SDG DRIVERS FRAMEWORK FOR NORTH AND CENTRAL ASIA

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ESCAP
Economic and Social Commission for Asia and the Pacific

Summary

The paper contains a framework to identify potential drivers for sustainable development in North and Central Asian countries to help decision-makers to elaborate specific and coherent public policies. The framework was based on a country programme analysis that determined desired outcomes. Tools were developed to identify potential drivers and components, taking into account the relationship between outcomes and drivers, including potential trade-offs.

According to the analysis of country programmes in the subregion, this paper emphasizes three of the Sustainable Development Goals (SDGs): Goal 8– decent work and economic growth, Goal 16– peace, justice and strong institutions and Goal 17– partnership for the goals. The analysis of interlinkages between the economic, social and environmental pillars of sustainable development show different types of relationships between SDGs. They can either reinforce each other, which means the achievement of one SDG leads to achievement of another, or they can compete with each other when progress of one goal makes it impossible to reach another. The results of the analysis suggest that most of the countries put more attention into economic benefits, while social and environmental issues are left aside.

The identification of challenges is an important part of the framework, as they can hinder SDG achievement. Challenges are interlinked with the desired outcomes to prioritize drivers in a more effective way. The section on challenges to SDG achievement includes a discussion of external shocks, such as COVID-19 and resource prices, migration and remittances, and environmental challenges.

It is essential to understand the relationship between outcomes and SDGs, drivers and outputs, problems and objectives, to build efficient national policies and regional cooperation. The priority must be given to drivers that have a synergetic impact on the three pillars of sustainable development and dealing with potential trade-offs and challenges. The paper describes two ways to identify drivers: the expert-opinion methods or existing holistic models. The framework includes a set of tools and methodologies for the development, implementation, monitoring and evaluation of governmental policies.

The study also reveals that some countries are more on track for SDG achievement, while others face more challenges. Progress in the subregion toward most of the Goals is too slow to achieve them by 2030 if the current trend remains, consequently, action must be accelerated and sustained.

Keywords: Sustainable Development Goals, 2030 Agenda

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Abbreviations

ESCAP	Economic and Social Commission for Asia and the Pacific
GDP	gross domestic product
iSDG	Integrated Sustainable Development Goals model
MPFD	Macroeconomic Policy and Financing for Development Division (ESCAP)
SDGs	Sustainable Development Goals
SMEs	small and medium-sized enterprises
VAT	Value-Added Tax
VNR	Voluntary National Review

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1. Introduction

The 17 Sustainable Development Goals (SDGs) were adopted in 2015 by all United Nations member States, including countries in North and Central Asia,[1] as part of the 2030 Agenda for Sustainable Development, which sets out a 15-year plan to achieve them.

In September 2019, Heads of State and Government met at the High-level political forum on sustainable development to assess progress and accelerate the implementation of the 2030 Agenda. The Summary of the President of the General Assembly stated "many countries have been implementing the SDGs, incorporating them in policies and strategies and outlining their long-term vision for transformation to more sustainable and just economies and societies."[2] Yet, progress towards the 2030 Agenda during the past five years has been insufficient; many of the 21 SDG targets designated for achievement in 2020 are not on track to be achieved, while many others are not likely to be met by 2030.

The year 2020 provides an opportunity to assess progress made by North and Central Asian countries towards achieving the SDGs over the past five years. According to the Asia and the Pacific SDG Progress Report 2020, North and Central Asia has progressed more than the other subregions of Asia and the Pacific on Goal 10 – reduced inequalities. Status quo and progress are most advanced for Goal 4 – quality education, Goal 6 – clean water and sanitation, Goal 7 – affordable and clean energy, and Goal 16 – peace, justice and strong institutions (see figure 1).

Figure 1. Snapshot of SDG progress in 2018 in North and Central Asia
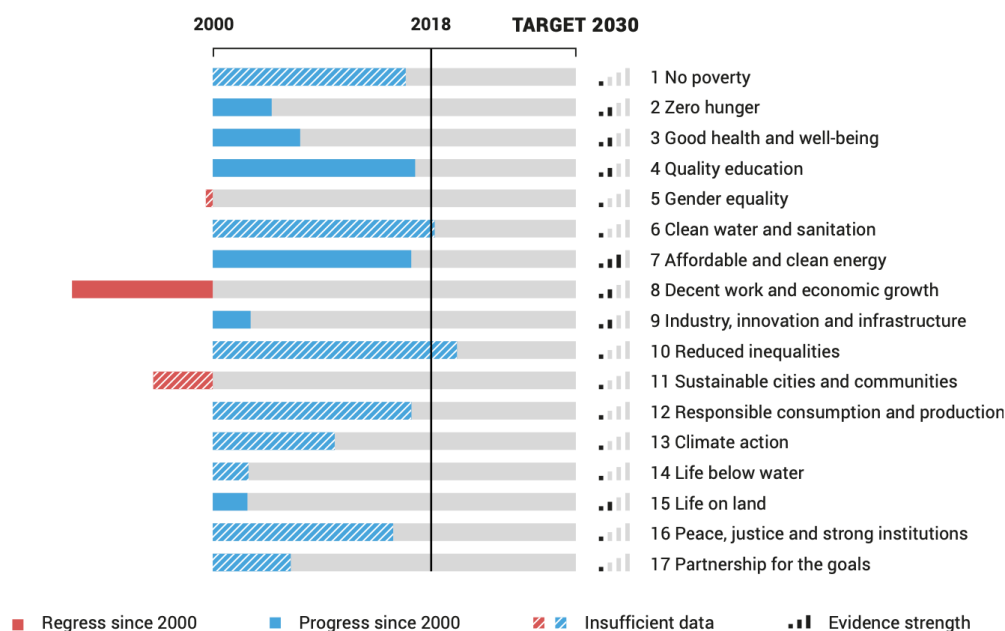
Source: ESCAP, Asia and the Pacific SDG Progress Report 2020. Available at www.unescap.org/publications/asia-and-pacific-sdg-progress-report-2020.

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[1] North and Central Asian countries include Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Uzbekistan

[2] See https://sustainabledevelopment.un.org/content/documents/25200SDG_Summary.pdf.

Since the 2000s North and Central Asia regressed on Goal 5 – gender equality, and it is the only subregion of Asia and the Pacific that regressed on Goal 11 – sustainable cities and communities. Little progress was made on Goal 9 – industry, innovation and infrastructure, Goal 13 – climate action and Goal 15 – life on land.[3]

At the national level in the subregion, there are clear differences in development progress and the level of achievements towards the Goals. According to the rankings of SDG achievement provided in the Sustainable Development Report 2020, Kyrgyzstan takes the first place in the subregion, followed by Azerbaijan and the Russian Federation. Armenia, Tajikistan and Turkmenistan are the bottom three, even though Armenia and Tajikistan have already achieved two SDGs.[4]

Looking beyond the ranking, some countries are more on track towards achieving a few of the SDGs, while others face major challenges across many of the Goals. The majority of the countries are facing major challenges on at least three Goals (see table 1). Central Asian countries, except for Kyrgyzstan, have the highest number of goals with major challenges.

Table 1. Major challenges to achieving the SDGs in North and Central Asian countries

Country (ranking)	Number of SDGs with major challenges	Number of SDGs achieved	SDGs facing major challenges
Kyrgyzstan (52)	3	0	8, 9, 16
Azerbaijan (54)	3	1	5, 8, 16
Russian Federation (57)	3	1	3, 10, 16
Georgia (58)	3	0	3, 5, 10
Kazakhstan (65)	4	1	2, 3, 10, 16
Uzbekistan (66)	5	0	2, 6, 9, 10, 16
Armenia (75)	3	2	8, 10, 11
Tajikistan (78)	7	2	2, 3, 5, 8, 9, 13, 16
Turkmenistan (114)	8	0	1, 2, 3, 6, 8, 9, 13, 16

Source: Sustainable Development Report 2020.

Note: The ranking includes many factors in addition to the number of goals with major challenges and the number of indicators on track. Thus, some countries have a higher ranking even though they have achieved fewer goals.

When it comes to overcoming the challenges in table 1, most countries are progressing at too slow a pace, and if the current trend remains, it will be impossible to achieve the Goals by 2030. Major challenges to two SDGs – Goal 3 and Goal 16 – are the most common.

Furthermore, the achievement the SDGs is being shaken by the COVID-19 pandemic that has brought humanity face-to-face not only with a global health emergency but with an unprecedented socioeconomic

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[3] For 9 out of the 17 SDGs, countries of North and Central Asia have insufficient data to provide a clear picture.
[4] See https://sdgindex.org/reports/sustainable-development-report-2020/.

crisis. The Economic and Social Commission for Asia and the Pacific (ESCAP) forecasted various negative growth scenarios for the region in 2020, with regional GDP growth expected to be -3.6 per cent.[5]

This means that North and Central Asia cannot expect to achieve all the SDGs by 2030 without accelerated and sustained actions. Acceleration of the implementation of the SDGs will help the countries of the subregion adapt to the "new" realities of the COVID-19 pandemic, and it will contribute to the growth and modernization of the economy and society.

Thus, in order to assist the countries of North and Central Asia in achieving the SDGs, ESCAP has developed the SDG Drivers Framework. This framework will enable Governments in the subregion and other stakeholders to identify, assess and evaluate actions necessary to accelerate progress towards fulfilling the 2030 Agenda.

The SDG Drivers Framework applies a step-by-step approach to identify and evaluate SDG drivers in North and Central Asia. It employs a top-down approach. The process begins with mapping out the outcome a country wants to achieve within the 2030 Agenda, based on the priorities outlined by the Government in national strategic documents. Then drivers are identified that can catalyse progress and have favourable causal effects on a desired outcome. The Framework also outlines how to convert drivers into policy actions and monitor and assess their implementation.

The framework include a discussion of the SDG interlinkages. Governments must understand SDG interlinkages in order to build coherent policies and increase efficiency and positive outcomes. It provides tools to understand and address the potential trade-offs during the process of SDG achievement and consider potential negative effects of drivers.

The framework also includes an analysis of common priorities in North and Central Asia, and it identifies areas for strengthening subregional cooperation to provide a better understanding of the current context of sustainable development in the subregion.

Chapter 2 contains an overview of the framework, gives important definitions and describes the framework's processes. The first step is contained in chapter 3 – to determine the desired outcomes. Chapter 4 introduces the process of driver identification, prioritization and selection. Chapter 5 describes the process of evaluating the driver-outcome relationship and provides an overview of quantitative and qualitative estimation methods. Chapter 6 describes important features of the policy response processes, including monitoring and evaluation, stakeholder analysis and budget allocation. Chapter 7 concludes this report.

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[5] ESCAP estimates based on the World Economic Forecasting Model of the United Nations Department of Economic and Social Affairs (as of 27 April 2020).

2. Overview of the framework

The SDG Drivers Framework for North and Central Asia aims at supporting countries in the subregion to identify potential drivers that can accelerate the achievement of the SDGs. The framework consists of a number of consecutive steps to map out potential drivers and their components, to prioritize sustainable development outcomes based on national and regional contexts, and to enhance the country's ability to formulate strategic plans to achieve national development outcomes in line with the 2030 Agenda. The framework describes various methodologies – theoretical and applied, qualitative and quantitative – and utilizes desk research to formulate guidelines. This framework is intended to be used by government officials and consultants responsible for policy development in North and Central Asia.

Definitions of terms used in framework

The following are important definitions used in this framework, summarized based on the literature review.

