended the marking of demolition sites around heritage sites for the construction of the Lahore Orange Line metro train in Pakistan (Aiddata n.d.). These bottom-up problems demonstrate the need for China to pay greater attention to the influence of soft power beyond the purely economic factor in order to reduce the China threat narrative and to improve its reputation.

Outcome: Unbalanced National Interests Threaten Long-Term Sustainability

For decades, the world has witnessed Beijing spending billions of dollars to increase its influence and improve its global perception. Since 2013, according to Aiddata, there has been a notable increase in the number of Chinese investments in TA projects, mainly in

the provision of scholarships and training (see Figure 2). Excluding medical humanitarian aid projects related to COVID-19, there was also a particular increase in TA projects related to railways from 2016 to 2019. These projects, seven located in SEA countries and five in African countries, focused on providing training programs related to railway technology, engineering, and operations. The upward trend shows that Beijing is committed to enhancing the country's soft power and fostering a positive image of a responsible international power.

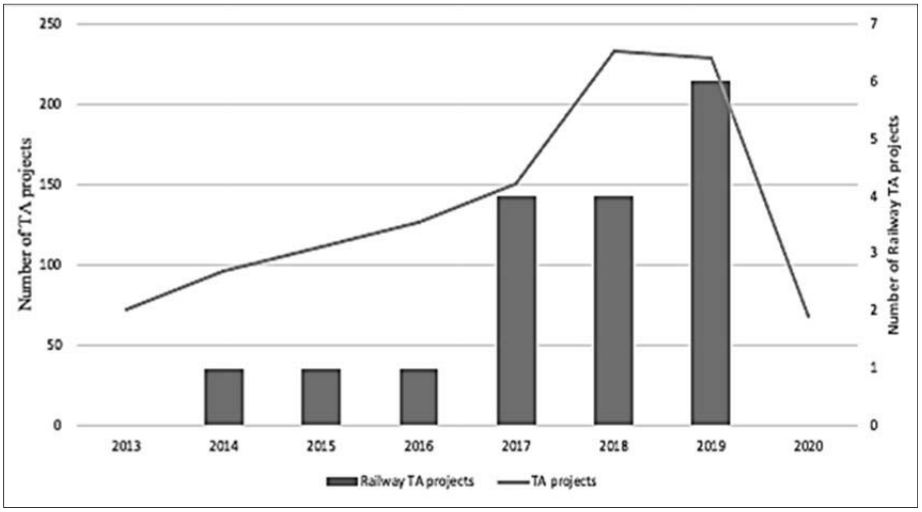

Fig. 2. Chinese TA projects from 2013 to 2019

Source: Aiddata, 2024.

Soft power, as interpreted and developed by scholars like Nye, is the ability to get what one wants through attraction rather than coercion or payment. As a form of national power, strongly correlated with a country's endowment of resources based on culture, values, and policies, it is similar to, but not the same as, influence at the behavioral level (Nye 2008). This approach encompasses a range of strategies, including but not limited to the establishment of organizations or agendas, the planning of overseas infrastructure projects, the promotion of people-to-people exchanges, and so on. In order not to frighten its neighbors, the use of soft power fits into China's foreign policy strategy and is vital for generating positive long-term influence like nation-building and branding. However, despite China's growing investment in TA projects, its soft power has conversely deteriorated, with China facing increasing criticism in regions like Africa and also SEA, where China has been one of the leading investors (Shanbaugh 2015).

According to the 2021 report by the ISEAS-Yusof Ishak Institute, although 76.3% of respondents viewed China as the most influential power in the SEA, 72.3% of them had negative sentiments, indicating that China may still have a long way to go to win the hearts and minds of the ASEAN people. In terms of the underlying causes of negative sentiment, with the exception of Vietnam and Malaysia, where respondents indicated that concerns about China's use of strong-arm tactics in the South China Sea and the Mekong River were a significant factor in their negative perceptions of China,

concerns about China's growing economic dominance and political influence were the most frequently cited concerns. In Cambodia, for exampe, 88.9 % of respondents said that the issue had a detrimental impact on their positive perception of China (see Figure 3). 'It is crucial for the state to have a strategy to create a balance between investments from different countries and not to depend on or be biased towards just one particular country like China,' said a former board member of the Bank of Thailand. In this context, the construction of the Pan-Asian railway network is highly likely to trigger stronger Sinophobic sentiments while increasing China's regional economic influence, leading to more challenges that may hinder China's promotion of HSR in SEA.

In addition to the project delays caused by the political and project financial factors previously outlined in section three, other factors, particularly environmental and social factors, may contribute to a further decline in China's reputation at the grassroots level. For example, the construction of the Jakarta–Bandung HSR has been met with local protests over potential damage to land and homes, and environmental concerns over waste dumping, which led to the project's completion date being postponed from 2019 to 2023 (South China Morning Post 2016; 2017; Garlick 2017; Barahamin 2022). In Myanmar, despite Beijing's statement that land exploitation along the railway would enhance the commercial feasibility of the project and promises of additional funding, opposition came from local individuals, political parties, and social organizations, and led the Myanmar government to cancel the HSR project throughout the country and put the plan on hold indefinitely (Wang and Jia 2017; Martin 2016; Jiang 2022).

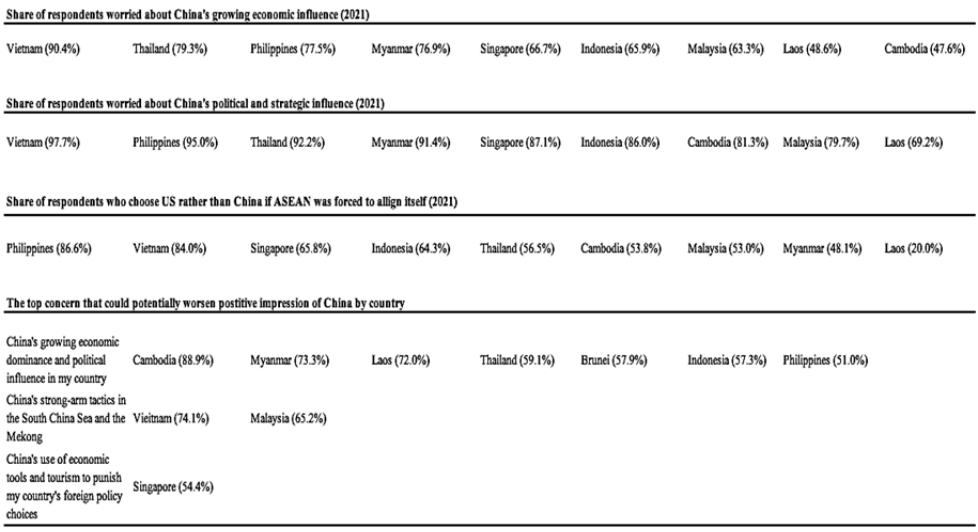

Fig. 3. Poll on Southeast Asian public perceptions of China

Source: ISEAS-Yusof Ishak Institute 2021.

To alleviate local resistance caused by potential debt ratios, land damage, and Sinopobic sentiments, China has made concessions in many respects, including withdrawing ownership of land around the line and resource collateral for its loans, as China did in the Sino-Thai HSR negotiations, where land use remained with Thailand and a rice-for-rail agreement was proposed (Kratz and Pavlićević 2017). At the national

level, Chinese government support focused on improving core HSR R&D and maintaining a low-cost and high-speed construction advantage (Chan 2016; Nolan 2014; Naughton 2015) was also effective in international competition. However, China's flexibility in financing, ownership, and implementation of these proposed railway projects did not relieve anxieties and worries. As many Chinese scholars have pointed out, more attention should be paid to the importance of letting 'politics and culture go first' in promoting China's BRI. Moreover, in the long run, the core issue that will help China gain more local support still lies in how China can promote inclusive cooperation, taking into account more environmental, social, and governance issues, as supported by its win-win cooperation.

Conclusion and Discussion

Developed against the backdrop of China's global rise, China's HSR diplomacy has caused broad discussion on China's intentions in promoting HSR abroad. Opinions are divided on whether the purpose of the strategy is more political or economic (Oh 2018; Leverett and Wu 2017; Ker 2017; Pavlićević and Kratz 2017). A review of the development of China's economic diplomacy over the past 70 years, suggests that China's HSR going out has occurred n the context of China's commitment to using economic diplomacy to protect its economic interests abroad (He 2019). However, different to pure 'power-play' economic diplomacy, which seeks to increase international influence through intervention, or those of 'business-end', which use diplomatic instruments to promote economic development (Van Bergeijk *et al.* 2011; Okano-Heijmans 2011), China's HSR diplomacy is expected to be a strategic dual-ended strategy to achieve both economic prosperity and national security by increasing China's soft power. By focusing on the progress and challenges of HSR projects in SEA, the article finds that: first, compared to other regions, China's railway projects in SEA are more politically controversial and face greater challenges in project implementation; second, contrary to China Threat Theory, China's approach to related railway projects shows a more pragmatic and economically oriented disposition; third, China's railway projects in SEA exemplify the challenge of balancing national interests – a conflict between China's economic influence and regional reputation, faced by the country's overseas infrastructure. Such an unbalance of national interests stems from fears of over-dependence on China. Besides, other well-documented issues such as high debt, social and environmental concerns have caused local protests and pose additional challenges to the long-term sustainability of China's HSR diplomacy.

Notably, even as the largest developing economy, China's HSR cooperation with smaller counterparts in SEA is not characterized by its unilateral dominance. Factors such as each party's impatience, the host country's external options, and domestic constraints can affect the outcomes of project negotiations (Leverett and Wu 2017). For instance, in the case of the Jakarta–Bandung high-speed railway, Indonesia took advantage of China's impatience to promote the railway as a symbolic project to export China's HSR, thus gaining more bargaining power in negotiating project items. The bargaining power of host countries suggests that China should be more careful about the factors that may lead to local Sinophobic sentiments, which have impeded the progress of China's HSR projects.

This article contributes to the existing literature by understanding China's HSR diplomacy from an economic diplomacy framework developed by Okano-Heijmans

(2011) of context, tools, process, theatre, and outcomes. The argument is built on various sources, including journal articles, news, reports, and trade and investment data. However, it was only an assumption based on secondary sources without first-hand data like interviews with relevant Chinese officials. In addition, due to Covid-19 and the extended construction period of the project, specific data like trade and investment data generated by the construction of the railways have yet to be made available. Further research could be performed to analyze the impact of China's HSR diplomacy by conducting field research and tracking operational data of Chinese HSRs operating in SEA.

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EXAMINING THE DYNAMICS OF THE IRAN-PAKISTAN GAS PIPELINE: IMPLICATIONS FOR ENERGY COOPERATION, GEOPOLITICS, AND REGIONAL DEVELOPMENT

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This study examines the energy cooperation, geopolitical dynamics and regional development implications of the Iran-Pakistan gas pipeline. The study uses a mixed-methods approach to assess the pros and cons of the pipeline. The results show increased energy stability, reduced dependence on LPG, additional energy sources, and lower energy prices. However, the pipeline poses geopolitical risks to Baluchistan's security, political upheaval, economic consequences, regional hostility, and US sanctions. Despite these challenges, the pipeline could reduce gas shortages, temporarily help industry, boost trade between the two nations, improve regional cooperation, create jobs, and reduce unemployment. Building the pipeline requires international cooperation to overcome sanctions, financial incentives, and active participation of regional stakeholders, technological breakthroughs, and international lobbying.

Keywords: *Iran-Pakistan gas pipeline, energy cooperation, geopolitics, energy security, regional cooperation.*

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1. Introduction

Pakistan faces enormous social, economic, and geopolitical problems due to its energy crisis. Pakistan and South and Central Asia depend on natural gas, a cheap source of energy; hence, the Iran-Pakistan and Turkmenistan–Afghanistan–Pakistan–India Pipeline projects are crucial. These initiatives could affect the geostrategic landscape of the region for the Central Asian states. Rajpoot and Naeem (2020) expect the pipelines to boost regional integration, economic interdependence, and cooperation. As a global power, China has transformed international relations in the Middle East, where it has forged new relationships with Iran and Saudi Arabia. Pakistan's complex international relations and geopolitical position are significant. Pakistan's security, domestic politics, economic priorities, and foreign policy are shaped by its significant ties to Iran, China, and Saudi Arabia and its shared border and culture with Iran (Noor *et al*. 2023). Pakistan relies heavily on natural gas. With dwindling domestic reserves and growing demand, challenge of balancing the two is formidable. The baseline scenario anticipates 42.107 MTOE of natural gas consumption; the high-growth scenario doubles this. Despite the 1.5 billion cubic feet per day increase in demand, domestic production will fall from 4 to 2 billion. A long-term solution to this growing supply-demand gap is needed (Shayan *et al*. 2024).

Iran and Pakistan cooperate despite their differences and geopolitical challenges. Financial constraints, security issues, and foreign sanctions hamper bilateral relations (Czulda 2023). After the US withdrawal from Afghanistan, Iran and Pakistan normalized relations. Despite long-standing antagonism due to the Afghan civil war and Saudi-Iranian competition, the two governments have signed various agreements, conducted joint military training, and held regular diplomatic conversations to resolve issues and develop relations (Shah and Ismail 2023). Gas transport, import, and export issues hinder Iran from exploiting these pipelines for energy security (Turkamani 2023). Security concerns, geopolitical interests, and shifting political identities shape Pakistan-Iran relations. Racial conflicts and political initiatives to politicize Pakistan's Shia community have made both sides distrustful of the other, hindering energy and economic cooperation (Karim 2023). In recent years, the population growth and economic development in Iran and its neighbors have increased energy consumption. Abdolahinia *et al*. (2024) suggest investing heavily in fossil fuel power plants, renewable energy sources, and regional energy links to meet this demand. Energy security and regional energy convergence hinder sustainable development in Asia (Rasoulinezhad *et al*. 2023). Pakistan needs reliable energy to boost its economy and make its citizens feel secure. Without gas imports, the mismatch between supply and demand would increase. Therefore, regional climate and security perceptions are crucial (Adnan *et al*. 2023). Rising nations face water and electricity shortages due to population growth and house renovations. Iran has improved its electrical infrastructure and water conservation to become arid nation that can export electricity (Amiraslani and Dragovish 2023). Pakistan's substantial Saudi-Iranian rivalry shapes traditional alliances and geopolitical aspirations. After China mediated a détente between Iran and Saudi Arabia, Pakistan had a greater chance of building long-term commercial ties (Siddiqa 2023). Despite their friendly history, regional instability and sectarianism have damaged Pakistan-Iran relations. Pakistan's security concerns and India's financial investment in the Chabahar port suggest that the two nations may collaborate on CPEC and Chabahar to achieve political and economic

objectives (Khalid and Khan 2020). Regional cooperation depends on the core state and external forces, especially from enormous nations. The nuclear pact and the Indo-US strategic partnership have overshadowed efforts for regional peace and interdependence, notably between Pakistan and India (Naazer 2022). Despite recent geopolitical upheavals like the US breaking out of the nuclear deal with Iran and tensions in the Persian Gulf, the two nations are working to deepen their bilateral ties, focusing on economic and military cooperation (Shah 2022; Fakhar 2023).

Beyond its immediate economic and geopolitical significance, the Iran-Pakistan gas pipeline has the potential to significantly influence regional educational development. The completion of the pipeline is projected to promote financial growth, which, in turn, can improve public sector funding, including education (Ali *et al*. 2023). Economic resilience from energy partnerships can channel government profits toward developing educational infrastructure and increasing access to quality education (Mehdi 2024). This direction is evident in regions where energy-driven transformation catalyzes investment in public assistance, particularly in education (Bukhari *et al*. 2024). Further, as job creation advances due to pipeline construction and functional phases, households may experience enhanced economic stability, allowing for greater access in education and a reduction in youth dropout rates (Shah 2022). Moreover, the strategic alliance between Iran and Pakistan could lead to joint educational programs focused on energy and engineering introspection, handling skill gaps and facilitating specialized expertise among residents (Saira and Javed 2022). Thus, while the pipeline presents challenges, its flourishing enterprise could have far-reaching implications, including strengthening the region's educational opportunities through increased resources, skill expansion, and improved academic participation.

The Iran-Pakistan gas pipeline project exemplifies the intricate web of transnational ties, regional protection, and economic reliance. The pipeline project is politically linked to long-standing geopolitical concerns. In particular, the US embargoes on Iran and their impact on Pakistan's diplomatic posture (Abbas *et al*. 2023). These restrictions hamper international economic trade and the purchase of vital technology, complicating the viability of the project (Czulda 2023). Regionally, the project worries neighboring governments who are wary of increased collaboration between Iran and Pakistan due to shifting alliances and oil competitiveness (Safavi Homami and Iqbal Khan 2024). Internally, the pipeline's route through the province of Baluchistan further complicates problems, since this region has a history of security issues, political unrest, and a desire for local independence (Javaid and Jahangir 2020). These obstacles illustrate the problematic balancing act Pakistan must perform to complete the project without destabilizing its own political system or jeopardizing regional stability. Furthermore, managing these complexities will require multilateral agreements and strategic attention from global players to limit potential dangers and gain worldwide support. These interconnected issues indicate how the pipeline goes beyond its financial importance to become a focal point in regional geopolitics and the monetary system.

The general energy geography of the region, including Iran, Pakistan, and neighboring countries, is defined by its abundance and disparity. Iran possesses some of the world's largest natural gas reserves and is a major energy supplier. Conversely, Pakistan is plagued by endemic energy poverty, which impedes industrial development and financial resilience (Liu *et al*. 2024). This imbalance emphasizes the strategic importance

of energy projects such as the Iran-Pakistan gas pipeline, which has the potential to change regional energy dynamics by fostering energy interdependence and managing supply shortfalls (Naazer 2022). The energy sector is undergoing rapid transformation on a global scale, with an increasing shift from fossil fuels to renewable energy sources as nations strive to achieve carbon neutrality objectives (De La Peña *et al*. 2022). Despite these trends, natural gas remains a critical transitional energy source because of its moderately lower carbon footprint compared to coal and oil (Agyeman and Lin 2022). The pipeline project sits at this convergence, where international environmental objectives are reconciled with regional energy security concerns. The success of the project could establish Pakistan as a more consistent energy consumer, while highlighting the importance of global energy markets, particularly in light of the increased focus on diversifying energy sources and alleviating geopolitical threats (Asghar *et al*. 2023; Maleki *et al*. 2024). This underscores the necessity of balancing the potential benefits of the pipeline with strategic environmental and political considerations that take into account the wider energy context.

This study seeks to understand how the Iran-Pakistan gas pipeline has affected energy cooperation, geopolitics, and regional prosperity. The research aims to determine whether the pipeline can diversify Pakistan's energy supply, stabilize prices, boost energy security, and reduce LPG consumption. It also seeks to identify and assess the geopolitical risks of the pipeline, including security in Baluchistan, political turmoil, economic consequences, regional animosities, and US sanctions. It also assesses the ability of the pipeline to reduce gas shortages, short-term industrial aid, bilateral trade, regional cooperation, employment opportunities, and unemployment. The study emphasizes global cooperation, technological advances, and regional stakeholder involvement to overcome international restrictions and implement the pipeline. To address a knowledge gap, this study uses surveys and in-depth interviews to evaluate how energy cooperation promotes regional prosperity and geopolitical stability.

2. Literature Review

The Iran-Pakistan gas pipeline project significant implications for Pakistan's energy environment, regional cooperation, and geopolitical dynamics. Pakistan's energy crises and diversification efforts make the pipeline an attractive choice. Iran depends on the project for economic survival amid geopolitical turmoil and international sanctions. Understanding the multifaceted ramifications of the Iran-Pakistan gas pipeline is crucial for diplomatic relations, regional prosperity, energy security, and economic stability in South Asia and the Middle East. This study reveals these crucial aspects that support policy and strategic decisions. Fakhar *et al*. (2023) focus on border security, energy cooperation, and regional stability as critical issues in the regional dynamics of South Asia and the Middle East. The study emphasizes the need to communicate, negotiate, and cooperate to address issues and make the environment more secure. According to the paper, stronger bilateral partnerships, regional cooperation frameworks, and economic linkages are needed to reduce mutual security concerns and maximize shared opportunities. Despite their cultural, economic, geopolitical, and historical similarities, Pakistan and Iran have faced regional allegiances and security concerns that have hampered their relationship. This study examines current geopolitical developments and possible future Pakistan-Iran relations. Czulda's (2023) study of Iran's geopolitical stance towards Paki-

stan emphasizes the transition from the Muhammad Reza Pahlavi era to the Islamic Republic. The article discusses political, economic, and security cooperation between the two nations. Iran has traditionally valued Pakistan, but a strong strategic alliance often conflicts with its national objectives. Lack of financing, security, and international sanctions have hindered bilateral relations. Collaboration between Iran and Pakistan is inevitable, but the research suggests that they will face geopolitical challenges at home and abroad. Ali (2022) examines how China's Belt and Road Initiative has changed the China-Pakistan Economic Corridor (CPEC). The economic impact of China and India on Iran-Pakistan relations has not been extensively studied. The paper examines Iran-Pakistan relations from the Cold War to the present, including sectarian terrorism, geopolitical shifts, and 9/11. After the nuclear agreement with Iran, the report underlines the need for strong financial institutions in economic cooperation and examines future trade and security implications.

Shah (2023) uses public opinion to address the political and security issues facing Iran and Pakistan in maintaining good relations. Despite these challenges, the survey shows that most Pakistanis want strong relations with Iran. It highlights the importance of both nations in regional and global affairs, given their long and complicated diplomatic ties influenced by sectarianism and conflicts in the Middle East. The complicated relationship between Iran and Pakistan is examined by Jalal and Ullah (2023) following the 1979 Islamic Revolution and the Soviet invasion of Afghanistan. The study covers the Iran-Iraq conflict, Afghanistan's views, and Iran's support for the Mujahideen. Economic issues include trade and the halted Iran-Pakistan gas pipeline. This article offers strategies for developing bilateral relations in a changing geopolitical environment. According to Rafique and Khawar (2023), the recent warming of relations between Iran and Saudi Arabia has influenced Pakistan's foreign policy. This qualitative argument analysis study examines how the evolving views of Iran and Saudi Arabia affect Pakistan's diplomatic, economic, and political decisions. Complex interdependence theory is used to understand how the triangular relationship affects regional politics and economic dynamics, focusing on significant influence of Iran and Saudi Arabia on Pakistan's foreign policy. Hussain *et al*. (2024) investigate China's pragmatic balancing with Pakistan and Iran to secure and develop national self-interest. The study reveals that China's relations with these countries remain robust despite geopolitical shifts. Iran's willingness to support China in the Middle East against the US and its massive oil reserves has led to strategic treaties that do not affect Pakistan or the CPEC. Iranian-Chinese energy and military cooperation is often delayed because of its limited scope. Mansab and Hussain (2023) provide a comprehensive framework for assessing the consequences of the Saudi-Iranian-Chinese alliance for Pakistan and the region. Pakistan may benefit from the political reconciliation between Iran and Saudi Arabia, making the CPEC appear like a great approach to promoting collaboration and growth. Saira and Javed (2022) examine the foreign policy implications for Pakistan of regional energy projects like the IP gas pipeline. Research shows that regional energy projects are needed to solve Pakistan's energy problem. Pakistan has struggled to complete these projects because of internal issues, regional changes, a lack of funding, and external pressure. Pakistani politicians have ignored the study's suggestions to expand connections with energy-rich nations. Hashimi (2021) examines the post-9/11 relations between Pakistan and Iran, emphasizing their shared history and culture. Despite these links, the Cold

War, the Soviet-Afghan War, and the Iran-Saudi Arabia rivalry limit their interaction. Even though there are numerous obstacles, the report argues that recent developments like the CPEC and peace measures in Afghanistan offer hope for greater linkages. Mehmood (2023) analyzes the geopolitical importance of the 'Goldsmith Line,' which divides Iran and Pakistan. According to the research, this route is strategically essential for connecting the Middle East and South Asia since it passes through Baluchistan. The study also considers a greater cooperation in the light of the *joint comprehensive action plan* and the evolving dynamics between Russia and Pakistan.

Zarei and Sadat (2023) emphasize Iran's cultural, intellectual, and political dominance in geopolitics. The study discusses Iran's geopolitical importance and geocultural decline. This research reduces Iran's geopolitical prominence by focusing on its ideological position in global politics and the emphasis on the Islamic Revolution and political Islam. Beidollahkhani (2023) attributes the securitization of Iranian-Pakistani foreign policy to the Arab Spring, the Syrian and Yemeni crises, the Chabahar port, and Sino-Indian relations. Geopolitical necessity and proximity keep relations between the two nations balanced despite their securitized foreign policies. Khalid and Khan (2020) examine the economic links between Iran and Pakistan. Recent developments in CPEC, Gwadar, and Chabahar could damage the political and economic interests of Iran and Pakistan. Both nations benefit politically and economically from working together on these measures to improve trade facilitation, security, transparency, and law and order. Raza (2020) compares Iran and Pakistan to show how changing regional and global politics could restore trust. The study discusses Afghanistan, India's relationship with Iran, the Saudi-Iranian rivalry, and how the US withdrawal from the *joint comprehensive action plan* has affected Iran-Pakistan relations. Munawar and Afzal (2021) examine Iran's Middle Eastern and global strategic relevance in 2021. Research on the Iranian revolution, ideological rivalry with Saudi Arabia, proxy wars, and fear of the US challenges the image of Iran as an irrational, theocratic regime. The findings show that Iran's national interests require the proper management of opportunities and difficulties.

Energy cooperation, geopolitical upheavals, and regional prosperity are complex elements that have received little attention in the literature on Iran-Pakistan relations. To fill this information gap, this research evaluates the effects of the Iran-Pakistan gas pipeline from all angles. This detailed examination of how the pipeline can address geopolitical issues and improve energy security, economic stability, and regional cooperation fills a vacuum in the literature. The study's unique quantitative-qualitative methodology yields deep insights into this crucial topic. Based on the literature cited, the hypotheses of the study are as follows:

H1: The Iran-Pakistan gas pipeline improves Pakistan's energy security by diversifying energy sources and reducing LPG consumption.

H2: Geopolitics, including regional rivalries and international sanctions, hinder the success of the Iran-Pakistan gas pipeline.

H3: The Iran-Pakistan gas pipeline boosts regional prosperity and economic stability in Iran and Pakistan.

The study addresses these assumptions and offers practical insights and strategic advice to help policymakers and stakeholders in the Iran-Pakistan gas pipeline project comprehend its pros and cons.

3. Theoretical Framework

3.1. Realpolitik Theory

'Power politics' and realpolitik describe realism in international affairs. According to Bew (2015), Bismarck and Machiavelli founded it, while post-war scholar-diplomats like Henry Kissinger and George Kennan shaped it. Realpolitik advocates the use of force to defend the state and achieve national objectives. Kissinger, Bismarck, Stresemann, and Richelieu supported this realistic alternative to classical realism. Realpolitik requires national interest to trump other values, which can lead to immorality or amorality. Machiavelli believed that when states interact, the norms that govern interactions between people in well-organized states do not apply (Humphreys 2017). Realpolitik suggests that political beliefs can only gain momentum when they align with state power, which is historically contingent and difficult to detect (Kelly 2017). To understand Iran's foreign policy in the 2000s, one must consider its struggle to survive in a fragmented regional system and its attempts to promote regional and national goals while preserving a delicate power balance. This study must examine Iranian capabilities and regional and international systems. Gürsel Fırat Gedikli (2014) suggests that Iran can adapt its foreign policy to respond to critical challenges and opportunities, such as the Arab Spring upheavals. This chapter examines Iranian diplomacy in the aftermath of 9/11 and the Iraq War, up to the election of President Rouhani in 2013. By the mid-2000s, Iran had become a regional power due to its successful regional strategy, increasing oil prices, and the political victories of its allies (Najid 2021).

3.2. Global Political Theory

Geopolitics focuses on how geography impacts global power. The Swedish political scientist Rudolf Kjellén popularized the term in the early 1900s, mainly in connection to World Wars I and II (1918–1939) and the interwar years. Modern discourse conflates geopolitics with international politics (Deudney 2024). Geopolitics is dynamic, making it difficult to develop a strong knowledge base. It may be a social creation or a product of discourse. Geopolitics causes wars and displacements and, despite its abstract nature, has far-reaching political effects. It illustrates how images and imaginations shape politics, and discursive creations become social practices, according to Reuber (2009). Since the two World Wars (1918–1939), classical geopolitics has split from mainstream realist theory, creating a gap between realist theory and practice. These discrepancies make classical geopolitics unsuitable for policy and strategic analysis (Wu 2017). Global geopolitical systems, the geographical dispersion of national interests, and state conflicts underpin classical geopolitical theories. Geopolitical law governs regime emergence, collapse, transition, and major power dominance. According to Hu and Lu (2016), geographers should follow national events, identify national interests, and seize opportunities to influence national regeneration. India and its neighbors need a gas pipeline between Iran, Pakistan, and India to meet growing energy demands. Like the US and other Western nations, energy-poor countries like India, Pakistan, and China compete for gas reserves. Pakistan plans to subsidize its Iranian gas imports to become a major foreign currency earner under the concept of national treatment for FDI, which

protects transit pipelines like domestic ones (Verma 2007). Pakistan-Iran relations are shaped by geopolitics, regional dynamics, and external forces. Ideological disagreements, sectarianism, and alliances have affected their relationship. Geopolitics is the study of how political power and international interactions affect states, their borders, resources, and trade routes. Ideological and religious divisions shape the Middle Eastern geopolitics. Due to its Shia majority, Iran opposes Arab governments that promote unity through partnerships (Nazir 2017). Pakistan's energy crisis is limiting economic growth and needs to be addressed quickly. Pakistan could solve its energy problems by visiting Iran or the CAR, both of which are energy-rich. However, projects like the Iran-Pakistan gas pipeline will soon be crucial. The US-Iran disagreement and sanctions over Iran's nuclear program have created major obstacles. Despite its strategic importance, American officials have urged India and Pakistan to withdraw from the project and seek alternative options (Baloch 2012).

3.3. Constructivism

Constructivism argues that common interests, values, and social conventions unite people together globally. Constructivists study state policy-making and the development of new ideas by norm entrepreneurs, focusing on people's agency to change (McGlinchey 2022). Constructivism has influenced international relations, although its extent is debatable. Constructivism emphasizes social and intersubjective international politics, unlike liberal and realist approaches that emphasize institutional restraints, rational actors, and material constraints (Dormer 2017). The gas pipeline linking Iran, Pakistan, and India illustrates the challenges of energy resource security and how cooperative energy security can be while threatening national security. The realism paradigm fails because of transnational corporations like oil and gas and the need to diversify energy sources for security. International relations theory helps explain the behavior of states, especially ideologically driven governments. Realists believe that individuals act in their self-interest, whereas constructivists believe that ideas influence behavior. Constructivism contextualizes foreign policy and complements realist theory by focusing on concepts of actors. The foreign policies of Iran, Pakistan, and China reflect ideology. In Pakistan and Iran, Islam-based ideologies justify ethical judgments, while Confucianism explains China's pragmatic approach (Bleau 2014). Jack Snyder defines *global realism* as 'self-interested states competing for power and security through coercive power and diplomacy.' Constructivism emphasizes how ideas, culture, social identities, and values impact international politics (Ashley 2012).

