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# Do Emerging Markets Succeed in Implementing Sustainability Principles in Infrastructure Finance? Evidence from Public-Private Partnerships in Russia

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## Abstract

This paper is the author's contribution to existing literature on the evaluation of ways to co-create ESG benefits in the process of implementing a public-private partnership (PPP). The author developed his own ESG rating based on a sound set of indicators and an independent evaluation of publicly available information on sustainable development issues. For the purposes of compiling a rating score, the specific issues relevant to the evaluation of a PPP project's sustainability considerations in view of national agenda were analyzed. Based on an analysis of academic literature and publicly available information about similar ratings, the author proposes an approach to measuring these issues and incorporating the results in the integrated ESG rating. The developed ESG benefit evaluation instrument may be used by institutional, private and state PPP market participants for a comprehensive analysis of their investment activity. The case study analysis of two PPP projects from Russian practice revealed sustainability failures in corporate governance practices in the process of investing in infrastructure; in addition, the author proposed potential ways of overcoming some of the failures based on case comparison. This paper provides a new outlook on the methodology of a PPP-adjusted ESG rating that is relevant for evaluating and monitoring of corresponding investments in infrastructure on emerging markets.

**Keywords:** public-private partnerships (PPP), ESG rating, ratings and rating agencies, sustainable development, sustainability investments, project analysis, infrastructure finance

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## Introduction

Today, public-private partnerships (PPP) are actively used worldwide<sup>1</sup> to attract investments in the infrastructure sector; this mechanism is also becoming popular among the member countries of the Eurasian Economic Union [1]. According to the definition by D. Grimsey and M.K. Lewis, “public-private partnerships are arrangements whereby private parties participate in, or provide support for, the provision of infrastructure, and a PPP project results in a contract for a private entity to deliver public infrastructure-based services” [2]. Infrastructure in this definition is asset-based and refers to both economic infrastructure (e.g., motorways, railways, and bridges) and social infrastructure (e.g., schools, social housing, hospitals and prisons) [2].

Some typical characteristics that distinguish PPPs from traditional public procurements include the use of long-term infrastructure contracts [3], private investments in public infrastructure, provision of public services by a private company and the transfer of certain risks to the private sector [4], a focus on the specification of project outputs rather than project inputs, and the integration or “bundling” of different functions into a single contract [2]. Taking into account the abovementioned characteristics, it is sound to consider PPPs as separate businesses that are emerging within the long-term contractual relationship with the state authorities.

At the same time, it is reasonable to analyze PPP vehicles separately from corporations. Although these companies are private, they are established for the sole purpose of implementing a specific project or rendering specific services for the state authority (the grantor), the operations of those companies are controlled by the grantor, who is frequently the sole buyer of the company’s services. Namely, PPP companies are established and operated in close cooperation with the state and highly dependent on the contractual relationship with the corresponding state authority. That’s why this type of the companies might be considered a transition type between profit-oriented private corporations and non-for-profit state enterprises.

PPPs are sometimes mentioned as a potential vehicle for achieving the state’s sustainability goals [2; 4; 5]. However, the evidence from some researchers [6] shows that it is up to the PPP participants to ultimately decide to what extent they will pursue sustainability goals. At the same time, there is evidence from developed markets that the key role in ensuring the sustainable implementation of a PPP is fulfilled by the state authority [6]. Consequently, to implement the PPP that go beyond mere financial added value, a strong coordinating role is required from the public partner. Following those conclusions, corresponding governance recommendations for the public procurer have been proposed in recent research [6].

In 2010–2021 in view of the increase in the number of transactions and in the volume of private investments in public infrastructure (performed both through PPPs and non-PPPs), the current worldwide trend is to increase the share of “green” investments<sup>2</sup>. That’s why it’s becoming vital not only to evaluate, but also to assess infrastructure projects in terms of the achieved sustainability impacts.

Currently available ESG rating methodologies and indices overlook the measures specific to public-private partnerships and infrastructure investment in general. Current methodologies are focused on public companies, and even if certain ratings are applicable to infrastructure projects, they do not take into account either national specifics, or PPP aspects that evaluate the actions of public partners, rather than only the investors’ activities.

