On the Sustainability Performance of the European Union’s Economic Recovery Strategy – A Case Study with Lessons for Policymakers

Theodoros Zachariadis (✉ t.zachariadis@cyi.ac.cy)
The Cyprus Institute

Brief Communication

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Abstract

The European Union pursues an economic recovery strategy with explicit environmental considerations but less clear alignment with broader sustainable development objectives. Using as a case study one national Recovery and Resilience Plan of an EU country that was published in May 2021, we perform a rapid but detailed sustainability assessment of its measures. This method is embedded in a broader framework that combines ex-post sustainability assessments of international organisations with ex-ante assessments of multi-year public budget plans. At times when policymakers need immediate advice, this framework helps identify weaknesses and guide the inclusion of sustainability-oriented policies in national budgets.

Introduction

The European Union is among the pioneers in pursuing the United Nations’ Agenda 2030 with its Sustainable Development Goals (SDGs). After adopting the European Green Deal in late 2019 with wide-ranging environmental goals, EU leaders also decided to integrate the SDGs in the bloc’s formal annual procedures for the coordination of national economic policies (the so-called European Semester process). In summer 2020, the EU responded to the challenges posed by the COVID-19 pandemic with a package of policies and funds to boost economic recovery while pursuing Europe’s green transition. Similar packages have been announced by several countries around the world since the summer of 2020, and there are several ‘trackers’ that assess ex-ante their compatibility with environmental or broader sustainability objectives[1]. However, few countries or regions around the world have announced medium-term programmes (and not annual budgetary plans), covering the entire economy (and not just packages for specific economic sectors), and address recovery spending (and not just economic relief spending); therefore, the EU’s approach can serve as a valuable case study to assess the consistency of short-and medium-term policy priorities with the officially declared long-term goals towards the sustainability transition.

The main part of the EU’s legally adopted recovery package will fund all Member States according to specific Recovery and Resilience Plans (RRPs). These Plans contain investments and reforms that were submitted by national governments to the European Commission, the EU’s executive body, in April and May 2021 (European Commission, 2021). Among other legal obligations, countries must align these plans with policy recommendations made by the Commission through the European Semester process and must contain a minimum amount of funds devoted to climate policies and digitalisation (at least 37% and 20% of the RRP budget, respectively). However, EU countries were not obliged to align their RRPs with SDGs. This lack of explicit linkage makes it difficult to assess whether the recovery packages indeed address all major environmental, social and economic sustainability challenges in each country, beyond the minimum requirements for climate- and digitalisation-related spending.

This paper presents a rapid sustainability assessment of the RRP of the Republic of Cyprus, which was submitted to the European Commission in May 2021 (Republic of Cyprus, 2021). Being a small member
state in the European periphery, Cyprus is not representative of EU countries to which most of the recovery funds are directed – it has requested about 1.2 billion Euros out of the total amount of 750 billion Euros of EU pandemic recovery funds. Nevertheless, it offers a useful example because the country’s sustainability score, as reported by the UN Sustainable Development Solutions Network (SDSN and IEEP, 2020), is quite low for European standards and can exemplify the importance of mainstreaming SDGs in national economic policies – which is relevant for many countries around the world. Although several EU Member States have provided a SDG-related appraisal of their RRP, the assessment shown here goes beyond official reports: firstly by also incorporating in the analysis the Six Transformations approach (Sachs et al., 2019), which goes beyond short-term goals towards broader transformations for the sustainability transition (see Table 1 for a list of the seventeen SDGs and the Six Transformations); secondly by comparing this assessment with the country’s score in SDSN’s national SDG analysis, thereby underlining the gaps in policy design that need to be remedied by national authorities; and finally by connecting these findings with broader EU policies.

To fulfil the above objectives, we address four policy-relevant questions:

1. Based on a weighted score, how much the national RRP contributes to SDGs and the Six Transformations to achieve them.
2. Which individual measures of the RRP contribute more strongly to progress towards SDGs.
3. Which SDGs are insufficiently addressed by the RRP.
4. What additional considerations are necessary to align public policy with sustainability objectives.