Outcomes refer to a set of quantitative and qualitive end-results, whose achievement will allow society to transform into a distinctively new state. Outcomes describe the intended changes in development conditions that result from the interventions of Governments and other stakeholders, including international development agencies such as the United Nations.

Priority area is a specific area, in which interventions must be concentrated, localized or targeted in order to achieve the desired outcome.

Outputs refer to direct (immediate) results of the intervention/action/activity pursued to obtain the desired outcomes, which can be quantitatively measured.

Drivers are viable factors that catalyses progress and have favourable causal effects on desired sustainable development outcomes. This definition is broad and represents a range of factors, such as policies, priority areas, programmes and technical aspects of Governments, international organizations and other relevant stakeholders which can lead to sustainable development. Drivers catalyse the progress of desired sustainable development outcomes by displaying a significant relationship through both quantitative and qualitative analytical methods. In some cases, a driver can have a positive impact on one outcome and a negative impact on another outcome, leading to a trade-off situation when progress toward one outcome diminishes the gains toward another outcome.

Each driver can consist of several **components**. These components are a subset of variables to the driver and consist of coordinated actions taken by governments, international organizations and other relevant stakeholders that contribute to the driver.

Tool refers to a practical model, technique or method which is useful in analysing processes described in the framework.

Framework processes

Recognizing that the development agenda is an iterative process built upon continuous improvement, the proposed framework forms a feedback loop consisting of 4 'boxes', where each 'box' is linked and will inform the next one through a series of processes (see figure 2).

Drivers rely on set of different interventions (government policies, priority areas, programmes, actions of international organizations and other relevant stakeholders) however drivers are different from policy interventions, which may be contradictory and non-comprehensive. After an analysis of challenges and relevant policy actions, policy responses could be modified, replaced or abolished. Drivers, as the crucial factors of the development change, lead to immediate change in state of different areas through producing or delivering outputs.

Figure 2. Relationships between drivers and sustainable development outcomes
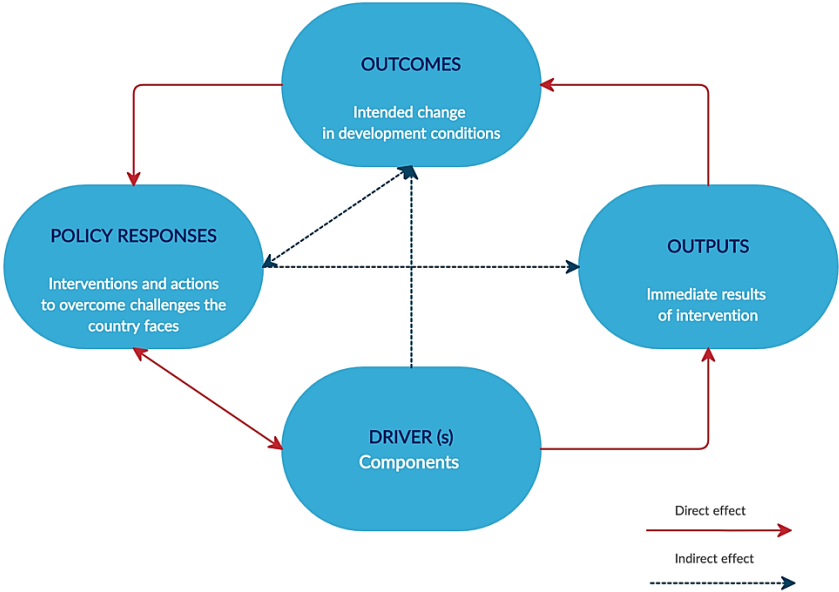
Achieving outputs does not mean that intended outcomes will be achieved automatically. When assessing the influence of drivers on outcomes, one must also evaluate the assumptions about transforming outputs to outcomes and the risks that outcomes will not be achieved. The achievement of the intended outcomes must be evaluated, and in case of a failure to achieve an outcome, policy interventions must be reviewed.

The SDG Drivers Framework consists of four processes with complementary tools and methodologies (see figure 3). The following chapters describe each step in detail.

Figure 3. SDG Drivers Framework processes

STEP 1. Determine desired outcomes
STEP 2. Identify potential drivers and components
STEP 3. Analyse how potential driver affects outcome
STEP 4. Develop policy and M&E plan

3. Determining desired outcomes

Given that the purpose of the SDG Driver Framework is to facilitate the achievement of the 2030 Agenda by identifying drivers, the first step is to consider and prioritize the desired outcomes and goals in a national (or regional) context. When identifying outcomes, attention should be paid to the goals and objectives of the national strategic documents and how SDGs and their interlinkages are reflected there.

3.1. Analysis of national strategic and SDG-related documents

To identify desired outcomes, the existing national strategic documents should be analysed along with gaps and progress towards SDG achievement. This will reveal which SDG areas are lacking progress and which areas already have a strategic framework to support interventions.

The following is a checklist for analysing national strategic documents:

- − Analyse progress in SDGs achievement in the country;

- − Identify the most crucial goals in national strategies;

- − Identify whether areas where progress toward the SDGs is slow are already included in national strategies as a priority;

- − Link desired outcomes to corresponding SDGs. Assign a point for every time a particular SDG is mapped to a desired outcome;

- − Establish the priority of the SDGs depending on the points scored.

This exercise could also be conducted for several countries, and the results could inform the mapping of regional outcomes and enable a comparative analysis between countries with similar development priorities. Like the process for the national level analysis, a regional analysis would tally the occurrence of SDGs to determine the priority level and infer desired outcomes at the regional level.

To identify gaps and progress towards SDG achievement one can analyse national data that are available on national SDG platforms developed already in most countries in North and Central Asia.[6] However the Sustainable Development Report Dashboards 2019, developed by the Sustainable Development Solutions Network/Bertelsmann Stiftung can make it easy to analyse country-level progress and gaps because it already developed indices: the Current Status Index (progress made so far at goal level) and the Anticipated Progress Index (progress gaps at target and indicator levels). The Current Status Index analyses progress made by countries on each of the SDGs and the Anticipated Progress Index forecasts the likelihood of achieving a target, taking into account the progress made so far and the policies implemented.

The comparative analysis for North and Central Asian countries based on their national strategic documents revealed the most prioritized SDGs for the subregion (see table 2).

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[6] As a rule, they are available on the websites of the national statistical offices.

Table 2. Example of outcome mapping for North and Central Asia

Country	Sustainable Development Goals																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Number of times the Goal is mentioned in national strategic documents																
Armenia	0	4	3	4	2	4	3	8	4	4	3	6	5	0	3	5	6
Azerbaijan	4	1	2	2	1	2	1	6	5	1	3	3	1	1	3	4	3
Georgia	2	2	3	8	1	3	1	10	6	3	7	3	1	1	1	9	12
Kazakhstan	4	2	3	5	3	2	4	13	6	4	4	2	1	1	2	9	9
Kyrgyzstan	4	7	3	4	4	3	4	9	6	5	3	3	2	0	2	4	7
Russian Federation	3	1	1	6	0	3	2	4	3	2	3	1	0	2	2	3	3
Tajikistan	2	2	4	5	2	3	1	3	3	3	3	1	1	0	1	4	1
Turkmenistan	0	2	4	3	2	0	0	3	4	0	1	1	2	0	0	3	3
Uzbekistan	0	4	4	4	1	2	2	3	0	3	2	1	1	0	2	5	2
Total	19	25	27	41	16	22	18	59	37	25	29	21	14	5	16	46	46

For North and Central Asian countries, the focus is more on Goal 8 – decent work and economic growth, Goal 16 – peace, justice and strong institutions and Goal 17 – partnership for the goals.

For economic development, particular importance is given to promoting policies that support decent job creation, entrepreneurship, creativity and innovation. Small and medium-sized enterprises (SMEs) and access to financial services also received attention as it is desirable for countries to better integrate SMEs into national and regional value chains as well as expand the capacity of domestic financial institutions.

All North and Central Asian countries also indicated strengthened institutions as a desired outcome with a target to develop effective, accountable, and transparent institution at all levels. This is expected to be achieved through the modernization and incorporation of technologies and best practices in the public administration system. Regional cooperation has been mapped out as a desired outcome in all countries in the subregion, emphasizing the importance of strategic partnerships and strengthened relations to develop a favourable regional environment.

Other desired outcomes at the subregional level include Goal 4 – quality education and Goal 9 –industry, innovation and infrastructure. Georgia, the Russian Federation and Tajikistan are placing most emphasis on educational related outcomes, where attention is given to preschool education, equal access to primary and secondary education, and science education. For instance, Tajikistan is preparing policies and efficient budget allocations for education, with a particular focus on inclusive education. In terms of industry development, most of the countries aim for sector diversification to produce higher value-added products and decrease dependency on the oil sector, moving to attract investments into the renewable energy sector.

The outcomes for infrastructure development are also linked to clean water and sanitation, and waste recycling, where most countries in the subregion intend to introduce effective water and waste management systems. Kyrgyzstan is initiating efforts led by the State Committee for Industry, Energy and Subsoil Use to accelerate the application of clean, renewable and alternative energy technologies, and strengthen capacities to develop a national action plan for sustainable energy provision. In 2019, the Azerbaijan implemented a law on energy saving and energy efficiency. It covers several energy-efficiency measures and provisions, energy auditing, energy management, energy efficiency services, and efficiency in production, transmission and distribution.

Although it is understandable that outcomes related to life below water would have relatively low importance for the subregion, as most North and Central Asian countries are landlocked developing countries, it is of particular concern to note that climate action and land management-related outcomes are also among the least prioritized.

The above analysis focuses on national-level strategic documents. In many cases this will be sufficient to identify the desired outcomes. However, some countries do not develop national-level strategies, or they are not yet approved, or they have expired. In those cases, the analysis of sector-level documents or other key development planning documents can be carried out. It is also important to note, that sector-level documents may actually have more information on SDGs than national-level strategies.

There is a toolkit, developed by the United Nations Development Programme, which can help policymakers to identify desired national outcomes through the analysis of different levels of key development planning documents. This toolkit is called the Rapid Integrated Assessment,[7] and it is aimed at facilitating the mainstreaming of SDGs into national and local plans. The toolkit suggests clear steps and templates for policymakers to rapidly determine the relevance of SDGs to the country context, both at the national and subnational level. The SDG profile developed with the help of the Rapid Integrated Assessment identifies development challenges, gaps in alignment with the national/subnational plans, corresponding indicators and a quick snapshot of potential interlinkages across targets. It indicates the readiness of a country to mainstream and implement the SDGs.

The outcome mapping exercise shows the prioritized outcomes in individual North and Central Asian countries and the region as whole. However, it also reflects the gaps in the desired outcomes which do not balance the three dimensions of sustainable development – economic, social and environmental – which will be discussed further.

3.2. Understanding SDG interlinkages

Before finalizing the list of outcomes, it is important to understand potential gains which can be brought up by interlinkages between the SDGs. Furthermore, achievement of one or the other outcome may be associated with trade-offs: some of the goals and targets can be achieved at expense of progress toward the others.

The analysis of national strategies and progress in SDG achievement in the subregion, shown in table 2, suggests that socioeconomic related goals are being prioritized more in North and Central Asian countries.

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[7] See www.undp.org/content/undp/en/home/librarypage/sustainable-development-goals/rapid-integrated-assessment---mainstreaming-sdgs-into-national-a.html.