This paper builds on the necessity of creating an integrated ESG rating score that accounts for specific PPP features to enable institutional, private and public market participants to conduct a comprehensive analysis of their investment activity. This ESG rating is required not only to evaluate the project’s attractiveness during the start-up period, but it is also needed at the later stages of the project life cycle for assessment of the investment activities by the wide range of stakeholders. In the latter case, what is very important is that an efficient set of indicators could be susceptible to independent verification based on the publicly available information about the project.

To date, the assessment of efficiency of PPP project implementation in Russia is focused on the efforts to assess the overall integrated effect, as well as the evaluation of budget benefits and economic effects and risks for stakeholders [7]. However, how frequently and consistently do Russian PPP participants evaluate sustainability factors when investing? How to assess the overall project performance against sustainability principles and measures? To answer these questions, a specific methodology has been developed and specific ESG indicators related to PPP activities have been proposed in this paper. The proposed methodology is then applied to the case studies of two Russian mega-projects for their evaluation. The following research questions are examined: (1) What specific issues could be addressed when analyzing sustainability considerations of a PPP project? (2) How to measure those specific issues and how to include the estimate in an integrated rating of ESG impact? (3) What failures in corporate governance practices are encountered in implementing sustainable investing, and how can they be avoided in future?

The remainder of this article is structured as follows: Section 1 provides a literature review and a discussion of the current research on PPP sustainability. Subsequently, Section 2 describes the methodology for the development of an ESG rating. Section 3 continues with the findings from

<sup>1</sup> Infrastructure Monitor 2022. Global trends in private investment in infrastructure. Global Infrastructure Hub.

<sup>2</sup> Infrastructure Monitor 2022. Global trends in private investment in infrastructure. Global Infrastructure Hub.

the application of the developed ESG rating to case studies, reveals failures in projects' sustainable development and infers recommendations for overcoming certain sustainability failures based on a comparison of project cases. Finally, Section 4 discusses the conclusions and limitations of the research.

## Literature Review

The review of academic literature is structured in the following two blocs: the *Sustainability in PPPs* bloc reviews the recent research papers on sustainability issues in PPP projects, and the *ESG rating* bloc discusses how the existing ESG ratings developed by banks and rating agencies might be applicable to real-life PPP cases, their differences and their limitations associated with methodology.

### Sustainability in PPPs

The issues of sustainable development (hereafter SD) have already been addressed in a number of research papers on PPP problematics. Although the methodological approaches are only being developed, the authors usually perform case study analysis for different projects and companies, which presumably incorporate SD aspects in their processes and decisions. To address research questions, researchers usually interviewed project managers, conducted extensive analysis of project tender documentation and even design specifications. The major secondary source of information on project development is the open publications in various media, including the Internet.

M. Hueskes et al. [6] focused their research on the questions of how public procurers deal with sustainability when procuring PPPs and how the incorporation of sustainability considerations can be stimulated. They performed an empirical research of PPP projects in Flanders (Belgium) based on an analysis of the tender documents of twenty-five PPPs and case studies of two PPP projects, which included interviews of project insiders regarding governance practices used to achieve sustainability goals.

L.A. Keeyes and M. Huemann [8] developed a conceptual framework for the analysis of an agricultural innovation project on how the project's SD benefits are co-created by multiple stakeholders involved in infrastructure projects, beyond the usual project objectives and results. The authors analyzed different stages of the life cycle of an infrastructure project where SD benefits are created and outlined the elements that support the co-creation of the project's sustainable development benefits.

F. Villalba-Romero et al. [9] assessed the performance of transport infrastructure projects in terms of achieving sustainability principles (i.e., the three pillars). They fulfilled the task by developing a simple measurement matrix for assessing sustainability in transport projects. The matrix was applied to the assessment of the four infrastructure project case studies from different parts of the EU, specifically, toll roads in Greece, Portugal, Spain and the UK. This

paper proposed a basic approach to assessing sustainability performance using a combination of quantitative and qualitative content analysis (QCA) based on the extensive questionnaires filled out by project insiders. The paper assessed project performance in terms of sustainability and compared sustainability metrics against the common indicators that determine a project's success. Sustainability performance is also compared against conventional project management in order to see the deviation of results, if any. The three pillars, i.e., economic, social and environmental, are used to measure sustainability; whilst the "iron triangle", i.e., quality, cost and time, are considered to assess project performance.