4. Methodology

The study collected data from university professors and students interested in Pakistan's foreign policy. These participants were selected for their theoretical and practical expertise in Pakistan's foreign policy and relations in order to provide sophisticated and well-informed views. The random sample of university students and professors represents a variety of academic disciplines and academic backgrounds. These are the participating academic institutions and departments – Abbottabad University of Science and Technology (including current and former students and lecturers of International Relations and Pakistan Studies). This group analyzes Pakistan's foreign policy using their understanding of its history, culture, and international relations. Bahria University (Islamabad), Department of Media and Mass Communication also participated in the study.

Their expertise in communication strategies, journalism, and media ethics provides critical insights into the perception and transmission of foreign policy through media channels. The faculty and students at Government Girls Degree College (Havelian, Pakistan) come from several academic disciplines. The inclusion of multiple academic fields underlines how they influence and are influenced by international policy conversations. Targeted readers study English, Political Science, Physics, Economics, Psychology, Mathematics, Urdu, Pakistan Studies, and International Relations. Many active university and college lecturers investigate the study topic in detail. Data was collected through participant interviews and 5-point Likert scale questionnaires. This dual method can be used to study the impact of Iran-Pakistan gas pipeline on energy cooperation, geopolitics, and regional development. Mixed methods research combines quantitative and qualitative data for more reliable results. This study uses qualitative and quantitative methods to analyze the effects of the Iran-Pakistan gas pipeline. The quantitative section assesses knowledge and attitudes using a 5-point Likert scale questionnaire. The qualitative component uses open-ended interview questions to elicit insights from participants. We created five open-ended questions for university professors and students to collect qualitative data on the Iran-Pakistan gas pipeline. The study asked the following questions to invite participants to share their ideas, feelings and opinions:

1. How do you perceive the potential benefits of the Iran-Pakistan gas pipeline for Pakistan's energy sector?
2. What are the major geopolitical challenges associated with the Iran-Pakistan gas pipeline?
3. In what ways could the gas pipeline influence regional development in Pakistan?
4. How do you assess the current state of energy cooperation between Pakistan and Iran?
5. What strategies do you suggest for overcoming obstacles to the successful implementation of the Iran-Pakistan gas pipeline?

A list of variables follows. ‘Energy Cooperation,’ ‘Geopolitical Stability,’ ‘Economic Benefits,’ and ‘Infrastructure Development’ are the independent variables, while ‘Perceived Impact of the Iran-Pakistan Gas Pipeline on Regional Development’ is the dependent variable (measured on a 5-point Likert scale). Regional political difficulties have stalled the construction of the Iran-Pakistan gas pipeline, but its economic benefits will more than offset its costs and boost Pakistan's infrastructure growth. The interview questions were purposefully left open-ended to help understand the Iran-Pakistan gas pipeline and its implications. The study created open-ended questions to encourage individuals to share their thoughts, feelings, and experiences. Multiple regression analysis was used to examine the dependent-independent relationships of the Iran-Pakistan gas pipeline. This statistical method allows us to account for other factors and simultaneously assess the effect of numerous independent variables on the dependent variable. We analyzed the data using SPSS to ensure accuracy.

5. Result and Discussion

5.1. Qualitative Results

Multiple views allow for a full understanding of how the Iran-Pakistan gas pipeline may affect regional growth. Energy cooperation, economic benefits, geopolitical stability, and infrastructure development were popular topics in the open-ended questions.

The thematic analysis organized and categorized participants' perspectives. Most respondents argued that Pakistan's energy sector would benefit from the Iran-Pakistan gas pipeline as it would provide an alternative to current energy sources. The pipeline could help Pakistan's struggling energy sector by reducing the use of LPG. Many respondents, particularly experts and university lecturers, said the pipeline could improve Pakistan's energy security by diversifying energy sources. The impact of diversification on energy costs could stabilize and manage the national energy market.

Most respondents emphasized that the geopolitical pressure from the US and its Western allies against the project is increasing. With Pakistan already in another IMF program, sanctions aimed at curbing Iran's nuclear ambitions and regional influence could put pressure on the pipeline project to be abandoned. These limitations make it difficult for Pakistan to make financial transactions and investments necessary for pipeline development, which could damage its economy and diplomacy. Political turmoil in Pakistan and Iran complicates the prospects of the pipeline. Government policies and leadership influence Iran's foreign policy. Pakistan's internal security challenges, notably in Balochistan, could threaten the security of the pipeline. Pakistan's diplomatic stance and decision-making are affected by regional adversaries like Saudi Arabia and Iran in the challenging geopolitical atmosphere of the project.

Respondents stressed that the pipeline could reduce winter gas shortages in Pakistan's northern regions, thereby boosting the regional economy. Domestic customers may only benefit from the infrastructure over time. Construction and maintenance of the pipeline are expected to provide many direct and indirect jobs, reducing local unemployment. The availability of energy could boost SMEs, increasing employment and supporting the economy. Improved relations with Iran could increase economic interdependence, boost bilateral trade and regional cooperation, and promote economic integration and stability.

Respondents believe that energy cooperation between Iran and Pakistan has pros and cons. Iran is a vital ally for Pakistan owing to its large natural gas reserves, and both want to strengthen energy ties to satisfy their energy needs. Geopolitical pressures, including US sanctions on Iran, have hindered and impeded the Iran-Pakistan gas pipeline project. Despite this, the two nations are determined to cooperate on energy projects to enhance their economies and regional peace. Protracted debates and delays in pipeline project suggest a lack of energy cooperation and the need for more political will or determined efforts to resist foreign pressures. Insufficient infrastructure and security concerns, particularly in Balochistan, are problems. These issues may require more investment, regional security initiatives, and energy cooperation to incorporate renewable energy projects to reduce geopolitical risks and establish a more sustainable partnership.

The respondents believe that Pakistan should lead international support for the Iran-Pakistan gas pipeline, emphasizing its relevance in alleviating the energy crisis and its economic impact. This will help overcome obstacles to project implementation. The threat of Iranian arbitration needs to be addressed quickly to avoid other foreign verdicts like Reko Diq. It is also necessary to involve regional stakeholders to build support and minimize external pressure. Infrastructure development funds, equitable revenue-sharing agreements, and investment incentives can attract mutually beneficial investments. The pipeline needs new technology to be safer, more efficient, and envi-

ronmentally friendly. Modern monitoring systems, environmental efforts, and construction technologies will require significant investment. The knowledge, financial resources, and reputation of global energy companies and international organizations through international cooperation could contribute to the success of the project and reduce the impact of international sanctions on Iran. Table 1 summarizes the main survey results of the open-ended questions.

Table 1

Main Survey Results of Open-ended Questions

Theme	Key Findings
Potential benefits of the Iran-Pakistan gas pipeline for Pakistan's energy sector	Enhance energy security, Reduce dependence on LPG, Diversify energy supply, Stabilize energy costs.
Geopolitical challenges associated with the Iran-Pakistan gas pipeline	US Pressure and sanctions, Economic repercussions, Political instability, Regional rivalries, Internal security risks in Baluchistan.
Iran-Pakistan gas pipeline influence on the regional development	Addressing northern gas shortages. Inadequate domestic infrastructure, temporary industrial sector relief, job creation and unemployment reduction, Stronger bilateral trade relations, regional cooperation and integration.
Current state of energy cooperation between Pakistan and Iran	Challenging Energy Partnership Dynamics, Geopolitical Pressure Hinder Progress, Infrastructure and Security Concerns, Diversification of Sustainable cooperation, Mutual interest despite obstacles.
Strategies for successful implementation of the Iran-Pakistan gas pipeline.	International Lobbying and Awareness, Economic Incentives and Investments, Technological Advancement and security, regional Stakeholder Engagement Strategy, Global partnership and sanctions mitigation.

Source: authors' survey.

5.2. Quantitative Results

Table 2 shows the demographic survey of the responses. With many more women than men, the gender split of the group is 43.4 % men and 56.6 % women. The largest age group is 26–30, with 37.4 % of participants. This closely followed by the 20–25 age group with 34.3 % of the sample. 21.2 % of participants are aged 31–35, while 7.1 % are over 35 years old.

Table 2

Demographic survey of the Respondents

Demographic Characteristics	Response Options	Percentage
Gender	Male	43.4
	Female	56.6
Age	20–25	34.3
	26–30	37.4
	31–35	21.2
	More than 35 Years	7.1

Table 2 continued

Demographic Characteristics	Response Options	Percentage
Educational Background	Undergraduate student	9.1
	Graduate student	73.7
	Faculty/Teacher	15.2
	Other	2.0
Familiarity with Topic	Not familiar at all	5.1
	Somewhat familiar	22.2
	Very familiar	72.7

Source: authors' survey.

Graduate students make up 73.7 % of the sample. This group includes 9.1 % undergraduates and 15.2 % professors/teachers. The remaining 2.0 % are classified as other. Only 5.1 % of the poll respondents were unfamiliar with the subject, while most (72.7 %) were familiar with it. This distribution suggests that most individuals understand the issue, with a small minority being uninformed. Table 3 provides descriptive statistics on factors related to the Iran-Pakistan gas pipeline project.

Table 3

Descriptive Statistics of the Variables

Variables	Mean	Standard Deviation
Perceived Impact of the Iran-Pakistan Gas Pipeline	3.75	.930
Energy Cooperation	3.99	.662
Economic Benefits	3.94	.620
Infrastructure Development	3.66	.745
Geopolitical Stability	3.84	.841

Source: authors' survey.

Regional growth shows a moderate improvement with high data variability, with a mean score of 3.75 and a standard deviation of 0.930. This suggests a mixed but positive picture of regional development. Energy cooperation has a mean score of 3.99 and a standard deviation of 0.662, indicating high perceived cooperation with low volatility. This indicates a high level of agreement on energy cooperation for the pipeline project. Economic benefits show a consistent and positive perception of economic benefits with little variation. This shows that the economic benefits of the project are generally recognized – Pakistan's infrastructure with a standard deviation of 0.745 and a mean score of 3.66. The responses indicate that the development of pipeline infrastructure is generally well-received, although there is some variability. Geopolitical stability is also significant, with a mean of 3.84 and a standard deviation of 0.841. Views on the future of global political stability are predominantly optimistic; however, views differ. Table 4 shows the regression estimates for quick reference.

Table 4

Multivariate Regression

Variables	Standardized β value	t-value	Prob. Value
Demographic Variables			
Gender	0.002	0.017	0.987
Age	–0.212	–1.987	0.050
Educational Background	–0.242	–2.059	0.042
Familiarity with Topic	–0.039	–0.400	0.690
Independent Variables			
Energy Cooperation	0.317	3.040	0.003
Economic Benefits	–0.122	–1.190	0.237
Infrastructure Development	0.073	0.758	0.450
Geopolitical Stability	1.012	4.102	0.000
Statistical Tests			
R^2	0.581		
Adjusted R^2	0.501		
F-statistics	3.869		
F-prob.value	0.000		

Source: authors' estimate.

The relationship between age and regional development is significant ($p = 0.050$). Younger people are more inclined to embrace regional economic efforts like the Iran-Pakistan gas pipeline. Younger people may be supportive of regional development initiatives because they are more open to new ideas and risk-taking. Regional development can boost future economic growth and energy security, making it easier for younger generations to grasp. Due to concerns about cultural changes, job stability, and other considerations, older people may mistrust regional development plans, which may reduce regional development support. Human capital theory suggests that younger generations invest more in their education and skills, which boosts production and earnings. Thus, they are more inclined to support regional development initiatives that strengthen the economy and create jobs. Older adults may be less involved in regional development because they are risk-averse and prefer to keep what they have. According to a study (Bloom *et al.* 2003), increasing labor supply, which improves employment eligibility, can boost economic output. Realizing the economic growth potential of the demographic dividend requires sound policies, careful investment in human capital and the creation of new jobs. Capitalizing on this transition will boost the economy while failing to do so will miss out on this once-in-a-generation growth potential (Kelley and Schmitt 2005) describe the role of population in economic growth. The framework includes two models: the 'productivity' model explains growth in output per worker, and the 'translation' model converts this into per capita income. In addition to a basic economic model, we include several demographic alternatives: size, density, and dependency. Poot (2008) examines how population aging and immigration affect the innovation, entrepreneurship, and productivity that make a place competitive. Studies show

that immigration, especially of highly educated people and entrepreneurs, improves urban competitiveness, but regional demographic change is often faster and more significant than national demographic change and can significantly affect regional competitiveness. The distribution, size, composition, and growth of a region's population are endogenous to its economic development. The age distribution affects regional development by reflecting the views of older and younger generations on key development initiatives.

Education has a statistically significant effect on regional growth (p=0.042). Higher education professionals are more skeptical about regional economic ventures like the Iran-Pakistan gas pipeline. Because they have polished their analytical skills and have access to a wide range of information, they are more aware of the hazards and obstacles of such initiatives. Education tends to increase the scrutiny of the geopolitical, environmental, and economic implications of regional development plans. They may become more skeptical if they doubt the viability, longevity, and long-term advantages of the initiatives. Naturally skeptical, this population can predict risks and unintended consequences of major infrastructure initiatives. Public officials must address the concerns of educated people to gain support. To inspire trust, be honest about the project's aims, risks, and benefits. Expert presentations, public forums, and thorough studies can help address this group's concerns and secure their support for regional development plans. The signaling theory suggests that education can predict income and productivity. Higher education may make people prioritize their individual interests over regional development objectives because of anxiety about their financial security. According to Di Liberto (2008), increased education enhances growth in the South. Italian growth benefited from the decline in illiteracy in the South in the 1960s. Given that many places in Italy have yet to benefit from higher education ultimately, this conclusion suggests that varying degrees of education affect the pace of economic growth. The US higher education and regional economic success were modeled from 2001 to 2011 (Drucker 2016). Education, especially bachelor's and master's degrees and STEM degrees, is associated with entrepreneurship. These results boost economic growth by supporting universities' teaching and research agendas and entrepreneurial strategies. According to Wixe and Andersson (2016), who define relatedness theoretically, firms and industries can profit from leveraging people. The findings demonstrate that classroom and workplace heterogeneity boosts productivity. Related sector diversification boosts employment but lowers productivity. Regional development is affected by education because individuals with higher education can grasp the dangers and difficulties of such endeavors.

Energy cooperation boosts regional economies significantly (p = 0.003). This shows that Pakistan-Iran energy cooperation is essential for regional prosperity. Energy cooperation initiatives can benefit economic growth, energy security, and regional cooperation. An example is the Iran-Pakistan gas pipeline. Energy projects often boost regional growth by reducing geopolitical tensions and increasing economic interdependence. These initiatives improve energy infrastructure and security, which can boost living standards, employment, and economic growth. The Iran-Pakistan gas pipeline can boost industrial development, reduce energy costs, and secure energy supplies. Strategically increasing energy cooperation can boost regional wealth and stability. Political leaders should emphasize strong bilateral agreements, open governance, and social and

environmental repercussions. Using reciprocal and long-term benefits to promote energy cooperation can help in gaining public and political support. Energy cooperation can boost regional growth by reducing transaction costs, providing energy security and integrating economies. Regional expansion, investment, and economic success can benefit. Trade gains and comparative advantage theories propose that cooperation and specializing can boost output and growth. According to Cai *et al*. (2022), green development is essential for developing a beautiful China and revitalizing the country. Green development efficiency in Anhui Province was variable, with most cities scoring medium to high. Some cities have spatial aggregation and high or low green development efficiency. Regional economic growth was favorably and substantially connected with industrial structure, urbanization, and digital economy development. Ali Shahet *et al.* (2020) note that the Belt and Road Initiative (BRI) will affect the geopolitics of energy and infrastructure. A major global energy supply and infrastructure disruption will transform the global energy order. Several areas are attracting international interest in energy cooperation because of their massive natural gas and oil reserves. These include Central Asia, the Arctic, the Eastern Mediterranean, and the South China Sea. The transformation of the energy order change is significant. This development is expected to be driven by the BRI. As part of the BRI, China aims to create a global platform for energy cooperation. Srivastava and Misra (2007) note that the availability of energy is vital to socio-economic growth. South Asia is one of the poorest and fastest growing energy-dependent regions. The region has enormous resource potential and scope for partnership in energy security and sustainable development. Energy cooperation ultimately benefits regional development.

Perceptions of the Iran-Pakistan gas pipeline affect Pakistan's geopolitical stability in several ways. When geopolitics is stable, investors are more willing to fund large infrastructure projects like the pipeline. Investors feel more comfortable investing in these efforts when the global political atmosphere is secure, which promotes support and commitment. Stability improves bilateral relations and makes cross-border initiatives easier, reducing tensions. A reduction in regional tensions makes pipeline development less likely to be halted by political disputes or conflicts. Stability helps strengthen the security and infrastructure needed to protect the pipeline project. Better security and infrastructure boost the pipeline's image and convince stakeholders of its safety and efficiency. Stable geopolitics allow for productive interactions that strengthen Pakistan-Iran commercial and diplomatic relations. Since both countries are more likely to keep their promises and collaborate, optimism about the pipeline has increased. When Pakistan's domestic politics are stable, large projects like the pipeline can succeed with coherent and consistent governance. If stakeholders feel that domestic policies are well managed and stable, the viability and success rate of the pipeline project increases, making it less likely to be shelved. Pakistan's geopolitical stability affects the Iran-Pakistan gas pipeline by encouraging investment, reducing regional tensions, improving infrastructure and security, strengthening diplomatic and economic ties, and ensuring consistency in domestic policy and governance.

6. Conclusions

The Iran-Pakistan gas pipeline project presents a unique mix of opportunities and obstacles that go beyond financial gains to encompass consequential geopolitical implica-

tions. Pakistan could become a more resilient energy consumer, and the project could facilitate regional economic integration, which could also preserve the financial partnership and energy security between Iran and Pakistan. However, these benefits are accompanied by substantial geopolitical implications. The pipeline could reshape regional governance systems, escalate tensions with rival states, and attract scrutiny or embargoes from global actors, particularly the United States. Internally, the route through Baluchistan poses security challenges that could exacerbate instability in the province and require strategic management. Consequently, despite the potential of the pipeline to stimulate development, it requires the careful navigation of geopolitical connections and protection strategies to mitigate risks and capitalize on potential progress.

The study evaluates Pakistan-Iran energy cooperation, determines the potential benefits of the pipeline to Pakistan's energy sector, identifies key geopolitical challenges to the project, analyzes the potential impact of the pipeline on regional development, and proposes solutions to project issues. Pakistan, a country with a rich social and political past, hosted the study. College and university lecturers, staff, and undergraduate and postgraduate students were targeted. An examination of open-ended questions suggests that the pipeline that the potential to boost Pakistan's energy sector. These benefits include energy security, reduced LPG consumption, more diverse energy sources, and stable energy prices. The study identified economic consequences, political uncertainty, regional animosities, and Baluchistan's internal security concerns as geopolitical barriers to the Iran-Pakistan gas project. The pipeline could alleviate gas shortages in northern Pakistan, temporarily boost the industrial sector, increase employment, reduce unemployment, and improve bilateral trade and regional cooperation. Pakistan and Iran are collaborating on energy projects, but geopolitical issues, infrastructure and security concerns, and the need for long-term, diverse cooperation remain. For the pipeline to succeed, global awareness and lobbying, financial incentives and investment, technological and security upgrades, regional stakeholder engagement, and global coalitions to mitigate sanctions will be required.

The study analyzes questionnaire data to determine the relationships between independent and dependent variables. The results show that the educational background and age of the respondents significantly affect regional development. Multivariate regression analysis shows that energy cooperation and geopolitical stability are crucial for regional development. The findings suggest that the Iran-Pakistan gas pipeline could boost energy cooperation, regional prosperity, and geopolitics. According to the study, the pipeline could promote economic growth, diplomatic relations, and energy consumption. These factors suggest that strategic cooperation on infrastructure projects can benefit the countries involved. Despite the geopolitical challenges, the study makes short-term policy recommendations to advance the pipeline project. Pakistan's lobbying should focus on technological infrastructure, security in Baluchistan, investment, sanctions relief and international support. Stronger bilateral economic ties and cooperation with Iran are essential for long-term energy partnerships. Medium-term strategies should improve energy cooperation and education. Policymakers should prioritize energy agreements and funding and collaborate across regions to implement them efficiently. Future energy strategies should prioritize long-term industrial relationships. To keep the industry competitive, we need to invest in renewable energy, improve energy infra-

structure, establish long-term international and bilateral cooperation, and use new technologies and innovative methods.

A comprehensive policy strategy is essential to reap the benefits of the Iran-Pakistan gas pipeline while simultaneously addressing its geopolitical risks. To establish peace and prevent potential geopolitical repercussions, Pakistan should engage in proactive, prudent discussions with regional and global stakeholders, with a particular focus on US sanctions. Building strategic partnerships with non-Western nations, including Russia and China, could mitigate Western opposition and ensure the longevity of the project. The pipeline route will be protected, and local resilience will be enhanced through the implementation of internal protection measures, particularly in Baluchistan. This could include initiatives to address socio-economic resentments in the region to mitigate opposition and build societal support. Promoting transparent communication with neighboring countries and advancing the project through regional cooperation could alleviate animosities and build mutual trust. Pakistan must implement these policies to navigate the complex geopolitical landscape and maximize the pipeline's positive impact on regional expansion.

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BANGLADESH UNDERWATER: EXPLORING THE GLOBAL AND NATIONAL PERSPECTIVES ON FLOODING

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Floods have become an alarming regularity in the riverine areas of Bangladesh, resulting in loss of life, collapsed agriculture, and damage to property. The purpose of the urgent measures required in Bangladesh's flood crisis is to minimize floods and reduce health hazards, and economic impacts. Available data highlight the widespread occurrence and associated risk factors for the flood crisis in Bangladesh. According to WHO (2020), the global impact of floods between 1998 and 2017 affected more than 2 billion people, underscoring the severity and widespread nature of this natural disaster. Bangladesh experiences four types of floods: flash floods, local rainfall floods, monsoon river floods, and storm-surge floods. Drawing on lessons from past flood events, the article explores adaptation mechanisms and policy interventions aimed at enhancing resilience and sustainable development. The governments, local authorities and youth are urged to address the current crisis by coordinating and integrating multiple effective efforts to prevent flood-related economic losses and deaths.

Keywords: *climate change, disaster management, flood control, vulnerability, economic loss.*

Natural disasters are devastating catastrophes that cause property damage, agricultural collapse, and human casualties. Disasters are inherent occurrences that destroy homes, infrastructure, and agricultural production and can lead to human casualties. Disasters force people to become internally displaced, abandoning their homes or usual places of residence and seeking temporary or extended duration refuge elsewhere. The Internal Displacement Monitoring Centre reports that between 2008 and 2018, natural disasters forced the evacuation of approximately 26.4 million people annually, of which

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26.14 per cent were from South Asia (Torres and Casey 2017). Since 2018, storms (34.54 %), earthquakes and tsunamis (12.23 %), and wildfires (0.61 %) have been the leading causes of population displacement, with floods accounting for 50.62 % per cent of this total (Uddin and Matin 2021). One of the most prevalent and catastrophic forms of natural disaster on Earth is flooding.

Flooding is a natural disaster that involves a massive amount of water in a particular place due to natural causes such as heavy rainfall, river overflows, tidal surges, or other causes like dam leaks, poor drainage systems, poor housing, and global warming. Floods result in the destruction of a nation's physical and social infrastructure, transport systems, and assets, which are commonly referred to as 'direct damages', and such damages cause disruptions in economic activities (Haque and Jahan 2015). Although floods do occur naturally, however, some that have taken a heavy toll on lives and property are man-made failures such as dam bursting, urban flooding and debris flows in densely populated areas.

According to the World Health Organization (WHO 2020), more than 2 billion people worldwide were affected by floods between 1998 and 2017. In addition, the World Meteorological Organization reports that between 1970 and 2012, storms and floods caused more than one million deaths (WHO 2020; WMO 2020). Floods have caused numerous fatalities worldwide over the past decade. Asia, particularly countries like India, Nepal, and Bangladesh, has experienced a significant number of flood-related deaths, with more than 5,000 deaths since 1985 (Petrucci 2021).

In 2010, approximately one-fifth of Pakistan's territory was flooded, affecting 20 million people and causing nearly 2,000 deaths, with economic losses estimated at around US$ 43 billion (Riaz *et al.* 2023). A year later, another monster flood hit South-East Asia. The flood event extended across several countries and several separate limited flood events affected parts of the same countries: Thailand, Cambodia, Myanmar and Viet Nam. Meanwhile, the Lao People's Democratic Republic also suffered flood damage, with the death toll approaching 3,000 (UNDRR 2017). If we consider Thailand alone in terms of economic losses, this flood ranks the fourth costliest disaster in the world as of 2011, with a total loss of $14.7 billion and a reduction in the country's GDP of 4.81 per cent (Taguchi *et al.* 2022). The economic costs associated with floods in Zimbabwe is $274 million, while the Cyclone Kenneth caused costs of up to $300 million (Nhundu *et al.* 2021). Additionally, floods have had a significant impact on urban economic activity, affecting jobs and transport infrastructure. Over the period from 2000 to 2021, there were 225 relevant natural disasters in EU countries, causing an estimated total direct damage of US$ 186 billion (Dottori *et al.* 2023). Among these, floods were the most prevalent type of disaster, accounting for 40 per cent of all disasters. Moreover, they caused more than half of the recorded damages, accounting for 59.2 per cent of the losses (Steinhausen *et al.* 2020). In particular, the 2014 floods in south-eastern Europe killed 80 people and caused over US$ 3.8 billion in economic losses (Paprotny *et al.* 2018). The map in Figure 1 shows the extent of flooding around the world and the countries affected by major floods in 2021–2022.

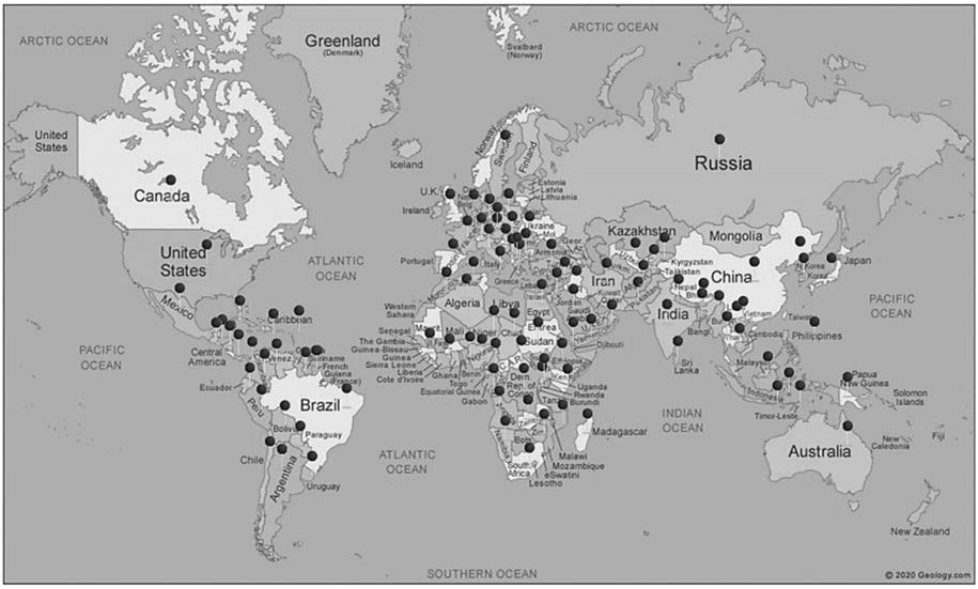

Fig. 1. Countries affected by floods across the world, 2021–2022

Source: Bouchard *et al.* 2023.

Situated in a vast river delta barely above sea level, Bangladesh faces natural challenges like river flooding and bay-borne cyclones. More than 35 million people in Bangladesh's coastal zone are at risk of losing their lives and livelihoods due to increasing flood risks, salinization, and waterlogging (Barbour *et al.* 2022). Tragically, death by flood has been a recurring theme in Bangladesh's history. Since 1972, a total of 86 floods have occurred in Bangladesh, resulting in the loss of 42,279 lives (Baten *et al*. 2018). The devastating flood that hit Bangladesh in 1998 covered 68 per cent of the country, impacted 77,700 square kilometers, killed 2,379 people, washed away 3.2 million tons of crops and cost the country 40,000 million Taka in financial losses. It was a disaster that showed how vulnerable Bangladesh is to the forces of nature (Uddin and Matin 2021). The higher catchment areas of the north-eastern wetland regions of Bangladesh, commonly known as Haor, had unusually significant rainfall during the pre-monsoon period in 2017, leading to the flash flood that year. About 90 % of the crops and fish productivity in the Sunamganj district were destroyed by this early monsoon flash flood (Chakraborty *et al.* 2021). The 2017 flood in Bangladesh was the worst flood loss this century, damaging crops and infrastructure at a cost of 2.44 per cent of people's income and reducing annual income by 21.4 per cent (Shubho *et al.* 2022). The earlier flash floods in 2022 inundated approximately 90 per cent of the total area of Sylhet division. Heavy rainfall, hill slopes descending from upstream, sedimentation of canals and rivers, improper digging of canals and rivers, and poor management of the drainage system in Sylhet city effectively contributed to this flood (Shamsul and Kashima 2022).

Floods can be classified into different types based on the source of water and the processes involved. Among them, Bangladesh experiences four types of floods: flash floods, local rainfall floods, monsoon river floods, and storm-surge floods. Flash floods

are floods that occur rapidly, rising and falling within a short period of time, typically within six hours or even as little as three hours; river floods are the result of river water overflowing its banks; and coastal floods occur as a result of surges caused by both extratropical and tropical cyclones. Compared to other types of floods, flash floods caused the most deaths per event. The Ganges, Brahmaputra, and Meghna rivers and their distributaries and tributaries contribute to the high vulnerability of Bangladesh to flooding. The country is especially prone to flooding due to its complex riverine systems, monsoonal climate, and low-lying terrain that make it one of the world's most flood-prone regions. To combat this, the country has developed defenses over time. These measures include warning systems, storm shelters, salt-tolerant crops and a network of 139 coastal polders – 5,700 kilometers of protective walls that protect farmland from inundation. These challenges threaten not only lives but also the sustenance of livelihoods within these vulnerable areas (Cornwall 2018).