The focus in the subregion is on reforms, such as modernizing macroeconomic and monetary policies, introducing new models for public-private partnerships, lowering the economic dependence on the oil and gas sectors, shifting towards sustainable diversification and enacting new administration policies to improve the investment climate, education system and regional cooperation etc.

As a result, while North and Central Asian countries allocated a significant amount of funds for economic and social development, little attention was paid to the environment.

Among the priority areas of the environmental pillar, ecosystem management accounts for most activities. Resource rich countries are looking for renewable energy development, whereas Kyrgyzstan, Tajikistan and Uzbekistan are introducing effective water management systems in the agriculture sector and in rural areas for infrastructure development (access to clean water, sewage systems). Nevertheless, almost all North and Central Asian countries are looking at implementing recycling and waste management systems, a step towards sustainable production and consumption.

Since sustainable development is a complex paradigm, it is important to understand interlinkages between its economic, social and environmental pillars. For example, the achievement of sustainable economic development is inevitably connected with an increase in productivity and budget growth, while there are also important connections with women's economic empowerment, poverty reduction and raising inclusiveness. The environmental pillar has strong connections with people's access to basic services, sustainable economy, climate change mitigation and so on. (Diffenbaugh and Giorgi, 2012). Furthermore, studies have shown that positive gains for decreasing resource depletion and carbon dioxide emissions per unit of value added can potentially lead to positive spillover effects for other environmental indicators. These indicators also show a closer linkage to socioeconomic indicators such as trade, economic growth, and clean drinking water.

The most recent studies suggest that there are different types of relationships between SDGs. A framework developed by the international Council for Science includes six categories of SDG interactions.[8] The relationships range from the most positive or "indivisible", when the achievement of one SDG inevitably leads to the achievement of another, to the most negative or "cancelling", when the progress of one goal makes it impossible to reach another.

For example, interaction between targets 2.1. and 1.1. is very strong: food and nutrition security are indivisible from the eradication and reduction of poverty. However, increasing agricultural productivity (target 2.4) must be done carefully or it may increase vulnerability to climate-related extreme events and other shocks, primarily in developing countries and for poor segments of societies (thus working against target 1.5).

Goal 7 – Affordable and clean energy, has links to all the other SDGs through three of its targets: ensuring universal access to energy (7.1); increasing the share of renewable energy (7.2); and speeding up the rate of energy efficiency improvement (7.3). For example, universal access to energy as a basic service

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[8] See https://council.science/publications/a-guide-to-sdg-interactions-from-science-to-implementation/#:~:text=The%20report%20examines%20the%20interactions,Sustainable%20Development%20Goals%20(SDGs).

strengthens the achievement of target 1.4, to ensure that all men and women, in particular the poor and the vulnerable, have access to basic services.

In order for countries to build coherent policies and increase efficiency and positive outcomes, a study on SDG interlinkages can be conducted at the national and/or regional level to better understand the current context of sustainable development in North and Central Asia.

Understanding the interlinkages is not only important for determining which outcome will **be the most synergetic**, but also to understand trade-offs if one goal is achieved at the expense of another.

A number of existing tools can help to understand the relations between SDGs, including the KnowSDGs platform, which visualizes interlinkages of SDGs to determine the direction of the causality.

Another tool, a framework developed by the Macroeconomic Policy and Financing for Development Division of ESCAP (MPFD framework), identifies optimal pathways towards sustainable development through a multiphase approach consistent with the priority areas in North and Central Asian countries. The MPFD framework: 1) highlights the interlinkages, including complementarities, synergies and trade-offs across different Goals; 2) measures the country's capacities to achieve the Goals; and 3) identifies optimal pathways for progress towards sustainable development.

Because the MPFD framework involves a number of sophisticated methods, concerned persons should contact United Nations institutions to support the development of model scenarios for the country (see Annex 1 for more information on tools to study SDG interlinkages).

3.3. Identifying challenges

The COVID-19 pandemic is seriously affecting the economies in North and Central Asia: international trade has been severely disrupted, investments have declined and service sectors have shrunk. The majority of long-lasting problems have been exacerbated by challenges which must be overcome to achieve the 2030 Agenda.

Identifying challenges is an important part of the framework, as they may limit SDG achievement. As this framework was designed to determine the drivers for accelerating progress towards the 2030 Agenda, challenges are interlinked with the desired outcomes. By focusing on critical challenges, which are connected to problems and objectives identified within the framework, drivers can be prioritized in a more effective way.

In the context of North and Central Asia, the framework analyses the most striking and common challenges through the prism of the COVID-19 pandemic.

Informal workers, micro, small and medium-sized enterprises, women and migrants are challenged by the pandemic the most

The negative impacts of the COVID-19 pandemic are especially detrimental and long lasting for vulnerable populations. According to the most recent World Bank estimates of global poverty, the COVID-19

pandemic is likely to push between 88 million people (baseline scenario) and 115 million people (downside scenario) into extreme poverty in 2020, setting back poverty reduction by around three years.[9]

North and Central Asian countries will be no exception. Estimates from ESCAP suggest that North and Central Asia will be impacted by the reverberations of the COVID-19 pandemic more than other country groups (see figure 4). Since the pandemic is not fully under control, economies are not expected to fully reopen soon, which will weigh on both consumption and investment.

Figure 4. Forecast of downgrade in GDP growth (percentage) for selected country groups and North and Central Asian countries
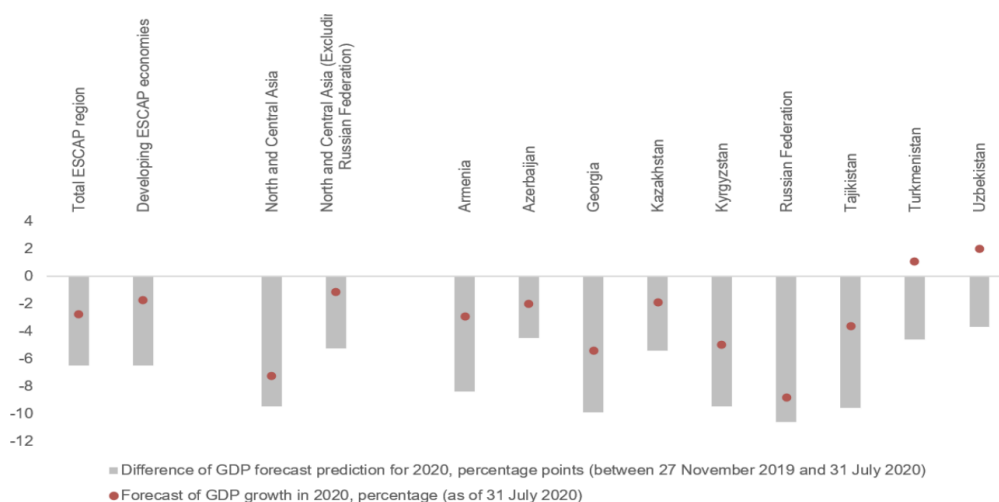
Source: ESCAP (2020). Profile Session 5: Sustainable, inclusive and resilient economies. Input document, p. 3, Fourth North and Central Asian Multi-Stakeholder Forum on Implementation of the Sustainable Development Goals. Virtual meeting, 2–4 September. Available at www.unescap.org/sites/default/files/S5_Entry%20Profile_FINAL_ENG.pdf.

Since many working-age people across North and Central Asian countries are self-employed, work informally or are labour migrants, they are usually excluded from social protection schemes and are particularly vulnerable to falling into poverty.

Even prior to the outbreak of COVID-19, North and Central Asian countries faced long-term challenges in economic sustainability, including the growth of the percentage of youth in the population. Those challenges have intensified in the context of the pandemic that has placed additional pressures on employment, micro, small and medium-sized enterprises and vulnerable individuals.

According to the United Nations Population Fund (2015), all of the Central Asian countries and Azerbaijan have among the highest shares of young people (aged 10–24 years), ranging from 30 per cent to 35 per cent of the total population. In other countries in the subregion, the shares are also quite high: about 28 per cent in Armenia and Kazakhstan compared to 25 per cent in Georgia and slightly less in the Russian Federation at 20 per cent.

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[9] See https://blogs.worldbank.org/opendata/updated-estimates-impact-covid-19-global-poverty-effect-new-data.

Many young people recently entered the labour market, and now they face the unemployment surge in 2020 as businesses close. Furthermore, it is estimated that more than a quarter of the working-age population in the subregion are employed in the informal sector.[10] Many informal workers in North and Central Asia are coping with a number of challenges, and during the COVID-19 pandemic they cannot rely on government support and social protection. The informal sector in the subregion is more likely to include micro, small and medium-sized enterprises in industries which have deteriorated the most due to the COVID-19 pandemic and associated lockdowns – retail trade, restaurants, hotels and tourism, and other daily service providers. Employment in these industries tends to be low-pay and low-skill, characterized by decent work deficits (labour rights, job security and safety) with a majority female labour force (ESCAP, 2020a).

Indeed, the pandemic hit female workers harder since their participation in the informal sector is higher and their wages are lower. Furthermore, according to the United Nations Population Fund, over 70 per cent of employees in the health-care and social protection sectors are women.[11] They are at greater risk of being exposed to COVID-19, and they may experience higher discrimination at the workplace. The pandemic increased the burden of unpaid domestic work for women, including caring for the family during lockdowns, taking care of children's online education or caring for ill relatives.

A recent rapid gender assessment conducted by the United Nations Entity for Gender Equality and the Empowerment of Women in countries of Europe and Central Asia showed that, on average, 70 per cent of women spent more time on at least one unpaid domestic work activity, such as cleaning, cooking or laundry, which is significantly higher than for men (59 per cent).[12] Additionally, some evidence points to an increase in violence against women during the lockdowns.

The economic situation in the Russian Federation will have significant spill-over effects for other countries in the subregion due to reduced remittances flowing to them. Half of the economies of the subregion depend on migrants' remittances. Migrant remittances provide an economic lifeline to poor households in many countries; a reduction in remittance flows could increase poverty and reduce households' access to much-needed health services. According to the recent estimates, they amount up to almost third of GDP in Kyrgyzstan and Tajikistan, 14 per cent and 11 per cent in Georgia and Armenia respectively.[13]

Most of the world economic crises have an immediate impact on remittances inflows. Economic slowdown and currency devaluation in the Russian Federation in 2015, for example, affected remittances outflows to Kyrgyzstan and Tajikistan, where the share of remittances to GDP decreased significantly.[14]

The same is true of the current economic crisis induced by COVID-19 pandemic. The World Bank estimates that remittances inflows in 2020 will decrease by 20 per cent, especially to low- and middle-income countries.[15] Furthermore, the migration stock is likely to fall, but some migrants will be unable to return

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[10] ILO data on informal and informal employment are available at https://ilostat.ilo.org/data/.

[11] See www.un.org/en/un-coronavirus-communications-team/gender-equality-time-covid-19.

[12] See https://eca.unwomen.org/en/digital-library/publications/2020/07/the-impact-of-covid19-on-womens-and-mens-lives-and-livelihoods.

[13] World Bank and KNOMAD (2020). COVID-19 Crisis Through a Migration Lens. Migration and Development Brief 32. April. Available at www.knomad.org/sites/default/files/2020-06/R8_Migration%26Remittances_brief32.pdf.

[14] See www.worldbank.org/en/topic/migrationremittancesdiasporaissues/brief/migration-remittances-data.

[15] COVID-19 Crisis Through a Migration Lens. World Bank and KNOMAD.

to their countries of origin. This makes them more vulnerable to economic shocks in labour-receiving countries.