Section 2 outlines the method to address the above questions, while Section 3 demonstrates the implementation of this method in the National Recovery and Resilience Plan of the Republic of Cyprus. Section 4 discusses the results in international policy context and their usefulness for a broader sustainability assessment of the entire multi-year EU budget, and Section 5 concludes.

Table 1: List of SDGs and the Six Transformations.
| Sustainable Development Goals (SDGs) | Six Transformations Towards Achieving the SDGs |
|--------------------------------------|-----------------------------------------------|
| **Goal 1 - No Poverty:** End poverty in all its forms everywhere | 1. Education, Gender and Inequality |
| **Goal 2 - Zero Hunger:** End hunger, achieve food security and improved nutrition, and promote sustainable agriculture | 2. Health, Wellbeing, and Demography |
| **Goal 3 - Good Health & Well Being:** Ensure healthy lives and promote well-being for all at all ages | 3. Energy Decarbonisation and Sustainable Industry |
| **Goal 4 - Quality Education:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | 4. Sustainable Food, Land, Water, and Oceans |
| **Goal 5 - Gender Equality:** Achieve gender equality and empower all women and girls | 5. Sustainable Cities and Communities |
| **Goal 6 - Clean Water & Sanitation:** Ensure availability and sustainable management of water and sanitation for all | 6. Digital Revolution for Sustainable Development |
| **Goal 7 - Affordable & Clean Energy:** Ensure access to affordable, reliable, sustainable, and modern energy for all | |
| **Goal 8 - Decent Work & Economic Growth:** Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all | |
| **Goal 9 - Industry, Innovation & Infrastructure:** Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation | |
| **Goal 10 - Reduced Inequalities:** Reduce inequality within and among countries | |
| **Goal 11 - Sustainable Cities & Communities:** Make cities and human settlements inclusive, safe, resilient, and sustainable | |
| **Goal 12 - Response Consumption & Production:** Ensure sustainable consumption and production patterns | |
| **Goal 13 - Climate Action:** Take urgent action to combat climate change and its impacts | |
| **Goal 14 - Life Below Water:** Conserve and sustainably use the oceans, seas, and marine resources for sustainable development | |
| **Goal 15 - Life On Land:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss | |
| **Goal 16 - Peace Justice & Strong Institutions:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels | |
| **Goal 17 - Partnerships for the Goals:** Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development | |
Source: Sachs et al. (2019); United Nations (https://sdgs.un.org/goals).

[1] See e.g. the OECD Green Recovery Database, the Global Recovery Observatory of the Green Fiscal Policy Network, the Sustainable Recovery Tracker of the International Energy Agency, the Greenness of Stimulus Index, the European Green Recovery Tracker, CarbonBrief’s Green Recovery Tracker and others.

Methodology

In line with the requirements of the EU legislation, each country prepared a national Recovery and Resilience Plan in spring 2021, consisting of a number of interventions which comprised public investments, public funds that supported or facilitated private investments, and institutional reforms. To address the four questions outlined in the introductory section and offer actionable knowledge to decision makers on how to work beyond the officially adopted RRPs, a ten-step methodology has been followed, as listed below in the form of a to-do list.

1. Study in detail the description of all measures included in the RRP of the country.

2. Identify the linkages of each measure to individual SDGs and create the relevant matrix of (RRP measures x SDGs). This provides a first unweighted mapping and allows a first insight into how much each SDG is addressed by the whole RRP. To identify these linkages, pay attention to the individual indicators that are used to compile the score of each SDG in the Europe Sustainable Development Report [3]. Consider that a measure addresses an SDG only if it addresses a specific indicator that is included in the SDG dashboard. For example, SDG 7 (clean and affordable energy) consists of three indicators in the European context: Percentage of population unable to keep home adequately warm; Share of renewable energy in gross final energy consumption; and CO₂ emissions from fuel combustion per electricity output. A RRP measure should be considered to address this SDG only if it affects one or more of these three indicators. Using this principle, e.g. promotion of public transport counts towards achievement of other SDGs but not of SDG 7. In case of lack of clarity, refer to the broad targets of each SDG[1].