The financial implications of floods are significant, with losses to infrastructure, agriculture, and housing estimated to exceed billions of dollars each year. Between 1998 and 2017, the total economic impact of floods was US$ 656 billion, according to the United Nations Office for Disaster Risk Reduction (UNDRR 2018). According to Munich-Re, a reinsurance business based in Germany, economic losses from floods in Europe reached 54 billion euros in 2021, making it the costliest natural disaster in German history; extreme rainfall and flash floods in Europe caused losses of US$ 54 billion (€46 billion) (Munich Re 2022). Furthermore, it is worth noting that in some cases, such as the 2011 floods in Thailand, the financial impact of business interruption (BI) can be just as significant as the destruction of physical assets. For instance, the floods resulted in a staggering US$ 13.3 billion (2005 purchase power parity, PPP) in BI losses, in addition to the US$ 12 billion in asset damage (Taguchi *et al.* 2022). Bangladesh's frequent and severe floods pose a serious threat to the nation's socio-economic and environmental stability. Economic losses due to flooding are high. So, it was the most damaging climate extreme, followed by drought and hailstorms in Bangladesh. From 2009 to 2014, the highest economic losses were recorded in Barisal division at $613 million, followed by Dhaka division at $198.7 million (Biswas *et al.* 2019). The total economic impact of cyclones and floods in Bangladesh is estimated to be about $3.2 billion per year, or 2.2 % of the country's GDP (Haque and Jahan 2015). These expenses include both emergency relief and long-term rehabilitation initiatives.

Floods are highly destructive natural phenomena that cause significant devastation and loss of life in communities around the world. Over the 61 years, there were a total of 6,478 flood-related deaths in the contiguous United States, or approximately 106 deaths per year (Han and Sharif 2021). Floods in Bangladesh in 1988 were particularly destructive, with 2,000–6,500 people losing their lives. In 1998, floods affected nearly 100,000 km^2 of land and resulted in the deaths of 1,100 people (Biswas 2018). However, due to the development of disaster management programs has reduced the number of flood victims in recent years. For example, the death toll from cyclone Sidr in 2007 was 3,363, compared to 250,000 and 140,000 deaths from cyclones in 1970 and 1991, respectively (Shoji and Murata 2018). However, the lack of healthcare facilities and transport, with boats being the only means of transport during floods, still contributes to maternal deaths occurring during transfer from community to hospital. The contamination of water supplies by floods can cause a variety of health problems, including wa-

terborne infections like cholera and typhoid, injuries, mental health problems and the spread of vector-borne diseases like malaria. Flood-induced displacement can exacerbate existing health risks, such as malnutrition and limited access to health care.

Overall, the recent decades have witnessed a steady increase in the frequency and economic losses from flood events worldwide. This raises the question of what factors contribute to the changes in flood impacts, with possible causes including increases in the exogenous flood hazards (*e.g.*, extreme precipitation or high streamflow events) or increased vulnerability of populations and assets to flood hazards. However, studies have showed that future climate change, altered precipitation patterns and sea level rise are expected to increase the frequency and intensity of floods in many regions of the world (IPCC 2001). Increases in global mean surface temperature due to climate change may lead to changes in flood risk. Studies have shown that higher temperatures can intensify rainfall, resulting in increased flood risk (Mandal *et al.* 2022). Unofficial records for the hottest global monthly and daily temperatures were broken in July. According to the United Nations, 2024 was officially confirmed as the hottest year on record, with global average temperatures reaching 1.55°C above pre-industrial levels (UN 2025). Based on National Weather Service (NWS) data on weather-related deaths and injuries, flooding was responsible for the second highest number of weather-related deaths in the United States. The only weather phenomenon that caused more fatalities was heat waves (NWS 2021). The ability of the atmosphere to retain and redistribute water is enhanced as a result of atmospheric warming, which in turn causes more severe rainfall episodes. Deforestation and urbanization are two examples of land-use changes that reduce the ability of the land to store water and make flooding more likely. Floods disproportionately affect low-income communities, especially those located in low-lying coastal regions. Research shows that households of lower socio-economic status are disproportionately vulnerable to flood risks. Economic inequality within countries, including unequal income distribution, can affect the ability of populations to withstand flood hazards. The impact of a weak economic class on flood mortality varies depending on the level of economic development. These demographic groups were found to be particularly vulnerable to flood hazards, indicating critical areas of vulnerability that warrant focused attention on flood risk management strategies. Moreover, good governance and appropriate environmental laws, acts, and regulations are necessary to achieve sustainable economic development and reduce environmental degradation. Nevertheless, there has been criticism of the government's handling of these difficulties, emphasizing the significance of a well-functioning democracy for effective emergency response. The government now needs to adopt a comprehensive approach to flood management including both structural and non-structural solutions while giving priority to community-based vulnerability and adaptation programs. Furthermore, it is necessary to reassess the practicality and cost-effectiveness of comprehensive flood and water control systems, taking into account the increased hazards associated with climate change. The government should also recognize the need to address the variables that contribute to flooding, such as changes in land use, climate variability, and the implementation of flood vulnerability mapping and management programs.

Bangladesh has developed strategies and plans to reduce the risk of floods following past catastrophic floods, including the concept of ‘living with the floods’ and its integration into the country's Flood Action Plan. In response to the 2017 floods, adaptation

mechanisms have been implemented, such as measures to provide support and assistance to flood victims, which is an essential step towards building resilience and sustainable development in the face of recurring natural disasters. Every country has its own way of dealing with disasters.

The problems caused by floods are not unique to Bangladesh. The devastating impact of floods on human populations and the tragic loss of life caused by extreme weather events is highlighted by global data, including that of the World Health Organization (WHO). According to the WHO (2020), floods cause more than 6,000 deaths per year on a global scale. In low-and middle-income countries, the impact tends to be greater since their infrastructure is less resilient and they have limited resources for disaster prevention and response. In light of the increasing weather-related hazards, societies need to adapt quickly and make climate protection a priority. In order to properly tackle the global flooding catastrophe, policy makers, government agencies, and international organizations need to engage in close collaboration. Global agencies need to come together to support the development of a global Digital Elevation Model (DEM) with higher resolution and accuracy for flood modelling and forecasting. Current global DEMs from satellite images are too coarse to simulate floods and their associated risks. A more effective approach would be to obtain high-resolution stereo images from satellites and combine them with advanced flood modelling using supercomputers. To facilitate national economic and social development, disaster management efforts should be considered a priority: Legislation should be drafted; disaster response plans should be prepared at all levels, from national to community; and relevant institutional and technical preparedness and financial mobilization mechanisms should be established. In addition, the youth need to develop specific indigenous practices to protect the civilian population from floods by engaging in volunteer work to overcome financial damages. Various interventions, such as river management, construction of defenses, creation of bypass channels, and construction of reservoirs, have the potential to modify the local flood risk landscape.

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REVOLUTIONS AROUND THE WORLD

SUCCESS FACTORS IN 'COLOR REVOLUTIONS': A REVIEW OF RECENT RESEARCH IN REVOLUTION THEORY*

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The present article endeavors to provide a comprehensive review of contemporary research in the domain of success factors in 'color revolutions.' Despite the plethora of recent studies that seek to delineate the subsequent wave of research in the theory of revolutions, there is a paucity of literature that addresses the success factors in 'color revolutions' in conjunction with the mechanism of influence of these factors. This article aims to address this lacuna in the existing scholarship. A thorough analysis of contemporary works reveals that researchers worldwide, within the framework of the theory of revolution, have identified ten key factors contributing to the success of these events. Those factors encompass the role of unarmed revolutions, the 'power of numbers,' the impact of global democratization, the absence of violence, external influences, the erosion of loyalty among security forces, the role of the mass media, the duration of rule in an authoritarian regime / incumbent duration, the absence of natural resources, and the ethnic composition of the population.

Keywords: *socio-political destabilization, color revolutions, unarmed campaigns, success factors, unarmed revolutions.*

Despite the growing number of works devoted to the study of factors and causes of the theory of revolution, it should be noted that the majority of these works relate to either comparing current research in this area with the researches of the previous years (Goldstone 2024; Goldstone, Grinin, and Korotayev 2022a, 2022b; Lawson 2019), or to considering individual factors or causes (see the articles below). A comprehensive and systematic analysis and synthesis of all the new works of the so-called fifth generation in the study of revolutions is necessary (Beck *et al.* 2022; Beissinger 2022; Mako and Moghadam 2021; Goldstone 2024; Grinin and Korotayev 2024a, 2024b; Korotayev, Grinin, Ustyuzhanin, Fain 2025; Korotayev, Ustyuzhanin, Grinin, Fain 2025; Korotayev, Fain, Ustyuzhanin, Grinin 2025).

In this context, the primary objective of this article is to conduct a comprehensive and systematic analysis of the success factors in the 'color revolutions.' The analysis will include a review of the recent works in the field of revolution theory and an examination of the mechanisms of the identified factors.

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A primary factor contributing to the success of 'color revolutions' is the unarmed revolutionary actions. This assertion is primarily supported by the development of empirical studies and the observation that there is a significantly higher success ratio for non-violent/ unarmed revolutionary episodes compared to armed/violent ones (Stephan and Chenoweth 2008; Belgioioso, Costalli, and Gleditsch 2021; Beissinger 2022; Chenoweth and Shay 2022). Within the framework of this factor, several research areas can be distinguished, which will be discussed below. They include: less damage compared to violent/armed revolutionary insurrections, greater political impact, and concessions on the part of the authorities, and better spatial conditions for influencing the incumbent regime.

For instance, Erica Chenoweth and Maria J. McCarthy Stephan undertook a systematic study of the strategic effectiveness of violent and nonviolent revolutionary episodes** (Stephan and Chenoweth 2008). According to prominent revolutionary theorists, large-scale non-violent revolutionary campaigns have proven more efficacious than violent resistance in a number of cases. This phenomenon can be attributed to several factors. Firstly, non-violent campaigns pose a lesser threat to the individuals participating in them compared to violent ones. Secondly, mobilizing people to engage in non-violent protests is increasingly easier. Thirdly, such resistance campaigns get considerable support from the international community, which views them through the lens of violations of democratic rights and freedoms. This support manifests in various forms, including media advocacy and the imposition of sanctions against the ruling elite. Furthermore, statistical analysis reveals that the transition of security forces to the side of the resistance is also significantly more likely in the case of unarmed rather than armed revolutionary events.

The researchers' findings, derived from meticulous statistical analysis, are as follows:

Firstly, in the context of regime repression, non-violent/unarmed revolutionary campaigns are observed to be more than six times more likely to attain complete success compared to armed/violent uprisings that also face such repression.

Secondly, repressive regimes are found to be approximately twelve times more likely to make limited concessions to non-violent campaigns than to violent ones.

Thirdly, the probability of success for a revolution is shown to increase by more than fourfold when defections of military and security stuff are observed.

Fourthly, the likelihood of success for campaigns that have received external state support is more than three times higher when confronting a repressive adversary.

Fifthly, mobilization is identified as a critical factor in the determination of success, whereas the analysis indicates that effective opposition media and social media coverage of events represent the most significant means of increasing the number of protesters.

In another study, a group of researchers – Margherita Belgioioso, Stefano Costalli, and Christian Skred Gleditsch – conducted a comparative analysis of the effects of terrorist actions and those of unarmed revolutionary protests. According to their perspective, unarmed protest campaigns have the potential to yield more substantial political outcomes and concessions from authorities compared to terrorist actions (Belgioioso, Costalli, and Gleditsch 2021). The researchers present their argument as follows: they contend that terrorist activities can evolve into a substantial, intractable problem, particularly in the context of the escalation of moderate groups. In contrast, they assert that non-violent campaigns, characterized by hierarchical structures and centralized leader-

ship, are more amenable to negotiation, under certain conditions and without the involvement of military operations.

At the same time, a substantial role is attributed to the government, against which the people are mobilized. The primary responsibility of the government is to forestall the transition from non-violent conflict to violent conflict, while also ensuring sustainable and peaceful stabilization of the conflict.

Consequently, the concessions of the elite to non-violent campaigns become more appealing when the government anticipates that protest organizers possess sufficient capacity to impede the escalation of support for violent actors and subsequent intensification following concessions.

The examination of fifth-generation articles within the theoretical framework of studying revolutions should begin with one of the seminal works of Erica Chenoweth and Christopher Shay (Chenoweth and Shay 2022). Notably, these prominent researchers have documented a general trend towards an increase in the success rate of unarmed revolutionary actions after 1945. However, after the turn of the 2000s, a reverse trend emerged, with a decline in the success rate of unarmed revolutions from nearly 40% to just over 10% from the early 2000s to 2013.

Furthermore, researchers have identified a tendency for increased annual participation in non-violent campaigns, as evidenced by both the average campaign size per year and cumulative participation on a global scale. This observation underscores a consistent global preference for non-violent actions over armed violence, even in campaigns motivated by similar concerns, such as authoritarianism and foreign or colonial rule. This finding emphasizes the relative significance of non-violent / unarmed revolutionary action as both a political phenomenon and a subject matter.

A statistical analysis performed by Chenoweth and Shay reveals that participation in non-violent / unarmed revolutionary campaigns is associated with a significantly reduced risk of mortality for the average person when compared to campaigns involving the use of armed violence. This observation holds true even for campaigns related to the Arab uprisings, which did not face substantially elevated per capita risks when compared to other non-violent campaigns of the post-war era. The authors have demonstrated that the magnitude of reprisals against armed insurgencies poses a greater threat to non-participants than the reprisals typically employed against non-violent uprisings. Consequently, when dissidents resort to predominantly armed tactics, they can expose their communities to significant risk.

The researchers' most recent conclusion is that most unarmed revolutions are accompanied by a limited use of violence against the regime at certain points. A salient finding is that campaigns initiated since the year 2000 have exhibited a heightened propensity for random acts of unarmed violence (so-called 'violent flanks') occurring at the fringes of otherwise non-violent revolutionary episodes.

The underlying causes of this phenomenon remain ambiguous, but one possibility is that this tendency arises from a deliberate strategy to nurture these types of flanks. Alternatively, this phenomenon could be attributed to deficiencies in enforcing non-violent discipline. Regardless of the underlying cause, there appears to be no clear correlation between the presence of violent flanks and the outcomes of revolutionary campaigns.

The findings of Erica Chenoweth and Christopher Shay are consistent with a comprehensive study by Mark Beissinger (Beissinger 2022).

Mark Beissinger's research is predicated on the theory of urban revolutions as a novel trend of revolutionary regime changes. The close and compact presence of centers of power, wide streets, substantial central squares, rapid development of the Internet, combined with large-scale mobility and access to streets by population, are increasing effectiveness of non-violent revolutionary actions.

This shift in the dynamics of revolutionary confrontations changes the risks associated with regime change, shaping the nature of the revolutionary landscape and favoring certain tactics over others. Urban uprisings emerge in areas where the state's coercive power is most pronounced, rendering them highly susceptible to repression. Nevertheless, the strategic advantages of incumbent regimes in highly urbanized countries, stemming from their augmented repressive potential, are counterbalanced by the strategic advantages that oppositionists accrue due to their proximity to the command centers of power – the ultimate objectives of revolutionary regime change.

The concept of proximity has emerged as a focal point in scholarly inquiries into urban uprisings. Empirical evidence has demonstrated that proximity to the centers of state power can amplify the risks and challenges associated with revolution for insurgents and the regime alike. This phenomenon is particularly salient in the context of urban uprisings, which have been shown to pose a more direct threat to the regime than rural uprisings due to their proximity to the centers of state power (Chenoweth and Stephan 2011; Dahlum 2019; Edwards 2021; Butcher and Pinckney 2022; Gleditsch, Olar, and Radean 2023; Dahlum 2023; Gledhill, Duursma, and Shay 2022).The second group of success factors in ‘color revolutions’ can be identified as the mass factor. The efficacy of unarmed revolutionary actions is amplified when a greater number of citizens are mobilized in the streets (Chenoweth and Stephan 2011; Dahlum 2019; Edwards 2021; Butcher and Pinckney 2022; Gleditsch, Olar, and Radean 2023; Dahlum 2023; Gledhill, Duursma, and Shay 2022).

The following sub-factors can be classified in this group: the presence of a common opposition non-violent ideology, the participation of educated people, the resources of the social movement, and the probability of obtaining government concessions depending on the scale of protests, political dissent leading to an increase in the mobilization potential of unarmed protests, the role and significance of heterogeneity of protest coalitions in non-violent campaigns, and emotional and psychological reasons for people to join non-violent revolutionary protests.

According to the research conducted by Erica Chenoweth and Marie Stephan, contemporary non-violent revolutionary campaigns / revolutions exhibit a higher probability of achieving success in comparison to those involving armed insurrection (Chenoweth and Stephan 2011). Opposition, recognizing an alternative path for the country's development, can move to active non-violent attempts to change the government. These endeavors, in turn, garner support from both the general public and the opposition.

The researchers' primary contention is that non-violent campaigns tend to be more successful due to their capacity to garner significantly more support from the population. Non-violent resistance is characterized by a reduced presence of moral, physical, informational barriers to participation, in comparison to armed rebellion. An enhanced level of participation fosters the emergence of critical mechanisms that are instrumental for success, including enhanced resilience, augmented probability of tactical innovation, escalated civil unrest (thereby escalating the regime's costs of maintaining the status quo), and a shift in loyalty among former adversaries, including members of security

forces – a phenomenon that is also a distinct success factor in color revolutions. The mobilization of local supporters has been demonstrated to be a more reliable source of power than the support of external allies, which must be enlisted in many armed insurgencies to compensate for the lack of participants.

It is imperative to underscore an additional factor conducive to success in color revolutions: the presence of a common opposition ideology grounded in non-violent principles, complemented by the unity of the movement itself. The absence of unity among different groups of resistance participants can impede the establishment of a cohesive structure in the face of the incumbent government. The ensuing stages are pivotal in elucidating the mechanisms that facilitate this critical success factor of the revolution. Firstly, it is crucial to acknowledge that the scale and heterogeneity of participation fosters heightened levels of civil unrest, leading to mass non-cooperation. This, in turn, compels potential supporters of the incumbent regime, including security forces, to re-evaluate their interests and preferences, and more readily align with the resistance.

The fundamental human desire to survive and be on the winning side in a conflict is a compelling incentive for individuals to change their allegiances, particularly in the context of non-violent confrontation. The regime's repression of large non-violent campaigns is more likely to backfire on the perpetrator than when reprisals are used against armed insurgencies. Retaliatory measures, which are amplified for the reasons previously outlined, frequently result in increased mobilization, shifts in allegiance among the elites of the former regime, and sanctions against the offending regime.

Substantial civic engagement in campaigns has been demonstrated to engender meaningful support from the international community and cause opposing regimes to lose support from significant regional or international powers. This phenomenon has been observed to occur with greater frequency in the context of large-scale non-violent revolutionary campaigns. These campaigns have been shown to exhibit a higher degree of resilience in the face of regime repression. Furthermore, these revolutionary campaigns often demonstrate a greater capacity for developing tactical innovations, which facilitates enhanced maneuverability and adaptability to changing circumstances.

Furthermore, Sirianna Dahlum's research indicates that the involvement of educated individuals, particularly university students and graduates, in color revolutions has become a pivotal factor in the success of non-violent campaigns (Dahlum 2019). Educated individuals possess a deeper understanding of politics and complex social mechanisms, superior information processing skills, and a more nuanced appreciation for the strengths and limitations of the prevailing government. These competencies are especially pertinent for non-violent revolutionary protests, as their primary objective is to persuade fellow citizens and external actors. This necessitates some understanding of psychology, history, and politics; the capacity to collect and analyze opinion polls; and the ability to utilize existing research on effective resistance strategies. Educated groups, including professionals such as doctors, lawyers, teachers, university professors, and others, possess specialized knowledge and skills that are critical to carrying out key activities in society.

Furthermore, the high degree of specialization among the population renders it challenging to identify suitable replacements in the event of large groups ceasing to collaborate. Educated individuals frequently possess significant leverage due to their role in the bureaucracy and the judiciary. The cessation of cooperation from the bureaucracy results in the ruler's loss of potential for implementation. These considerations

indicate that the regime exhibits a heightened vulnerability to non-cooperation by educated individuals. An educated population possesses the capacity for effective mass non-violent resistance. When applied to protest movements, these findings and proposed mechanisms suggest a heightened likelihood of non-violent methods being employed by campaigns comprised of university students and graduates, potentially leading to the successful realization of their objectives.

Piers Edwards examines community movement resources (Edwards 2021). According to Edwards's theoretical framework, the capacity of a revolutionary campaign to generate written or broadcasted content that promotes its demands and swiftly disseminates messages to a mass audience wields considerable influence in non-violent campaigns, both to augment popular support and to exert pressure on states.

The enhancement of open political competition has the potential to amplify the accessibility of resources for non-violent mobilization campaigns. These resources may include organizations, networks, communication tools, and affiliations with international human rights organizations. Conversely, the availability of these resources can, over time, exert pressure on states to increase political competition and enable campaigns to engage in the political process. The interdependence of competition and resources poses a challenge for empirical assessment of their relationship to nonviolence, a topic that will be addressed in the following analysis. The following social movement resources – namely, organizations, networks, and the skills of participants – enable the establishment of connections within and between social groups, thereby stimulating the growth of unarmed revolutionary resistance.

A seminal study by Charles Butcher and his colleague Jonathan Pinckney examines the relationship between revolutionary protest size and government responses. Their findings indicate that larger unarmed revolutionary protests are more likely to result in government concessions compared to smaller campaigns (Butcher and Pinckney 2022).

The observations presented herein are predicated on the assumption that revolutionary demonstrations of a considerable scale tend to be more disruptive and impose greater financial burdens on governments, thereby serving as a more potent indication of popular discontent. The following conclusions have been drawn by Butcher and Pinckney: when mass revolutionary demonstrations occur, external observers are more inclined to infer that political change (or at the very least, government concessions) is inevitable. However, it is crucial to acknowledge that observers should consider the extent to which mass revolutionary protests depend on simple mobilization strategies that government decision makers are likely to anticipate.

On the other hand, Christian Skrede Gleditsch, Roman-Gabriel Olar, and Marius Radean have expanded the concept of the mass character of unarmed revolutionary uprisings (Gleditsch, Olar, and Radean 2023). According to these scholars, revolutionary protests pose a dual threat to incumbent leaders. Firstly, non-violent protests directly challenge the costs associated with governance, particularly in cases of citizen insubordination. Secondly, they increase the risk of elite defection from the ruling coalition. The effectiveness of unarmed political dissent in mobilizing people leads to an escalation in the scale of the revolutionary protest campaign, which, in turn, has the potential to exert a more destructive effect than violent actions.

Such nonviolent mobilization through dissent can lead to increased governance costs, thereby threatening the state's economic base and fueling divisions within the

elite. Non-violent revolutionary protest actions, when they take place in large-scale urban administrative locations, increase management costs.

In addition to this, Sirianna Dahlum has explored the role and implications of the diversity of protest coalitions in non-violent / unarmed revolutions (Dahlum 2023). According to her, a crucial factor in the revolutionary transition from an authoritarian regime to a more democratic system is the involvement of heterogeneous social groups in non-violent revolutionary campaigns. These groups possess a diverse array of resources, strategies, and influences over the government, potentially leading to a shift in allegiance among government officials and security forces. Concurrently, socially diverse movements are more likely to engender the establishment of democratic institutions in the short and long term, thereby suggesting that the potential of diverse revolutionary movements for the establishment of democracy is more promising.

Adopting a more diversified array of resources, competencies, and influences, socially diverse revolutions should be well positioned to employ a range of tactics, integrating strategies such as boycotts, demonstrations, rallies, petitions, and online campaigns. The implementation of a multifaceted revolutionary strategy can impose a wide range of costs on various sectors, including the obstruction of trade, transportation, and other industries; labor strikes; disruption of the public sector; agricultural strikes; and student sit-ins.

This array of tactics has the potential to increase the costs for the regime to maintain its hold on power, leading to its collapse. This can occur due to the personal costs incurred by the main leadership or due to key allies withdrawing their support due to the perceived high costs of supporting the regime. This underscores the significance of safeguarding not only the well-being of a substantial number of protesters, but also the engagement of diverse societal groups that wield influence over distinct sectors. When considered collectively, these groups pose a multifaceted threat to the regime, underscoring the need for a nuanced and coordinated approach to countering these challenges.

Analyzing various factors of success in color revolutions, some scientists also examine the emotional and psychological reasons for people's participation in unarmed uprisings. For instance, John Gledhill, Allard Duursma, and Christopher Wiley Shay have investigated factors that can lead to the emergence of a new motivation for people to take to the streets to support nonviolent revolutionary action (Gledhill, Duursma, and Shay 2022). They have proposed that, despite the risk of government repression, individuals possess the capacity to engage in non-violent actions through emotional mobilization. This emotional incentive, as proposed by organizers, can serve as a mobilization factor, fostering collective expression through events such as concerts, mass singing, or other forms of communal engagement.

The emotions evoked by these events, including feelings of empowerment, solidarity, catharsis, and joy, are primarily experienced by those in attendance at revolutionary campaign rallies. The implementation of these 'emotional events' fosters individual incentives for passive supporters to mobilize and actively participate in street-based unarmed uprising activities, thereby expanding the scope and scale of these movements.

Within the context of a dichotomy between the pursuit of material incentives and the threat of nonparticipation-related sanctions, emotional events emerge as a nonmaterial psychological and emotional factor that fosters revolutionary mass mobilization.

The third critical factor of success in 'color revolutions' is a relatively democratic character of the incumbent regime, specifically the success of non-violent revolution is

much more likely in partial (rather than full) autocracies (Bayer, Bethke, and Lambach 2016; Bethke 2017; Butcher, Gray, and Mitchell 2018).

In addition, these authors arrive at the following conclusions:

1. The success of non-violent protests in former dictatorships results in the establishment of democratic principles of governance.

2. A successful non-violent revolution increases the likelihood of a full transition to stable and viable democratic principles in the long term.

3. The participation and role of national trade unions are significant factors.

4. As a result of non-violent regime change, the benefits of political change are distributed among groups that have expended resources on protests.

The conclusions of Markus Bayer, Felix S. Bethke, and Daniel Lambach, affirm that the success of non-violent revolutions in former dictatorships establishes democratic principles of governance (Bayer, Bethke, and Lambach 2016). According to them, democratic regimes that emerge from non-violent / unarmed revolutions are less likely to collapse than those that result from armed uprisings or are established without any revolutionary movement. The researchers attribute this phenomenon to the adoption and extension of the organizational culture of color revolutions by subsequent democratic regimes, thereby engendering conditions conducive to the survival of democracy. The authors delineate the following primary mechanism:

1) Veterans of non-violent revolutions can participate directly in politics. After being elected to parliament or when holding government or administrative posts, they can utilize these positions to promote their ideals.

Secondly, non-violent revolutionary transitions have been demonstrated to engender a culture of cooperation and compromise, as well as regulatory and democratic legislation, thereby reducing political polarization and power struggles (Bethke 2017). Thirdly, non-violent revolutions have been shown to promote methods of non-violence and propagate the ideals of mass mobilization, which have the potential to promote peaceful resistance in the future (Bethke 2017). According to Felix S. Bethke, the success of a color revolution that is initiated in a non-violent manner would lead to a heightened probability of a complete transition to stable and viable democratic principles in the long term (Bethke 2017).

Felix S. Bethke's argument posits that non-violent revolutionary campaigns, by shaping a democratic transition, guide the subsequent regime on a path favorable to achieving a peaceful change of power in the future. In particular, the organizational culture of a non-violent campaign is conducive to the post-transition political environment. For instance, campaigns are typically characterized as large, inclusive, and diverse movements comprised of various societal segments, often fostering a culture of compromise to harmonize the divergent interests of campaign participants. This organizational culture fosters the development of democratic skills and expectations for accountable governance among participants, thereby contributing to the formation of a democratic political culture that values compromise and cooperation in the post-transition period. Consequently, non-violent revolutions can promote the emergence of robust opposition parties that are capable of challenging the incumbent government in elections, thereby facilitating a peaceful transition of power. Furthermore, non-violent revolutions can also limit the ability of ruling elites to deviate from democratic norms following an electoral defeat.

Charles Butcher, John Laidlaw Gray, and Liesel Mitchell, have demonstrated that participation in unarmed revolutions by national trade unions statistically significantly increases both the probability of success and the probability of significant democratization after a successful revolution (Butcher, Gray, and Mitchell 2018). According to the authors, trade union organizations provide a form of 'leverage' for civil resistance campaigns, thereby increasing the likelihood of major government concessions in the short term, reducing the chances of short-term failure, and enhancing the prospects for post-conflict democratization.

The mobilization infrastructure of trade union organizations is characterized by its strong links, which contribute to its durability. In contrast to the dissolution of production networks following conflict – such as that of disarming rebel group or dissolution of a temporary coalition of political parties – trade union networks persist. This persistence is due to their role in generating taxable revenues for the transitional government, as the structural basis of the economy is not expected to change during the transition period. Consequently, the mobilization infrastructure associated with trade union organizations retains a latent mobilization potential in the post-conflict period. As in civil wars, non-violent civil resistance campaigns employ pre-existing organizations and social groups to mobilize, and the nature of these organizations determines their ability to exert pressure on the regime in the short term, survive setbacks and repression, and generate long-term institutional change.

In the context of contemporary research on 'color revolutions,' the absence of violence by protesters has emerged as a fourth significant factor contributing to success (Chenoweth and Schock 2015; Tompkins 2015). In this domain of inquiry, it is posited that the presence of 'violent flanks' among the supporter base does not necessarily guarantee success for non-violent revolutions. In other words, armed struggle has been shown to be inversely associated with public participation, which in turn is associated with diminished prospects for success for unarmed revolutionary events. Concurrently, the escalation of violence heightens the probability of state retribution, which in turn exerts an influence on the diminution of mobilization subsequent to the implementation of repression.

Erica Chenoweth, and Kurt Schock investigate the role of violence in the success or failure of nonviolent revolutions (Chenoweth and Schock 2015). According to them, in a substantial number of cases, the presence of violent flanks does not exert a positive effect on the probability of success of non-violent revolutions. That is to say, armed struggle is negatively associated with mass mobilization and, consequently, correlates with a decrease in the chances of success of unarmed campaigns. Violent flanks tend to reduce mass participation in non-violent revolutions, which can actually reduce their chances of success. The repercussions of these actions are not confined to a specific group; rather, they have the capacity to diminish support among a diverse range of participants, irrespective of the associated risks.

Elizabeth Tompkins's examination of the role of violent flanks in non-violent revolutions and its implications for regime change (Tompkins 2015) is particularly noteworthy. According to the author, the presence of such a violent flank increases both the probability and the degree of state repression. The study further elucidates that such a violent flank is concomitant with a decline in mobilization subsequent to repression, without necessarily impeding the broader trajectory of the campaign.