Host countries face additional challenges in many sectors, such as health and agriculture, that depend on the availability of migrant workers. Migrants face the risk of contagion and also the possible loss of employment, wages and health insurance coverage, as lockdowns in labour camps and dormitories can also increase the risk of contagion among migrant workers.

As a result of the COVID-19 pandemic, many countries will incur economic and social losses, associated with remittances reduction, lack of jobs and lower wages, and rising inequalities. Both public and private sector investments in North and Central Asia in preschool and school education and the health of children have significantly decreased. Shrinking budget revenues will limit the ability of Governments to respond to the COVID-19 crisis. This will postpone the provision necessary education, skills, health care and jobs to women and the current generation of young people.

Economic stability of North and Central Asian countries is being seriously undermined

The COVID-19 pandemic has shaken the economic stability of most of the countries in the subregion. Poor countries in the subregion were double-hit by the crisis because, while the richer countries (i.e. Azerbaijan, Kazakhstan and the Russian Federation) have been faced with the low oil prices, landlocked countries depend both on raw material exports, remittances and travellers from larger countries of the subregion. Against the backdrop of economic decline, North and Central Asian countries are facing an urgent set of challenges.

In fact, the crisis brought by the pandemic is affecting resource prices, aggravated by the decline in oil and mineral exports, being directly important for Azerbaijan, the Russian Federation and Turkmenistan. Relatively undiversified structures of production and exports, along with the high level of informality in some countries, put more pressure on public finances.

Energy and metals commodities were the most affected by the sudden pause in economic activity.[16] Commodities associated with transportation, including oil, have experienced the steepest declines. For most agricultural commodities, only moderate impact has been forecasted but supply chain disruptions and government steps to restrict exports or stockpile commodities raise concerns that food security may be at risk in places.

An report published by the Organisation for Economic Co-operation and Development (OECD)showed that monthly average crude oil prices reached historic lows in April with some benchmarks trading at negative levels (OECD, 2020). Prices are expected to average $35 per barrel in 2020, a sharp downward revision from the October forecast and a 43 per cent drop from the 2019 average of $61 per barrel. Furthermore, energy prices, including natural gas and oil, are expected to average 40 per cent lower in 2020 but see a sizeable rebound in 2021.

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[16] See www.worldbank.org/en/news/press-release/2020/04/23/most-commodity-prices-to-drop-in-2020-as-coronavirus-depresses-demand-and-disrupts-supply.

Efforts to limit the spread of COVID-19 lead to decline in external trade and reduction of the fiscal space

Most North and Central Asian countries have benefited significantly from increased integration into the global economy over the past two decades. The expansion in trade has been a driver of growth, contributing to significant and impressive gains in poverty reduction and shared prosperity.

The volume of the global goods trade shrank by around 18.5 per cent[17] in the second quarter of 2020 compared to the same period in 2019. According to the Interstate Statistical Committee of the Commonwealth of Independent States,[18] the value of external trade in the first half of 2020 fell sharply by 19.5 per cent for exports and by 10.4 per cent for imports compared with the same period of 2019. All North and Central Asian countries closed their borders with neighbours and restricted internal movements of people and goods. Border restrictions imposed by China aggravated the situation.

North and Central Asian countries made efforts to facilitate trade and transit during the pandemic (Vassilevskaya, 2020). All governments have formed intragovernmental bodies to coordinate their COVID-19 responses. Countries have simplified customs procedures for essential goods, typically food and medical supplies. Some countries initially implemented restrictions on the export of essential goods, but these have been lifted. States have attempted to compensate for logistical and border transit issues caused by special sanitary requirements by expanding infrastructure, simplifying and digitalizing procedures on both road and rail. All North and Central Asian countries have created online outreach portals and attempted to digitalize various government services.

However, governmental bodies often lack the competency, mandate or reach to implement effective trade facilitation measures and implemented measures need to be improved further.

In oil importing North and Central Asian countries, the remittances finance imports and consumption. The mentioned drop in the volume of remittances, imports and consumption[19] in North and Central Asian countries led to a drop in budget revenue, the main source of which is value added tax (VAT). In Central Asia, for instance, the VAT contribution is almost one third of the tax revenue (OECD, 2020). Decreased fiscal space led to increased budget financing needs, particularly for oil-importing countries.

Finally the combination of reduced export earnings and falling import revenue narrowed the fiscal space for all North and Central Asian Governments to support businesses and address long-term social priorities. The ability of all countries to switch to resilient economic development has been called into question.

Service sectors fell abruptly

The ESCAP report for Asia and the Pacific demonstrates that the traditional services sectors, such as tourism, retail, hospitality and civil aviation, as well as some labour-intensive and supply-chain-based manufacturing are taking an immediate hit, resulting in increased layoffs and unemployment. The COVID-

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[17] See www.wto.org/english/news_e/pres20_e/pr858_e.htm.

[18] See www.cisstat.com/index.html. The Statistical Committee reports data on 11 countries, including eight countries in the North and Central Asia subregion.

[19] The drop in consumption can be estimated through a decrease in retail. For eight months of 2020 compared with the respective period of 2019 the retail sales fell by 5 per cent. See www.cisstat.com/eng/relis%2010-2020-04.pdf.

19 impact was substantial as services and labour-intensive manufacturing comprise over 80 per cent of the region's informal sector and SMEs and account for most of the jobs in the region (ESCAP, 2020b).

According to our estimates, the average growth rate of the service sector in North and Central Asia was -17.2[20] in the first half of 2020 compared to the same period in 2019. This estimate includes all North and Central Asian countries, except for Turkmenistan as data are not available at all, and Georgia, because data are disaggregated.

In Central Asia, for example, all service sectors suffered, but the travel and tourism sector were hit hardest. Before the pandemic, the region has gained attention as an emerging tourism destination with strong potential for further development. The Global Economic Impact and Trends 2020 report mentioned Central Asia as the region with the fastest growth rate in the tourism sector, which reached an impressive 7.3 per cent. Two Central Asian countries – Kyrgyzstan (14 per cent) and Uzbekistan (12.3 per cent) – entered the list of the five fastest growing countries in this sector in 2019.

According to the World Travel and Tourism Council scenario analysis from June 2020, job losses for 2020 are projected to be between 40.4 per cent (baseline scenario) and 65.8 per cent (downside scenario) and GDP losses are projected to be between 39.3 per cent (baseline scenario) and 61.8 per cent (downside scenario).[21] The extensive impact of COVID-19 on tourism illustrates the trade-off between protecting the health of individuals and the health of economies.[22]

The pandemic calls for increased regional cooperation

North and Central Asia is made up mainly of landlocked developing countries, in particular Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. These countries can access the sea in the subregion through Georgia and the Russian Federation, which is an important aspect of regional cooperation.

In line with the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024. (12 December 2014) and the Political Declaration following the high-level mid-term review of the implementation of the Vienna Programme of Action, these countries, through closer cooperation, must overcome the following challenges:

- Increase funding for the creation of modern transportation infrastructure and economic corridors in order to reduce high transport costs to deliver their goods to world and regional markets (Goal 9);
- Reduce transport costs associated with additional border crossings and cumbersome transit procedures (Goal 17);
- Reduce the economy's dependence on an extremely narrow range of export commodities.

In September 2020, a regional dialogue on strengthening transport connectivity was held for the member countries of the United Nations Special Programme for the Economies of Central Asia. The concept note

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[20] Own calculations based on data of national statistical committees of North and Central Asian countries.
[21] Author's calculations based on Travel & Tourism: Global Economic Impact & Trends 2020 report.
[22] Travel & Tourism. Global Economic Impact and Trends 2020 report, p. 10.

developed for the dialogue[23] emphasized that international transport and connectivity require coordinated action by all countries and international organizations. Lockdowns, border closures and transport restrictions imposed to contain the COVID-19 pandemic have caused serious disruptions of supply chains and citizen's mobility, which have exacerbated consequences for landlocked developing countries. Cargo transportation and people mobility data[24] published by Interstate Statistical Committee of the Commonwealth of Independent States revealed that for eight months of 2020 cargo transportation fell by 4.8 per cent and passenger numbers fell by an astonishing 28.2 per cent compared with the same eight months of 2019.

During the pandemic attention to enhancing connectivity and ensuring sustainable and efficient functioning of international transport corridors were weakened so the challenge is to reverse this process.

Environmental initiatives are likely to be pushed back

One of the major challenges associated with the pandemic occurs in waste management, which has become extremely important given the rising volume of disposed masks, gloves, protective plastic suits. According to official data,[25] North and Central Asian countries (except for Tajikistan and Turkmenistan) are now entering the second wave of COVID-19, meaning that more and more medical equipment will be used.

The developing countries that are already lacking adequate waste management practices due to technical, practical, and/or financial constraints are largely vulnerable to waste management difficulties during the pandemic. For example, according to monitoring data on SDG indicator 12.4.2, there only two countries in the region (for which data are available) – Kazakhstan and the Russian Federation – which have reduced the amount of hazardous waste generated per capita since 2000–2001. Other countries increased the produced amount of hazardous waste at least 1.5 times and up to eight times over for Azerbaijan.[26]

According to the United Nations Environment Programme (2020) there are increased risks and challenges associated with the COVID-19 pandemic related to waste management. At the domestic waste management level there is an increased production of "mixing of infectious waste such as gloves, masks, tissues, and gauze with other wastes (exposure to transmission)" and at a health-care level there is a risk of "improper healthcare infectious waste management and insufficient capacity for waste treatment and disposal".

Even though the governments have introduced some initiatives for proper waste management, they are inadequate – as they are unable to manage health-care waste generated in normal times. With the existing limited technical options and capacities, and the increase in the volume of health-care waste related to the COVID-19 pandemic, there are additional burdens on local and national governments.

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[23] There are six countries in Central Asia: Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The concept note is available at www.unece.org/trans/transmeetings/transport-events/events/2020/strengthening-transport-connectivity-in-the-speca-region-and-beyond-in-the-era-of-covid-19/doc.html.
[24] See www.cisstat.com/eng/frame_press.htm.
[25] See https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6.
[26] Author's calculations based on data from the United Nations Statistics Division, available at https://unstats.un.org/sdgs/indicators/database/.

In addition to the above challenges, falling oil prices and global financial woes have weakened access to affordable and clean energy.[27] Progress towards SDG target 7.2 on renewable energy is already insufficient.

Progress towards the achievement of SDG indicator 7.2.1 is observable only for four North and Central Asian countries – Armenia, Kazakhstan, the Russian Federation and Uzbekistan, while Georgia, Kyrgyzstan and Tajikistan have demonstrated a significant decrease in renewable energy share since 2000.[28]

The closure of various sectors of the economy has reduced the demand for power because every activity is connected to the supply of power. Companies that were involved in making green products have halted their growth plans and adopted cost-cutting measures. The shutdown of clean energy manufacturing has also caused shortages of parts and disrupted supply chains. The ongoing crisis may lead to the diversion of recourses from clean energy projects, and it is already causing delays in project implementation.

Furthermore, the COVID-19 pandemic has forced governments to postpone many environmental and green initiatives. Environmental protection initiatives in many countries have been loosened in response to COVID-19 pandemic, which may result in accelerated degradation of the environment with negative impacts on health, water and food.[29]

At the same time, the global lockdown measures have provided the opportunity to think of measures for the sustainable development of some industries in the recovery from the current crisis.