The above-mentioned research papers on sustainability in PPP projects developed their own analysis frameworks and assessment tool. For example, M. Hueskes et al. [6] developed their own system comprising 6 criteria and 18 sub-criteria for further analysis of project-related data on implementation of sustainability in project tender documentation and other guidelines. Those criteria and sub-criteria aren't measured, they are used as a checklist to evaluate the presence of sustainability consideration in documentation. At the same time, they provide an example of criteria applicable to PPPs. Moreover, the analysis conducted by M. Hueskes et al. [6] concentrated exclusively on the activities of the public party. The current paper builds on the analysis of M. Hueskes et al. [6], however, it introduces measures of the criteria that are measurable and analyses the activities of the private party in addition to those of the public party.

All research papers are based on the analysis of qualitative, rather than quantitative non-public information and confidential interviews with project insiders, with a focus on the tendering process, and the negotiation and construction stages of the corresponding projects, however, none of the authors performed an extensive analysis of projects' operational stage. This paper fills in this gap by introducing numerical ESG criteria measures and by taking into consideration SD-related activities of project stakeholders in the operational stage.

In addition, the research framework doesn't provide for questionnaires and direct interviews with project insiders due to a lack of access to the corresponding employees. Instead, the research is based on the analysis of publicly available information and official sustainability reports disclosed by project founders. Questionnaires and interviews could improve the quality of project evaluation, however, they would not affect the development of a framework for this analysis.

Another research gap filled in by the current paper is the analysis of SD co-creation based on case studies from emerging markets.

The author believes that such a sustainability analysis must be based mainly on public information or on the information which may be made public easily in plain language and a structured way. This kind of sustainability development analysis could also be conducted with the help

of an ESG rating based either on an existing ESG rating methodology or on a methodology developed specifically for PPPs. Such an approach could allow for the future comparability of different projects' ESG ratings based on a common set of criteria. However, in the absence of an established ESG rating practice for PPPs, the analysis of the examples of existing ESG rating methodologies applicable to corporations and their projects could shed light on the possible improvements of the methodology developed by the above-mentioned researchers.

## ESG ratings

The recent research on ESG rating methodology shows that the significant divergence of different methodologies allows to obtain completely different ranks for the same company [10]. The primary reason would be the “lack of a commonality in the definition of ESG (i) characteristics, (ii) attributes and (iii) standards in defining E, S and G components” [10]. Another reason is that different raters use different numbers of criteria in their assessments. For example, MSCI and FTSE Russell represent the extremes, assessing 37 and 300 ESG criteria, respectively. Other agencies, in turn, assess different metrics related to the industry that the company belongs to (see Sustainalytics and RebecoSAM). Finally, the difficulty arises in achieving a generally acceptable definition of ESG materiality, i.e., an assessment of whether a specific event or a process may ultimately trigger the weighting mechanism of the assessed criteria and generate further divergence in the overall rating [10].

Other authors also highlighted that there are four leading ESG rating providers (MSCI, S&P Dow Jones, FTSE Russell, and Thomson Reuters) and a range of significant ESG indexes (e.g., MSCI ACWI ESG Index, Dow Jones Sustainability World Index, FTSE4Good Global Index, and the Thomson Reuters ESG Indexes for US Large Cap stocks and Developed Markets (ex-US)) [11]. The limitations of the existing ratings include the bias towards tracking larger firms in developed countries, and the fact that “ESG indexes designed decisions can lead to a ‘one-size-fits-all’ approach, which may obscure the nuances of the underlying company’s behavior” [11]. Besides, there are indices that were developed especially for assessing infrastructure projects.

SuRe Standard was developed in partnership with Global Infrastructure Basel Foundation and Natixis. The analysis is carried out in regard to 14 different topics using 61 ESG criteria [12]. Since 2012, this standard has been used in more than 150 infrastructure projects.

The Envision project also aims to explore a single infrastructure project. Envision uses sixty sustainability indicators of environmental, social, and economic impact. These criteria are divided into five categories: quality of life, leadership, resource allocation, the natural world, climate and risks [13].

Both the ratings of SuRe Standard and Envision projects are project-based, which is why they’re more suitable for the evaluation of a PPP than the previous company-based rating introduced above. However, the criteria are too numerous to perform the calculation and verification based on public information. The evaluation process requires special competences and may not be performed without reporting commitments from the project founder. This peculiarity is particularly problematic for emerging markets, where significant information asymmetry and poor institutional environment create the conditions for possible fraud related to communicating correct project-related information. Another disadvantage of these rating methodologies is that they don’t take into account the activities of the public partner related to their functions described in the PPP agreement, which is why in the case of a PPP the rating score wouldn’t be comprehensive.