The presence of a violent flank during a given campaign year has been demonstrated to be associated with a higher probability of the movement being suppressed by the state. Furthermore, it has been shown that the movement will gain momentum or lose it, rather than maintain the status quo.

This phenomenon of unarmed collective violence has been explored by Mohammad Ali Kadivar and Neil Ketchley (Kadivar and Ketchley 2018). The researchers conclude that such acts of unarmed collective violence by civilians are not only conceptually different from acts of violence committed by armed insurgents and cases of non-violent protest, but they can also have a positive impact on undermining authoritarian regimes and thus pave the way for democratization. The term 'unarmed collective violence' is defined as protective measures undertaken by unarmed civilians in response to state repression of the mobilization of the civilian population at the street level. This form of non-violent resistance does not inherently pose a threat to the regime's hold on power, as evidenced by the use of improvised weapons such as stones, Molotov cocktails, and sticks during these demonstrations.

At present, several significant consequences of this unarmed violence have been elucidated. Unarmed collective violence has been demonstrated to disrupt public order, thereby increasing the cost of governance for the prevailing regime. The presence of unarmed civilians engaged in confrontations with law enforcement personnel has been shown to provoke further protests, particularly in the aftermath of a crackdown. Furthermore, episodes of unarmed collective violence have been demonstrated to diminish the regime's repressive capacity, leading to a diversion of enforcement agents from their primary duties at protest sites. This, in turn, creates opportunities for revolutionary demonstrations in other locations.

The fifth area of research on success factors in 'color revolutions' is the role of external influence (Kalin, Lounsbery, and Pearson 2022; Cunningham 2023; Liou, Murdie, and Peksen 2023). In this context, the discussion centers on the introduction of sanctions, which have been shown to enhance the likelihood of success for unarmed revolutions. Additionally, it explores the involvement and role of major powers in specific conflicts, as well as the impact of external actors on security services. Ilker Kalin, Marie Olson Lounsbury, and Frederick Pearson explore the role of major powers in nonviolent conflicts within other states (Kalin, Lounsbery, and Pearson 2022).

A seminal study has identified three primary roles of major powers in relation to the current state of global politics. Firstly, these powers provide comprehensive support for the current elite, aiding in the maintenance of the status quo. Secondly, they refrain from participating in the processes of socio-political destabilization of their own allies, avoiding the further exacerbation of tensions. Thirdly, these powers seek to undermine the policies of the adversary states and their allies, particularly by offering support to unarmed campaigns.

In the first scenario, large states have strategic plans with the current authorities, while providing them with full support in deconflicting the conflict and undermining non-violent revolutionary movements. This support can manifest in various forms, including: political support for the regime, the absence of mentions of state repression in the international media, the obstruction of the activities of international non-governmental organizations, the lack of funding for protesters, and the absence of reaction from other external states to support non-violent protests. In this scenario, the probability of failure of non-violent protests is significantly increased.

In the absence of involvement in processes of destabilization, major powers maintain a distance from both active political circles and protest leaders. The third scenario pertains to the support of protest movements by major powers, which is primarily manifested through the following measures: provision of additional financial resources, imposition of sanctions against the prevailing regime, escalation of diplomatic pressure in the international arena, or overt expression of support for the protesters; direct influence on the nation's security forces. This scenario suggests that non-violent protests are more likely to achieve success.

Therefore, by analyzing the actions of major powers, it is possible to understand the external vector of cooperation of a country undergoing destabilization processes with major countries. This cooperation manifests in various forms, including strategic partnerships with representatives of the current regime or support for the opposition, potentially resulting in a complete transition of security forces to the side of the protesters. However, it is crucial to note that the actions of major powers may not always align with international norms and human rights obligations.

Kathleen Gallagher Cunningham advances a compelling thesis in support of non-violent protest methods. According to her theory, non-violent actions can garner increased international attention from external actors (Cunningham 2023). A statistical analysis of violent and non-violent revolutions reveals that non-violence can be an effective means of successfully obtaining concessions by protesters. In any given year, movements that use non-violence are twice as likely to secure concessions as those that simply make demands but do not use non-violent resistance methods. The author posits that international actors are capable of exerting influence or pressure on the government during non-violent uprisings through the following means:

– Public criticism through the media in connection with violations of human rights or democratic principles.

– The introduction of economic sanctions (*e.g.*, the suspension and curtailment of international loans from the World Bank, a downgrade of the credit rating, or bans on the export of national goods). Additionally, the author posits that the suspension of membership in international governmental and non-governmental organizations, as well as the introduction of humanitarian interventions, can serve as effective means of exerting influence. Furthermore, the author observes that individual states and international organizations may condition international assistance on the peaceful resolution of non-violent protests or on an enhancement of respect for the fundamental rights of demonstrators.

Liou *et al.* explore complexities of sanctions and their consequences as regards success or failure of violent and non-violent uprisings (Liou, Murdie, and Peksen 2023).

According to them, sanctions have the potential to serve as an effective instrument for securing concessions from governments confronted with non-violent uprisings. The efficacy of sanctions in amplifying the prospects of success for non-violent revolutions is particularly pronounced when these sanctions are multifaceted, impose substantial costs, and are subject to human rights constraints. Furthermore, researchers contend that sanctions exert a significant influence on the success of unarmed uprisings, as evidenced by statistical analyses demonstrating the efficacy of sanctions as regards two primary mechanisms: (1) the defection of security apparatus or political elites aligned with the regime, and (2) the escalation of anti-government mobilization. In the context of an ongoing campaign, sanctions can serve as a potent indicator of a shift in the internal

negotiation environment, thereby signifying external support for the revolutionary campaign's maximalist objectives.

The authors of the study have found that the imposition of sanctions on a regime by other states can serve as an indication of the potential for more severe international ramifications resulting from the regime's actions. In instances where the revolution is predominantly violent, the regime interprets this signal as a warning, deeming it to be of no greater consequence, and proceeds with the suppression of the rebellion. Conversely, if the revolution remains predominantly non-violent, the presence of international support, as evidenced by economic sanctions, can shift the balance of power in favor of a civil revolutionary campaign. This information has the potential to compel even an intractable dictator to make significant concessions to the revolutionary campaign. When the revolution is non-violent, sanctions serve as a reliable omen of future actions by third states, thereby changing the terms of negotiations in favor of a revolutionary campaign. Multilateral sanctions that incur high costs or concern human rights will convey a stronger message and thus strengthen the international community's support for a non-violent uprising.

Furthermore, sanctioned governments may be reluctant to crack down on non-violent protestors to avoid antagonizing their international allies. The use of reprisals against non-violent uprisings is likely to have significant international implications. Sanctions designed to protect human rights are more likely to help internal campaigns achieve their goals. Human rights sanctions are a concrete signal of the international community's support for domestic dissidents, illustrating the potential for further support if no concessions are made. Additionally, human rights sanctions can provide regime leaders with information regarding the likely support that dissenters will receive if the situation continues to escalate. Moreover, sanctions in response to political repression may encourage more citizens to join anti-government revolutionary action or encourage the military and political elite to defect. Consequently, human rights sanctions are likely to increase the bargaining power of revolutionary movements against incumbent governments and force them to compromise.

In the context of the ongoing discourse on the role of external factors as regards the success of non-violent campaigns, it is imperative to address the issue of the loss of loyalty among security forces during non-violent uprisings (Lutscher 2016; Cebul and Grewal 2022; Dahl, Rivera, and Sagård 2024).

In this domain, the primary cautionary factors pertain to the fragmented or disjointed security apparatus, the role of conscripts in the security forces, and various forms of disloyalty.

Philipp Lutscher explores how fragmentation of security forces can affect the outcome of non-violent campaigns (Lutscher 2016). He proposes a hypothesis that, in the contexts characterized by non-violent revolutionary protests and a fragmented security apparatus, certain armed groups may perceive an opportunity to defect and align with the protesters. This, in turn, could diminish the efficacy of the countervailing forces if more potent armed organizations are present.

Lutscher's conclusions indicate that in the contexts marked by instability and the presence of no more than two armed organizations, the likelihood of desertion is significantly diminished. This phenomenon stands in contrast to scenarios involving a greater number of security organizations, where defection becomes more prevalent. The empirical findings indicate a curvilinear relationship between the number of effective security

organizations and the probability of defection in nonviolent uprisings. The probability of defection from a unitary and highly fragmented armed force is significantly higher compared to exactly two armed organizations.

On the other hand, Matthew Cebul and Sharan Grewal have investigated the role of the military in non-violent uprisings (Cebul and Grewal 2022). According to them, the success of non-violent protests depends, among other things, on the defection of the military to the side of the protesters. The researchers have formulated a theory, supported by an analysis of historical literature, which posits that military personnel conscripted for service are less inclined to engage in the suppression of mass demonstrations when compared with volunteer forces.

For instance, conscripts have more connections with relatives and friends who may end up taking part in a non-violent revolution. Given their limited service life, conscripts may identify more with the protesters than volunteers. Professional military personnel are more likely to have career incentives, which will not prevent them from using violence to disperse non-violent demonstrators. Consequently, non-violent revolutionary campaigners are more likely to engage in activities in states where conscripts are the majority of the military personnel, as opposed to states relying on voluntary recruitment. Furthermore, Cebul and Grewal underscore a notable consequence of the state's conscription army: it engenders awareness among the civilian population that conscripted soldiers are reluctant to engage in the suppression of mass protests. This is due to the fact that conscription typically involves a substantial number of recruits completing brief periods of service, resulting in a considerable proportion of eligible citizens being conscripted. These individuals subsequently return to civilian life with firsthand experience of conscription, including insight into conscript morale and potential internal tensions between conscripts and career officers. Consequently, conscription hinders the military's inclination to suppress, as well as the return of former conscripts to the civilian population, who possess a personal understanding of this dynamic. Concurrently, conscription amplifies the probability that civilians devoid of military experience will encounter former conscripts who have actually served, thereby facilitating the acquisition of knowledge regarding the disposition of conscripts.

In conclusion, it is argued that conscription has the capacity to strengthen broader and more profound connections between the armed forces and the populace, thereby engendering heightened awareness among the general public regarding the armed forces and their propensity to abandon their posts in the face of mass demonstrations. The public's interaction with conscripts and former conscripts fosters an anticipation of military defection, thereby encouraging further protest. Consequently, conscription has the potential to erode the regime's capacity to deter military repression. It is therefore recommended that the students of revolutions extend their research to investigate the influence of conscription on the selection of resistance tactics by activists opposing conscription armies. This research is particularly timely and relevant, as non-violent revolutions have been identified as a significant factor in the defection of military personnel.

In addition, Marianne Dahl, Mauricio Rivera, and Tora Sagrada have investigated the effects of changes in security forces' loyalty in nonviolent campaigns (Dahl, Rivera, and Sagård 2024). According to the researchers, the participation of individual security forces in protesting activities is a primary factor in the future success of non-violent

campaigns. The authors identify the following forms of disloyalty of the security forces in protest actions:

– evasion from work (refusal to comply with orders of repression);

– dismissal to the barracks (refusal to deploy to conflict zones or campaign sites due to illness or poor health);

– desertion (complete withdrawal from the security forces);

– going over to the side of the protesters;

– voicing one's position (criticizing the regime along with approving the protests);

– leaving the mode (refusing to support the mode);

– coups (overthrow of the regime).

The seventh factor in the success of revolutions is the presence of independent or partially independent media, which contribute to the rapid dissemination of information and solve problems of coordination and collective action (Gleditsch, Macías-Medellín, and Rivera 2023). It has been shown that partial media freedom can increase the prospects for mass non-violent expression of dissent by coordinating actions on the way to mobilization. This information reserve increases the effect of other factors that stimulate mass protests in autocracies.

Partial media freedom ensures good coordination, increasing the ability of dissidents to organize and overcome barriers to collective action. The information advantage that potential dissidents possess, even within imperfectly free media environments, can play a significant role in amplifying the influence of other factors that increase the likelihood of mass dissent. These factors include the spread of protests and the mobilizing effect of elections. Researchers have noted that revolutionary mass non-violent dissent is more probable in countries with greater media freedom and alternative sources of information compared to regimes without independent media.

Conventional forms of mass media, such as on-air radio and television, as well as print communication, maintain their relevance in the contemporary era for the expression of dissent and direct action. Autocracies with partially free media are more prone to encounter substantial dissent, as the dissemination of information enhances public awareness regarding the nature and foundations of regime power, the preferences of relevant actors, potential strategies to counter dissent, and the probability of success.

The role of partially free media in this regard is twofold: first, it can directly influence political mobilization by amplifying the impact of other events and factors that facilitate coordination and overcome barriers to collective action; and second, it can have an indirect influence on mobilization by doing so.

Free media has the potential to disseminate information regarding the inherent unfairness of autocratic elections, the incumbent president's intention to manipulate the electoral process, and the opposition's positions and strategies. This facilitates more effective mobilization against the regime, thereby amplifying the impact of elections on mass dissent (Sutton 2018).

The eighth factor pertains to a prolonged stay in power within an authoritarian regime. In this case, the focus is on the relationship between the autocratic leader and the elite (Sutton 2018). Jonathan Sutton examines the success or failure of non-violent demonstrations from the perspective of the process of authoritarianism within the regime (*Ibid*. 2018).

The author hypothesizes that an autocratic regime is more likely to prevail in non-violent campaigns if the autocrat has consolidated his personal control over the regime, thereby securing sole power (including for his own safety from internal coups). In this context, disgruntled members of the ruling elite, who have been stripped of their power, play a pivotal role. These members can support the people's non-violent uprising.

In scenarios where power is genuinely distributed among elites, with each individual recognizing their distinct responsibilities and safeguarding their own interests, such authoritarian regimes have a propensity to endure and fortify their cohesion in the face of civil resistance. This distribution of power serves to enhance the regime's cohesion, thereby fortifying its resilience in the face of external challenges associated with civil resistance revolutionary campaigns. Consequently, the likelihood that elites will withdraw their support from the ruling authority is reduced.

The author arrives at the conclusion that personal autocracies are distinguished by markedly distinct relations between the ruling coalition and the autocrat. In a power-sharing environment, members of the ruling coalition retain autonomous support bases and lateral connections with each other, which are facilitated by power-sharing institutions. These connections enable them to control the agreement and coordinate actions to remove the autocrat in the event of a power grab. In personal autocracies, by contrast, these ties are weakened to the point that the elite becomes largely atomized. This means that individuals remain in their positions and can still wield significant power within their own purview, but are unable to coordinate it with others. As a result, elites face a serious challenge of collective action, as an attempt to create a strong enough coalition to challenge an autocrat is likely to be met with harsh repression.

The author further posits that mass civil non-violent resistance functions as a coordinating mechanism, enabling the ruling elites to circumvent the challenge of collective action and repudiate support for the autocrat. Non-violent rebellion engenders an exogenous crisis, thereby eliminating the necessity for elites to initiate the rebellion themselves, thus circumventing the trailblazer problem that otherwise hinders internal challenges. By compelling the regime to respond, it engenders a space for debate, enabling elites to contemplate alternatives to the status quo and ascertain the existence of broader support for change within the ruling coalition. The opposition leadership functions as a partner in transition negotiations, while mass protests serve as a political resource that can be utilized to legitimize alternative claims to power and influence the perceived likelihood of subsequent withdrawal of support.

The ninth important factor pertains to the role of the ethnic factor in non-violent campaigns, namely, the question of whether representatives of the government and its opposition belong to the same ethnic group (Svensson and Lindger 2011; Pischedda 2020). The probability of success of the 'color revolution' increases if the current government and the opposition belong to the same ethnic group. Isak Svensson and Mathilde Lindgren examine the success of non-violent revolutions in three dimensions: firstly, the success of non-violent revolutions in the struggle for territorial changes or independence or against state power is examined, secondly, the ethnic component of the current government and the protesters is analyzed, thirdly, the homogeneity or polarization of society is assessed.

Svensson and Lindgren have determined that non-violent campaigns are more likely to succeed in the fight against vertical (state) power than in horizontal (territorial)

changes due to the difference in approaches. When fighting the vertical of power, the task is to change the entire regime. Unarmed self-determination uprisings, encompassing a spectrum of demands ranging from full independence to limited forms of autonomy, inherently challenge the horizontal legitimacy of the state. These uprisings aspire to attain a certain degree of self-government, thereby challenging the state's role as a representative of the broader community. Consequently, the territorial aspirations of unarmed uprisings have the potential to exacerbate societal polarizations, whether by reinforcing existing divisions or fostering new ones.

Another factor in the success of a non-violent revolution is the representation of a common ethnic group in both the government and its opposition (Pischedda 2020). Constantino Piscedda, an expert in the field of non-violent collective action with maximalist goals, has conducted extensive research on large-scale revolutionary campaigns. These campaigns have sought to achieve objectives such as the cessation of foreign occupation, the overthrow of an existing government, or the pursuit of self-determination through secession. Piscedda's research indicates that non-violent campaigns are unlikely to succeed when the contenders and the incumbent president belong to different ethnic groups.

The present state of ‘ethnic conflict’ has been demonstrated to suppress the principal mechanisms by which non-violent resistance can achieve success. These include the emergence of a critical mass of opponents, the defection of segments of the security apparatus and the regime's inner circle, and the development of a sense of sympathy for the opposition among key decision-makers in the government. The analysis further suggests that ordinary people belonging to the ethnic group that controls the state are unlikely to side with the ‘other nationality’ movement, which limits its growth potential and the corresponding ability to impose costs on the incumbent president.

Moreover, security forces and regime insiders are unlikely to sympathize and identify with rivals from other ethnic groups, which reduces the likelihood of concessions and defections, instead increasing the risk of crushing reprisals. The cumulative effect of this dynamic is that ethnic unarmed campaigns are much less likely to succeed than their non-ethnic counterparts. The argument about ethnic conflict suggests several causal mechanisms for the ineffectiveness of ethnic non-violent actions in comparison with their non-ethnic counterparts. These include: (1) the limited capacity of ethnic revolutionary campaigns to cause defections of security forces and regime representatives; (2) their tendency to attract fewer participants; (3) the willingness of governments to resort to large-scale and prolonged repression of ethnic rivals; and (4) the reluctance of governments to meet the demands of ethnic rivals due to distrust of other ethnic groups or the perception that concessions would be too onerous.

The present study hypothesizes that the probability of achieving success is contingent upon the presence of representatives from other ethnic groups, in addition to those who wield control over the state, within the non-violent movement. Ethnic issues are confronted with considerable challenges, primarily due to the limited participation and the concomitant inability to evoke sympathy, let alone garner support, from government entities.

The tenth success factor of ‘color revolutions’ is the lack of natural resources and material benefits from the use of these natural resources (Kirisci and Demirhan 2021).

Mustafa Kirisci, along with his colleague Emirhan Demirhan, has investigated the impact of natural resource wealth (particularly oil) on the success rate of non-violent campaigns (*Ibid*.).

Non-violent movements have been shown to be more likely to fail in states with higher levels of natural resource wealth (Griffiths and Wasser, 2019). The underlying reason for this phenomenon, as posited by Griffiths and Wasser (2019), is that resource-rich countries possess considerable leverage within both domestic and international spheres, thereby ensuring their success in suppressing non-violent revolutions. Within the domestic context, when confronted with non-violent resistance, these states can strategically utilize natural resource rents to bribe domestic actors who play a pivotal role in the success of the movement, including military leadership and influential civil society groups. In the international context, the presence of abundant natural resources can be employed as a diplomatic instrument to deter external states from providing support to non-violent resisters, particularly when these nations are already reliant on these resources. This reliance on resources may also influence other states to exercise caution in imposing sanctions in response to retaliatory actions against unarmed protesters.

The present article aims to systematically analyze the success factors in 'color revolutions' in recent studies of the theory of revolutions. It has categorized modern works into ten major blocks, each focusing on distinct areas of research and exploring their respective mechanisms of influence on the internal political process.

This research is ongoing, and it is part of a series that aims to analyze and systematize the causes of 'color revolutions' (Bilyuga and Kolesnikova 2024a, 2024b; Kolesnikova and Bilyuga 2024). The findings of this research will facilitate the analysis of the main phases of the process of socio-political destabilization, as well as the development of countermeasures to neutralize these factors.

NOTES

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[**] In fact, they prefer to denote them as 'maximalist campaigns;' however, it has been shown that most 'campaigns' in their dataset (Non-violent and Violent Campaigns and Outcomes / NAVCO [see, *e.g*., Chenoweth and Shay, 2022]) are actually revolutionary episodes (Grinin and Korotayev 2022; Goldstone *et al.* 2023; Korotayev *et al.* 2024, 2025; Ustyuzhanin and Korotayev 2023a, 2023b; Ustyuzhanin *et al.* 2022, 2023).

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ARAB SPRING AND ITS ROLE IN THE STRUGGLE FOR CITIZENSHIP: AN ANALYSIS

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The academic scholarship on understanding Arab Spring and its role in constructing citizenship has been little. In this context, the paper will endeavor to study the Arab Spring in the light of its contribution to the civic empowerment of the Arab world. The argument is that one of the most effective ways to understand political contestation in the Middle East is through the lens of citizenship. Ultimately, politics revolves around the scope, nature, and depth of citizenship. This has become even more evident since citizenship rights have emerged as the primary concern in the region during the past three decades due to the enormous political expansion. A new social contract based on rights is the only way to fill the void left by the breakdown of the authoritarian bargaining contract. This paper will analyze how this Nahda (Renaissance) played its part in the debate of citizenship in the Arab world and how the debate of citizenship evolved during the Arab Spring and afterward. The paper has theoretically and analytically found that the Arab Spring was the immediate outcome of various factors particularly the long-overdue demand for citizenship rights in the contemporary political landscape.

Keywords: *Al-Nahda, Muwātana, 14th February Revolution, clientelism, ɸuthoritarianism, Jasmine Revolution.*

1. Introduction

The Arab Spring, which began in Tunisia in December 2010 with the self-immolation of Mohamed Bouazizi, was a series of anti-government protests, uprisings, and armed rebellions across the Arab world. This event catalyzed nationwide protests in Tunisia, leading to the ousting of President Zine El Abidine Ben Ali in January 2011. Inspired by Tunisia's success, similar movements erupted in Egypt, Libya, Syria, Yemen, and Bahrain, where citizens sought political reform, social justice, and economic opportunities (Anderson 2011: 2). In Egypt, mass protests in Cairo's Tahrir Square led to resignation of President Hosni Mubarak in February 2011 after 30 years in power (Ottaway

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2020). Libya experienced a violent civil war, resulting in the overthrow and death of Muammar Gaddafi in October 2011. In Syria, peaceful demonstrations escalated into a prolonged and brutal civil war involving regional and international actors (Heydemann 1999: 5).

The Arab Spring was driven by widespread grievances, including political repression, lack of freedoms, corruption, economic hardships, and social inequalities. Influenced by Western models of citizenship and democracy, protesters sought systems that would respect human rights and provide better governance (Lynch 2012: 31). The movement underscored the universal desire for dignity, freedom, and justice, and highlighting the interconnectedness of global political aspirations.

The Arab Spring protests spread quickly because young people in Egypt, Libya, Syria, and other countries realised that they were in an undignified stage of adolescence and that they had the right to demand access to jobs, education, and marriage for all Arab youth (Mulderig 2011:1). Women were portrayed as objects of struggle and deprivation of citizenship rights in art on walls and streets throughout the Arab world, such as graffiti art usually depicting '*the girl in the blue bra'* (Suzee in the City 2013). The Egyptian Samira Ibrahim, one of the *Time Magazine*'s 100 most influential women of 2011, was an outspoken critic of the alleged virginity tests of the female protesters during the revolution. The uprisings have played a great role in the debate for citizenship regardless of gender, race, color, or religion. It has been argued that the uprisings were meant to highlight the women's struggle against their second-class citizenship status (Al-Maliki 2012). The revolution brought about havoc in people's lives, and civil wars in countries like Syria resulted in the sea of refugees from Syria to other Arab countries and the Western world and providing necessities of life to them became the talk of the town and eventually led to the new conception of citizenship (UNHCR 2024). Human rights organisations have also highlighted the human rights abuses during the Arab Spring (HRW 2013). The refugee crises in the Arab world not only appeal to stopping their discrimination and exploitation but also make sure that political reforms and actions are taken to 'Restoring Citizenship' (Long 2011: 232). The refugees themselves were seen as the main propagandists or actors of citizenship in the Arab world (Isin 2009: 370). The upheavals did in fact prompt a transformation in the understanding of citizenship and subsequent developments in Egypt and Tunisia in Early 2011. A new political subjectivity was sought after and displayed by the individuals who seized the public arena in 2011 (Challand 2013: 193). When anti-dictatorial and anti-neoliberal protests were taking place, representing the local aspirations and conditions, there was a 'Fanonian moment,' where it was possible to both envisage and observe an emerging new horizon (Stanford Encyclopedia of Philosophy 2019). Images, phrases, and gestures crossed national and cultural boundaries during this probably unique time, making the world seem flattened (Kaplan and Levy 2017: 4). In looking at the civic engagements and actions of young people, women, and refugees, two arguments can be made: first, that these oppressed groups are contesting notions of citizenship and demanding their rights, and second, that notions of civil society are inherently being contested (Kiwan 2015: 130).

2. Research Methodology

The research involves studying historical records and citizenship changes during the Arab Spring, comparing experiences and legal frameworks across Middle Eastern coun-

tries. It also includes analyzing media and public discourse on citizenship trends and shifts, all grounded in relevant theoretical frameworks while addressing limitations and triangulating findings.

Literature Review

The Arab Spring, a series of anti-government uprisings across the Arab world that began in late 2010, has been the subject of extensive scholarly analysis. The literature on the Arab Spring can be broadly categorized into several key areas: origins and causes, the role of social media, political outcomes, socio-economic impacts, and regional variations. Scholars generally agree that political repression, economic stagnation, and social grievances fueled the Arab Spring. James Gelvin (2012) emphasizes the importance of these long-standing issues. Gelvin argues that the uprisings resulted from decades of authoritarian rule and economic hardships. The self-immolation of Mohamed Bouazizi in Tunisia is often cited as the immediate catalyst, sparking widespread protests that quickly spread to other countries. The role of social media in the Arab Spring has been a significant focus of research. Philip Howard and Muzammil Hussain (2013) suggest that platforms like Facebook and Twitter were instrumental in mobilizing protesters and disseminating information. They argue that social media allowed for rapid communication and coordination, which were crucial in sustaining the momentum of the uprisings. Zeynep Tufekci (2017) adds that social media not only facilitated the organization of protests but also played a role in shaping public opinion and international awareness.

The political outcomes of the Arab Spring have been mixed and are extensively debated. Marc Lynch (2012) notes that while some countries, like Tunisia, have made significant strides toward democratic governance, others, such as Syria and Libya, have descended into protracted conflict and civil war. Lisa Anderson (2011) explores the varied trajectories of the uprisings, emphasizing the importance of historical and institutional contexts in shaping outcomes. She argues that differences in state structures, the role of the military, and external interventions have led to divergent paths in the post-Arab Spring period. The socio-economic impacts of the Arab Spring are another critical area of study. Authors like Ishac Diwan (2014) examine how the uprisings have affected economic conditions in the region. Diwan argues that while the immediate economic consequences were often negative, including disruptions to trade and tourism, there is potential for long-term economic reform driven by demands for greater transparency and accountability. The literature also addresses the continuing challenges of unemployment, inequality, and economic recovery in post-Arab Spring societies. The Arab Spring did not unfold uniformly across the region, and scholars have examined the reasons for these variations. Eva Bellin (2002) explores why some countries experienced significant upheaval while others did not. Bellin (2012) highlights the role of state capacity and the loyalty of security forces, arguing that countries with stronger, more cohesive security apparatuses were better able to suppress uprisings and emphasizes the role of external actors and geopolitical considerations in shaping the course of events in different countries. Although the above works do discuss Arab Spring, the discussion on the issue of citizenship has not been discussed separately and in detail. Therefore, the current paper will be an endeavor to discuss in detail the Arab Spring and its relevance to the debate of citizenship.

3. Middle East: An Overview

The Middle East, encompassing parts of Western Asia and North Africa, is historically significant as the birthplace of early civilizations like the Sumerians, Babylonians, and Assyrians (Lewis 1995: 22). Major countries in the Middle East include Saudi Arabia, Iran, Iraq, Israel, Egypt, Jordan, Lebanon, Turkey, and the United Arab Emirates. The region is known for its diverse cultures, languages, and religions, including Islam, Christianity, and Judaism. In the twelfth century, it was dominated by Muslim empires stretching from Iran to Spain, with cities such as Baghdad, Cairo, Istanbul, and Córdoba becoming centers of learning and culture. The Ottoman Empire, emerging in the thirteenth century, controlled much of the region and beyond for centuries, leaving a lasting legacy (Frankopan 2004). In the twentieth century, the collapse of the Ottoman Empire due to various reasons, particularly dissatisfaction caused by the new political and economic ideals from the West was a turning point in the history of Islam and Muslims (Ergil and Rhodes 1975: 57). The disintegration pawed the way for already dissatisfied territories like Egypt to rise to the occasion and fight for new independent nation-states on the footprints of Western nation-states (Alexander and Bassiouny 2014: 5-6). Therefore, the new debate and discourse of nation-states began and the wave of nationalism being alien to Islam in its purest form, swept the Muslim world, particularly the Middle East. The wave was welcomed in the Middle East and people from all communities fought together to achieve independence from the Ottoman Empire and ultimately against the colonial powers (Goldschmidt and Davidson 2010: 177–185).

The Middle East has experienced numerous conflicts, including the Arab-Israeli conflict, the Gulf Wars, and the Arab Spring, which have shaped its modern political landscape. The discovery of oil transformed the economies of many Middle Eastern countries, while the region's modern history has been marked by conflicts such as the Arab-Israeli conflict and the Gulf Wars. Today, the Middle East remains a region of political instability, economic disparity, and rapid social change, but it continues to hold profound cultural and historical significance globally. The establishment of oil-producing states in the Middle East has significantly influenced both regional and global dynamics. Oil serves as a crucial geopolitical tool, affecting alliances, conflicts, and foreign policies (Yergin 1991: 178). Countries dependent on oil imports form strategic alliances with oil producers, while competition over oil resources has fueled regional conflicts. Organizations like OPEC, dominated by Middle Eastern nations, play a key role in regulating global oil prices, impacting economies worldwide (Maugeri 2006: 9). Domestically, reliance on oil revenues has shaped the political landscape of these countries, often leading to the rise of authoritarian regimes and political instability. Oil wealth enables governments to maintain power through patronage and suppress dissent, reducing pressure for democratic reforms. However, dependence on oil makes these economies vulnerable to price fluctuations, leading to economic instability and social unrest. Examples include Saudi Arabia's use of oil wealth for regional influence and social stability, and Iran’s funding of military activities, while economic sanctions on its oil sector have caused internal challenges (Adil 2023: 05). The 2011 Arab uprisings took scholars of authoritarianism in the Middle East and North Africa (MENA) by surprise, as citizens across the region mobilized against long-standing authoritarian regimes. These widespread protests disrupted the political order that had dominated the

region for decades, prompting a reconsideration of the established frameworks used to understand governance and political stability in the MENA region (Josua and Edel 2021: 586).