For example, decreased tourism on the one hand has significantly harmed the economic growth of many countries, but it has positively affected the biodiversity, wildlife and oceans on the other hand. Measures to contain the spread of the virus led to a decrease in economic activities and a drop in road transport, temporarily cleaning skies and decreasing levels of certain air pollutants, etc.

The above challenges are affecting the achievement of all SDGs in subregion. Particularly, they can undermine the achievement of Goals 1, 3, 4, 5, 7, 8, 10, 12, 13, 16. It is important to remember, however, that each country, when identifying a particular outcome, should consider identifying challenges within the national context. Before finalizing the list of outcomes, the priority should be given to those which are mostly interlinked with the identified challenges.

3.4. Finalizing set of outcomes

After following the above steps, the list of desired outcomes connected to SDGs can be grouped in two categories of importance: primary and secondary. SDGs of primary importance are those prioritized in national plans, those with significant challenges and gaps in progress and achievement, and most importantly, those that have strong positive spillover effects and synergies with other desired outcomes.

Table 3 presents a set of desired SDG outcomes for North and Central Asia. This set was derived based on the outcome mapping exercise, reviews of the proximity of SDG indicators and the progress and gaps in SDG achievement.

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[27] International Energy Agency (2020). The impact of the Covid-19 crisis on clean energy progress. 11 June. Available at www.iea.org/articles/the-impact-of-the-covid-19-crisis-on-clean-energy-progress.
[28] See https://unstats.un.org/sdgs/indicators/database/.
[29] See www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=26165&LangID=E.

Table 3. Example of desired SDG outcomes for North and Central Asia

Importance	Social	Environment	Economy
Primary	Goal 16 Goal 4 Goal 3	Goal 11 Goal 6 Goal 7	Goal 8 Goal 17 Goal 9
Secondary	Goal 2 Goal 10 Goal 1 Goal 5	Goal 15 Goal 13 Goal 14	Goal 12

It is important to note that given the heterogeneity of conditions in North and Central Asian countries, the desired SDG outcomes will require further analysis and tailoring when applied to a national context. Even if the countries face similar development issues and needs, there are national differences in developmental realities and priorities.

After deriving the desired SDG outcomes, it may be necessary to further narrow down the list. This could be done by analysing the national documents related to particular SDGs or taking a deeper look at SDG targets. At this stage the sector strategies (for example, the long-term health-care strategy) should be considered, because a more precise formulation of national outcomes may be found there The desired outcomes should be put into the table. Throughout this process is very important to keep good records all of the sources used to map the desired outcomes. These sources could be national or sector strategies, or regional or national papers that analyse gaps and progress toward the SDGs.

4. Identifying drivers

As mentioned in chapter 2, a driver is defined as a viable factor that catalyses progress and has favourable causal effects on desired sustainable development outcomes. Drivers represent a set of influential factors, such as policies, priority areas, programmes and technical aspects of Governments, international organizations and other relevant stakeholders which are expected to lead to sustainable development.

The desired outcomes identified through the processes described in chapter 3 lay the foundation for identifying drivers of progress. Policymakers should ask: **What is necessary to achieve the identified outcomes?**

This chapter describes approaches to driver identification. It is advisable to focus this process on the challenges that the country faces in the medium term (see section 3.3). This will take a significant step towards optimizing the process.

There are two ways to approach the driver identification process: 1) using expert-opinion methods, or 2) applying existing holistic models. The result of this phase is an exhaustive list of potential drivers.

4.1. Identification of drivers using expert opinions

Drivers can be identified based on expert-opinion methods, which have been modified and adapted to the context of the SDG Drivers Framework to link the components of a driver with corresponding outcomes.

Figure 5 depicts the process of identifying drivers, components and causes.

Figure 5. Process of driver identification
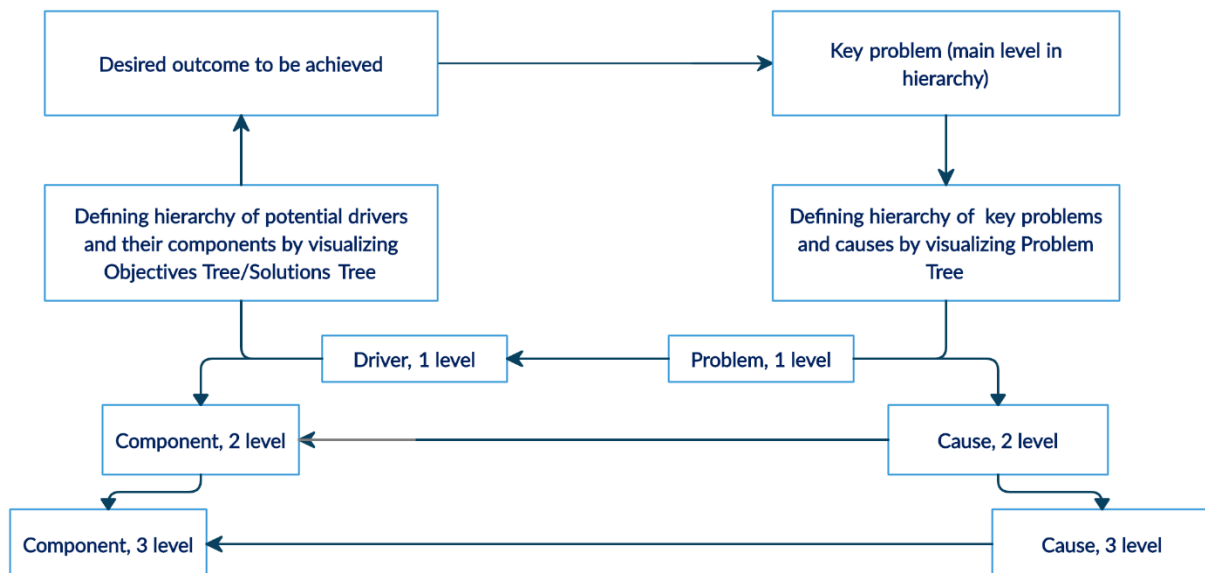
The checklist for constructing a driver includes the following steps:
  ➢ Matching the key problem with the relevant outcome and defining a hierarchy of problems.

> ➤ Identifying all potential drivers and their components.

> ➤ Prioritizing and selecting components: trade-off and balance.

Each step and tools to complete it are presented below.

4.1.1. Matching the key problem with the relevant outcome and defining a hierarchy of problems

The task at this stage is to define key problems that constrain the achievement of the desired outcomes. The formulation of the key problem could be picked up from the mapping of national strategic documents and SDG gaps analysis (see chapter 3). However, some national strategic documents may have been published 5 or 10 years ago and new trends and issues may have emerged. Also, the strategic documents may not be sufficiently detailed. Therefore, it is advised to include additional considerations in defining the key problems and constraints.

Tool 2. Problem Tree Analysis

The Problem Tree Analysis is an instrument of planning and it can help define a hierarchy of problems. It is very important that the Problem Tree is developed in a participatory manner based on focus group discussions with experts representing the three pillars of sustainable development.

Figure 6(a) provides an illustrative example of a Problem Tree Analysis based on the key problem of high unemployment. High unemployment is a major constraint for achieving the outcome, accompanied by several hierarchical levels of this problem. At the first level, the low quality of the labour force, the lack of social services, and the lack of jobs are indicated, which in turn are linked to problems at the next hierarchical level. Although it is only a segment of a greater set of problems, this example illustrates the hierarchical structure of issues and cause-effect relations.

Figure 6(a). Example of a Problem Tree fragment
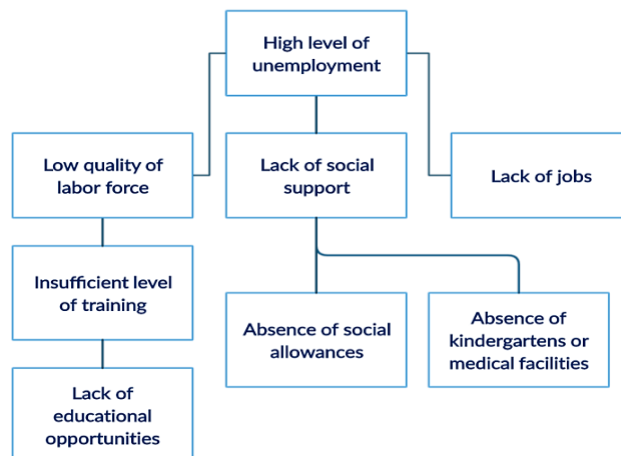
The checklist for applying the Problem Tree Analysis includes the following steps:

> ➤ Verify or clarify the key problem.

> Identify all problems related to the key problem.

> Establish a cause-effect hierarchy between the problems.

When developing the Problem Tree, particular attention should be paid to defining a cause-effect hierarchy between the problems. It is important that the bottom level of the Problem Tree has detailed and clear statements of the causes of the key problem. At the next step, this will enable the formulation of an appropriate response for each of the identified causes.

4.1.2. Identifying all potential drivers and their components

Tool 3. Objectives Tree Analysis

The Objectives Tree Analysis is somewhat similar to the Problem Tree Analysis, but it has a different purpose. An Objectives Tree (also called a Solutions Tree) is developed by transforming the key problem into an outcome statement, with causes of the key problem transformed into drivers of the outcome.

The term "solution" is equivalent to the term "potential driver". The term "potential driver" is used because, at this step, the impact on the outcome has not yet been defined. Some solutions/potential drivers may be excluded from consideration based on the results of steps described below.

Using the example of high unemployment from figure 6(a), the outcome is formulated as "decrease unemployment". At the second level, causes of high unemployment are transformed into potential drivers of the outcome. The actions at the bottom level of the hierarchy are potential driver components. "Low quality of labour force" is transformed into the potential driver "improve the quality of labour force". Lack of social support and lack of jobs are transformed into "provide social support" and "create more jobs".

It is advisable to formulate all statements clearly and not to miss any steps between the potential driver and the outcome. In some cases, one may need to revise both the Problem Tree and Objective Tree by adding more causes and potential drivers.

Figure 6(b). Example of an Objectives Tree fragment
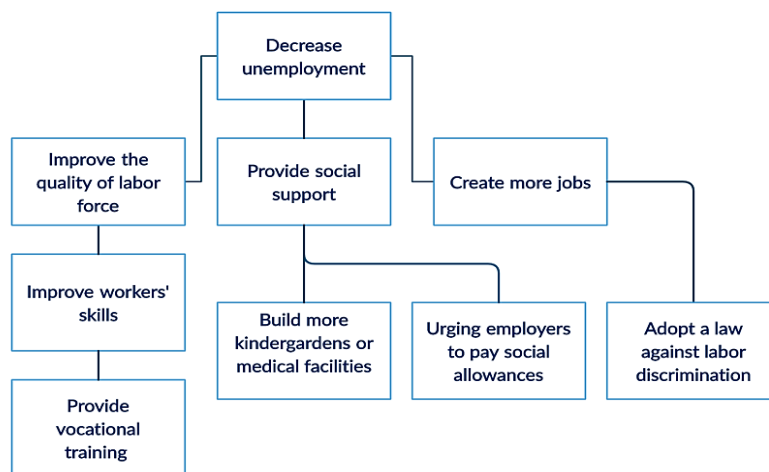
The checklist for applying the Objectives Tree Analysis includes the following steps:

> Translate problems into potential drivers of the desired outcome.

➢ Verify the hierarchy of outcome and the and potential drivers and driver components.