3. Assign the budget of each measure to the corresponding SDG(s) that this measure addresses.

   It may not be advisable to split the budget of a measure between different SDGs because often the same actions contribute to more than one SDGs. In this case, the sum of the budget assigned to all SDGs will be higher than the total RRP budget. This is also the case in the national RRPs as regards the requirement to dedicate at least 37% and 20% of the budget of the package to climate-related and digital measures respectively. A measure may contribute to both green and digital transition and is therefore counted as a contribution to both these targets.

This is not a problem as long as it is made clear to readers of the assessment. However, if information is available, it may be possible to split one RRP measure in its individual sub-measures; this may allow a more detailed mapping and assignment of parts of budget to different SDGs. For example, an intervention may involve activities for vocational training and reskilling of unemployed people, whose
total budget could be considered to be relevant for SDGs 8 and 10. If this measure includes one specific sub-action targeted to women, its budget – if available as a separate figure – can also count towards SDG 5.

1. Summarise the results of steps 2 and 3 above in a table and two graphical representations. These will depict the contribution of the RRP to each SDG a) by the number of measures addressing each SDG, and b) by the budget allocated to each SDG, respectively. (For an example, see Table 2 and Figures 1 and 2 in Section 3 below).

2. Re-visit the matrix to assess the degree to which each measure addresses each one of the identified SDGs, thereby assigning weights to the importance of each intervention to each Goal. For this purpose, use the scoring method proposed in the Six Transformations approach (Sachs et al., 2019), i.e. a score between zero and three depending on whether a measure directly contributes towards an SDG (score 3), reinforces it (score 2), enables it (score 1) or does not have any impact at all (score 0). Create a separate matrix of (RRP measures x SDGs) with these weighted scores.

For the European national RRPs it is relatively safe to assume no negative outcome on any SDG, i.e. consider no trade-offs between objectives, because the EU Recovery Regulation has several safety checks. For example, every RRP measure must comply with the 'Do No Significant Harm' Principle in line with Sustainable Finance rules, for all six main environmental objectives (climate change mitigation and adaptation, pollution, circular economy, protection of nature as well as water and marine resources). Moreover, the Regulation demands compliance of each country’s RRP with the EU Pillar of Social Rights, and complementarity and coherence with long-time goals. Still, if the analyst considers some interventions to have a negative impact on any SDG, it should be possible to use a score of -1 for that measure/SDG combination. This can become much more relevant if policy packages other than the RRP are assessed, e.g. expenditures and subsidies of national budgets, where several items may yield environmental or social harm and hence have a negative effect on one or more SDGs; this is already addressed by some governments (Republic of France, 2020).

1. Create two graphical representations on the basis of the results of step 5: they will show the weighted contribution of the RRP to each SDG a) by the number of measures addressing each SDG, and b) by the budget allocated to each SDG, respectively. An example is provided in Figures 4 and 5 in Section 3.

2. Repeat steps 5 and 6 not for individual SDGs but for the Six Transformations. As a reminder, the Six Transformations towards achieving the SDGs are the following: Education, Gender, and Inequality; Health, Wellbeing, and Demography; Energy Decarbonisation & Sustainable Industry; Sustainable Food, Land, Water, and Oceans; Sustainable Cities and Communities; and Digital Revolution for Sustainable Development. Like in step 5, a separate matrix of (RRP measures x Transformations) will be created with these weighted scores. Similar to step 6, the graphical representation will follow as illustrated in Figures 6 and 7 in the next section.
3. Examine the (RRP measures x SDGs) and (RRP measures x Transformations) matrices created in steps 5 and 7 respectively. Look at each row separately, to identify those individual measures with the highest score. These can be regarded as lighthouse interventions, i.e. those measures yielding the greater sustainability impact and contributing to several SDGs/Transformations.

4. In a parallel activity, examine the SDG scores for the country whose RRP is assessed, based on the dashboard of the Europe SDR 2020 (SDSN and IEEP, 2020). Then explore the performance in each individual indicator assessed for every SDG. Identify:

- SDGs in which ‘significant challenges remain’, with particular attention to those Goals whose score has deteriorated and/or has been stagnant in recent years.
- Indicators among all SDGs with an orange- or red-coloured rating and/or with a declining trend.