4. Arab Spring: An Overview

The Arab Spring refers to a series of pro-democracy uprisings and protests that spread across the Arab world beginning in late 2010. These movements aimed to challenge authoritarian regimes, demand political reform, and seek greater social justice. Sparked by the self-immolation of Mohamed Bouazizi in Tunisia, the protests quickly spread to countries like Egypt, Libya, Syria, Yemen, and Bahrain (Young and Leszczynski 2020).

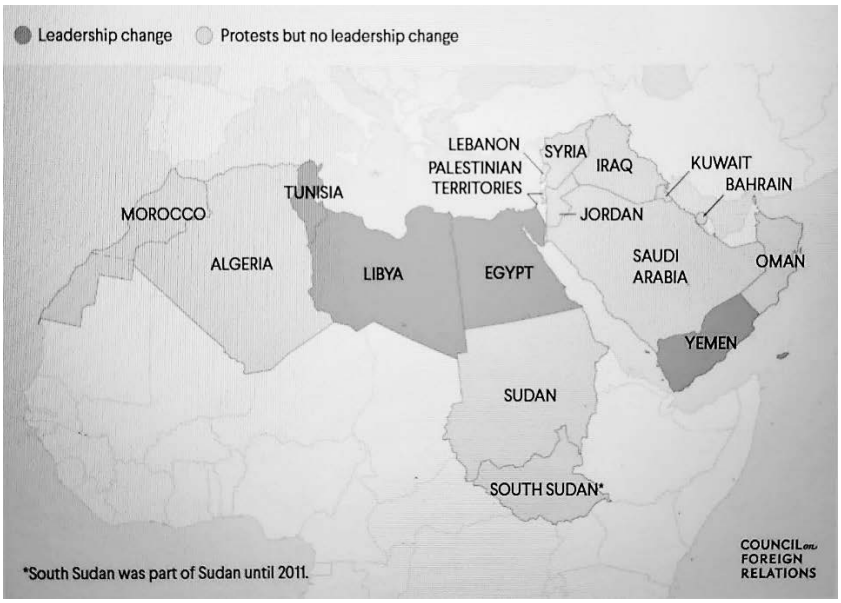

Fig. 1. Map of the Arab Spring

Source: Council of Foreign Relations (Robinson and Merrow 2020).

The Arab Spring is marked by its calls for democratic governance, human rights, and socio-economic reforms, and it highlighted widespread grievances against political repression, corruption, and economic hardships (Kitchen 2012: 5). It refers to a series of anti-government protests, uprisings, and armed rebellions that took place in the early 2010s in several countries in North Africa and West Asia. The Renaissance (*Al Nahda*) brought about mixed changes in the mixed legacy ranging from the democratic transition in Tunisia to protracted civil wars in Egypt, Libya, Syria, and Yemen. One of the major reasons for the outburst of the Arab Spring was the alienation of the youth by defining them as a problematic category. The struggle was thus for taking into youth as consideration for being constructive. They were being denied their adulthood through lack of opportunities in education, and unemployment (Kiwan 2015: 131).

The role of economic disparity and poor living conditions played its role in the evolution of the Arab Spring (Kiwan 2015: 132). The curtailment of citizenship rights and the lack of basic facilities in educational, social, political, and economic fields led to

dissatisfaction and anger against the ruling regimes. The crackdown on activists and the killing of some prominent personalities added fuel to the fire. Under the Mubarak regime (1981–2011), the relationship between the state and the subjects was fundamentally broken. Under Hosni Mubarak's rule, Egypt experienced significant political repression, widespread corruption, and economic hardship, which led to a fundamental breakdown in the relationship between the state and its citizens (Lynch 2012: 67–68). The regime to force legitimacy, brought amendments to the constitution, further paving the way for citizenship as the basis for rights and liberties. The concept of citizenship remained dysfunctional with hardly any concrete efforts to guarantee equal rights to all and right to life and protection to minorities (Heydemann and Leenders 2013: 6–7).

Egypt's revolution, which broke out just eleven days later, was prompted by the overthrow of Zine al-Abidine Ben Ali's government on January 14, 2011. Pro-democracy activists needed only eighteen days in Egypt, a nation of 85 million people, to overthrow the ruler, as opposed to twenty-eight days in Tunisia, a nation of 10 million people. Under these circumstances, civil unrest in the shape of protests and civil wars broke out in Egypt on Jan 25, 2011 (Aljazeera 2016). On February 11, Hosni Mubarak was driven into an embarrassing resignation. Many dictators were terrified by the overthrow of Mubarak after twenty-nine years in power and the overthrow of Ben Ali after twenty-three years in power. Events spurred uprisings in Syria, Libya, Bahrain, Yemen, and other countries, as well as protests in Algeria, Morocco, Jordan, Oman, and other countries (Esposito, Sonn, and Voll 2016: 209).

Discrimination and marginalisation of the women in the Egyptian society was also the issue which ultimately led to the revolt against the ruling regime of Egypt. They were absent from the political sphere along with other sectors of life. After the 2011 elections, the Supreme Council of armed forces started preparations for the redrafting of the constitution through the declaration of Article 60. The idea of '*citizenship*' is pervasive in general. About 40 times throughout the text, the phrase is used in various ways. In Article 6, for instance, the political system of Egypt is described as being based on the principles of democracy, and consultation, citizenship (under which all citizens are equal in rights and public duties), political and multiparty pluralism, the peaceful transfer of power, the separation and balance of powers, the rule of law, and respect for human rights and freedoms. Egyptian civilization is linked in the prologue to 'citizenship, equality, and non-discrimination. These definitions are precisely what civil society organisations would have offered. This is not by chance; it is the outcome of civil society's deliberate and persistent efforts (Esposito, Sonn, and Voll 2016: 12). The progress from the earlier constitutions on the evolution and development of citizenship was seen in the texts of the new constitution which frequently referred to citizens eventually becoming a stepping stone for the development of the principle of equal citizenship. The assertion of equality and non-discrimination were stressed in the new constitution framed after the revolution of 2011. The constitution declares

'All citizens are equal before the Law. They are equal in rights, freedoms and general duties, without discrimination based on religion, belief, sex, origin, race, color, language, disability, social class, political or geographic affiliation or any other reason'. (SSCHR 2012)

4.1. Conceptual Framework on Citizenship in the Middle East

Citizenship in the Middle East is a multifaceted concept deeply rooted in the region's complex historical, social, and political landscapes. Historically, modern nation-state boundaries did not define citizenship in the pre-modern Middle East. Instead, identities and allegiances were often based on tribal affiliations, religious communities, and local loyalties. The Ottoman Empire, which controlled much of the region until the early twentieth century, implemented the millet system, categorizing its subjects primarily by religious affiliation and granting various degrees of autonomy to different religious communities. This system laid the groundwork for how citizenship and identity would later evolve in the region (Scott 2010: 33).

The colonial era introduced significant changes to citizenship in the Middle East. The dissolution of the Ottoman Empire and the subsequent establishment of colonial mandates by European powers imposed Western-style nation-state boundaries and governance structures. This period saw the introduction of new concepts of citizenship and national identity, often manipulated by colonial powers to maintain control. The artificial boundaries drawn by colonial administrators did not always align with the region's complex ethnic and religious makeup, leading to lasting tensions and divisions These colonial legacies have continued to influence the political and social fabric of the Middle East (Gelvin 2020: 10). Following World War II, many Middle Eastern countries gained independence and began the process of forming their national identities. During this post-independence period, citizenship was often defined by the new nation-states in terms of legal status, rights, and duties within the framework of the state. However, these definitions were heavily influenced by the need to unify diverse populations under a single national identity and the ongoing impact of colonial legacies. The formation of national identities was further complicated by the presence of various ethnic and religious groups, each with its own distinct identity and history (Hourani 1991: 444–445).

The legal and political dimensions of citizenship in the Middle East are crucial to understanding its contemporary manifestations. Citizenship involves the rights and responsibilities conferred upon individuals by the state, which have been shaped by colonial legacies, national unity efforts, and varying degrees of authoritarian governance. In many cases, citizenship laws have been used as tools by governments to enforce loyalty to the regime and marginalize dissenting groups. This has resulted in a political landscape where citizenship is often conditional on political loyalty, and opposition groups may face exclusion and repression. Ethnic and religious identities play a significant role in the conceptualization of citizenship in the Middle East. The region's populations are diverse, including Arabs, Kurds, Persians, Turks, and various religious communities such as Muslims (both Sunni and Shia), Christians, and Jews. These identities often intersect with national identities, leading to varying degrees of inclusion or exclusion within the framework of citizenship. The complex interplay between these identities can sometimes lead to tensions and conflicts, as different groups vie for recognition and rights within the state (Makdisi 2000: 13–14 and 39–45).

Gender also significantly impacts the concept of citizenship in the Middle East. Women's rights and roles have evolved differently across the region, influenced by cultural, religious, and legal factors. In many Middle Eastern countries, women's citizenship rights have been restricted compared to men, affecting their legal status, political participation, and access to resources. These gender disparities reflect broader social

and political inequalities that continue to shape the region's development (Joseph 2000). Economic factors are integral to understanding citizenship in the Middle East. The distribution of resources, particularly oil wealth, has influenced citizenship policies and practices. Rentier states, which derive a significant portion of their revenue from natural resources, often use economic incentives to secure the loyalty of their citizens while limiting political freedoms This economic model has led to a political landscape where economic benefits are used to maintain social order and political stability, but also where economic dependency on oil revenues makes these states vulnerable to fluctuations in global oil prices (Beblawi 1987: 383).

Contemporary challenges further complicate the concept of citizenship in the Middle East. Ongoing political instability and conflict have profound implications for citizenship. Wars, uprisings, and external interventions have disrupted traditional notions of citizenship and created large populations of refugees and internally displaced persons. These crises challenge the ability of states to provide for and protect their citizens (Chatty 2010: 46–47). Additionally, many Middle Eastern countries continue to grapple with authoritarian governance, which affects the practice of citizenship. Efforts at political reform and democratization have varied across the region, with some countries experiencing significant changes while others maintain strict control over their populations. Globalization and migration also influence citizenship in the Middle East. The movement of people within and outside the region, whether for economic, educational, or safety reasons, complicates traditional notions of citizenship and national identity. Diasporic communities and transnational connections challenge the exclusivity of state-based citizenship and introduce new dynamics to the understanding of belonging and identity (Anderson 1991: 262). These contemporary issues highlight the ongoing evolution and complexity of citizenship in the Middle East.

4.2. Struggle for Citizenship Rights

The relationship between the state and its citizens in the Middle East varies widely, influenced by legal frameworks, political systems, cultural and historical contexts, and economic conditions. In more autocratic regimes like Saudi Arabia and Bahrain, citizens are often seen as subjects, while countries like Lebanon and Tunisia allow for more active participation (Al-Rasheed 2010: 44). Legal frameworks define rights and responsibilities, but enforcement is inconsistent, with states like Egypt curtailing civil liberties despite constitutional guarantees. Political upheavals, social movements, economic conditions, and technological advances can shift the state’s view of its relationship with citizens. Shifts in the state’s view of its relationship with citizens often occur due to political changes, social movements, economic conditions, and technological advances. Political upheavals like the Arab Spring have significantly impacted state-citizen relationships in countries such as Egypt, Tunisia, and Libya, highlighting demands for greater political freedom and economic opportunity (Lynch 2012: 222–223). Social movements and activism, such as Iran's Green Movement in 2009, have also driven changes in state policies, though they often face severe repression (Milani 2010: 2). Economic factors, such as fluctuating oil prices, can lead to changes in the provision of social services and subsidies, prompting unrest and calls for political change, as seen in Algeria (Lowi 2009). Technological advances, particularly the rise of social media, have transformed how states interact with citizens, enabling greater citizen mobilization and political activism despite increased surveillance and propaganda (Howard and

Hussain 2013: 15). States have duties to protect rights, provide public goods, offer welfare and economic support, ensure justice and rule of law, and facilitate participation in governance. However, the fulfilment of these duties varies, with oil-rich countries like Saudi Arabia providing extensive welfare, while conflict-affected countries like Yemen struggle with basic services (World Bank 2019). Overall, the state-citizen relationship in the Middle East is dynamic and continually evolving, shaped by a complex interplay of internal and external factors.

The Middle East saw a wave of protests and demonstrations, coupled with violence and resistance against the dictatorial and unpopular governments. The social protests were aimed at promoting democratic values and ensuring equality. These protests were anti-capitalist and anti-establishment (Isin and Nyers 2014: 24). It soon became evident that the popular revolutions in Tunisia and Egypt were a significant catalyst and source of hope and inspiration for the social movement that erupted across the globe in 2011. When this occurred, it also became more evident that the Arab Spring was about overthrowing the old autocratic regimes from within (Armbrust 2011). The event of Mohamed Bouazizi, a vendor setting himself on fire due to the humiliating behaviour of the municipal authorities worked as adding fuel to the fire and engulfed Tunisia with widespread protests (Isin and Nyers 2014: 25). The protests engulfed the whole of Middle East and culminated in toppling the existing governments and uncertainty prevailed in all quarters. After the protests, the people did not aim to revive the old or classical institutions but they searched for inspiration from outside and dreamed for new political framework whereby the interests of the citizens remained visible in the public sphere (Isin and Nyers 2014: 26). The struggle for citizenship seemed to have grown to change the balance of power between the citizens and the state.

The multifaceted nature of uprisings can be best understood through the prism of the concept of citizenship. The term itself has been used by the participants in the struggle. The prerequisite for the mobilisation of the poor for the movement of gaining citizenship rights is their understanding of the benefits and rights associated with citizenship (Menza 2021: 1). There remains a challenge until now to analyse this transition of movements associated with citizenship rights or non-citizenship debate (Meijer 2014: 2). The major factor responsible for the struggle for citizenship rights in the uprisings in the Middle East was the extensive political control of the political heads over the masses. This resulted in discontent and disbelief in the masses coupled with the increasing perception and belief in the citizenship rights enjoyed in other parts of the world, particularly in the West.

The Arab Spring was influenced by various Western models of citizenship, each contributing to the broader aspirations for democratic reform, social justice, and human rights. These movements drew on the principles of liberal democracy, republicanism, social democracy, and human rights discourse, reflecting a complex interplay of local and global influences. Protesters across the Arab world sought to establish political systems that respect individual freedoms, ensure accountable governance, and promote socio-economic justice. The pervasive influence of these Western models underscores the universal appeal of democratic ideals and the enduring quest for dignity and freedom. Liberal democracy emphasizes individual rights, freedom of expression, electoral democracy, and the rule of law. Many Arab Spring protesters were inspired by these principles, seeking to replace authoritarian regimes with systems that respect individual

freedoms and ensure fair political representation. For instance, the movements in Tunisia and Egypt highlighted the desire for democratic reforms and the establishment of democratic institutions (Anderson 2011: 2–7).

Republicanism focuses on civic participation, public virtue, and opposition to corruption. The Arab Spring movements reflected republican ideals by calling for accountable governance and active citizen participation. Protesters demanded transparency and the eradication of corrupt practices, reflecting a desire for a more participatory and virtuous political system (Aouragh and Hamouchene 2022: 54). Social democracy combines democratic governance with a focus on social justice, welfare policies, and economic equality. Many protesters demanded not only political reforms but also socioeconomic rights and better living conditions. The call for economic justice and equitable distribution of wealth was particularly strong in countries with significant economic disparities and high unemployment rates (Anderson 2011: 8–10). The slogan 'Bread, freedom, social justice' encapsulates the fundamental demands of the Revolution, symbolizing the people's desire for basic necessities, individual liberties, and fair societal treatment. It became a unifying call that brought together diverse political groups and participants during the protests (Sobhy 2024: 13). The human rights discourse emphasizes universal rights and freedoms as outlined by international agreements and conventions. The demand for basic human rights, such as freedom from torture, freedom of speech, and assembly, was central to many of the Arab Spring movements. This emphasis on human rights resonated with global norms and garnered international support for the protests (Heydemann and Leenders 2013: 144).

Citizenship rights have evolved in the Middle East, but a number of factors have also worked against them. These include the colonial and later authoritarian states, as well as the entrenched and pervasive patronage and clientelism system. Even though rights can also be asserted through patronage systems, these systems generally operate against them (Meijer 2014: 3). Apart from the privileged class (*Al-Khassa*) who enjoyed the highest grade of rights in the classical Middle Eastern empires, the common people were either called the *Ra'aya* (Flock) or the *Amma* (Public) having no specific privileges. There was a transition from the multireligious and multilingual empire adhering to different forms of citizenship to a homogeneous nation-state having common citizenship to all citizens with equal rights. This process of transition was necessitated by the breakdown of the Ottoman Empire and the subsequent establishment of colonial states like Algeria (1830–1870), Egypt (1882), Tunisia (1883), and Morocco (1912) (Meijer 2014: 4).

Since the '*Jasmine Revolution'* in 2011, Tunisia has made significant strides toward democracy and, so far, has managed to escape the violent anarchy or authoritarian revival seen in other 'Arab Spring' nations. Apart from the right to vote and other fundamental rights, Tunisia's distinctive feature in the Arab world is the legal and socioeconomic status of women. *Al Nahda* held a sizable majority of the seats in the elected body that created the constitution (Dunn 1996). But many of its provisions and the way it is framed could be seen as victories for secularist parties or pragmatists inside *Al-Nahda*. Shari'ah or Islamic law is not mentioned, as an alternative, Article 2 declares that '*Tunisia is a civil state based on citizenship, the will of the people, and the supremacy of law*,' and Article 3 declares that *'the people are sovereign and the source of au-*

thority, which is exercised through the people's representatives and by referendum' (Arieff and Humud 2015: 4).

After the First World War, nationalism grew in popularity, but politics was still restricted to the fight for independence and national cohesion. For instance, the prominent Egyptian nationalist *Wafd party* (1919) and the *Destour* (1920) in Tunisia attempted to monopolize power while speaking on behalf of the people, rejecting pluralism and denouncing the phrase 'party system' *(hizbiyya)* as fostering national division (*Fitnah*) (Fabien 2013). This inclination toward totalization is reflected in the term citizenship (*Muwātana*). The word *Muwātana* 'Citizenship' has come to limelight recently; its origin is from the root word 'Watan' meaning homeland or a place which is a permanent habitat for human beings, and the term '*Mawātin*' refers to the place where human beings or creatures live. The nation (*al-Watan*), a group, and a community (*Jamā'ah*) were more important than the individual with rights known as the citizen (*Mawātin*) (Abdul-Hay 2018: 112). The emphasis on civil and political rights equality with Europeans during this time, including colonists in Algeria, Morocco, and Tunisia, and the elimination of extraterritorial rights were the two main areas of focus in terms of rights. Although the specific rights of minorities were denied throughout the unification process, it was inclusive of all populations and minorities (including Jews in Morocco and Tunisia, Copts in Egypt, Berbers in Morocco and Algeria, and Kurds in Iraq and Syria) Social rights were included into the nationalist movement via the inclusion and mobilization of the lower classes. Tunisia, Morocco, and Egypt all saw the establishment of trade unions (in the 1930s) (Meijer 2014: 4).

Trade unions played a crucial role in the Arab Spring, acting as catalysts and providing organizational support to the uprisings. In Tunisia, the General Union of Tunisian Workers (UGTT) was pivotal, using its extensive network to organize protests and strikes that led to the ousting of President Ben Ali (Yousfi 2021: 5). In Egypt, the newly established Egyptian Federation of Independent Trade Unions (EFITU) mobilized workers and organized strikes, especially in key sectors like textiles and transport, which sustained the momentum of the revolution (Sharkawy and Agati 2021: 62). Libya's trade unions were less influential due to suppression under Gaddafi, but existing unions and informal worker networks still participated in the protests (Bellin 2012: 130). In Yemen, unions like the Yemeni Teachers Syndicate joined the protests, emphasizing economic grievances and political reform and it continues to do. In Bahrain, the General Federation of Bahrain Trade Unions (GFBTU) organized strikes and demonstrations despite severe state repression (BCHR 2021). Overall, trade unions across the Arab world provided crucial organizational capabilities, leadership, and legitimacy to the protest movements, highlighting economic grievances and fostering broader participation in the uprisings

The liberal intelligentsia in Tunisia, Egypt and Iraq soon realised after the protests that the citizens shall be given all social, economic and political rights, due to the authoritarian nature of the governance and socio-political changes in west. The struggle for nation-state formation in the Middle East has been closely linked with the quest for citizenship rights. The formation of nation-states often entailed defining who belonged to the nation, which in turn influenced the granting of citizenship and associated rights. In the post-Ottoman period, new nation-states emerged, and the process of state-building involved efforts to establish a national identity and governance structures that

included legal definitions of citizenship (Gelvin 2012). These definitions were crucial for determining who could participate in political life, access state services, and benefit from economic opportunities. The Arab Spring uprisings further highlighted the link between the struggle for nation-state and citizenship rights, as protesters across the region demanded not only political change but also social justice and full citizenship rights The movement emphasized the need for inclusive governance that respects the rights of all citizens, underscoring the connection between national identity and citizenship (Beinin and Vairel 2013: 5). The 1980s oil crisis declined the legitimacy of the state and in response to this situation, the people came into the streets, beginning with the 'bread riots' and culminating in the emergence of citizenship rights with people demanding their civil, political, and social rights. In the Middle East, conceptions of citizenship and rights were expanding. This not only posed challenges to the state but also made it difficult to reach a new consensus on which to base new community arising out of the Renaissance. The citizen-state interactions in these nations had fallen apart during the Arab upheavals due to their extreme divergence and frequent contradictions (Beinin and Vairel 2013: 6).

A large portion of the population migrated to the Western world for enjoyment rights which were denied in their respective states. Migration to the Western world from the Middle East is significantly driven by authoritarianism and the denial of rights. Political repression, such as censorship, imprisonment of dissidents, and suppression of free speech, is common in authoritarian regimes like Syria and Egypt (Heydemann 2013: 71). Many movements and political parties have now a shared understanding of the concepts of citizen (*Mawātin*) and citizenship (*Muwātana*). Liberal Islamists have agreed to equal rights for women and minorities (like Copts). The idea of a contract (*'aqd*) between the citizen and the state has also become the cornerstone of political change. The Muslim Brotherhood agreed in 1995 that the *Ummah* (Muslim Community) was the ultimate source of authority and that the people should rule themselves. The movements like that of the Muslim Brotherhood (Egypt), *Al-Nahda* (Tunisia), Justice and Development Party (Morocco), and the Islamic Action Front (Jordan) created a separate 'parallel Islamic sector' that provided an alternative society based on 'commitment' *(iltizam*) and solidarity and saw the public activity as a personal obligation (*fard 'ayn*). They turned the demobilised, inactive citizen into a dedicated, active Muslim (*al-muslim al-multazim*) (Meijer 2014: 7). Wide-ranging citizen initiatives, fully autonomous of the government, such as 'citizen councils' (*lijan al-muwantinin*) or 'coordinating committees' (*al-lijan al-tansiqiyya*) in Morocco, have been a feature of the uprisings (*Ibid*.).

Before being elected as President of Egypt, Mohamed Morsi made several key pledges focused on the rule of law. He promised to ensure the independence of the judiciary, free from executive interference (Brownlee, Masoud, and Reynolds 2013: 150). Morsi committed to protecting human rights and civil liberties, including freedom of expression, assembly, and association, and ending practices like arbitrary detention and torture He vowed to tackle government corruption through increased transparency and accountability (Kirkpatrick 2013: 175). Morsi also pledged comprehensive legal reforms to modernize Egypt's legal framework in line with democratic principles. Additionally, he emphasized social justice, promoting economic fairness and equal opportunities for all citizens (El-Ghobashy 2012: 45). The republican system of governance, the

constitution, social fairness, and the dignity of all Egyptians were among the pledges made by Morsi. In addition to having complete access to school and employment, women would not be compelled to adhere to an Islamic dress code in public (Esposito, Sonn, and Voll 2016: 218). However, the opposition and the Morsi administration failed to agree on a shared agenda for economic growth, employment, citizenship equality, political and religious plurality, stability and security, and the rights of women and minorities to freedom of expression, assembly, and religion, ultimately leading towards the downfall. Morsi failed to adequately and convincingly show that '*the new Egypt*' was a contemporary, inclusive of all religions, and a nation-state where everyone enjoyed full citizenship. It opened itself up to opposition accusations that, despite some 'cosmetic changes,' it was still a 'Muslim Brotherhood government' since it was not inclusive enough in terms of diverse representation in its appointments and policies (Esposito, Sonn, and Voll 2016: 223).

The success of the Islamist parties in Tunisia, Egypt, and Morocco in the elections that followed the Arab uprisings, as well as the crucial role they played in Syria, Libya, and Yemen, have elevated political Islam to the fore of academic discussion (Hamid 2011: 42). A new arrangement or organisation of authority and personal freedom is referred to as 'political modernity (Lazreg 2021: 2). Despite having a brief period of power before being overthrown in a coup d'état in 2013, Egypt's Freedom and Justice Party (The political wing of the Muslim Brotherhood) expressed its support for electoral democracy and a modern civil state, as well as its willingness to uphold freedom, human rights, and gender equality (European Parliament 2012: 5). Although the FJP initially attempted to project an appreciation for the principles of democracy, political pluralism, and civil rights in Egypt, it was unable to do so. The Brotherhood has expressed ambiguous and conflicted opinions in its rhetoric regarding the political and citizenship rights of women and non-Muslims. The Brotherhood has been slower to fully embrace the equality of all citizens before the law regardless of religion, sex, and ethnicity than the Ennahda party and the impact of its leaders' experiences seeking asylum in secular European countries on their ideological moderation (Lazreg 2021: 14). The Muslim Brotherhood's rhetoric and behaviour toward Christian Copts created concerns about its adherence to the principles of civil rights and equality for all citizens, much like it did with the topic of women's rights.

In addition to liberalism, democracy has played a significant role in political modernity. In a nutshell, the idea represents a dedication to self-determination, individual liberty, citizenship, and democracy. Since the authoritarian President Zine El Abidine Ben Ali was overthrown in January 2011, which is widely regarded as the start of the Arab Spring, Tunisia has successfully established a functioning democracy and taken a number of helpful actions to advance human rights in the nation, including the drafting of the progressive 2014 Constitution. The enactment of a bill making racial discrimination illegal in October 2018 was one of several legislative reforms that followed to protect the country's minorities from discrimination. Many religious communities still struggle with the repercussions of years of prejudice despite these hopeful advancements. Although the Constitution guarantees the freedom of religion, only the Christian and Jewish groups are currently recognised as minorities in practice. Other unrecognised groups, like the *Bahāis*, have considerable constraints on their right to freely practice their religion (Encyclopaedia Iranica 1988). The punishment of Tunisians who

choose to become Christians or identify as atheists continues to be based on pre-revolutionary laws on apostasy. Since the revolution, Tunisia has made strides thanks to a rising appreciation for minorities, women, and other groups, as well as a desire to create a platform where these voices can openly speak their concerns. To fully achieve equality for all -people and complete the nation's extraordinary transition to a vibrant, inclusive democracy, however, considerable work still has to be done (Quattrini 2018: 2).

The legal system in Tunisia has also been consolidated and official records like birth, marriage, and death certificates no longer include details regarding a person's religion as they do in certain other nations in the region, such as Egypt. The Constitution's final draught was published in 2014 following the revolution of 2011 and the elections for the Constituent Assembly. The outcome of extensive talks between more liberal and conservative factions, this constitution is extremely progressive and upholds all fundamental freedoms and rights. While Tunisia is said to be 'a civil state built on citizenship, the will of the people, and the supremacy of law,' the underlying conflict between religion and secularism can be seen in the country's history (Lazreg 2021: 8). In terms of women's rights, Tunisia is widely regarded as the Middle East and North Africa (MENA) region's most developed nation. A significant development in this area, particularly in terms of family law, was the 1956 Tunisian Code of Personal Status, which outlawed polygamy, removed the husband's power to reject his wife, and permitted women to apply for divorce. Since 1957, women have been entitled to vote as well (Lazreg 2021: 9). The evolution brought about radical changes, particularly in Tunisia where the New Constitution of 2014 became a landmark achievement as far as granting citizenship rights is concerned. as granted. The constitution guarantees key civil, political, and cultural rights (Amara 2014).

The figurehead of this movement of citizenship rights was Rachid al-Ghannouchi, who is credited for heading the *Nahda* movement in Tunisia for bringing changes and installing a democratic setup. While emphasising the importance of freedom and rights, he argues that it is not suitable for Islamists and Muslims in general worry that freedom would undermine Islam. Islam would be most at risk if there were no liberties and not enough protections for everyone's social, religious, and political rights, as well as their freedom of expression and travel (Al-Ghannouchi 2013). The leadership of Ennahda made the decision to separate the political and religious aspects of the party during the Party Congress in May 2016. Rached Ghannouchi, the head of *Al-Nahda*, stated in an interview that the party was 'leaving political Islam and joining democratic Islam', therefore for Ghannouchi, Tunisia was no longer claiming to represent political Islam, but representing democratic Islam (Bobin 2016). The congress's final statement emphasises that *Al-Nahda* has to shed its dual character as a party and a movement and has transformed into a national democratic political party with an Islamic focus that is open to all Tunisian men and women. It is placed in the middle of the political spectrum and gives social justice and national development issues top attention. The dedication of *Al-Nahda* to a civil state exposes its normalisation with the deep state and opposes traditional Islamist ambitions to enforce Shari'ah (Islamic law). Alternatively, it assimilated into the state it had been resisting for years (from the Habib Bourguiba era to Ben Ali). In conclusion, Al-Nahda's selection of a Tunisian Jew named Simon Salama as its candidate for the 2018 municipal elections was a clear indication of its more tolerant and new approach to religious minorities. Yet the Islamist-led administration in the Muslim

Brotherhood government did not ensure minorities' protection, inclusion in politics, or equal rights. The renowned scholars Yusuf al-Qaraḍawi and Rached al-Ghannouchi have been strongly advocating citizenship as the centre stage on which the relations should be established between the Government and the inhabitants (Vericat 2017: 9).