The following recommendation is appropriate to all levels of Objectives Trees, but special attention should be paid to the potential driver components at the lowest level. They must be formulated clearly to give an accurate and detailed answer to the relevant cause identified in the Problem Tree. The bottom level must be comprehensive and include all possible driver components corresponding to a higher-level objective. It is especially important that all potential driver components are measurable. It is not enough to merely improve something; the potential driver component must indicate **how the improvement will be measured**. Each potential driver component can be associated with a certain set of direct (immediate) results in order to measure its effect from different points of view. **These direct (immediate) results are called outputs**.

The set of all outputs of the bottom level of Objectives Tree will describe quantitatively the higher-level drivers into which they are included, and feed into the set of outputs of the first level potential drivers. Outputs are important for defining the driver's impact on the outcome.

Taking this into account, the above-mentioned example "provide social support" does not clarify what services should be provided or how they should be measured. Further down the hierarchy the potential driver components provide more detail. They should be formulated as very concrete measures or actions. Continuing the example, the potential driver component "build more kindergartens" would enable parents to go to work, and "urging employers to pay social allowances" would make it easier for recipients to endure hardships and be ready for the next job. In either case, one can calculate quantitative indicators of these actions and use them to assess the effect for further monitoring. An example of an output for the potential driver component "build more kindergartens" would be the number of children enrolled.

As a result of this work, policymakers should have a complete list of all potential drivers and their components for each of the analysed outcomes. It is recommended to record all problems and outcomes in a single table, since the results of this stage will be needed in subsequent stages.

4.1.3. Prioritizing and selecting components: trade-off and balance

After listing all potential drivers and their components, it is necessary to prioritize them according to the three pillars of sustainable development and the interlinkages between the Goals, as explained in chapter 3.

The process of prioritizing potential driver components within the SDG framework is based on established criteria. This section presents two tools for prioritizing potential driver components: the Likert scale and pairwise ranking. After components are assigned scores, they are summarized and the component with the highest total score is selected.

Tool 4. Likert scale

It is assumed that experts assess the potential driver components according the expected impact of the driver on each of the pillars of sustainable development, according to the Likert scale.[30] Driver

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[30] See www.sciencedirect.com/topics/psychology/likert-scale for a definition and examples of Likert scales.

components are assessed to have either a positive or negative impact according to the same scale (see table 4). For example, constructing paved roads will lead to the strong economic development because it leads to greater trade and better social mobility, although it will also lead to an increase of carbon dioxide emissions. An expert might assess this component as follows: 4 for the economic pillar, 3 for the social pillar and -2 for the environmental pillar, for a total of 5.

Table 4. Driver components' score based on modified Likert scale

Pillar	No impact	Low impact	Moderate impact	High impact	Critical impact
	1	2	3	4	5
Economic					
Social					
Environmental					

To assign scores more reasonably, it is strongly recommend to use standard criteria for each pillar of sustainable development. The direction of positive development should be determined, and their numbers should be approximately equal. Each country should develop its own criteria based on its progress toward sustainable development. The expert should mark only those criteria that the potential driver component meets (an example is provided in Annex 2).

If a policymaker believes that the gap in scores is too narrow, or there are too many components for prioritization, other expert-opinion methods can be used, i.e. pairwise ranking.

Tool 5. Pairwise ranking

Pairwise ranking, which also called preference ranking,[31] is a ranking tool used to assign priorities to multiple available options. Comparing alternatives against a set of criteria can be challenging, and where there are two or more criteria, it becomes difficult to determine which criteria are more important. Pairwise comparison makes it easy to rank components by comparing them in pairs to judge which component is preferred over others or has a greater quantitative property. The selection of more significant components should be based on the criteria and findings specified in the previous section.

This method requires filling a square matrix (see table 5).

Table 5. Pairwise comparison: example table

	A	B	C
Component 1 (A)	-	A	A
Component 2 (B)	-	-	C
Component 3 (C)	-	-	-

For each row, the component is compared to the other components. For example, experts decided that component 1 (A) is more important than component 2 (B), so A is located in the corresponding cell. Then

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[31] See www.questionpro.com/tour/pairwise-ranking-and-comparison.html.

component 1 (A) is compared with component 3 (C) and it is assessed to be more important, so A is placed in the next cell again. This should be continued until all the empty comparisons have been made.

The total value of the component is calculated using equal weights. In this example component 1 (A) is marked two times, component 3 (C) is marked one time and component 2 (B) was not marked, thus the value for component 1 is 66.67 per cent, the value for component 3 is 33.33 per cent and the value for component 2 is 0. The components with the lowest scores can be excluded from further analysis.

The result of this step is the prioritized list of potential drivers and their components.

4.2. Identification of drivers using existing holistic models

The identification of drivers can become a complicated process when national-level information is not detailed or is unavailable. In this case, the existing models can be used to analyse the pre-determined drivers and understand whether they can be applied in the country's context.

Models built by different analytical centres can measure national capacities to achieve the SDGs and identify optimal pathways for progress towards sustainable development (see Annex 3 for details). It should be emphasized that, depending on the specifics of the model, it may also be able to solve various other problems.

Tool 6. Integrated Sustainable Development Goals model

The Integrated Sustainable Development Goals (iSDG) model[32] is a policy simulation tool designed to help policymakers and other stakeholders evaluate policy options for achieving the SDGs and make sense of the complex web of interconnections between the SDGs. It focuses on dynamic interactions between the Goals to reveal the best paths of progress towards achieving the 2030 Agenda. The 30 sectors of the model include 10 social sectors, 10 economic sectors and 10 environmental sectors. The core version of the model includes a total of 78 SDG indicators.

A demonstration video is available online. Through a friendly interface, it shows how the policy options are simulated. In particular, an example is shown of how interventions in infrastructure (Goal 9) affect a number of SDG indicators (see figure 7).

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[32] See www.millennium-institute.org/isdg.

Figure 7. Simulation results for Goal 9
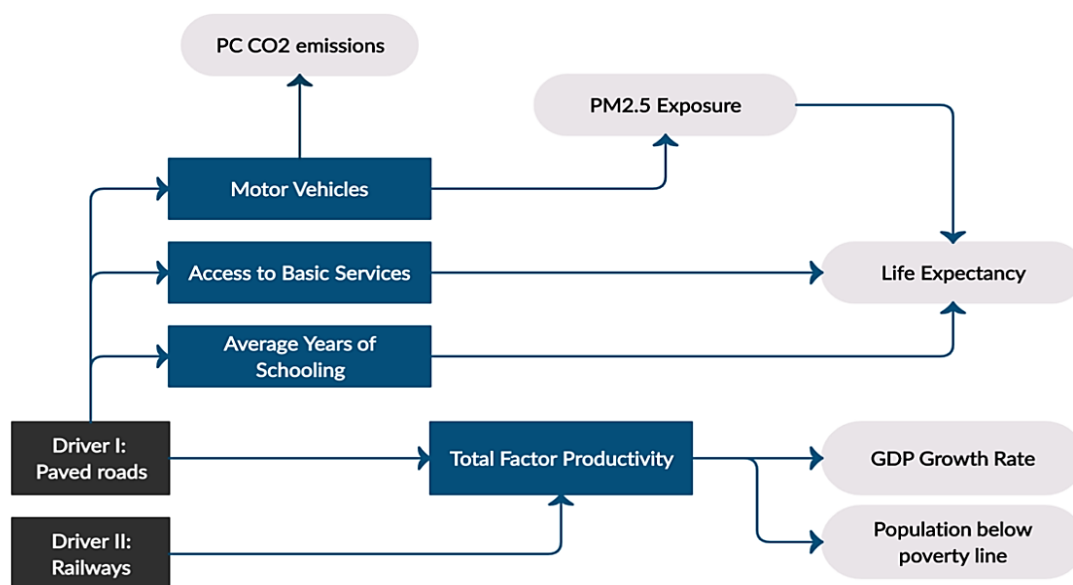
Source: iSDG Integrated Simulation Tool.

Figure 7 shows how interventions into paved roads and railways (drivers) will lead to an increase in life expectancy and economic growth and a reduction of poverty (outcomes) through the achievement of the interim results (outputs). These interventions may also lead to a deterioration in life expectancy through an increase in greenhouse gas emissions. Another example, the mortality rate by age group, depends on 12 drivers, including per capita income, per capita health expenditure, undernutrition, access to clean water, sanitation and electricity, among others. The simulation of policy options is described and illustrated clearly in the model.

Tool 7. International Futures

The International Futures model[33] is a tool for understanding how best to advance human development and well-being. The model includes basic connections between its submodules: agriculture, economy, education, energy, environment, sociopolitical, health, infrastructure, international politics, population and human development. A set of equations, usually linear or reducible to linear, describe each submodule. Particular attention to the rationale for unit costs and assumptions is needed. The model already includes the countries of North and Central Asia, although all data should be verified before the model is used. There is an online interface for the model.

Although the interface of this model does not make it possible to simulate progress for a specific SDG, unlike the previous ones, the International Futures model enables users to calculate many SDG indicators as results.

The model enables the user to analyse data both across countries and across time and to make scenario analyses. Scenario development could be done through the scenario tree tool that helps the user to

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[33] See https://pardee.du.edu/understand-interconnected-world.

change the description of drivers in the above-mentioned submodules. For example, in agriculture the user can change yields and land area for irrigation and run scenarios to recompute all model values.

As follows from the above descriptions, these models provide remarkable results, however they are quite complex and they require that users have an understanding of different economic and mathematical methods. Therefore, capacity-building is required. Also, each country needs quite a comprehensive set of SDG data to run these models.

As a result of applying either of these models, the user receives a pre-selected list of the model drivers and a list and values of indicators of simulation results. However, it should be noted that such models cannot take into account all the unique features of national development. Calibrating the model data to the country level and including new indicators in the model is a rather complicated process. Therefore, in many cases, it is advised to use the expert opinion methods (section 4.1).

4.3. Finalizing a set of drivers and components

When finalizing a set of drivers and components it is recommended to record the results of the analysis in a table or list, which contains a description of all problems, corresponding goals and objectives and components of drivers. It is rational to have two tables: the original one and the one obtained as a result of the selection process. It is very important that all elements match each other. Otherwise, in the selection process, hierarchical relationships between problems and drivers and their components can be lost. The table or list can be used further, in particular, when preparing an implementation plan (see chapter 6). As it already contains a description of the problems, drivers and components, it can be easily turned into actions.

5. Evaluating the driver-outcome relationship

After potential drivers and their components have been identified, the next step is to evaluate the relationship between identified drivers and sustainable development outcomes.

This section elaborates on a few methodologies that may be used to assess the impact of and interlinkages between identified drivers and sustainable development outcomes. The methodologies encompass both quantitative and qualitative aspects and are grounded in a system dynamics approach.

The checklist for evaluating the driver-outcome relationship includes the following steps:

➢ Understand and map out the behaviour between variables (components of drivers, desired outcomes) based on logical framework.

➢ Collect data for identified variables.

➢ Formulate equations based on mapped out flows (loops and processes) between variables

➢ Conduct model simulation.

➢ Test the model's response to different policies.

A brief description of these steps is provided below.

5.1. Hypothesis, data collection and verification

Understand and map out the behaviour between variables

At this stage of the analysis, economic theory guides the formulation of hypotheses for the data being analysed. Each hypothesis provides theoretical justification for the relationship between the variables, and the hypothesis can be described not by a single equation, but by a set of equations. A single explanatory variable should be specified in each equation, and a set of explanatory variables must be defined for a set of equations.