5. Compare the findings of the ex-post SDG assessment of step 9 with those of the ex-ante assessment of RRPs (steps 5 and 6). This comparison highlights problematic sustainability areas which the RRP does not address sufficiently.

Figure 1 illustrates the broader framework in which this methodology can be applied. The first row corresponds to the outcome-based assessment of SDG scores as explained in step 9 above. This is an ex-post assessment that can be compared to the ex-ante assessment of steps 1 to 8 (second row in Figure 1) in order to identify financing gaps and propose corrective actions for mainstreaming sustainability in national policies – both in public funding and in support to investments of the private sector – in line with step 10 above. Especially with regard to support for private investments, this procedure can complement the rules that have partly been prepared and are partly under development in the frame of the EU Sustainable Finance initiative[2] and can provide guidance to decision makers and stakeholders.

[1] See individual targets of each SDG on https://sdgs.un.org/goals.
[2] See https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

Implementation And Results

To address the first question mentioned in the introductory section, and following the methodology outlined in Section 2, a detailed assessment of the RRP of the Republic of Cyprus was performed. The RRP contains 134 groups of measures in total, comprising public investments, public support schemes to private investments and institutional reforms in diverse sectors of the economy. After examining the description of each one of these measures, it was assessed to what extent they contribute to one or more of the seventeen SDGs and the Six Transformations. We used the four-point scale as described in Section 2 in line with Sachs et al. (2019). Detailed tables are available as supplementary material online.
The RRP’s 134 groups of measures are planned to be implemented between 2021 and 2026 according to a tight time schedule. Out of these, 68 are institutional reforms in different sectors of the economy, ranging from changes in the evaluation of school teachers to modernization of the judicial system to a green tax reform. The other 76 measures constitute investments, which comprise both direct investments in e.g. hospitals, social benefits to vulnerable citizens and public infrastructure, and support schemes in the forms of grants or subsidized loans that will help mobilize private funds towards e.g. modernization of industrial equipment, energy renovations of buildings, electric vehicle charging stations etc. Overall, the RRP encompasses five main categories of interventions (called policy axes) under the following headlines: Public health, civil protection and lessons learned from the pandemic; Accelerated transition to a green economy; Strengthening the resilience and competitiveness of the economy; Towards a digital era; and Labour market, social protection, education and human capital.

Implementing steps 1 to 3 described in the previous section, Table 2 shows the results of the mapping between RRP measures and SDGs, while Figures 2 and 3 summarise this outcome graphically.

Applying the Six Transformations framework, we considered the importance of each measure towards each sustainability objective. For this purpose, the contribution of each one of the 134 measures to each Transformation and each SDG was assigned a different score depending on whether it directly contributes towards a Transformation/SDG (score 3), reinforces it (score 2), enables it (score 1) or does not have any impact at all (score 0). No negative outcome on any SDG was assumed, i.e. no trade-offs between objectives were considered, as explained in step 5 in Section 2 above. We performed an additional weighting by using the squares of the 0-4 scale and arrived at essentially the same results.

Figures 4 to 7 display some of the results. As regards Transformations (Figures 4 and 5), the formal requirement of EU legislation to devote a substantial part of the recovery funds to decarbonisation and digitalisation can explain the importance for Transformations 3 and 6 respectively. Measures related to climate policy and circular economy also contribute to Sustainable Cities (Transformation 5). Moreover, a major portion of the RRP is devoted to constructing facilities for children with special needs, vocational training and reskilling the workforce (Transformation 1). On the other hand, less importance has been attributed to the food system, sustainable agriculture and healthy lifestyles, which explains the smaller importance of Transformation 2.

A more detailed overview is possible when observing the contribution of the RRP to individual SDGs. Figures 6 and 7 illustrate this and show a slightly different picture compared to the corresponding unweighted mapping of Figures 2 and 3. While a sizable part of the total budget is devoted to digitalisation and decarbonisation measures, thereby directly affecting SDGs 9 (innovation & infrastructure) and 13 (climate action) respectively, much less attention has been paid to SDG 2 (that includes food security, improved nutrition and sustainable agriculture) and SDG 14 (marine resources). At the same time, these graphs have to be interpreted with caution: a large number of institutional reforms promotes SDG 16, but since these are low-budget measures they appear with relatively less importance in
Figure 7; if this assessment focuses on the number of measures addressing each SDG and not on the budget as in Figure 6, SDG 16 becomes the second most importantly targeted goal by the RRP of Cyprus.