Taking into account these peculiarities of existing methodologies, a specific analysis framework has been developed for the purpose of this research.

However, ESG rating methodologies is not fully disclosed by their proprietors – rating agencies and banks – which makes its comprehensive analysis impossible without access to legally protected information. Moreover, they are permanently reassessed based on the practice of its implementation and ongoing research on the subject of ESG. However, the analysis of available rating methodologies allows to calibrate the approach to the development of an analysis framework.

## Methodology and Analysis Framework

The case study methodology has been used to achieve the main goal of this research. Two private-public partnership Russian projects (Western High-Speed Diameter and M-11 «Neva») were compared. The application of the author’s proprietary methodology of ESG-rating to real life cases provides the answer to one of the research questions: to what extent do Russian PPP participants take sustainability factors into account when performing the corresponding investments and operating the new infrastructure?

In order to conduct these case studies, the following algorithm is used. All the relevant information about projects and their financial indicators were taken from the National Public-Private Partnership Center of Russia<sup>3</sup>. The concessionaires’ so-called “sustainable development reports” prepared on a voluntary basis were analyzed for ESG criteria assessment. The availability of detailed and sensitive sustainability information on project performance was the key factor in the selection of those projects for case study analysis. Another reason for the selection of these projects for the analysis is that both of them are pioneering PPP projects in Russia launched in early 2010, and a broad range of reliable data has been accumulated not only about the construction, but also about the operation stage.

<sup>3</sup> URL: [pppcenter.ru](http://pppcenter.ru); [rosinfra.ru](http://rosinfra.ru)/project



A list of ESG criteria has been developed as a starting point for the analysis. Subsequently, the activities of public and private parties implementing the project are evaluated against each of the criteria. Such a list of sustainability criteria is the sphere where a country's or even local area specifics could play a significant role, i.e., the project allowing to overcome or even resolve major national environmental, social and governance problems could obtain a higher rating in comparison to the one that aggravates the corresponding problem. The more important the problem is to the public, the higher the rating for a project that resolves it, and vice-versa. This is a specific approach to the materiality of the sustainability criterion, which was applied in this research. Using this approach as the starting point, the source of the information for the rating metrics could then play a certain role in the assessment, i.e., source reliability, novelty and applicability of the obtained information. As a result, the sustainability analysis framework could be based on the following steps:

- defining the main environmental, social and political issues of the public;
- defining the criteria allowing to evaluate the project's influence on resolving the abovementioned issues;
- assessment of infrastructure projects based on selected criteria;
- adjustment of the score for source reliability, novelty and applicability of the obtained information.

The local environmental agenda has been taken from the polling performed by major national polling center WCI-OM in 2019 [14], while the social issues are taken from the research published by research center Romir in 2016 [15], which is publicly accessible. The list of social issues has been further supplemented by the problems related to projects specifics and relevant social problems they aim to resolve. The list of the analysed governance issues is very typical for many ESG ratings, because it's focused on the

ways in which a private entity copes with operational risks and whether it successfully implements corporate social responsibility (CSR) policy.

At the next stage, the exact indicators were selected from the following types of indicators. *Performance-based* indicators, also called performance-oriented indicators, which are efficiency scores calculated based on the level of goal achievement initially stated by the contractor. This type of indicators is aimed to measure operation efficiency, shed light on the trends and report the results. *Practice-based* indicators, or prescriptive indicators, reveal the presence of required instruments or systems to ensure the implementation of best practices. These indicators are process-oriented, rather than result-oriented, which means that the causal relationship between policy implementation and the obtained result needs to be confirmed. That's why such indicators could obtain a lower rank during the evaluation process than those that are performance-based. Another type of indicators used in the assessment process is *target-based* indicators. These indicators reveal whether the operation is based on an explicit plan, or on policy and monitoring. An example of such an indicator may be a roadmap or a rating based on a number of milestones to be achieved. As a result, such indicators could be easily measurable and verifiable, at the same time, an achieved milestone can't be unambiguously equated with the achievement of the corresponding broad social or environmental goal, because the latter is as so easily measurable. That is why a target-based indicator could obtain a lower rank when compared to the other above mentioned indicator types. A simple scoring scale was selected in this research to evaluate the type of indicator: target-based indicator – 1 point, practice-based indicator – 2 points, performance-based indicator – 3 points.