The Muslim Brotherhood government under Muhammad Mursi was expected to be a model of governance in the Muslim world, but it failed to deliver particularly on the human rights front. In the first address to his countrymen, apart from lating emphhsis on national unity and democracy, identified them as '*Ashirati* (My Clan) instead of *Muwātinun* (Citizens) which led to outrage among the civil society in Egypt and in a way paved the way for more efforts to be done for availing *Muwātana* (*Citizenship*) status (Morsi 2012). Among the demands put forward by the group 'Youth of 14th February Revolution,' it was demanded that a national commission shall be formed to investigate the allegations of naturalization done for political purposes. Further, it was demanded that the citizenship of all those residing in Bahrain shall be immediately revoked who had acquired it contrary to the laws of the land. On 1 March 2011, *Al-Wefaq*, the group representing the demonstration in Bahrain, issued a statement calling for the establishment of a civil State, wherein equality of all Bahrainis is ensured and there shall be no discrimination between the Shias and the Sunnis. It vehemently opposed any solution which satisfies the demands of one group and rejects others. Bahrain like other Arab countries also witnessed protest and demonstrations in February-March 2011, emulating the protests of Tunisia and Egypt. The protesters beginning with social media activities gather under the group 'The Youth of February 14th Revolution' and framed number of steps and demands necessary to be taken for the overall development and advancement of Bahrain. It aspired that all Bahrainis should live in harmony and tolerance and dignity of all Bahrainis shall be respected. Similarly, in the demonstrations held on 6 March 2011, it was reiterated that the purpose of demonstrations is to establish a polity that will ensure that the rights of all citizens are respected on the basis of equality. In the post 9/11 era, the Western governments along with international organizations and NGO's have played a great role in the awakening and promotion of the citizenship debate in the Arab world. The process of civic participation includes both the voting rights as well as the socio-economic and political campaigns (Report of Bahrain Independent Commission of Inquiry 2011).

5. Conclusion

The Arab Spring played an important role in challenging the traditional conceptions of citizenship. The relative deprivation of the youth from the political and civic affairs enraged them and they showed their frustration through protests and struggle for attaining citizenship rights. The young have played a great role in the process of reconstruction and reshaping of citizenship through their participation in protests against the ruling regimes. Despite oppressive authoritarian governments and a gloomy assessment of human rights abuses in the backdrop of the Arab upheavals, all three groups – women, youth, and refugees – demonstrated agency and took various actions to establish themselves politically. They played a great role in perusing the ruling regimes to make the citizenship rights available to them without any discrimination.

There was a visible change in the Arab world particularly in the political, social, and economic perspectives. The rallies involved a remarkably diverse group of partici-

pants, ranging from NGO leaders and labour unions to lone activists, artists, first-time protesters, and the common man and woman on the street. However inclusive attracting individuals from all social strata, both men, women, Syrians, Palestinians, Lebanese, Tunisians, Egyptians, Bahrainis, and migratory workers, social, gendered, and legal issues were the subject of public emotional debate. In conclusion, the Arab Spring was a period of identity crisis brought on by the advancing imperial powers, and religious and secular intellectuals in the Arab and Muslim countries sought ways to oppose this dominance while maintaining the urge to participate in modernity through culturally genuine procedures.

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THE COUPVOLUTION IN SUDAN IN 2019 AS AN EPISODE IN THE RECONFIGURATION OF THE WORLD SYSTEM

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The world has undergone significant changes in recent decades. These transformations take different forms, but one of the most prominent ones is revolution. Revolutionary events in the twenty-first century are very diverse and tend to come in waves. The revolution in Sudan in 2019 is one of these events: it is not just a revolution or just a coup, it is a coupvolution and also part of the Arab Spring 2.0. This article argues that the events in Sudan have great significance for the reconfiguration of the World System because they are a coupvolution, a concept that combines the features of revolution and military coup. Thus, they represent a new type of revolutionary event that highlights the peculiarities of modern revolutionary movements and has the potential to significantly affect the world. The Sudanese coupvolution has also led to a power struggle in Sudan which affects the regional and global political landscape. It also attracts various regional and global actors who seek to influence the outcome of this struggle and gain better position in the region. Thus, the coupvolution led to Sudan to become one of the main stages of the reconfiguration. This article attempts to identify the main drivers of the Sudanese coupvolution, while also comparing it to other coupvolutions that have occurred in the past decade.

Keywords: *coupvolution, coup d'etat, coup belt, reconfiguration of the World System, Sudan.*

Introduction

The twenty-first century is characterized by the significant changes in the World System. The end of the twentieth century was, for many people, the conclusive end of significant political contention (Snyder 1999). However, the first decades of the twenty-first century have been able to demonstrate immense levels of internal instability in various countries. One of the early signs of the looming destabilization was the series of 'color revolutions' (Mitchell 2022). But probably the biggest shock to the world, ending the idea of 'the end of history' and starting a new era of revolutionary events, was the Arab Spring, which completely rewired the balance in the Middle East and also inspired protest movements around the world (Grinin and Korotayev 2012; Grinin 2022b). The influence of revolutions on the World System is an understudied subject, but they can directly or indirectly affect the global order politically and economically. Revolutions can spark international political tensions due to the rise of new governments, and

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they can significantly affect the world economy due to sanctions, changes in trade routes, *etc*. Revolutions also lead to the geopolitical changes as countries that have just experienced a revolution search for new alliances (Grinin 2022a).

The Arab Spring and its 'global echo' were the processes that pushed the World-System reconfiguration even further. The reconfiguration in question is an extremely complex process involving several fundamental processes. The first is the gradual weakening of the US dominance in the world (Chase-Dunn *et al*. 2015; Grinin 2022b). It is especially pronounced in the intensifying confrontation between the USA and China, between the USA and Russia and between Western international institutions and various countries (Grinin, Grinin, and Korotayev 2024). These confrontations have played an important role in strengthening new coalitions, such as the BRICS, which aim to be an alternative to different pre-existing organizations. Globalization, which seemed unstoppable after the Cold War, has not only slowed down, but, in fact, has been transformed, according to various scholars (Olivié and Gracia 2020; Hochuli and Hoare 2021; Moghadam 2021).

One of the main symptoms of the weakening of the West's positions in the World System is the increasing instability. Western countries gradually became de-industrialized and the GDP gap between them and the Global South is decreasing quite rapidly (Grinin, Grinin and Korotayev 2024). Moreover, it has become clear since the 2008 financial crisis that the political element of the World System is lagging behind the economic element, and that no single power in the future will be able to hold the position of political dominance (Grinin and Korotayev 2010). At the same time, the US is imposing numerous sanctions against various states like Russia, China, Venezuela, Sudan and others, further hindering globalization. The current fragmentation of the previously globalized world leads many countries to solve their problems in more direct and violent ways that were previously taboo. The World System is going through a process of various transformations, including armed conflicts, revolutions and riots. These processes are particularly widespread in the Afrasian zone of instability, which has become the belt of these events, stretching from the Sahel to Afghanistan and Pakistan (Korotayev *et al.* 2016). In sum, the World System is changing, and perhaps the greatest illustration of this is the revolutionary transformation of regimes around the world. A very intriguing example of such a revolutionary transformation is the Arab Spring 2.0.

There are several revolutionary waves in the twenty-first century (Goldstone, Grinin and Korotayev 2022) and the Arab Spring 2.0 is a part of them (Issaev and Korotayev 2022). A revolutionary wave is a rapid spread of revolutions between countries in a given region or even across the globe. Waves usually have their roots in certain events in the World System that can ignite them. The first wave of this century was the wave of color revolutions. It was made possible by the promotion of democratization by Western countries (Mitchell 2022; Grinin and Grinin 2022a). The second wave was the Arab Spring. This wave was largely affected by geopolitical disputes between Western and Middle Eastern countries (Grinin and Grinin 2022a). The third wave includes a wide range of different revolutions: the Arab Spring 2.0, which includes Algeria (2019), Iraq (2019), Sudan (2018–2019), Lebanon (2019) and Jordan (2019), but it also includes Bolivia (2019), Hong Kong (2019–2020), Mali (2020–2021) and many other revolutionary episodes around the world. This wave was affected by the export of Islamist terrorism to African countries, which significantly affected their security (Grinin and

Grinin 2022a). It is worth noting that all three of the aforementioned world-system processes affected the second and third waves to some extent.

Just like the original Arab Spring, the Arab Spring 2.0 refers to the wave of protest campaigns and revolutions that took place almost simultaneously across the Middle East in 2018–2019. The countries most affected are those that managed to survive the events of 2011 with some degree of safety: Algeria, Sudan, Morocco, Jordan and Lebanon. This article is specifically dedicated to the case of the Sudanese coup d'etat, which is interesting as an example of how the reconfiguration of the World-System looks in Africa, as it was a major part of the second Arab Spring. It is also an example of 'coupvolution', a concept that combines features of both a revolution and a coup. Finally, the coup in Sudan is also a part of a 'coup belt' – a region of high military coup activity in Sub-Saharan Africa, stretching from Guinea in the west to Sudan in the east (Ero and Mutiga 2024). In this 'belt', Sudan is on a par with countries such as Mali, Niger, Burkina Faso and Guinea, where the military also came to power by overthrowing unpopular rulers (Andrews 2023). Therefore, the Sudanese coup in 2019 can be seen as an event of extreme political importance, not only for the region, but also for the world. Taking into account the developments in Sudan after the coup (another coup in 2021 and a civil war in 2023), one can make a conclusion that the 2019 coupvolution was a regime change that affected many processes and may affect even more in the future.

The protests in Sudan began at the end of 2018. The primary catalyst was the surge in the prices of basic commodities such as food and fuel. President Omar Al-Bashir had been in power for 30 years, and in August 2018 the ruling party, the Sudan National Congress, endorsed Al-Bashir's candidacy for the 2020 elections. The economic difficulties, the loss of South Sudan and the government's response to any form of dissent undoubtedly contributed to the prevailing mood (Hassan and Kodouda 2019). The unrest was sparked by rising prices and the removal of subsidies on essential goods, which protesters directly attributed to the president's rule. The protests were particularly prominent in the capital, Khartoum. The protests, which involved several hundreds of thousands of participants across the country, lasted from December 2018 to April 2019. In April 2019, Bashir was forced to resign under pressure from army generals (Bassil and Zhang 2021).

The Sudanese Coup as a Coupvolution

The events in Sudan can be regarded as one of the many episodes of revolutionary mobilization in the twenty-first century. The events in Sudan may not look like a revolution at first glance, but the long episode of Sudanese protest activity can be seen as an example of a revolutionary movement in the modern sense, the so-called revolutionary movement without revolution (Goldstone, Grinin, and Korotayev 2022).

The very concept of 'revolution' has actually acquired new meanings. The fact is that the classical understanding of revolution is based, firstly, on its understanding as an event with a specific time frame, and, secondly, on the fact that a revolution necessarily has a social class aspect with subsequent changes in the entire social system (Beck *et al.* 2022). Modern scholars have other considerations, and the main one being the idea that a revolution is a long process that does not always end in success. It follows from these ideas that the objects of research in the study of revolutions are often revolutionary campaigns, movements and episodes. At the same time, most of the revolutionary pro-

cesses of our time do not aim at a total change of society and are not ideological in nature, but are directed against a specific acting government and its policies, corruption and economic problems. One of the most striking examples of such revolutions was the Arab Spring and later revolutionary waves (Issaev and Korotayev 2022). The Sudanese opposition movements also belong to these new revolutionary movements: they were directed against a specific political leader and the problems mostly associated with his long stay in power.

From a scholarly point of view, military coups are a narrower concept than revolutions. A military coup is an episode of change of power in which the military (usually represented by high-ranking officers) forces the current government to resign. Military coups are interesting as a phenomenon because in the history of their observation and study in various works it has been found that successful and unsuccessful coups occur with equal frequency (McGowan 2003). This makes it all the more interesting that in Africa in the 2020s almost all coups succeeded in overthrowing the incumbent government in the country: perhaps the only exceptions were the attempted coups in Niger in 2021 (France 24 2021) and in Sierra Leone in 2023 (Al Jazeera 2023). Thus, the series of military coups that have taken place in the Sahel and West Africa is an intriguing topic to study from the point of view of the theory of military coups: what was the reason for their massive success? First of all, many military coups can have far-reaching political and economic reasons, which is what much of our understanding of coups is based on. Secondly, if we look directly at the events immediately preceding the coups, we can see that African coups coincide with mass protest mobilization, and for a short period of time, the military essentially supports the efforts of the opposition forces.

The simultaneous mobilization of mass protest of a revolutionary nature and a military coup has been identified by some experts and scholars as a separate political event – 'coupvolution' (from the English words 'coup' and 'revolution'). An almost identical concept is also the 'endgame military coup', so called because it occurs at the end of an episode of political struggle. The concept of 'coupvolution' was first used in the context of the 2011 Egyptian Revolution, in which national protests ended with the intervention of the military, or rather their ultimatum to Hosni Mubarak, after which power passed to the Supreme Council of the Armed Forces. According to researchers such as Nathan Toronto and Robert Springborg, the events in Egypt in many ways represent a new type of political process, namely 'coupvolution' (Toronto 2011; Springborg 2012). Robert Springborg conceptualizes the concept of coupvolution quite deeply, distinguishing it from a military coup. First of all, according to the author, the military coup during the revolution has the character of a preventive action, and is aimed at preventing the ooubreak of chaos and lawlessness in the country. But Springborg highlights the following point: the army is acting on the side of the protesters in a particular moment and partially satisfies their demands. The result is something between a revolution and a military coup. In the case of Egypt, according to Springborg, this is an illustration of the role of the army in the whole region of North Africa, where the military 'rules but does not govern' (Springborg 2016). Revolution scholar Mark Beissinger also writes about coupvolutions, describing them as processes in which the military seizes power in support of a revolutionary movement. And Beissinger says, based on his database covering all revolutionary episodes from 1900 to 2014, that 12 per cent of all episodes end this way – with a coupvolution (Beissinger 2022).

The emergence of the concept of coupvolution and the study of such phenomenon in modern political science can become an important field of study that can simultaneously unite the theory of revolution, the studies of military coups, and the studies of the current reconfiguration of the World System. The events in Sudan in 2019 are also an example of a coupvolution. The coup led by Ahmed Awad Ibn Auf was preceded by a mass protest mobilization across the country that started several months earlier. In the case of Sudan a military coup coincided with a peak in protest activity. The peak of the protest movement in Sudan was in early April, with protests against Omar Al-Bashir reaching almost a million participants and constant sit-ins in the center of Khartoum. The military coup was also directly followed the clashes between police and pro-opposition soldiers. We will try to follow the events of the coup and explain them based on the political and socio-economic factors.

Protest Campaign and the Coup

By the end of 2018, Omar Al Bashir had been in power in Sudan for 29 years. His regime faced many challenges, including the War in Darfur and the loss of South Sudan after a long civil war and referendum. And while it would be a stretch to describe Al Bashir's regime as stable, several years prior to 2018 were largely spared from major destabilization. Despite all odds, Al Bashir's regime managed to withstand the 2011–2013 protests (Rosen 2012) that were part of the Arab Spring. In August 2018, the ruling National Congress Party announced that Al-Bashir would seek re-election in 2020 (Adam 2018). However, the extreme inflation and surge in prices throughout 2018 led to the largest and most uncontrollable protest movement in the country's history, known as the December Revolution.

In early December of 2018, the first protests of the December Revolution took place in different Sudanese states. Perhaps the most notable initial protest was a student protest on 13 December in the city of Ed Damazin in Blue Nile State. The demonstration was against rising bread prices (Radio Dabanga 2019b). The protests spread quickly, and by 19 December they were taking place simultaneously across the country. On this day, protestors set fire to several buildings related to the regime, most notably the ruling party headquarters in the city of Atbara in River Nile State. Interestingly, attempts by security forces to suppress protests in Atbara, Gedaref and Port Sudan allegedly met with resistance from the military stationed in the areas, which provides an early insight into the potential conflict between the army and the government (Mada Masr 2018).

The protests and the reaction to them quickly turned violent. Multiple casualties among protestors and security personnel were the norm from the very beginning. There are different estimates of the number of deaths between December 2018 and April 2019, with some exceeding one hundred (Dahab *et al.* 2019; Radio Dabanga 2019a). The regime's response to the situation was to suppress protests as much as possible. The government imposed curfews across the country and schools were closed (Amin 2018). The Internet was heavily censored, with access to social media and messaging being blocked. News outlets were put under strict control and surveillance. The most radical measures were the declaration of a state of emergency in February 2019, the dissolution of regional governments and the replacement of governors with military generals and security intelligence officers (Walsh 2019).

Protests were regular and intense throughout January, February and March. However, severe measures taken against the protests were effective in preventing them from becoming overwhelming. In early April 2019, protestors tried a new tactic. The Sudanese Professionals Association, an umbrella organization for several white-collar trade unions, proposed a march through Khartoum in order to occupy the square in front of the General Command of Sudan Armed Forces (Wind and Reddy 2019). And on 6 April, the anniversary of 1985 revolution, the opposition carried out the march, gathering more than 800,000 protestors. Over the next few days the number of protestors across Khartoum was estimated at one million. The idea was to set up an encampment in front of the army headquarters in order to create a rift between the government and the army. This strategy paid off, as during the days of the encampment, the military supported and defended the protestors from the security forces, which ended in their direct confrontation and shooting (Sudan Tribune 2019). Perhaps the clashes were the last straw that the army needed to make a decision. On the morning of 11 April, Defence Minister Ahmed Awad Ibn Auf and generals from the Sudanese army conducted a classic coup d'etat, dismissing the previous government and establishing the Transitional Military Council (TMC).

The opposition was not satisfied with the coup because no one from the opposition was included in the new ruling body, and many army officers were associated with the regime of Al Bashir. The following several months saw multiple violent protests, civilian casualties and the infamous Khartoum massacre on 3 June. It was not until the end of July that the TMC and the opposition were finally able to reach an agreement to establish the Transitional Sovereignty Council, made up of both civilian and military representatives.

The regime transformation was very difficult and its achievements were largely reversed in the 2021 coup d'etat (Zulueta-Fülscher and Noël 2021). However, 11 April remains an example of a successful coupvolution, while the Sudanese revolution as a whole remains an example of a successful (albeit temporarily) modern revolutionary movement. Firstly, the Sudanese protestors were not united by a common ideology or vision for the future, but rather by the simple goal of overthrowing the regime that was unable to cope with rising prices and falling living standards. Secondly, the Sudanese coupvolution was incredibly similar to the Egyptian coupvolution of 2011. The encampment in the center of the capital, the attempts to suppress it and the eventual military intervention are all common features of the events in both countries. One can argue that the outcome is also largely the same: the military never really conceded after taking power.

Political Factors of the Coup

The political factors of the 2019 Sudanese coup d'etat are numerous but several most important ones must be highlighted. Firstly, Sudan experienced significant external pressure from the USA, which crippled country's economic performance and destabilized the region, affecting Sudan's internal security. Secondly, there was a problem with Al Bashir's legitimacy. Thirdly, the position of the army in Sudan made it vulnerable to coups. Finally, ethnic and regional cleavages also made the coup more likely.

As to the United States, it is evident that in its efforts to counter rivals in certain countries or to challenge undesirable regimes, the United States employs a well-

established set of strategies. These strategies often involve promoting the 'democratization' of the target country and advocating the protection of human rights. Historically, however, this approach has tended to undermine the strength of regime and exacerbate internal instability or encourage separatist movements. Therefore, in both the Middle East and Africa, one of the consistent objectives of U.S. foreign policy, both overt and covert, is to weaken or destroy strong regimes under various pretexts. Libya and Sudan serve as illustrative cases. For approximately three decades, Sudan has been under to sanctions and pressure, largely because of the conflicts in South Sudan and Darfur. Furthermore, the overthrow of a stable regime inevitably creates a source of destabilization that affects surrounding and even distant countries for an extended period of time. Such actions inevitably result in significant costs, destabilization, humanitarian crises, and the spread of terrorism. It is evident that the upsurge of terrorism in the Sahel, which has lasted for a decade and has spread to other regions of Africa, was not an unintended consequence of the events that began in 2012. The Western policy towards Libya, Syria, and Iraq was the proximate cause of the emergence of more terrorists in the region (Grinin, Korotayev and Tausch 2019; Grinin and Grinin 2022b). The Libyan example is quite telling, since after the fall of Gaddafi regime, various militias like the Tuaregs, who had previously served in Libya, became a threat to the entire region by joining different terrorist and separatist organizations.

Al Bashir's legitimacy may seem an obvious problem, given that he ruled for almost three decades and elections were never considered even partly competitive. However, it was not only the length of Al Bashir's rule that was critical, but rather a combination of extremely poor economic performance with an announced desire to run for another term. The coupvolution in Burkina Faso in 2014 showed the same pattern: President Blaise Compaore announced that he aims to change the constitution and extend his rule amid economic and employment concerns. This combination led to a chain of protests which the government was unable to pacify and to eventual coup d'etat (Chouli 2015). The same pattern can also be seen in Mali in 2020, where the constitutional court publicly canceled the opposition's electoral gains following difficult parliamentary elections, amid a difficult economic situation and war in the north of the country. The result was the same: enormous protests for several months, followed by a military coup (Korotayev and Khokhlova 2022). The situation in Sudan followed this pattern as well. During the protests, Al Bashir left the post of National Congress party chairman and promised to fight corruption, but this attempt at pacifying the protests did not work (Ahram Online 2019).

Scholars of military coups note that the position of the army in society and in the hierarchy of the regime can be crucial to its susceptibility to coups. African militaries have been observed to prioritize the protection of their own interests, including budgetary concerns and operational autonomy, in the context of competition with government institutions (Nordlinger 1977). Additionally, scholars have suggested that shifts from democratic to authoritarian rule may result in the military becoming a principal agent of authoritarian repression, potentially leading to the military acting independently and intervening in governmental affairs (Zolberg 1968). It is also assumed that military intervention is highly probable when the role of the army in society is not limited to the defence function and the army is one of the most influential institutions. This is also the case in many African countries, as evidenced by the works of Huntington (1981),

Austin (1966), and Besenyő (2019). In the case of Sudan, the army is indeed not a simple actor. The Sudanese army has amassed more than 250 companies in various industrial sectors that are exempt from taxation (Al Jazeera 2020). Moreover, the Sudanese army is mostly seen as a secular force, usually fighting against Islamist forces that came to power with Al Bashir's regime in 1989 (Denisova 2016; Kostelyanets 2022). In addition, there is also a strong belief that military budgets can have a direct impact on military coup attempts. Sudan's military expenditure has fallen from over US$ 4 billion in 2017 to US$ 1 billion in 2018 and to over US$ 700 million in 2019 (World Bank 2024a). It is very likely that military elites were affected by this decline.

Finally, there is a problem of Sudan's ethnic and regional composition. Sudan has been and still is one of the most suffered victims of colonial borders. Even after the secession of South Sudan, there are multiple troubled regions where people are dissatisfied with the rulers in Khartoum. Moreover, these regions are often home to Sudan's major oil fields, exacerbating the problem of regional tensions. For the military, these conflicts can also be seen as a coup factor. The military is supposed to protect national borders and integrity. In a situation where the revolutionary movement has completely engulfed the country, secessionist attempts can be expected. Just as in other cases of coupvolutions, the military used a coup as a way to preserve the status quo and to avoid even bigger problems such as the dissolution of the state.

Socio-Economic Factors of the Coup

The socio-economic factors of the coup could be seen as the most important ones in the case of Sudan. The main reason for the protests in the first place was the price of bread. The inflation was triggered by a trade imbalance that arose after the Sudanese government attempted to liberalize trade as part of the WTO negotiations, which then led to a fall in the value of the Sudanese pound against the US dollar (Kostelyanets 2022). These problems exacerbated by the fact that most of the oil fields remained in South Sudan and Sudan is extremely dependent on oil exports.

It is important to recall that factors of political economy factors are crucial to the phenomenon of military coups. The deterioration of the economic situation is identified as one of the main factors triggering military coups (Johnson, Slater and McGowan 1983), especially in the context of overall very low values of per capita GDP (Korotayev et al. 2018). In the context of economic deterioration, militaries may perceive coups as a means of initiating a reboot of the economy (O'Kane 1981). Furthermore, militaries may perceive deteriorating economic conditions as a threat to national security, especially in the context of population struggles with poverty and fluctuating prices (O'Kane 1981).

The Fragile State Index is one of the most representative tools for tracking negative trends in a country's development. In 2017, Sudan was ranked 5th as one of the most fragile states in the world. This could be seen as an improvement as Sudan was constantly in the top three most fragile countries from 2006 to 2013. However, the reason for the improved rating is the economic development, while major destabilizing factors such as elite factionalization, group grievances and state legitimacy remain very high (The Fund for Peace 2024).

The concept of state capacity is a concept that does not aim to show how many resources a state has, but rather how it can manage them (Herre, Arriagada and Roser

2024). For example, one indicator that can be a component of wealth is the fiscal efficiency of the state, the ability to collect taxes. In many developed and developing countries, taxes account for a significant proportion of a country's GDP, but in Sudan, according to the UN, the figure is only 6.8 per cent in 2018 (*Ibid*.). Another indicator could be the ability to effectively control the country's territory. According to V-Dem's expert assessment, the Sudanese government controlled only 73.3 per cent of the country's territory in 2018, which is low even compared to other conflict countries (e.g., Mali has a control rate of 76.2 per cent in the same year) (*Ibid.*).

Sudan is a country that remains rich in oil and controls oil pipelines that originate in South Sudan. Despite its vast amount of resources, the country is not industrialized and 64 per cent of the population lives in rural areas (World Bank 2024b). In terms of the relationship between the civilian government and the military, this situation is one of the main incentives for a military coup. According to researchers in the field, the presence of readily available resource rents combined with weak civilian institutions is a highly attractive situation for a coup d'état (Mbaku 1994). This is because the military sees not only the weakness of the government, but also an opportunity for personal enrichment.

Summarizing the socio-economic factors, we see that the situation in the country is indeed conducive to instability. Accessible resource rents, the general weakness of state institutions and poor economic decisions are all elements that made the coup d'état in Sudan possible. Moreover, since the socio-economic situation in the country has not yet changed, it can be assumed that the instability in Sudan will continue.

Impact of the Coupvolution in Sudan on the World System Reconfiguration

Like other revolutions, the Sudanese coupvolution of 2019 has become an event that has already led to significant changes in the regional and even global order. As Grinin (2022b: 989) writes: 'Revolutions will be a kind of a battering ram destroying the old world-system/global order and preparing the ground for the establishment of a new world order.' This is particularly true for the December Revolution. Of all the events of the Arab Spring 2.0, Sudan's December Revolution is probably the one that will have the most long-lasting effect, both on the country itself and internationally. It was the revolution that allowed for the new junta government to gain power over Al-Bashir. The revolution set in motion the chain of events that has now reached global scale. In 2021, Sudan experienced a second coup aimed at removing civilian opposition leaders from the government. In 2023, a civil war broke out in Sudan between two forces for power distribution: the leader of the junta Abdel Al-Burhan and the Sudanese Armed Forces (SAF) against the Rapid Support Forces, an Arab militia led by Mohamad Hamad Dagalo, also known as Hemedti (Rickett 2023). The Rapid Support Forces were a militia created by Omar Al-Bashir in order to fight against insurgents in Darfur. Since 2021 there have been tensions between the SAF and the RSF since the latter has not been integrated into the army.

In some way, the Sudanese situation is similar to that of Syria and Libya in the original Arab Spring. Libya and Syria, after their revolutionary events, basically became the grounds for the growth of various organizations and disputes between global and regional powers. Similarly, Sudan became one of the many stages of global reconfiguration. For a long time, Omar Al-Bashir's regime, despite all of its problems, was

able to localize various conflicts. However, five years after its fall due to coupvolution in 2019, various actors have intensified their presence in the country. It is hard to overestimate the strategy and geopolitical significance of Sudan. Sudan borders the Horn of Africa, is part of the Sahel region and has a long coastline on the Red Sea. Thus, the conflict in Sudan was bound to become a proxy war for global and regional powers. Regional actors include the Libyan National Army, which supports the RSF (The New Arab 2023) and Egypt, which supplies drones to the Sudanese Armed Forces (Faucon, Bariyo, and Said 2023). Globally, there are various reports of UAE involvement on the side of the RSF (Townsend 2024), Russian involvement (Rickett and Amin 2024), Ukrainian involvement (Sabbagh 2024) and potentially the involvement of Ethiopia and Eritrea (Nashed 2023). There is also the QUAD – an alliance of Saudi Arabia, the UAE, the US and the UK, which tries to mediate the Sudanese conflict together with the African Union (Sudan Tribune 2023). The UAE's involvement in the conflict has been so far described as a way of combating political Islam on the African continent.

Another side to this conflict is the interests of Russia and Iran. In 2020, Russia and Sudan agreed to open a Russian naval base in Port Sudan. The agreement was not ratified by Sudan, however, but today the discussion about the base continues between the Russian and official Sudanese governments. The Red Sea base will allow Russia to support its operations in Africa and in the Middle East. In return, Russia can potentially provide weapons, fuel and security services to the Sudanese government (Sudan Tribune 2024). According to the media, Iranian officials have been trying to pressure Sudan into providing Iran with the naval base (Bariyo and Faucon 2024). For Iran, the situation in Sudan may become an opportunity to expand its influence and gain strategic access to the Red Sea. In sum, there is a contest over Sudan, in which various actors try to project their influence on the country while there is a window of opportunity. The influence over Sudan will allow it to gain more power in several regions simultaneously. Considering that the talks over the subject of the Russian naval base continue, and that American attempts at mediation have so far been unsuccessful, it can be argued that Sudan has become one of many countries where American influence is diminishing. Although American allies are actively involved in the conflict, they appear to pursue their individual interests.

The civil war in Sudan is creating large numbers of displaced people and refugees. It is estimated that around two million people have left the country due to the violence since the spring of 2023. There are also more than 10 million internally displaced people. Refugees are leaving in different directions, some go to Chad, some to South Sudan, some to Egypt, Ethiopia, the Central African Republic and other countries (Ferragamo and Roy 2024). The conflict has put an enormous strain on global humanitarian resources. With international attention and funding already stretched thin by other crises, the ongoing civil war in Sudan has further burdened global aid agencies. Such a mass exodus from the country is bound to cripple its economy, but it is also bound to destabilize the region and neighboring countries economically and politically. For instance, after the fall of the Gaddafi regime in Libya, migration from that country to the Sahel had a destabilizing effect: Libyan Tuaregs became involved in separatist movements in Mali, while terrorist organizations experienced an influx of new recruits (Issaev, Fain and Korotayev 2021). Unprecedented numbers of refugees from Sudan may create similar problems in neighboring African countries. It will also exacerbate the

refugee crisis in Europe, as Sudanese refugees have already started to leave Africa for Europe.