The relationship between each endogenous and exogenous variable must be clearly stated in advance, that is, it should be understood whether relationship between the variables is positive or negative, linear or non-linear.

The relationship between poverty and economic growth is an example of such a relationship - the higher the rate of economic growth the lower poverty will be. In this case, the relationship between poverty and economic growth is negative.

Collect data for identified variables

The data collection stage is of high importance, and the conclusion of the modelling exercise depends on the quality of the data collected. As a separate significant aspect of modelling, data collection has recently received special attention. As part of this work, attention should be paid to the following aspects of data collection, which will ensure an acceptable quality of modelling interrelationships.

- It is necessary to clearly understand the metadata, the method of the calculation and the sources of indicators. For example the United Nations SDG database gives a full picture of the data methodology.[34] The SDG Indicators Metadata repository contains metadata for each indicator, including concepts and definitions, computation method, disaggregation, data sources and availability, a data collection and release calendar, and other relevant sections.

- There are certain requirements for the number of observations for the time series or panel data: it is important to ensure the reliability of data, clearly understand the source it comes from, describe and understand missing values and so on, because the quality of the equation or model and the corresponding final conclusions depend heavily on these data.

- In many cases, researchers transform the data by various methods to improve the coefficients of the equation. There are many such methods: data can be aggregated, interpolated or linearized. The decision-maker does not need to know all the technical aspects of data transformed, but it is important to understand the underlying transformation in order to be able to interpret the coefficients.

5.2. Defining and running the model

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[34] See https://unstats.un.org/sdgs/metadata/.

Once the relationships between variables are identified and data are collected, the next step is to develop a model and apply methods to evaluate the impact of a driver on outputs and outcomes.

Formulate equations based on mapped out flows (loops and processes) between variables

There are different types of models – both theoretical and applied – which can be used to evaluate/estimate the driver-outcome relationship.

For example, the well-known Cobb-Douglas production function describes in a nonlinear form the dependence of GDP on labour, capital and total factor productivity. This model can be used individually, but as a rule, production functions are included in the holistic models as a separate module that describes supply. In the International Futures model, GDP is a function of multifactor productivity, capital stocks and labour inputs, all specified for each of six sectors. However, the researcher can independently expand the Cobb-Douglas model, for example, by linking the poverty model to the economic growth model.

Another example is linear regression, used to quantitatively estimate the effect of input on outcome.

As a rule, these are models based on regression equations, in which the dependency between the dependent and independent variables should be identified. Such regressions are not predetermined; the researcher must find such a relationship.

The multiple regression method helps researchers to find relationships between a dependent (endogenous) variable and several independent (exogenous) variables. There is a theory and mathematical technique behind this method that a researcher could pick up from economics and mathematical textbooks. Researchers could easily use EXCEL software with the data analysis application installed to run equations, but they must also understand the economic theory underlying the creation of the equation and restrictions to apply to this method. For example, quite long time-series are needed for regression equation.

When data sets are unavailable it is recommended to look for analogies. This method uses the results of existing studies based on the experience of other countries. For example, the Global Markets Institute (2014) assessed the impact of increased access to credit for women on women employment growth, then this value could be found in a relevant paper that studies this issue on panel data from several countries. The paper proves that narrowing the credit gap can increase the growth rate of female employment. In particular, if Bangladesh, Brazil, China, Egypt, India, Indonesia, Iran, Mexico, Nigeria, Pakistan, the Philippines, the Republic of Korea, the Russian Federation, Turkey and Viet Nam closed the entire credit gap for women-owned SMEs, the average growth in real income per capita would be around .85 per cent.

Conduct model simulation

After selecting the model/methods to be used, the next stage involves using an appropriate statistical procedure and a software package to estimate the unknown coefficients of the model using the collected data. In some ways, this is not a difficult part of the analysis because the data are available and the models already exist. However there may be a need for capacity-building to understand model and its software.

An example of a relatively simple regression model is provided in the box. It shows the dependence of the poverty level on economic growth, remittances and the level of budget financing of the social protection sector.

Poverty model for Kyrgyzstan

The third report on progress towards achieving the Millennium Development Goals utilized a poverty model for Kyrgyzstan. A multiple regression of the dependence of poverty reduction rate on the economic growth rate per capita (Δg), the growth rate of the social protection budget (Δsp) and the growth rate of remittances (Δr) was developed for the period of 2000 to 2009.

$$\Delta P = -1.91 * \Delta g - 0.027 * \Delta sp - 0.09 * \Delta r + 8.98 \quad R^2 = 0{,}55$$

The model had rather good short-term predictive power, significant coefficients and quantifies impact of the three factors on poverty reduction.

In this example, **government spending on social protection is a potential driver.** The estimated relationship suggests that increase in government spending on social protection will decrease the poverty rate in the country by 2.7 percentage points.

Source: Government of Kyrgyzstan (2013). The third report on progress towards achieving the Millennium Development Goals.

At this stage the following question should be repeatedly asked: does the estimated model make any sense? For example, are the signs and magnitude of the estimated coefficient consistent with the predictions of the underlying economic theory? There are a number of formal statistical tests (including tests for normality, linearity, multicollinearity, homoscedasticity, model specification, test for independence, unit root tests etc.) that help the user to evaluate the validity of the statistical model.[35] If the estimated coefficients do not make sense, how should the researcher change the model to improve results?

Test the model's response to different policies

After proving the validity of the model/method, it should be considered how the model represents the results of various policies.

It is necessary to understand how the model describes policy actions. Any model simplifies the description of the interventions. For example, a model may imply a reduction in unit cost for road construction, but it does not describe how this can happen. Reducing unit costs could be possible due to the improvement of technology, reduction of barriers during construction, etc., and serve as a basis to develop various scenarios to understand the unit cost trends. Using the same example, it can be assumed that the improvement of technology can lead to a reduction in budget financing, while reducing barriers does not lead to a reduction. The task of the researcher is to prepare an appropriate description of the scenarios, which should be expressed in sets of different interventions. The evaluation of the validity of the model by modelling the recent policy changes and comparing the simulation results with the results in practice could be of a great help here.

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[35] See www.econometrics-with-r.org/index.html.

Furthermore, it is important to pay attention to the relevance and significance of the model. Even though following the above procedures implies the relevance of the intended interventions, it is necessary to evaluate the results once again in terms of compliance with the country's priority areas. If the expected progress is insignificant, then the researcher should consider another combination of drivers, that is, the whole process must be reiterated with new drivers.

6. Developing policy responses

Determining the driver(s) is not a purely theoretical task, rather it is only the first step, albeit a key element, of the actions of the Government and researchers. This work should result in the development of an action plan (implementation plan) of the Government, which it will enact along with monitoring and evaluation of its implementation.

6.1 Implementation plan development

Implementation plan

Analytical work should be followed up with the development of a document that will give legal form to the developed drivers and driver components. The main document is the implementation action plan to achieve the outcomes.

The preparation of an action plan should be in accordance with country procedures, and as a minimum, it should include the following:

- Outcomes (wording and measurable results);
- Outputs (wording and measurable results);
- Actions/projects;
- Responsible persons/institutions;
- Total budget;
- Sources of funding.

Once again, researchers should keep records of the results of work at all previous stages of analysis and evaluation, as this will simplify the development and preparation of the plan and its justification. That is, much of the work was already completed at the preliminary analytical stage. Outcomes and outputs already have a preliminary formulation and measurable results. Therefore, more time should be devoted to identifying specific actions and investment projects.

Stakeholder analysis

It is necessary to conduct a stakeholder analysis to understand the opposing and supporting parties in ensuring implementation. In many cases, the identification of responsible persons/institutions is limited to listing of the government bodies that somehow have a connection with the driver and outcome. It is very rare for such plans to include non-government groups that are stakeholders in the outcome. The interests of government and non-government bodies may even contradict the very idea of the outcome under consideration.

A stakeholder analysis is a process of identifying people and institutions that have an interest in the outcome before the plan is implemented; grouping them according to their levels of participation, interest and influence; and determining how best to involve each of these stakeholder groups and communicate with them throughout.[36]

The stakeholder analysis should seek to understand each of the following:

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[36] See www.productplan.com/glossary/stakeholder-analysis.

- Who is the stakeholder and who can represent the stakeholder (which organizations and/or personalities), what are their features, what is their previous experience working with them, etc.?
- What are the interests of the stakeholder in relation to the problem and to the driver and outcome options?
- What existing or possible grounds unite different stakeholders?
- What existing or possible conflicts of interest separate stakeholders, which may affect the course of implementation of the plan?

As result of the stakeholder analysis, actions should be formulated and included in the implementation plan to remove any obstacle related to the stakeholders.

Budget allocation

The researchers should take into account the budget development procedures adopted in the country, while emphasizing that funding for the implementation plan should come not only from the national budget, but also from other financing channels, including private investments, both domestic and foreign, local budgets or official development assistance. It is necessary to develop new financing mechanisms, such as public-private partnerships (PPP), venture financing, issuance of bonds, and so on. This approach is consistent with the Financing Strategy of the United Nations Secretary General,[37] which focuses on three objectives, namely:

1. Aligning global economic policies and financial systems with the 2030 Agenda.

2. Enhancing sustainable financing strategies and investments at regional and country levels.

3. Seizing the potential of financial innovations, new technologies and digitalization to provide equitable access to finance.

Practitioners should avoid developing a budget without assessing the financing needs of achieving the desired outcome. After understanding the financing needs, practitioners can begin developing a budget which should take into account all possible sources of financing.

It is recommended to use guidance for member States in developing and implementing integrated national financing frameworks, which consists of four main blocks for implementation: 1) assessments and diagnostics of the financial situation; 2) design of the financing strategy, which links national development outcomes to sources of finance; 3) mechanisms for monitoring, review and accountability; and 4) governance and coordination mechanisms.

6.2 Implementation stage

Monitoring and evaluation

A monitoring and evaluation plan that complements the implementation plan needs to be set out to better assess the performance of the potential drivers towards the achievement of the SDGs. Again, in the previous stages of analysis and evaluation, quantitative indicators were identified to measure outputs and outcomes, and that work also created a significant basis for monitoring.

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[37] See www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/SG-Financing-Strategy_Sep2018.pdf.

Monitoring activities are continuous and need to be integrated into implementation plans to ensure that relevant and accurate information is collected to facilitate the systemic assessment of progress made towards the achievement of outputs and outcomes. Underscoring the efforts to monitor SDG progress is the SDG indicator framework and the guiding principles for monitoring indicators. Lessons learned through monitoring activities enable policymakers to introduce corrective actions into the plan as required and ensure that the planned outcomes are achieved within the timeframe and budget allocated by comparing actual and planned progress. There are ten principles for global monitoring indicators, which are recommended to policymakers for their consideration when drafting monitoring and evaluation plans.

Voluntary national reviews

The voluntary national review (VNR) is a systemic follow-up and monitoring mechanism for countries to conduct inclusive reviews of their SDG progress. As of 2020, all North and Central Asian countries have conducted and reported their first or second VNRs and identified successes as well as gaps in implementation that will inform their next steps to accelerate transformative pathways in the next decade to achieve the 2030 Agenda. A key aspect of the VNR process is its multi-stakeholder approach to mobilize partnerships for the review and implementation of the SDGs.