A list of 13 indicators was developed and corresponding indicators were proposed for further evaluation, as presented in Table 1. The indicators below are also ranked according to the indicator type.

**Table 1.** ESG criteria

Category	Criterion	Indicator	Party	Type
Environmental	Air pollution	1 Emission level during construction phase	Private	Performance-based
		2 Car exhaust emissions after start-up of the operation phase in attraction zone	Private	Performance-based
	Waste recycling	3 Quality (level) and speed of waste recycling	Private	Practice-based
	River and lake pollution	4 Increased river and lake pollution in the attraction zone	Private	Performance-based
	Deforestation and deterioration of protected nature territories	5 Square meters of cutdown trees, negative impact on protected nature territories	Public / Private	Performance-based

Category	Criterion	Indicator	Party	Type	
Social	Unemployment	6	Number of new permanent jobs (direct effect)	Private / Public	Target-based
	Traffic jams	7	Reducing trip time, traffic congestion	Private	Target-based
	Human resources	8	Respect for labour rights and labour law	Private	Practice-based
	Noise levels	9	Level of noise during construction and operation phases	Private	Performance-based
	Housing policies	10	Number of residential buildings demolished in the project's attraction zone	Public	Practice-based
Governance	CSR policy	11	Transparence and openness of CSR policy, level of disclosure of ESG-related information in annual reports	Private	Practice-based
	Construction standards	12	Number of court suits related to disregard for construction standards	Public / Private	Target-based
	Corruption	13	Number of cases (court suits) of asset misappropriation	Public / Private	Practice-based

Source: Author's analysis.

Each of the 13 indicators was evaluated based on a 5-grade scale where: 1 stands for completely unacceptable actions, 5 stands for excellent actions/policy in the chosen category. The full evaluation scale is presented in Table 2.

**Table 2.** Evaluation scale

Rating	Grade	Percentage rating, %
● Excellent	5	80–100
● Good	4	60–80
● Satisfactory	3	40–60
● Acceptable	2	20–40
● Inacceptable	1	0–20

Source: Author's analysis.

Finally, in order to calculate an integrated rating, it is necessary to adjust the score for the information source reliability. During the assessment process, the following types of information sources were used: highly reliable and timely source (high-quality data), reliable and less timely sources (moderate-quality data), and reliable, but non-timely sources (low-quality data). The complete score information is presented in Table 3.

**Table 3.** Data source quality

Quality level	Criterion	Score
High-quality data	Data is timely (published in the last 1–2 years)	3
	Data is obtained from official reports of PPP participants	
Moderate-quality data	Data is published by a PPP participant	2
	Data is less timely (published 2–5 years ago)	
Low-quality data	Data published over 5 years ago	1

Source: Author's analysis.

## Results/Findings and Discussion

The final overall integrated rating demonstrated that the SD consideration result is approximately the same for both projects, however, the rating score components are not homogeneous. The Western High-Speed Diameter project is an internationally well-known example of a Russian public-private partnership. This project is often considered as one of the best private-public partnership projects in Russia in the field of infrastructure development. However, the results of the analysis revealed the presence of significant flaws, which undoubtedly made the project look bad in comparison with similar international transport projects. The M-11 highway project is not as well known worldwide, which is why it is frequently considered inferior to the Western High-Speed Diameter at the international expert level. However, the project's overall ESG score is 3 out of 5 points for both projects, which indicates the weak attention of Russian authorities and investors to the project's ESG impact as well as presumably poor relevant statutory regulation.

Despite the similar overall rating of both projects, there are clearly significant differences in the individual grades for each of the thirteen indicators. These important differences are revealed in the level of air pollution during the construction phase, the level of lake and river pollution, the implemented human resource policy and the level of openness and transparency of operations.

When analyzing the problem of air pollution along each highway, it should be noted that the Western High-Speed Diameter crosses the residential areas of Saint Petersburg, which is why the compensatory activities performed to offset the negative effects are more expensive and time-consuming. Contrary to the WHSD, the M-11 highway is located entirely in non-residential areas, and as a result the need to perform any significant measures to eliminate the air pollution effects is much lower. In addition, the environmental footprint of the WHSD project has attracted the attention of both environmental experts and local communities.