To address the second question, i.e. which individual RRP measures contribute more strongly to progress towards sustainability, each measure of the RRP was assigned a score for its overall effect on SDGs based on the 4-point scale mentioned above. We found that the ‘best’ interventions are those which contribute to several sustainability objectives at the same time, e.g. modernise the economy, enable the low-carbon and low-pollution transition and promote social inclusion. At the level of individual measures, the highest-ranking interventions were the following:

- Research and innovation funding on green transition
- Skilling, reskilling and upskilling the work force: strengthening digital, green, blue and entrepreneurship skills of the unemployed, people over 55 and with special emphasis on unemployed women
- Support schemes for the reduction of greenhouse gas emissions in industries, businesses and organisations
- Upskill the existing farmers’ community and professionalise future labour force by investing in human capital
- Valorisation of livestock waste and animal by-products and construction of a biogas production unit
- Promoting renewables and individual energy efficiency measures and tackling energy poverty in households with disabled people.

The multi-dimensional mapping shown in Figures 4-7 allows insights on the third policy question, i.e. which SDGs are insufficiently addressed by the recovery plan, we delved into the specific assessment of Cyprus that is included in SDSN's Europe Sustainable Development Report 2020. According to this, ‘major challenges remain’ for Cyprus in SDGs 2, 5, 6, 9, 11, 12, 13, 14, 15, 17. Out of these, performance has deteriorated in SDG 2 and has been stagnant in SDGs 5, 6, 11, 12, 13, 15. Based on answers to questions 1 and 2 above, it becomes clear that the major gap is in SDG 2; the Cyprus RRP does not adequately address issues in which Cyprus performs below average in this SDG, more specifically in the following indicators:

- Prevalence of obesity
- Human trophic level (e.g. how much meat is included in the diet of the population)
- Nitrogen balance on agricultural land
- Ammonia emissions in agriculture.

It is therefore evident that national policies and budget should clearly prioritise SDG 2.

Other areas of priority were also identified when looking at the score of the country in individual indicators that are included in other SDGs. For example, although SDG 11 is addressed widely in the RRP, it hardly affects some indicators of this Goal such as the share of green space in urban areas. Similarly in
SDG 15, measures of the RRP do not help improve the performance of Cyprus in the percentage of protected areas that are important to biodiversity nor the concentration of nitrate in groundwater.

**Discussion**

The analysis presented above provides a pragmatic framework that can be pursued by national and international policymakers even beyond Europe, which can be tailored to the needs of any country faced with the challenge to re-design its medium-term budget and align it with sustainability objectives. Still, the framework shown in Figure 1 and implemented in Section 3 leaves room for further explorations that are meaningful for policymakers because the use of SDGs can be a particularly valuable tool to assess the extent to which sustainability considerations are mainstreamed in public budgets.

In view of the holistic framework that SDGs introduce and their global importance, the linkage of public finance to sustainability has started being analysed in different case studies; in Europe, for example, Borchardt et al. (2020) and Cavalli et al. (2020) are two recent examples. The wealth of information from policy documents and detailed budget tables as well as the multitude of data from SDGs and sub-targets can be analysed with the aid of sophisticated data science tools. It is important, however, to keep in mind that algorithms are not enough; as the process involves decisions of policymakers and diverse societal stakeholders, this exercise cannot be a merely algorithmically driven; such an assessment must be made in depth, using expert knowledge of the policy details of each country, and not mechanistically. On the other hand, the analysis has to be tractable to national administrations, hence very sophisticated approaches may not be useful to policymakers.