Finally, there is an economic dimension to the conflict that is also likely to have global implications. The transit of oil from South Sudan to the north through Sudanese pipelines has largely stopped due to fighting on Sudanese territory, which has damaged the pipeline (Reuters 2024). Sudanese oil transit is closely connected to Chinese and Malaysian oil companies, and its disruption negatively affects the global oil market. Sudan also has a significant agricultural potential and the country is seen as capable of solving Africa's food crisis (FAO 2023), however, the conflict has severely hindered agricultural production, threatening regional food security.

Conclusion

The 2019 coup d'etat in Sudan has many of the characteristics of a classic coup. It became possible because the Sudanese military saw an opportunity to take power in its own hands, and we can see that many 'traditional' coup factors are present. And yet the Sudanese coup represents an intriguing case of World System reconfiguration at the country level. The influence of the Sudanese events is especially evident in the context of the consequences of the coupvolution. The new military government was unable to maintain a stable course and came into conflict with both the civilian opposition and the RSF militia. The result is a civil war that has become a ground for other powers to fight for influence in the region and has already affected the region's economy.

Revolutions, coups and coupvolutions are not isolated from each other. On the contrary, they come in waves and are strongly interconnected (Grinin and Korotayev 2024). Revolutionary waves, like the Arab Spring 2.0, are large-scale global events that can rapidly change the political landscape of zones in the World System. In the twenty-first century, such waves are transforming the World System and reshaping political relations between countries. Revolutionary waves will continue to play a major role in future processes of the World System reconfiguration. The waves of the twenty-first century have so far led to political and economic struggles all over the world, and the next revolutions will add to these processes.

In the case of Sudan we witness the rapid fall of a regime that has existed since the end of the Cold War. And this fall is conducted by a modern revolutionary movement which is decentralized and not tied to any particular ideology. The coupvolution itself is a revolutionary event that is only now getting more attention and takes place in different countries. Even more importantly, the Sudanese coupvolution is a part of two waves of destabilization: the second Arab Spring and the African 'coup belt'. Therefore, the events in Sudan in the 2018–2019 period can be presented as significant for the region and for the world.

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PHILOSOPHY OF GLOBAL ISSUES

PHILOSOPHY FACING WORLD PROBLEMS IN THE TWENTY-FIRST CENTURY

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The article is devoted to the philosophical understanding of the current issues of global development and the responsibility of philosophers for the state of affairs in the modern world. The article is based on interviews with three world-renowned and highly influential world-class philosophers who each served as President of the International Federation of Philosophical Societies (FISP) for five years; and now they are Honorary Presidents of this international philosophical organization. The publication of such an article is an extraordinary event, since it presents the most authoritative opinions on current global issues that concern not only philosophers, but also specialists in the field of global studies from various scientific and professional backgrounds.

Keywords: *globalization, philosophy of the global world, global studies, world philosophy, culture, philosophical community, world problems, conference.*

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On October 3–4, 2024, the International Conference 'Philosophy Facing World Problems in the 21st Century' was held in Ankara. It was organized in connection with the 50th anniversary of the Philosophical Society of Turkey. The conference was attended by many renowned Turkish and international scholars, as well as a large number of teachers, post-graduate students and undergraduate students from various Turkish universities. The program covered a wide range of issues facing the modern world and was closely aligned with the general theme of the conference, which was essentially the same as the title of the 21st World Congress of Philosophy held in Istanbul in 2003: 'Philosophy Facing World Problems' (Results of the 21st World 2003: 10–92). This almost complete coincidence of the themes of these two international philosophical forums, separated by two decades, was not by chance; it reflected the extreme concern of Turkish and international philosophers about global issues and the growing global challenges that threaten the world community today more than ever before.

In terms of the nature and focus of the issues discussed, it is also important to note that this conference was essentially a continuation of the 25th World Philosophical Congress 'Philosophy across Boundaries' (25th World Congress 2024; Scarantino 2024a; Lazarevich and Saleev 2024), which took place in Rome on August 1–8, 2024, where philosophical understandings of global topics were widely presented in various formats and at various venues. Thus, the conference further highlighted the importance of world philosophy turning to global topics, thereby encouraging philosophers to realize their special role and responsibility for the fate and development prospects of the modern world.

Based on the above and taking into account the fact that three Honorary Presidents of the International Federation of Philosophical Societies (Ioanna Kuchuradi, William L. McBride and Luca Maria Scarantino) delivered plenary reports at the conference in Ankara, Prof. Alexander N. Chumakov approached them with a proposal to answer questions that are of particular interest to both philosophers and a wide range of people who are concerned about global challenges and current problems of world development.

Interview with Prof. Ioanna Kuçuradi

A. Chumakov: *In 2024, the Philosophical Society of Turkey celebrated its 50th anniversary. You have been its President since 1979. What was the impetus for the establishment of the Philosophical Society of Turkey? What path has Turkish philosophy taken in its development during this period and what features of Turkish philosophy would you like to highlight? Which areas of philosophical thought have been most developed and which are now in the focus of the Turkish philosophers' attention?*

Ioanna Kuçuradi: The idea to establish a philosophical society in Turkey first came to me when I entered the huge building where the 15th World Congress of Philosophy was held in Varna in the year 1973. Many national societies had a stand there, and our colleagues from these countries helped the philosophers from their countries to find their way around this huge building and provided information about the work done in their respective countries. There I decided to establish the Philosophical Society of Turkey and, when I was back to Ankara, I did it.

The Department of philosophy that I established in the year 1969 was the third philosophy department in Turkey. At present we have 67 philosophy departments in the universities all over Turkey. These departments represent almost all different schools of

Philosophy. My colleagues who studied abroad would usually introduce the approach to philosophy of the departments in which they studied. One original development is the development of Philosophical Anthropology, which starts with Prof. Takiyettin Mengüşoğlu and continues to develop until today in a number of Philosophy Departments all over Turkey. I could name some of my colleagues whose work falls within this field. They are Prof. Betül Çotuksöken, Prof. Harun Tepe, and Prof. Sevgi Şahintürk to name only three of them.

If we leave aside present-day historical studies, the logical empiricism that was at the center of a number of universities, left its place to Ethics and related disciplines of Philosophy (Kuçuradi 2009, 2016).

A. Ch.: *In what way is Turkish philosophy represented within the world philosophical community? Which countries and philosophical communities, philosophical systems have the closest and most productive creative and business relations been established? How many and how often are international conferences and other philosophical events held in Turkey itself, and how actively do Turkish philosophers participate in such scientific events abroad? Do they encounter any problems or difficulties in this respect?*

I. K.: Turkish philosophers participate in philosophical meetings organized all over the world. Yet the percentage of those who participate in meetings held in European countries and the USA is much higher than those who participate in meetings held in Asia, Africa, and South America. The main reason for this is that they have made a part of their studies in these countries. It is not easy for most of my colleagues, especially the young ones, to participate in a conference in a long distance country without public support.

A. Ch.: *The 21st World Congress of Philosophy was held in Istanbul from 10 to 17 August, 2003. You were the Chairman of the Organizing Committee for this congress, and at the same time you were the President of the International Federation of Philosophical Societies. The main theme of the Congress was 'Philosophy Facing World Problems'* (Kuçuradi 2007)*. At that time, many Russian philosophers arrived in Istanbul on the 'Philosophical Ship' and presented the encyclopedia 'Global Studies'* (Mazour and Chumakov 2003**;** Mazour, Chumakov, and Gay 2003)*. We are grateful to you for your comprehensive and valuable support of this project, which has had a significant impact on the Russian-speaking philosophical community. What were the features of this congress and how, in your opinion, did this congress influence the development of world and, in particular, Turkish philosophy?*

I. K.: I remember very well the 'Philosophical Ship' (Chumakov 2024: 73–179). I visited it at your kind invitation. This was not the first time we had witnessed your extraordinary ability to organize rare philosophical meetings. I will never forget the 'Philosophical Train' and our meetings with our colleagues from different universities in Siberia (Chumakov 2024: 229–420).

These meetings and other attempts that I made, as well as other activities that I promoted during my ten years as Secretary-General of the Federation and subsequently as President, gave a new impetus to philosophical studies in non-Western countries and Turkey. This included the proclamation of the World Philosophy Day and Philosophy for (or with) Children (Kuçuradi 2009).

A. Ch.: *You have been the Honorary President of the International Federation of Philosophical Societies since 2007 and have been actively involved in the work of this international organization for many years.*

– How effective is this organization and the World Philosophical Congresses it holds, given the challenges posed to humanity by the twenty-first century?

– What are the most important problems and challenges facing world philosophy today? What are the most serious difficulties that modern world philosophy faces, in your opinion?

– How would you assess the role and potential of philosophy in solving global problems, and what can and should philosophers specifically do in this regard, given modern realities?

I. K.: One of the things I tried to change in FISP was to expand its areas of work. As the top philosophical organization FISP should not limit itself only to organizing the World Congresses, but must discover and promote every intellectual activity that contributes to 'humanization of humanity.' You may recall that one of the mottos after the Second World War was 'peace and disarmament.' Today we witness a race to arm and a phenomenon that I would translate into English as 'primitivity of civilization,' which is a contradiction in terms.

As I often repeat, a misconception of freedom has led humanity to what is called post-modern age, whose motto, as you know, is 'anything goes,' meaning that there is no difference of ethical value in anything we do. But this is not true.

This is why we must give place to the education of ethics, as a form of knowledge and not as a cultural value judgement, and also to clearly conceived human rights at all stages of education, including extracurricular activities (Kuçuradi 1995, 2002, 2018). We should help our children to develop not only their cognitive capacities, as is often the case now, but also their ethical capacities. Children are 'open' to this. Children aged 12–15, after they watch an interview made with me about such issues, ask their parents, or their teachers, to take them to me in order to speak with me.

Can we equip our children with an eye that can grasp the ethical or human rights issues in what they see? Because many people are unable to see what they are looking at.

A. Ch.: *In connection with the 50th anniversary of the Philosophical Society of Turkey, an International Conference was held in Ankara on October 3–4, 2024, which was devoted to the same topic as the congress in Istanbul, but from the perspective of modern realities, namely, 'Philosophy Facing World Problems in the 21st Century.' This similarity is obviously not accidental, is it?*

I. K.: Of course, this is no coincidence. It was an attempt to put forward the changes of the last twenty years. How successful were we in doing this? You were there, dear Alexander. We would be happy to learn your answer to this question.

A. Ch.: *Undoubtedly, both the idea of the conference and the results of its work, as it seems to me, fully justified themselves. I was especially impressed by the wide range of issues discussed, which covered various aspects of contemporary global studies, as evidenced by the very titles of the reports presented by both Turkish and foreign participants of the conference. On the other hand, the level of analysis and discussion of these issues was very high, and what is especially valuable, much attention was paid to the humanitarian aspects of global issues, in particular, to the problems of culture, civilization, human rights, civil society, and ethics. For example, at the opening of the confer-*

ence, you presented the main plenary report: 'Value and Meaning: Two Benchmarks in the Endeavour to Understand our Times.' Why did you choose this topic for your report and what were the main ideas you outlined in your speech?

I. K.: The search for meaning in our lives is a human phenomenon. Yet human beings attach meaning to anything in order to live, they attach meaning not only to valuable things, but to anything (Kuçuradi 2004, 2008, 1986). You can think as examples 'the little old man' in Camus's *The Plague*, who opens the window every day after lunch and calls the cats with a mild voice, throwing pieces of white paper; and when some cats, attracted by the white paper, pass under his window the old man spits at them. When one of his spits 'attains its aim,' he smiles. But also you could think of Mother Teresa or Albert Schweitzer.

To put it in one sentence: I tried to hold a mirror to the meaning ascriptions we make and to give examples of the evaluations that underlie them.

A. Ch.: *You have gained wide recognition in the world as one of the most authoritative philosophers working in the field of ethics and human rights* (Kuçuradi 2011, 2013). *How do you assess the state of affairs in the modern world from this point of view? In particular, since each of the world's almost 200 nation-states has its own unique national culture, value system and religious preferences, how can we come to a unity of views on issues of ethics and human rights in such conditions? What are the main problems and difficulties you see on the path to implementing such ideas and principles in practice?*

I. K.: One way to break through this apparent impasse is, I think, to clarify the terms we use while looking at what is going on, i.e., to avoid giving the same name to different things and different names to various manifestations of the same thing. In our case, first of all we need to avoid confusing cultural *value judgement systems*, i.e., what a group calls 'good' and 'bad,' with ethical values.

What we as philosophers can do in this respect, is to help people to clarify in their minds value terms and perhaps to give examples of living with knowledge of value and values – of course, carefully distinguished them from so-called 'value judgements.' How can we do that? There is no single way of doing it. We must find the most appropriate approach for each case.

A. Ch.: *As the author of a solid creative heritage and having vast experience in organizing philosophical life, what wishes, recommendations or parting words would you like to say to modern philosophers, especially to those who are just starting out?*

I. K.: I don't like giving 'advice' or 'recommendation,' but I would like to draw their attention and reflection to the following: in anything we make or do, we should not lose sight of our object of knowledge. In the case of norms, we should not lose sight of their premises, if possible, i.e., not to lose sight of the reason(s) why something should or may be done in the existing conditions, compared with other possibilities of acting in the same conditions. We should do this sincerely.

A. Ch.: *Thank you very much for your time, and for the continued support of the Russian philosophers who know you and value you so highly. Thank you also for the remarkable results of your work!*

Interview with Prof. William L. McBride

Alexander Chumakov: *In 2024, the Philosophical Society of Turkey celebrated its 50th anniversary. In this regard, an International Conference was held in Ankara on October 3–4, which was devoted to the topic: 'Philosophy Facing World Problems in the 21st Century.' As the former president of the International Federation of Philosophical Societies (2007–2013), and now the Honorary President of this organization, you were one of the plenary speakers at this conference. The title of your presentation was 'Philosophy and War.' Why did you choose this topic, and what were the main ideas you outlined in your report?*

William McBride: Over the past couple of years, wars of a serious and planet-threatening nature have sprung up. At the turn of the century, I think that there was a certain level of optimism about the prospect of a more peaceful time to come. I saw things then as being connected, in some ways, to what I thought of as the task of philosophy worldwide to cultivate and promote the spirit of community among all peoples. This spirit rejects warfare as a means of resolving differences and disagreements (McBride 2003).

My main point in that talk was that Western philosophers in the past had mostly taken it for granted that war was as ineluctable a part of human nature, if you will, as food, passions, and death itself. I suggested that it might, and should, be possible to work gradually to eliminate that assumption and that reality from the coming generations of human beings. This does not seem to me to be an impossibility (McBride 2001).

A. Ch.: *How do you assess the level of the conference and, in particular, what areas of philosophical thought of Turkish philosophers attracted your special attention?*

W. Mc.: I thought that the level of discussion at the conference was quite high. Turkish philosophers are generally very well-schooled in the history of Western philosophy, at least, and have a wonderful record of holding conferences on important issues that affect the world and a wonderful record of publications coming from these conferences.

A. Ch.: *You are well aware of the state of contemporary world philosophy and are well acquainted with the philosophical systems of different countries. Could you highlight some features of the Turkish philosophy?*

W. Mc.: To continue my answer to the previous question, I see Turkish philosophy as being exceptionally open to philosophy in the rest of the world, especially Western thought, and hence very global in scope. They (the Turkish philosophers whom I know and have met) really care and really reach out. The last 50 years have been very impressive. I should mention not only the numerous conferences that they have held and the World Congress of Philosophy in Istanbul in 2003, but also Turkey's prominent role in developing the International Philosophy Olympiad, which is now flourishing.

A. Ch.: *Since 2007, you have been the Honorary President of the International Federation of Philosophical Societies and have been actively involved in the work of this international organization for many years. How long have you known the Honorary President of the International Federation of Philosophical Societies and the President of the Turkish Philosophical Society Professor Ioanna Kucuradi, and how would you assess the years of your cooperation and her role in the FISP?*

W. Mc.: I do not recall when I first met Ioanna Kucuradi, but I came to know her well on the occasion of the World Congress of Philosophy in Boston in 1998, when I was elected to the FISP Steering Committee. However, I am sure that I interacted with her at the previous World Congress, in Moscow, in 1993. She played a very important role in the FISP for many years, made more important by the fact that, after being Secretary General of the organization leading up to Moscow, she was effectively the main contact with the American Philosophical Association (for which I served as liaison with the Congress organizers in Boston) during the years 1993–1998, because the individual who was technically the President was more or less inactive. She then served as actual President during the following five years, leading up to the highly successful Congress in Istanbul. I always found her to be on top of everything, extremely cooperative, above all a very, very competent organizer.

A. Ch.: *You participated in the 25th World Congress of Philosophy, which was held in Rome, on August 1–8, 2024 under the general theme 'Philosophy across Boundaries.' Unfortunately, many Russian philosophers were unable to take part in this congress for objective reasons, as in previous years. Therefore, your opinion and assessment of the forum will be especially interesting for our readers.*

– What are your overall impressions of the congress and what were its distinctive features? What topics and philosophical problems attracted the greatest attention and discussion from congress participants? What place did the topic of global research, globalization and global challenges to the world community occupy in the congress program?

W. Mc.: The Rome Congress was extremely well attended, and it is most unfortunate that the objective circumstances to which you refer prevented most Russian philosophers who would have attended from attending. The range of topics covered was extremely wide, and issues of globalization certainly occupied a number of sessions, although certainly not a majority. For ecological reasons, the Congress organizers decided not to print any programs, but to rely on the electronic versions of the program, which, I believe, was a mistake. The university campus on which the Congress was held was quite large, with several buildings spread out over the grounds, so that it was quite possible for some participants not to see each other during the entire period. In any case, the enthusiasm for philosophy was considerable, with advertisements even on the backs of city buses.

A. Ch.: *What are the most important problems and challenges facing world philosophy today, and what are the most serious difficulties, in your opinion, that modern world philosophy faces?*

W. Mc.: As is well known, there are challenges to the very existence of philosophy as an activity. I think that these challenges can be met. As always, there is the threat of dogmatism and a fear of critical thinking on the part of political and other authorities. However, perhaps the greatest danger, on which there is considerable agreement, comes from the increasing dominance of new technologies, especially those that go by the collective name of 'Artificial Intelligence' (a topic of much discussion at the World Congress), that threaten to impose single ways of thinking, single patterns of thought, on humanity via all-pervasive media.

A. Ch.: *How would you assess the role and effectiveness of the International Federation of Philosophical Societies and the World Philosophical Congresses it holds, taking into account the challenges that the 21st century poses for humanity?*

W. Mc.: The World Congresses are very effective. The popularity of the Rome Congress proves that this can be the case. But they occur only every five years. (The most recent one was postponed for a year because of the COVID crisis.) As for the International Federation of Philosophical Societies itself, on the other hand, I have reservations. It has failed to be as involved as it should be, in my opinion, with member societies. It has had the opportunity to call attention to global issues through its website, but it has failed to do so very much in the past few years. It is in need of revitalization.

A. Ch.: *How would you assess the role and opportunities of philosophy to contribute to solving global problems? What can and should philosophers specifically do in this regard, taking into account modern realities?*

W. Mc.: I believe that philosophers should take greater part in the so-called 'global forum' of ideas. Of course they will not always agree with one another in all details, but I believe that the consensus exists among philosophers on the importance of global community, on the importance of working together to oppose the severe threats that we all know humanity faces (McBride 1994, 1999). As I indicated in my talk, annihilation of our race, which would be self-annihilation, is by no means an impossibility today. We philosophers can be a positive force in calling attention to this to the world at large, and in engaging in dialogue to prevent it.

A. Ch.: *As a representative of modern American philosophy and having extensive philosophical connections throughout the world, do you see any significant differences in the content and organization of philosophical life in the United States compared to other countries, for example, in Russia, China, India, and Turkey?*

W. Mc.: We all have our national and regional philosophical organizations, and all of the countries you mention have universities with often sizable philosophy departments. That is why a phenomenon like the recent World Congress is possible: a century ago, participants in such Congresses came from only a few Western countries. I myself have worked a good deal especially with visiting scholars from China and remain impressed with their levels of knowledge and interest. So my overall answer to this question is that the differences in content and organization are not as great as the similarities.

A. Ch.: *Given your solid creative legacy and having a wealth of experience in organizing philosophical life, what wishes, recommendations or advice would you like to say to contemporary philosophers, especially to those who are just starting on this path of knowledge?*

W. Mc.: Be convinced of the importance of your calling. Be willing to take and defend positions that challenge what may be the orthodoxy of your time and place. If philosophers do not strive to defend the dignity and value of humanity, then no one will (McBride 1977).

A. Ch.: *Thank you very much for this valuable interview, which, I hope, will be received with interest and gratitude by the philosophical community and the readers of this journal.*

Interview with Prof. Luca Maria Scarantino

A. Chumakov: *In 2024, the Philosophical Society of Turkey celebrated its 50th anniversary. In this regard, an International Conference was held in Ankara on October 3–4, which was devoted to the topic: 'Philosophy Facing World Problems in the 21st Century.' As the President of the International Federation of Philosophical Societies, you were one of the plenary speakers at this conference. The title of your presentation was: 'The Roles and Tasks of Philosophers in a Multipolar World.' Why did you choose this topic and what main ideas did you outline in your report?*

L. Scarantino: One priority in today's world is to redefine the social and cultural role of philosophers, and of scholars at large. While we witness a growing number of conflicts, and we sense that the overall order of the world is about to change utterly, my feeling is that we, as scholars and particularly as philosophers, are called on to assume a historic function – the function of securing permanent scholarly exchanges across political boundaries, of building wide-ranging academic networks, and essentially of making sure that cultural systems, and human civilizations, remain mutually permeable (Scarantino 2011, 2024b).

In my view, this critical task is going to define one of our key responsibilities in the long-term. It also gives a new and possibly broader sense, to our academic work: why would we strive to strengthen and expand international networks, to multiply visiting professorships, to create opportunities for exchange, if not for affirming our institutions as effective drives of cultural and human communication? In my view, this is not a time to exclude, to divide, or sever intellectual and academic bonds, nor is it a time to distance or isolate ourselves from our colleagues. It is rather a time when we shall play a connecting function and help bridge intellectual communities across political and cultural boundaries.

A. Ch.: *How do you assess the level of the conference and, in particular, what areas of philosophical thought of Turkish philosophers attracted your special attention? You have a good idea of the state of contemporary world philosophy and are well acquainted with the philosophical systems of various countries. Could you highlight some features of Turkish philosophy?*

L. S.: The conference in Ankara was very interesting and provided a lively outlook of the current concerns and debates of philosophy in Türkiye. There is a steady interest in philosophy seen as a springboard to address global concerns of cultural, social, and political nature. This is largely due to the active role played by Ioanna Kuçuradi over the last decades – and it is soothing to observe how it has become a steady approach within Turkish philosophy. In addition, the younger generations seem eager to commit themselves to a scholarly practice that is oriented towards the world, rather than exclusively focused on purely academic concerns. Turkish philosophers seem to experience a continuity in this regard, although of course there are different nuances, concerns, even methodologies that are currently explored. This is a clear sign of liveliness though.

A. Ch.: *Within the International Federation of Philosophical Societies, you, in cooperation with the Honorary Presidents and members of the Executive Committee of this organization, play a key role in organizing the World Congresses of Philosophy and in developing the philosophical community at the international level. Which countries are most active in the philosophical life of the modern world? How long have you known the Honorary President of the International Federation of Philosophical Socie-*

ties and the President of the Turkish Philosophical Society Professor I. Kucuradi, and how would you rate the years of your cooperation and her role in the FISP?

L. S.: It does not belong to me to assess the role of Ioanna Kuçuradi in FISP. She has been a great Secretary-general and a very influential President, and all I can say is that I am honored of having been one of her successors. What should be emphasized though is that FISP has taken a clear commitment to strengthen cross-cultural approaches in philosophy. This turn has probably started when Professor Evandro Agazzi presided over FISP, and has been steadily pursued by his successors, including of course Professor Kuçuradi. During my term as President, I tried my best to explicitly affirm this need for an extension of the philosophical canon to non-Western traditions – something that has been increasingly visible in the last World Congress: Athens, then Beijing, and lately Rome. Philosophy is a much wider endeavour than a single tradition can realistically encompass – as a deeply human activity, it shall take into account the diverse ways human civilizations have thought of their place in the world, their missions, their own cultures (Scarantino 2018). We should also say, though, that this approach has been increasingly shared by scholarly communities worldwide. The East-West center in Manoa, for instance, has done an exceptional pioneering work in this domain, and should probably be recognized as one of the most significant endeavours of the twentieth-century philosophy. Today, among others, the group for intercultural philosophy in Hildesheim is doing a wonderful work, but we should also be grateful to scholars who have brought and keep bringing a plurality of traditions in the international geography of philosophy: I may think of Miguel León-Portilla and his classic works on Nahuatl philosophy, of countless studies on Ubuntu (Beregovaya and Erokhin 2024), on Azanian culture, on Inca philosophy, and more recently on Pasifika philosophy which I find a very interesting tradition. This not to mention non-Western philosophical traditions that have already been acknowledged as part of an enlarged canon of philosophy, such as Chinese, Japanese, and Indian philosophies. FISP has played a role in this evolution, but its work would not be as effective had it not been part of a much larger and long-lasting scholarly trend. My feeling is that this enlargement is irreversible. Younger generations of scholars already hardly conceive their work in philosophy as limited to a single tradition. In addition, the academic geography of philosophy has evolved, and the major role played by non-Western universities in global debates has substantially contributed to this growing openness.

A. Ch.: *Since 2018, you are the President of the International Federation of Philosophical Societies and headed the Organizing Committee of the 25th World Congress of Philosophy, which was held in Rome, August 1–8 2024 under the general theme 'Philosophy across Boundaries.' What are the general results of the past congress and what were its distinctive features? What topics and what philosophical problems attracted the greatest attention and discussions of the congress participants. What place in the congress program did the topic of global research, globalization and global challenges to the world community occupy?*

L. S.: The 25th World Congress of Philosophy, held in Rome from August 1–8, 2024, was strongly focused on concerns of social and intercultural nature. Plenary sessions included topics such as artificial intelligence, environmental concerns, conflicts, public communication and information, epistemic injustice, and biodiversity. Gender issues were also strongly present in the programme, to an extent that had never been

reached before. Globalization was somehow underlying the entire programme as most of these concerns could only be meaningfully addressed on a global scale. Complexity, a key feature of philosophy, is here to be seen as a mixture of diverse cultural, social, environmental, and political concerns (Scarantino 2012). It was clear to most participants in Rome that philosophy can only be conceived as a global endeavour, which should be able to take into account a plurality of cultures and traditions when defining its scholarly agenda, corpora, and methods.

A. Ch.: *What influence, in your opinion, can this congress have on the development of world philosophy?*

L. S.: Since 1900, World Congresses have diversely impacted on scholarship in philosophy. Some Congresses have marked turning points in philosophical research: we may think of the Descartes Congress in 1937, for the scientific approach it put forward, or of the Beijing Congress in 2018 for its clear intercultural claim. The Moscow Congress (1993) was also a watershed in the global dynamics of philosophical communities as it considerably expanded the scope and reach of philosophical debates. In fact, the Moscow Congress could be considered as the event that inaugurated the 'global' era of World Congresses, prompting a renewed influence of World Congresses as global philosophical forums. The Congress in Rome was part of this same trend, and I certainly hope that it will be recognized as a landmark in acknowledging cross-cultural inclusivity as an established aspect of contemporary philosophy. The large participation in the Congress, with over 4,900 participants coming from 115 countries, shows a widely shared desire to exchange ideas and experiences, to build scholarly and intellectual networks, and altogether to learn from colleagues from other philosophical traditions. This is all the more significant that the climate and the environmental conditions in Rome were not easy; yet colleagues from all over the world invested time, energy, and resources to make the trip. I find this admirable.

A. Ch.: *We would be grateful for your authoritative opinion on why there were practically no Russian philosophers among the invited speakers and heads of sections, symposia, round tables and other events of the congress held in Rome? What needs to be done to change this situation at the next congress? And, by the way, when and where will the next World Philosophical Congress be held?*

L. S.: Russian participation in the Rome Congress was not marginal at all. It is still early to have a detailed breakdown by nationalities of the participants, but several panels included scholars from Russia, and I distinctly recall round tables and even Invited sessions proposed and organized by Russian philosophers. Concerning the next World Congress, which will take place in Tokyo, Japan, in 2028, the task of designing its programme will fall upon the next Steering Committee of FISP, of course in partnership with the Japanese Organizing Committee.

A. Ch.: *How would you assess the role and effectiveness of the International Federation of Philosophical Societies and the World Philosophical Congresses it holds, taking into account the challenges that the 21st century poses to humanity?*

L. S.: FISP has played a growing role in addressing global challenges through philosophical exchanges, cooperation, and international networking. The Federation has progressively enlarged its constituency, which is no longer centered on Western academia but includes societies, associations, and research centers from all continents. Philosophy, much alike other intellectual activities, has become a global endeavour – aca-

demically as well as scholarly (Scarantino 2007). It therefore requires large international bodies to connect academic centers, to bring scholars from diverse continents together, and to foster a larger view of philosophical canon that it has been the case across the last few centuries. FISP is one of these bodies – certainly not the only one (think of international foundations, for instance), but by its structure the largest formed exclusively by scholars and scholarly members. In the last years, it has steadily advocated the role of philosophy for today's societies, defended philosophy departments and programs where they were threatened, supported national communities of philosophy in their struggle to maintain teaching of philosophy at national level, promoted larger participation in the International Philosophy Olympiads, and altogether made all we could to make all philosophical communities in the world feel that they had a place in the world geography of our discipline.

A. Ch.: *What are the most important problems and challenges facing world philosophy today, and what are the most serious difficulties, in your opinion, that modern world philosophy faces?*

L. S.: It is very hard to establish an objective hierarchy of philosophical concerns, especially on a global scale. Scholarly communities and their respective societies are too diverse, and too many, to identify common intellectual concerns. We observe nonetheless several dimensions of philosophical activity that seem to be drawing growing attention across a plurality of philosophical families. Among them, and in very broad terms, we may certainly mention a set of diverse yet mutually related concerns for gender issues, distinctively addressed across the various cultures and social systems; a concern for a cross-cultural style in philosophy; a growing interest for the logic of public communication; and a significant amount of work devoted to rethink the fundamental categories of political thought, in the West and beyond. I should emphasize, though, that these thematic domains reflect my own philosophical interests (Scarantino 2008); philosophers with a different background might very well mention a wholly different set of concerns (*e.g.*, a theory of emotions, or the problem of agency, and so on).