Evaluation builds upon the monitoring data to determine the results of the implementation plan. Evaluation findings can inform the formulation and adoption of policies that best support sustainable development trajectories in the country. To be relevant, evaluations need appropriate criteria that support the objective and are in line with principles of the 2030 Agenda. Recognizing the differences in national context, the evaluation exercise needs to be tailored to existing political and assessment systems for it to be effective in aligning national policy with the 2030 Agenda.

Evaluation to connect national priorities with SDGs

In their guide for evaluation commissioners and managers to evaluate the SDGs, D'Errico and others (2020) propose four main steps, including the identification of the evaluation's objective, the process of preparing for evaluation, identification of policies and programmes necessary to be evaluated, and using the principles of the 2030 Agenda to inform criteria and questions during evaluation.

It is important that evaluation is integrated into the SDG policy cycle, complementing the VNR process to avoid the duplication of activities. For example, both Finland and Nigeria timed their national evaluations to feed into the VNR process, and Finland recommended that follow up evaluations on different aspects of implementation should be conducted every four years in line with their election cycle.

7. Conclusion

The primary purpose of the SDG Drivers Framework is to assist Governments in identifying factors that will accelerate progress towards 2030 Agenda. The accumulated methodologies, frameworks, definitions, tools and empirical models are used to build a step-by-step process of policy implementation towards achievement of SDGs.

Since sustainable development is a complex paradigm, it is important to understand interlinkages between the economic, social and environmental pillars. For example, the achievement of sustainable economic development is inevitably connected with the increase in productivity and budget growth, while there are also important connections with women's economic empowerment, poverty reduction and the expansion of inclusiveness. The environmental pillar has strong connections with people's access to basic services, sustainable economy, climate change mitigation and so on.

Different types of relationships exist between the SDGs. Some of the Goals have a reinforcing relationship – when the achievement of one SDG leads to the achievement of another. But some of the Goals have a cancelling relationship – when progress toward one of the SDGs makes it impossible to reach another. The Framework proposes analytical exercise to identify and deal with potential trade-offs during the process of identifying potential drivers of desired outcomes. The priority when selecting drivers must be given to those that have synergetic impacts on the economic, social and environmental pillars of sustainable development.

The process of SDG driver identification is complex. It requires an understanding of the relationships between outcomes and SDGs, drivers and outputs, problems and their causes. Drivers are not one factor, but are a set of factors, such as policies, priority areas, programmes and technical aspects of Governments, which are expected to lead to desirable sustainable development outcomes.

It is necessary to identify drivers that have a multifaceted impact on outcomes across all sustainable development pillars. The analysis of the impact must not be limited to only one of the pillars. Unfortunately, some countries put more importance on economic benefits to the detriment of social and environmental benefits. In this regard, countries can improve the methods outlined in the Framework, for example, by increasing the priority of certain areas of sustainable development.

Driver identification should lead to the development of a comprehensive implementation plan that contains clear statements, measurable results and justified budget resources. The implementation of the action plan should be accompanied by continuous monitoring of outputs/actions and projects but should not be limited to this process only. The risk of outputs not converting to outcomes is especially high for a number of North and Central Asian countries due to their exposure to volatile world economic markets, climate change trends and other global trends. To deal with those risk factors, it is important that the action plan includes periodic evaluations of the outcome achievement process, the results of which can and should improve implementation.

The SDG Drivers Framework is not a fixed document; it should evolve. Although it is a significant help to build the capacity of both government officials and policy advisers, the ultimate goal (outcome) of this document is that North and Central Asian countries can develop and improve their own methods of identifying both drivers and assessing their impact on country outcomes.

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Annex 1. Description of tools to analyse SDG interlinkages

Tool	Methodology	Visualization
Tool 1. Institute for Global Environmental Strategies	● identifies causalities between SDG targets to determine interlinkage ● analyses the correlation between indicators, using time series data and set of indicators with trackable data ● identifies targets with varying degrees of leverage based on quantification of causal relations through results of correlation ● indicators identified as having the highest degree of leverage for the greatest number of other targets can then be targeted as key areas for strategic policy	● cross-cutting grid to show potential reinforcing and conflicting relationships between indicators (determined by the value of the correlation coefficient) ● the correlation between indicators gives an estimate of possible externalities from targeted policy for one on the other ● map with the potential synergies and trade-offs with other targets in different categories (economic targets, social targets, environmental targets, means of implementation)
Tool 2. KnowSDGs platform	● visualize the cumulated interlinkages from a set of publications ● interlinkages of SDGs determined from past literature on specific SDG interlinkages and also multi-SDG interlinkages to determine the direction of the causality ● review policies and activities and map it to relevant SDGs to understand how activities cover sustainable development objectives	● instant visualization of the interlinkages of specific goals and targets on a disaggregated level ● Key policy nodes are mapped out to visualize the co-benefits and trade-offs of policies instigated on SDGs
Tool 3. Framework for identifying optimal pathways for sustainable development	● calculating proximity scores (how related one indicator is with another in terms of the levels of attainment) based on average level of attainment ● network of indicators constructed based on maximum spanning tree algorithm and links with proximity above a certain threshold are also added to the network	● visualization in Gephi using Force Atlas 2 algorithm

Tool 4. Foresight perspective through systemic analysis of interactions	- prioritization of SDG targets through expert group meetings and based on fuzzy multicriteria approach - prospective structural analysis conducted to identify direct and indirect interactions between the targets - influence-dependence chart reinterpreted in full network graph visualization with all interlinkages - centrality metrics used to analyse the structure of full network	- visualization of the interactions between targets for the full network and for the subnetworks related to the clusters (determinant, relay, and resultant targets) - determinant targets are the most influential ones and play a role as driving forces in relation to the other targets - resultant targets are the most influenced (dependent) ones, they are susceptible to changes in trajectories of determinant or relay targets

Annex 2. Example of sustainable development criteria to prioritize drivers

Built on examples in 4.1.2. The component "build more kindergartens or medical facilities" was scored on 4 out of 7 outputs in the economic pillar, 6 out 7 for the social pillar and 3 out of 8 for the environmental pillar.

Output	Desired trend	Driver component	
		Build more kindergartens or medical facilities	**Adopt law urging employers to pay social allowances**
Economic pillar			

1. Creation of jobs for youth, including dimensions:
     a. Sex
     b. People with disabilities
	Upward	5	3

2. Per capita value-added growth as a result of programme interventions (investments)	Upward		
3. Labour productivity, especially in sectors with high value added (industry, information technology, etc.)	Upward	4	3
4. Investment multiplier (value added to investment ratio)	Upward		
5. Budget revenue	Upward		-4
6. Investments (public and private) per capita in health care	Upward	3	
7. Investments (public and private) per capita in education	Upward	3	
Social pillar			

1. General poverty reduction	Downward		
2. Gender poverty gap	Downward	5	4
3. Poverty rate of disabled people	Downward	3	5
4. Child poverty	Downward	5	4
5. Gender pay gap	Downward	5	
6. Gender gap labour force participation rate	Downward	5	
7. Entrepreneurship gender gap	Downward	5	
Environmental pillar			
1. Ability to have adequate access to clean drinking water	Upward		
2. Ability to be free from avoidable diseases	Upward		
3. Ability to keep warm and cool	Downward		
4. Poor air quality	Downward	-3	
5. Water scarcity	Downward		
6. Inefficient land use	Downward	-3	
7. Renewable energy	Upward	-3	
8. Emissions level	Downward		

Annex 3. Mapping of models and their characteristics

	Multiple regression method	Cobb-Douglas production function	Poverty regression	International features	iSDG model	MPFD framework
Description of the method	The relationship between a dependent (endogenous) variable and several (independent) exogenous variables	The relationship between output and labour and capital variables	Dependence of the rate of poverty reduction on the growth rate of GDP, transfers, and budget expenditures on social protection	The model helps to understand how best to advance human development and well-being, with submodules on agriculture, economy, education, energy, environment, socio-political, health, infrastructure, international politics, population, and human development. Model includes basic connections between submodules.	This model is set up to evaluate policy options for achieving the SDGs. The 30 sectors composing iSDG include: 10 social sectors, 10 economic sectors, and 10 environmental sectors. Core version of the model includes total of 78 SDG indicators.	The complex framework aimed at prioritizing and sequencing the attainment of the SDGs, taking into account the unique circumstances, capacities and levels of development of individual countries. The formed The SDG system provides detailed information on the interlinkages, synergies and trade-offs across different indicators from the viewpoint of each individual country. The SDG system also allows the calculation of a summary measure of the SDG capacities.
Complexity of the method (type of mathematical representation)	Usually linear function	Nonlinear function, conversion to linear function is needed	Linear function	Submodules are described by the set of equations, usually linear or reducible to linear	The set of equations is not described. However, each sector gives the following details: Purpose and Perspective, Major Assumptions, Exogenous Input Variables,	Complex. Requires consecutive application of different methods, i.e. normalization, the proximity concept, the methods of reflection

	Multiple regression method	Cobb-Douglas production function	Poverty regression	International features	iSDG model	MPFD framework
					Initialization Parameters, Modelling Details	
Data requirements	Long time-series is needed	Particular attention to elasticities. Long time-series is needed	Particular attention to elasticities. Long time-series is needed	Particular attention to the rationale for unit costs and assumptions is needed. All available data for North and Central Asia should be verified.	The model is calibrated for each county. Therefore, the data need to be provided for every country.	Empirical: all data are needed for each country on each SDG indicator. Data-driven and based on viewing a set of 82 indicators that are representative of the 17 Goals and 174 countries.
Software requirement	The minimum requirement is EXCEL with the data analysis application installed	The minimum requirement is EXCEL with the data analysis application installed.	The minimum requirement is EXCEL with the data analysis application installed.	The model can be used online or offline. There is an interface that allows you to work with the model online	The model can be used offline.	Stata, E-Views, Programming languages etc.
Users' skill	Understanding the economic theory underlying the creation of the equation. Understanding how an equation is solved based on at least EXCEL. Understanding the basics of	Understanding the economic theory of growth. Understanding how to transform a non-linear function to a linear one	Understanding the basics of mathematical statistics. Understanding how the transformation of time-series data to elasticity could lead to better equation	Understanding of the fundamentals of economic theory and the relationships between different submodules. Certain capacity-building activities are required	Understanding of the fundamentals of economic theory and the relationships between different submodules. Certain capacity-building activities are required	Advanced understanding of the methods, advanced understanding of the economic concepts, advanced understanding of the networking modelling

	Multiple regression method	Cobb-Douglas production function	Poverty regression	International features	iSDG model	MPFD framework
	mathematical statistics.					
SDG target/indicator	The dependent variable could be any SDG indicator	SDG 8.1.1 and 8.2.1	SDG 1.1.1 Link to indicators 8.1.1 and 17.3.2.	For each country in North and Central Asia, there is an individual list of SDGs with projected 2030 values.	The model is set to develop policy measures and achieve the SDGs.	Covers all SDGs
Source	Textbooks on Mathematical Statistics	Many sources: for example, https://www.economicsdiscussion.net/production-function/the-cobb-douglas-production-function/18519	The Kyrgyz Republic. The second progress report on the Millennium Development Goals, 2010.	https://pardee.du.edu/understand-interconnected-world	iSDG Integrated Simulation Tool	https://ideas.repec.org/p/unt/wpmpdd/wp-16-03.html
Formula	$Y = a + b1 * X1 + b2 * X2 + … + bp * Xp$	$Q = AL^a C^\beta$	$\Delta Pov = a + b1 * \Delta GDP + b2 * \Delta Rem + bp * \Delta Exp$			Variety of different formulas