Moreover, such an appraisal needs to be complemented by at least two additional approaches – which addresses the fourth policy question mentioned in the introductory section. First, indicators are necessary to assess actual implementation of these measures for ensuring delivery of the expected benefits. For this purpose, top-down indicators may be useful, like the macroeconomic scoreboard used in the European Semester process (European Commission, 2018) or the OECD Circular Economy Scoreboard (OECD, 2020a). Second, it is essential to explicitly consider the time horizon of different impacts. Additional analysis is necessary to distinguish trade-offs and synergies between short-term and long-term impacts as the EU recovery packages have different objectives – for example, social impacts may be more important for providing economic relief in the next two or three years, some economic and green impacts are designed to contribute to environmental and economic development targets for 2030, while other impacts are relevant for the longer term, such as the climate neutrality target for 2050 and other objectives of the European Green Deal (Zachariadis et al., 2021).

To the extent that the appraisal of an economic stimulus package has been conducted with the above methodology appropriately, this framework should then be expanded and applied in all medium-term economic policy plans of a country. In the EU, for example, RRP will be a major source of funding for investments and reforms in EU Member States up to 2026 – but not the only one; hence the analysis can be transferred and employed for all funds included in the regular EU budget, i.e. the so-called European
Structural and Investment Funds. Similar plans around the world, such as China’s 14th Five-Year Plan for 2021-2025, or the United States’ American Jobs Plan and the Infrastructure Deal decided during 2021, are examples where this framework can be effectively applied.

In 2020-2021, initiatives at OECD and EU level put a strong focus on ‘Green Budgeting’ (OECD, 2020b), which tracks the greenness of public budgets for one or more environmental objectives. This is an important starting point towards full consideration of SDGs in governmental actions, and national administrations that can go beyond Green Budgeting to ‘SDG Budgeting’ can offer a valuable service to the welfare of their societies. As suggested by experts (Lafortune et al., 2020) and briefly shown in this paper, it is possible to quickly identify gaps in the sustainability orientation of public policies by combining ‘outcome-based’ approaches such as SDG scores with forward-looking assessments of budgets that link all budget measures with SDGs and the Six Transformations. Figure 1 has provided a simple schematic of this framework, which apart from public policies can also be used for the targeted support of private investments.

Conclusions

This paper presented a pragmatic framework for assessing the sustainability performance of public investments and reforms, based on a detailed analysis of the official Recovery and Resilience Plan of an EU country that was prepared by the national administration in early 2021 and approved by EU leaders in summer 2021. Although sophisticated algorithms have been devised to automatically discern the links between different policies and SDGs, proper policy appraisal requires detailed knowledge of the individual measures and exercising expert judgement in order to understand the extent to which each measure contributes to sustainability goals, in line with the four-point scale used here. Despite the fact that more comprehensive policy and governance frameworks have been described in other studies (EEA, 2019; Meuleman, 2021), and questions on policy coherence have been posed (Coscieme et al., 2021; Zeng et al., 2020), the analysis presented in this paper can enable a fast but reliable appraisal of public policies that can be easily taken up by decision makers. Similar analyses for a larger number of countries would be needed to draw EU-wide policy conclusions, yet the framework shown here can help rapidly improve economic policy design, now that the policy environment is changing fast, and policymakers are required to act in both a timely and efficient manner to the challenges of a post-pandemic world.

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Table 2

Due to technical limitations, Table 2 is only available as a download in the supplementary files section.

Figures

**Figure 1**

Schematic framework for Mainstreaming SDGs in National Policies.
Figure 2

Results of the unweighted SDG-mapping in the RRP of Cyprus based on the number of individual measures addressing one or more SDGs.
Figure 3

Results of the unweighted SDG-mapping in the RRP of Cyprus based on the budget allocated to measures addressing one or more SDGs.
Figure 4

Contribution of the RRP of Cyprus to the Six Transformations Towards Achieving SDGs, based on a weighted score of the number of individual measures addressing one or more Transformations.
Figure 5

Contribution of the RRP of Cyprus to the Six Transformations Towards Achieving SDGs, based on a weighted score of the budget allocated to measures addressing one or more Transformations.
Figure 6

Importance of each SDG in the RRP of Cyprus based on a weighted score of the number of individual measures addressing one or more SDGs.
Figure 7

Importance of each SDG in the RRP of Cyprus based on a weighted score of the budget allocated to measures addressing one or more SDGs.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- FinalRRPSDGsTransformations.xlsx
- Table2.docx