A. Ch.: *In your opinion, what is the role and potential of philosophy in facilitating the solution of world problems, and what specifically can and should philosophers do in this regard, taking into account modern realities?*

L. S.: My feeling is that philosophers as scholars are really called upon bridging scholarly communities across political boundaries. Academia has a critical role to play in maintaining underground channels of dialogue among intellectuals belonging to countries and areas of the world that are divided by conflicts, tensions, or harsh competition. Philosophy as a field of study helps, especially as we consider its inherent universal reach, its diversity, and its potential influence on political actors. But this is not just about discussing philosophical issues – it is rather about using the dialogical potential of philosophy to keep exchanges alive. In addition, philosophy may help find ways to solve conflicts and controversies in a peaceful way, although paradoxically I believe that his is not its main task at this stage of history. Bringing scholars together, keeping specific channels of communication open – this seems to me our key role as philosophers. This is why the World Congress of Philosophy, as an open tribune for scholars from all areas of the world, all faiths, religions, languages, and nationalities, is so important today – where else would scholars from so many different places meet in person and for an extensive period of time?

A. Ch.: *As a representative of modern Italian (European) philosophy and having extensive philosophical connections throughout the world, do you see any significant differences in the content and organization of philosophical life in different countries, for example, in European countries, the USA, Russia, China, India, and the Islamic world?*

L. S.: There are several models of academic organization that can be observed across today's world. For instance, a system mainly based on private education and research is fundamentally different from a system largely based on public resources – facilities, access, educational styles and patterns may considerable vary from place to place. In addition, some systems seem more reluctant than others to invest significant resources in philosophy, and possibly in the humanities at large. More than specific differences, though, what matters in my opinion is the possibility for scholars and students from different areas to come together, to develop exchange programs, joint conferences, and research program across the diverse regions of the earth. Internationalization, as we sometimes call it, is key in this regard. Differences between systems exist and will keep existing; what matters is exchange of ideas, joint training programs at both undergraduate and graduate level, increasingly international scholarly conferences and enhanced programmes of visiting professorship.

A. Ch.: *As the author of a solid creative legacy and having a wealth of experience in organizing philosophical life, what wishes, recommendations or advice would you like to say to contemporary philosophers, especially to those who are just starting on this path of knowledge?*

L. S.: Think global. Whatever tradition you belong to, do not forget that it is just one among many others that have made human civilization as we know it. They all have their own philosophical heritage. We will not be able to assess the value of our tradition unless we widen our gaze to the complex tangle of human civilizations from the antiquity to today. This is also why our time is philosophically so exciting – we are indeed facing a historic opportunity to reassess the sense, the scope, and the boundaries of philosophy as a distinct and unique discipline.

A. Ch.: *In conclusion, I would like to express my deep gratitude to you for this conversation and very informative answers. I wish you continued success in your creative endeavors and the implementation of interesting projects!*

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REVIEWS AND ESSAYS

REVIEW OF 'CYBERNETIC REVOLUTION AND GLOBAL AGING'

Jack A. Goldstone

Review of *Cybernetic Revolution and Global Aging. Humankind on the Way to Cybernetic Society, or the Next Hundred Years* by Leonid Grinin, Anton Grinin, and Andrey Korotayev. Springer, 2024. ISBN 978-3-031-56766-7.

The motto of this book by Leonid Grinin, Anton Grinin, and Andrey Korotayev should be: 'The future will be here before we know it – better plan now!' They address two of the most pervasive global trends likely to continue through the end of the century: the global aging of the human population, and the rapidly accelerating development of technological innovations, including a vast increase in the capabilities of non-human information processing, analysis and communication, better known as 'Artificial Intelligence' or AI.

How humanity responds to these two trends – biological aging and the rise of highly capable autonomous systems of production and services – will shape the future of our species. Not surprisingly, both utopian and dystopian futures have been imagined based on these trends. But until now, these have remained in the world of science fiction and entertainment. No longer: the technologies that are capable of human-like interaction have become part of everyday apps, and the leading aging societies, such as Japan, already have more people over age 65 than under 15.

We thus have little time to decide how to shape a future guided by these two global trends. How best to marry them? As populations become more elderly, can we use cybernetic and technological innovations to enhance humans, adding mental capacity and physical strength and skill, to older people to enable them to work longer and live more vigorously? Or do we use cybernetic workers to replace the elderly, shunting them aside?

What older humans will need more than anything else is human companionship and attentive support and care. If cybernetic systems can do much of the work now being done by humans, will that release human workers to engage in caring and compassionate work, like elder care? Or will societies seek to turn over aging citizens to automated, robotic care – perhaps cheaper, but ultimately dehumanizing to those who receive it?

Potentially more exciting, but also more frightening, are the prospects for greatly extending lifespans by medical advances and cyber-engineering of new heart, lung and

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other vital systems. If we can radically extend the human lifespan, people will no doubt embrace it. But what if only the rich can afford it? Will democracy survive a future where the rich live for centuries and the poor only for decades? And if lifespans are extended, will people choose to have lengthier retirements – if so, who will pay for them? Or if people remain at work, will that block opportunities for younger workers? More radically – will we need workers at all? Or will we move to a society where production and services function under automated systems, serving people who cultivate their own interests?

Let me posit two over-arching questions that will guide the use of the products of the Cybernetic Revolution and their interaction with an aging human population:

(1) Is the purpose of cybernetic innovations to make the lives of human beings more interesting, healthier, productive and enjoyable while remaining essentially human, or is it to replace humanity as we know it with something post-human, enhanced or partially or fully replaced by robotic and cybernetic/cyborg entities? and

(2) Is the purpose of cybernetic innovations to make businesses more profitable to innovators and owners, or to create such widespread prosperity that ALL people can increasingly be released from necessary income-producing work to instead take up work that is socially valuable and quality-of-life enhancing?

It is interesting to me that in most futuristic science fiction, such as Star Trek and Star Wars, the human protagonists hundreds of years in the future do not differ noticeably from present-day humans. Aliens aside, the main actors are no stronger, have no better vision or hearing, no better or differently wired brains than humans today. This is extremely odd for societies that have mastered interstellar travel, anti-matter-based propulsion and energy weapons. It seems that at some point in their development, these societies decided that it would be a grave error to change what it means to be human, and instead to preserve humanity in its current genetic form, although equipping humans with more and more advanced external computing and mechanical power. Indeed, there are often references to the explicit prohibition of genetic modification after past failed and dangerous periods of genetic enhancement, while cyborgs and robots are often presented as evil and dangerous villains. Given the opportunities described in this book, it seems that our societies will have to make that choice at some point and likely soon: do we use technological advances to enhance the lives we lead as humans, or do we choose to leave humanity behind and become something else? (And who do we trust to make that choice?)

In a world where technological advance is carried out mainly by private corporations (though usually with government funding), providing billions of dollars in profits to a relatively small cadre of business executives and investors, we also have to ask: should the financial and material gains from advances in new technologies accrue mainly to the few, or should they be widespread? The market, as we have seen, tends to produce the former outcome. In the last few decades, in which societies acted as though new technologies need various kinds of protection from taxation, regulation and redistribution, we have seen the creation of a new class of tech titans, with fortunes in the hundreds of billions of dollars, whose collective wealth approaches that of smaller countries, and eclipses the combined wealth of a third of humanity. Is it tolerable for

this concentration of wealth to continue even further? How do we ensure that our societies avoid the dystopia of a small number of wealthy investors and executives profiting from the widespread deployment of labor-reducing technologies while former workers are left with ever smaller economic resources?

Grinin *et al.* have the courage to peer a century into the future and try to determine how aging and the Cybernetic Revolution will shape that future. They expect a society that is older, but more stable, less prone to conflict, but more regulated. Will human beings adapt to this new 'cybernetic society?' Or will they insist on a degree of novelty, unpredictability, and freedom from regulation? Perhaps the price to be paid for longer and healthier lives in an aging society is adaptation to more autonomous systems and dependence on medical/nanotechnology/robotics systems to manage our lives. This book makes clear both immense opportunities and challenges that lie ahead. Readers may agree or disagree with these projections, but making the effort to envisage in detail how global society may be recast by ongoing technological and biological trends is essential to gaining control over our future.

It is clear that new technologies and new conditions for humanity will likely require a new set of social contracts, perhaps entirely new constitutions to protect or enable new conceptions of humanity and human societies. To prepare, we need to understand the prospects ahead of us, especially the extent to which population aging and Cybernetic Revolutions will set new conditions, previously unknown, for human development. This book will help readers understand the prospects, and what is at stake.

GLOBAL AGING IN THE PROCESS OF THE WORLD ORDER TRANSFORMATIONS

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We have devoted a number of studies to the analysis of global aging and its impact. The impact of global aging is multifaceted, and it will increase during the current century. However, not all aspects of the impact of global aging have been studied sufficiently. In particular, its impact on the political sphere has not been analysed sufficiently. The present scientific essay is aimed to demonstrate the impact of global aging on future transformations in the political sphere and the formation of a new world order.

Keywords: *global aging, retirement age, pension system, adaptation to aging society, demography, world order. Global South, Global North.*

1. Global Aging as One of the Leading Trends of the Twenty-First Century. Problems and Opportunities in Social, Economic and Technological Terms

Global aging is an exceptionally important and powerful factor in the current transformation of the society. Global aging has an impact on almost all spheres of life, and its influence will grow over the many decades to come. However, even in academic journals and publications, it is little spoken about, especially with regard to its broad impact on all spheres of society. [1]

When analyzing the impact of global aging in the future, the most important question is, of course, how far this process will go and, above all, what will be the share of elderly and old people in the demographic structure of society. We present some estimated forecasts below. The actual course of the aging process in society will greatly affect the following aspects: (a) economic (labor recruitment, consumption and its structure, growth rates, investments, *etc*.); (b) political (*e.g.,* will older people be the leading electoral layer? What part of the budgets will be allocated to them?); (c) social (to what extent will social programs and the professional structure be oriented towards them and what will be the development of social science); and (d) growing problems in pension systems, which will become extremely acute in the future and require retirement-age increase.

In any case, the social and political structures will be affected by the growing influence of different age groups in the population. The influence of aging on democracy cannot be ruled out (see Grinin L., Grinin A., and Korotayev 2024 for more details).

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Forecasts about the aging of societies become more alarming every year. Against the background of falling birth rates and fewer children, more and more societies are becoming older. One of the obvious consequences will be a crisis in the pension systems (the problems of which are already perceived very acutely in several countries), leading to an increase in the retirement age and corresponding conflicts in society. However, modern society is generally unprepared for such changes and adaptations, and the development of these trends can lead to serious tensions and conflicts. Therefore, such a development in society will inevitably require significant changes in institutionalization of these adaptations and changes. So the problems of modern and future global aging are extremely diverse.

The number of people aged 60 years and over already exceeds the number of children under five (WHO 2021). The dimensions of global aging are many and will continue to increase, and the challenges are likely to become more acute for at least the next two to three decades.

The aging projections, even the inertial ones, are quite impressive. All demographic forecasts agree that the world population will age dramatically in the coming decades (Lutz *et al*. 2018; Vollset *et al*. 2020; Grinin L., Grinin A., and Korotayev 2024; UN Population Division 2024; Wittgenstein Center 2024); see Figures 1 and 2, and Table 1.

The growth rate of the proportion of people aged 60+ is several times higher than the overall growth rate of the world's population (UN 2013; UN Population Division 2024). In the early 1980s, there were no 'aged countries' in the world, where older people consumed more than young people. By 2010, there were already 23 'aged countries,' and by 2040 there will be 89 such countries (UNCTAD 2012), most likely even more, as the projection was made a long time ago. By 2100, 2.37 billion people, or more than a quarter of the world's population, will be over 65 years of age, and only 1.70 billion people will be under 20. The number of people aged 80 years and over will increase six fold, from about 140 million in 2017 to more than 860 million by the end of the twenty-first century (Gallagher 2020); thus, the number of people aged 80 and over is likely to increase by almost two orders of magnitude by 2100 compared with 1950! (see Figure 1)

In developed societies, the elderly begin to replace children in terms of care they need. But caring for the elderly requires more resources and efforts from society, even though the main responsibility still lies with the family and relatives.

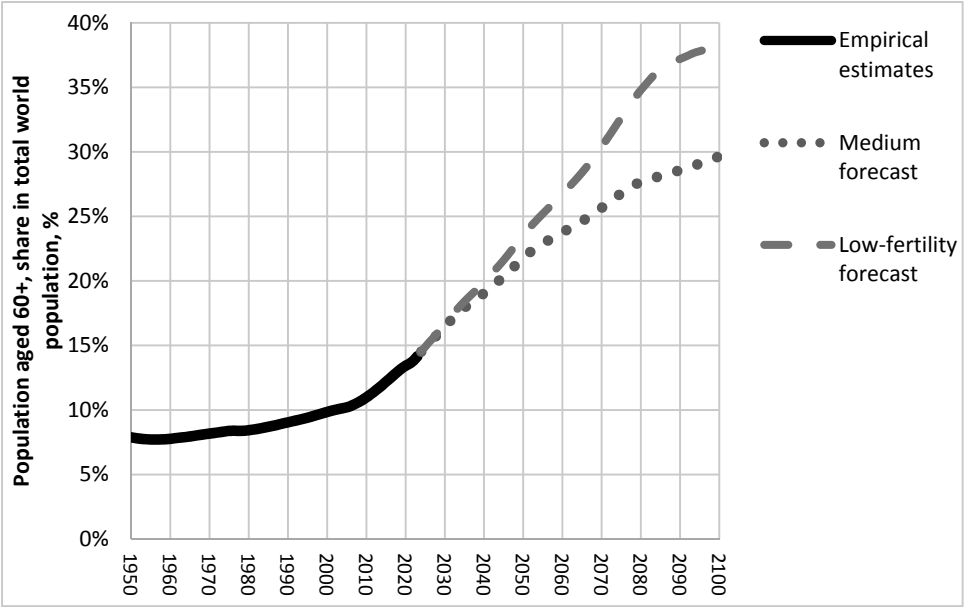

Fig. 1. Population aged 60+, share in total world population (%); UN Population Division empirical estimates for 1950–2023 and UN Population Division medium + low-fertility forecast scenarios for 2024–2100

Data source: UN Population Division 2024.

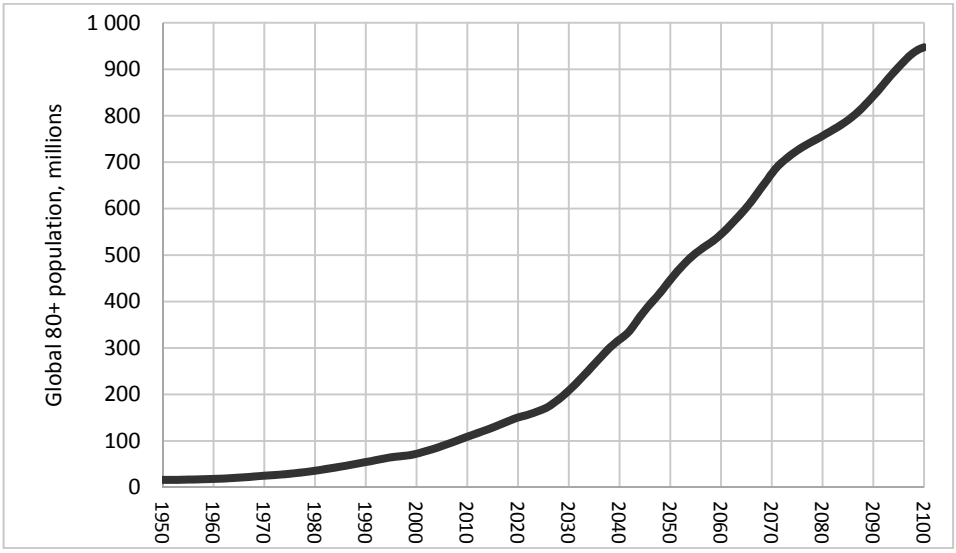

Fig. 2. Global population aged 80+, millions; UN Population Division empirical estimates for 1950–2023 and UN Population Division medium forecast scenario for 2024–2100

Data source: UN Population Division 2024.

Table 1

Some dimensions of global aging

	Population aged 60+, share in total world population (%). Empirical estimates	*Population aged 60+, share in total world population (%). Medium forecast*	*Global population aged 80+, millions. Empirical estimates*
1950	7.88 %		16.03
1975	8.38 %		29.32
2000	9.84 %		72.38
2023	14.16 %		160.12
	Low-fertility forecast		*Forecast*
2050	23.54 %	21.78 %	446.47
2075	32.66 %	26.79 %	724.98
2100	38.31 %	29.66 %	947.29

Data source: UN Population Division 2024.

Such alarming forecasts should make politicians think twice and start changing course. However, many do not consider this situation as serious enough and do not understand the urgency in solving the problem and the complexity of measures that could slow down, if not reverse, the trend (see, *e.g.*, Gallagher 2020). We believe that if the processes of global aging and increasing life expectancy continue, they will bring about very serious changes in socio-political life. However, modern society is generally not prepared for such changes and adaptations, and the continuation of these trends could lead to serious tensions and conflicts. Therefore, such development in society will inevitably require significant changes in the institutionalization of age categories (see also Grinin, Grinin, and Korotayev 2024; see also Goldstone 2025 in this volume).

Thus, the process of global aging turns out to be truly integral, and it is important to pay as much attention to it as possible. And the sooner, the better for the future of the world.

2. The Impact of Global Aging on the Transformation of World Order

The influence of the demographic factors on changes in the world order and the struggle for a new world order varies (for more details see Grinin 2025a, 2025b). Demographic changes are long-term and fundamental, radically and usually resulting in irreversible changes in the characteristics and capabilities of certain countries and actors.

The demographic factor is extremely important both nationally and globally. This becomes clear when we take into account the sharp decline in birth rates in the Western world and even in Asia and Latin America, and its high growth in Africa, as well as the rapid process of global population aging. These processes affect many aspects of life. In particular, migrants significantly affect Europe and North America.

Global aging is one of the most significant demographic trends of our time. Together with declining birth rates, it has a powerful impact on political systems and the global balance of power. In particular, the demographic growth in developing countries (the Global South) and demographic stagnation or depopulation (or even growth due to migration) in Western countries will gradually change the global balance of power, and

thus, accelerate the change in the world order. Even more importantly, the demographic weight of the Global South, combined with economic growth and increased political activity, can produce a synergistic effect. The impact of aging on labor shortages and the increasing demand for technologies that reduce human labor and manpower participation in military processes is undoubtedly significant and will greatly change the global balance of power. In the next section, we will consider the impact of aging on armed forces staffing.

3. Aging, Depopulation and Military Recruitment

There is an increasing difficulty in attracting new recruits to the armed forces in many countries. Ukraine and the Russian Federation are currently facing these challenges more acutely. And it is not only a matter of the limited number of volunteers willing to serve in the military, it is also a fact that the number of young people is decreasing.

Researchers note that population aging in the United States and its traditionally allied countries will reduce their ability to ensure national and global security. And this, along with population decline and a potential decline in GDP in many developed countries, will greatly affect the decline of the developed world (Jackson *et al*. 2008; see also: Jackson *et al.* 2013; Jackson 2021; Grinin and Korotayev 2015; Grinin L., Grinin A., and Korotayev 2023a). In particular, Jackson *et al*. (2008) note that, along with a decline in population and GDP, the global influence of developed countries will most likely decline as well.

Aging developed countries will face a chronic shortage of young personnel, which will pose challenges to both their economies and their security forces. This reduction in the youth population leads to major difficulties in recruiting for the army, navy, and air force (see, *e.g*., Clark 2024; Venable 2023; Grygiel 2024; Weichert 2024; Suciu 2024). The British Army has failed to meet its recruitment targets at all its recruitment centres over the past five years. France also missed its targets last year, falling short by about 2,000 recruits (Laurent 2024). Japan missed its 2023 target by half (Goldman 2024). Meanwhile, due to the US Pacific strategy, the intensifying confrontation between the US and China, and the desire to encircle China with its own and allied forces, Japan is seeking to build up its self-defense forces (which are already developing into a conventional army). Of course, this will be extremely challenging.

Analysts have reached the somewhat controversial but not entirely unreasonable conclusion that there is a close relationship between fertility and morale among the industrialized world (Goldman 2024); smaller family sizes may reduce the willingness to take risks by sending young men to war (Jackson *et al*. 2008). We believe this to be at least partly true. After all, it is more difficult to send one child to war than it is to send four or five. And if the number of childless families continues to grow, and it grows quite quickly, more and more older men and an ever-increasing number of women must go to military service and war. All this does not contribute to a high military-patriotic spirit. The shortage of military personnel forces commanders to be more liberal with them, which weakens military discipline and order – the basis of any army. In addition, the shortage of personnel, together with the so-called ‘critical race theory’ and ‘practice of inclusion,’ whereby representatives of various minorities are selected according to a quota, lead to a sharp decline in qualifications. In particular, the US Navy destroyed

four ships in 2017 alone. In 2022, an F-18 Super Hornet fighter jet worth $67 million was literally swept off the deck of an aircraft carrier. And these personnel shortages and the resulting incompetence affect not only the Navy, but all other branches of the armed forces (Anton 2023). Thus, depopulation greatly affects the military's potential power.

Therefore, there is a strong demand for labor-saving technologies in general. And this applies to an even greater extent to military technologies that can reduce the need for manpower, that is, 'unmanned' technologies. We have examined in detail the development of such 'unmanned' military systems of UAVs and other (land and water) drones, as well as combat robots (see Grinin A. 2025b). As we have seen, in the long term this will lead to a war between self-managing systems with a minimum number of living military personnel, as well as to the coexistence of humans and robots. It is clear that Western countries and the Russian Federation can maintain their high positions in the global balance of power in the future if only they can move in the direction of saving human labor and reducing the number of military personnel on the combat contact line by developing 'unmanned' technologies. But even in this case, the lack of demographic reserves for mobilization would significantly reduce the country's combat potential. The conflict in Ukraine already demonstrates how difficult it is to put large masses of soldiers under arms, despite Russia having deployed millions in previous world wars. Thus, the lack of mobilization resources could affect geopolitical positions.

Another important aspect relates to depopulation, aging and the development of medical technologies. Replacing manpower with low-manpower technologies in the combat zone means saving/reducing the need for physically healthy and non-elderly military personnel. However, the number of people involved in combat operations behind the front line can be significant. So it is important that people who are less physically healthy and older, including the disabled, and who are able to work with remote technologies, can be involved. This means that development can proceed by reducing not only the need for military personnel on the front line, but also by reducing the need for physically healthy and relatively young people, by involving older people and people with disabilities, who can carry out actions with the help of medical and other technologies, particularly cognitive ones.

4. Socio-Demographic Scenarios

Thus, the processes of aging and depopulation in the countries of the Global North will objectively change technologies and strategies in the economic field, with a focus on developing labor-saving technologies; and in the military field – in the direction of the large-scale development of unmanned military technologies. And these processes will greatly change the balance of power and the forms of struggle for a new world order.

As a result of the aging and depopulation of developed and other countries, the danger of the formation of a new balance of power and its influence on the world order is increasing, which is often referred to as a potential global confrontation, or even a struggle, between the young South and the aging North.

Below are several scenarios for the development of the World System in relation to the potential demographic trends described in Grinin *et al*. (2024: Ch. 7). Russia is also among the countries where depopulation has begun, and this is a very serious and growing vulnerability in the intensifying struggle for a new world order. The scenarios depend on the balance of power in the world, as well as on the relationship between political forces supporting conservative-patriotic values and globalism. And aging will affect

this ratio. Of course, the scenarios outlined are just tendencies that could never manifest themselves in their full form, but these scenarios show possible tendencies and their interaction and combinations of which will ultimately create a new alignment of forces and balance. It is not possible to discuss these scenarios and their likelihood in detail.

Scenario one: The senility and decline of the developed world and the emergence of new actors on the scene. This scenario refers to the possibility of the World System division into a 'young South' and an 'aging North,' provided that the latter fails to cope with the consequences of global aging while the former develops major leaders capable of changing the balance of power (primarily India).

Scenario two: Young countries invigorate the World System. It is possible that, if the foundations of the world order secure some of the advantages of the rising countries, this could temporarily invigorate to the whole World System. However, this dynamism will be exhausted by the end of the century.

Scenario three: Global conservatism. However, if the world order is strengthened with developed countries at the top, conservatism may start to spread to younger countries (such ideas are already articulated today: no need for growth, etc.; for details see Grinin L. and Grinin A. 2021a, 2021b). At the same time, as noted by Jackson *et al.* (2008), an aging developed world may struggle to remain culturally attractive and politically relevant to younger societies.

Scenario four: Activity despite aging as a national policy. However, the struggle for a new world order in the situation of depopulation and aging in the developed world, could lead to a certain rise in the aging countries of the developed world. Older countries will be forced to become more active and increase their birth rates, which could give an impetus to the development of new reproduction-related technologies. [2]

Scenario five: agist globalization. Capital and corporations are increasingly involving young and mature generations in less developed countries, raising their standards of living while thus providing for the older generation in their own countries (see Grinin and Korotayev 2010). This will clearly enhance globalization. Zones of influence related to language, traditions and geopolitics will emerge based on remote work (see in particular Grinin, Malkov, and Korotayev 2023; Grinin, Malkov *et al.* 2024).

Let me emphasize that these are all scenarios for the next 50 years. By the end of the century, the situation will change significantly as older countries adapt to aging, and the younger countries will no longer be so young. Cybernetic society will be established (see Grinin L., Grinin A., and Korotayev 2024: Ch. 15). In this context, other scenarios are possible, such as a consensus on an aging world or the dominance of new actors.

5. Political-Technological Scenario

Another scenario, as well as the following forecast, has been calculated for the period up to the end of the current century, although many of their features may appear much earlier, especially with respect to the electronic state. However, these scenarios do not exclude the previous ones.

Scenario 6. The emergence of an electronic state resulting from the powerful development of socio-technical self-regulated systems.

During the Cybernetic Revolution, many self-regulated systems will emerge in production, economy and everyday life.[3] Among these systems, socio-technical self-

regulated systems (SSS) will play a special role, using Artificial Intelligence to regulate various social and administrative relations. Socio-technical self-regulated systems (SSS) perform social and administrative functions (*i.e*. control, verification, distribution, security, rating and other functions) using a set of technologies with the minimal or no human intervention of officials and specialists. Thus, they can be used by authorities at different levels, as well as by the state as a whole, and by the administration of service centers where such regulation is considered by the authorities as necessary: airports, places of mass gatherings, *etc*.).

In the *political* and *administrative* sphere, significant, one might say revolutionary, changes in governance will occur in connection with the development of self-managing systems, since these systems will manage many social and administrative relations. This will happen at the level of individual administrative units and cities (the so-called smart cities), as well as at the level of the state as a whole. In other words, the development of the SSS in one way or another pushes society towards the formation of what we call an e-state. However, there are important points to emphasize. We understand the e-state to be a state with a significantly reduced number of civil servants and the supervisory bodies we are accustomed to, due to the fact that many management functions will be carried out mainly, and somewhere completely, with the help of SSS technologies (see Grinin L., Grinin A., and Korotayev 2021a, 2024). This could also affect democratic procedures (see below).

Thus, there will be a sharp reduction in the number of officials and managers, which will lead to a 'cheapening' of the state and a reduction in the drawbacks associated with management (corruption, bureaucracy, *etc*.). However, this will also create a number of problems. On the one hand, the development of socio-technical self-regulating systems makes a transition to direct democracy through permanent electronic voting quite possible. Yet, on the other hand, the use of self-regulating systems in governance will lead to increased technological and political control. We assume that as a result, a unique political regime will emerge, a kind of *democratic authoritarianism*.

Such changes can bring about enormous transformations in states' domestic and foreign policies, and changes in the leading geopolitical actors will inevitably lead to serious and as yet not entirely clear, changes in the struggle for a new world order.

6. Final Forecast Related to the Process of Global Aging: The Formation of a Cybernetic Society

In our opinion, as a result of the largely symbiotic development of the process of global aging and the adaptation of society to it, on the one hand, and the powerful development of self-regulating/managing systems, on the other hand, a new type of society will emerge – a cybernetic society. This society will be formed as a result of the completion of the Cybernetic Revolution and will be: a) super-technological; b) socio-technologically regulated at all levels; and c) a society in which the division into age categories will become socially much more significant, as a result of the aging process, than today (*i.e*., age will become a much more important social marker than it is today). A cybernetic society is a society that will emerge (and is already emerging) as a result of the completion of the Cybernetic Revolution. On the one hand, it will be closely linked with crucial technological changes in the management and regulation of our life activities at all levels. And on the other hand, it is inextricably linked with the process

of global aging, because aging becomes an integral part of society. As it develops and the institutions of society adapt to it, it will change all spheres of society: technological, economic, consumption, social, ideological, and so on. The main characteristics of this society are outlined in Grinin L., Grinin A., and Korotayev 2024: ch. 15.

However, technological development not only brings relief in a number of aspects, but also threatens the freedom, dignity and privacy of individuals and their comfort. This is especially true for the elderly, who are particularly vulnerable from psychological point of view. Therefore, adapting to aging requires the adaptation of technological innovations to the principles of a free society. And this is a serious problem to be solved, which is already felt very clearly today and is already causing social protests.

In conclusion, we emphasize that in the future it will be impossible to cope with the global aging process without development of innovative technologies in medicine, biotechnology, *etc.*, including self-regulating and other systems (see Grinin L., Grinin A., and Korotayev 2023b; 2024; Grinin L., Grinin A., and Malkov 2023), as well as without profound changes in society, including social innovations deeply integrated into public life.

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NOTES

[1] We have devoted a number of studies to this topic: Grinin L., Korotayev 2016; Grinin L., Grinin A., Korotayev 2017a; 2023b; 2023c; 2024; Grinin L., Grinin A., Malkov 2023.

[2] New breakthroughs in reproductive technologies may have a significant impact and could become a weapon in geopolitical and other struggles. For example, if the technology enabling children to be grown outside the womb is implemented, the demographic structure could change significantly over time. In particular, it could lead to a rejuvenation of the population structure in aging societies. The development of reproductive technologies could lead to changes in politics and geopolitics. In particular, some political elites may be able in the future to use such reproductive technologies for their own geopolitical purposes. For example, they may launch a population growth race. Moreover, if countries seek to solve the problem of population decline by 'incubating' children in artificial wombs, the 'child production' race will inevitably start. And it is difficult to predict the consequences which may be quite problematic in many ways (see, *e.g.,* Grinin L., Grinin A. 2015: Conclusion), but they could also have a noticeable geopolitical effect (see Grinin L., Grinin A. 2016; Grinin L. *et al*. 2024).

[3] The Cybernetic Revolution (1950s–2070s) is a fundamental transition from the industrial production principle to the production of services and goods based on the widespread introduction of self-regulating systems, that is, systems capable of not only functioning independently (or with minimal participation) of people, but also independently making complex decisions (see Grinin L., Grinin A. 2016, 2019a, 2019b, 2019c, 2020a, 2020b, 2021b,; Grinin L. *et al.* 2017a; 2017b; 2020; 2021b, 2024; Grinin L., Korotayev 2015).

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