A similar situation occurs when we analyze the influence of the projects on river and lake pollution. In view of the limited possibilities to alter the WHSD route, the majority of rivers and subsurface waters in the proximity to the construction site suffered a negative impact. At the same time, the location of M-11 highway allowed to choose the optimal route easily, thereby bypassing a number of rivers and lakes during the project's design stage, which was actually performed by state authorities, rather than the concessionaire.

Nonetheless, it's important to note the discovered transgressions that occurred during construction and operation of the highways, which have a significant negative impact on the integrated rating. During the comparative analysis of technological construction solutions and the cases of non-compliance of the contractors with estab-

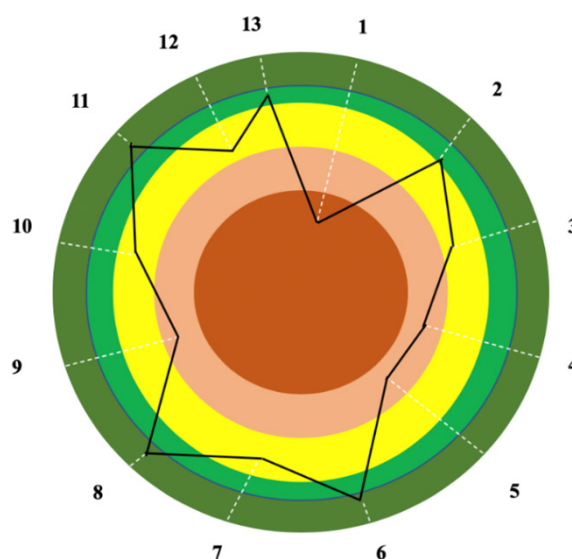
lished rules and norms, we could conclude that breaches of code during the construction of the WHSD were more significant than during the construction of M-11. However, it should also be noted that the inspections of construction sites by regulatory authorities revealed infractions in both projects.

Policy analysis performed by the concessionaire companies in the sphere of human resources and operations openness revealed that, the concessionaires of M-11 project disclose only a small part of information about the measures implemented to improve working conditions for their employees and promotion of openness and transparency. Despite the fact that this is a project of high public interest and attention, obtaining any information about its operations is a highly challenging process because of its influence on the economy of the regions in attraction area, as well as due to the level of state's financial support provided. On the contrary, Northern Capital Highway, the concessionaire of the WHSD project, broadly discloses CSR policy measures. The project's web-site contains not only the list of measures performed, but also the planned events and measures aimed at improving the processes for attracting new highway users and communicating with the project's stakeholders. This is clearly a positive example of SD effect co-creation by project participants.

A more illustrative graph of the ESG rating calculated for each of the analyzed projects is the so-called sustainable polygon. Figure 1 presents the sustainable polygon for the WHSD. The same illustration for the M-11 project is presented in Figure 2.

The sustainability polygon shows which of the thirteen indicators have an "inacceptable" score (close to the circle's red center) and which have an "excellent" score (close to the green rim). The numbers correspond to the criterion's number in Table 1 above.

**Figure 1.** Sustainable polygon for WHSD



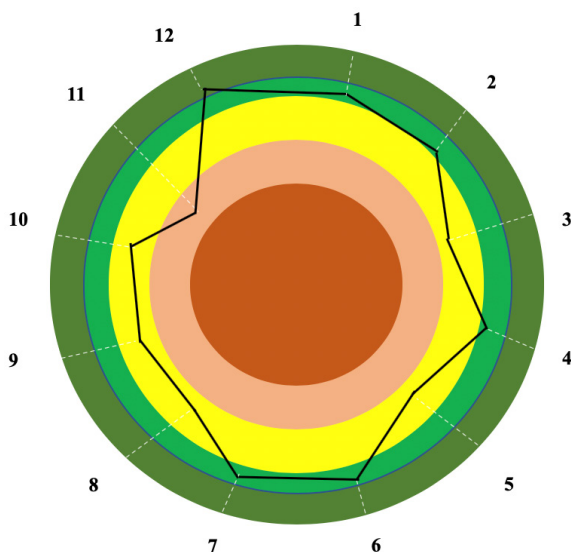
Source: Prepared by author.

When analysing the sustainability polygon of the WHSD,

it should be noted that the evaluation results for the selected indicators are quite heterogeneous. Figure 1 reveals the concessionaire's failures to implement reasonable technical solutions and operational planning during construction phase, as well as to control and monitor compliance with important environmental and social requirements. At the same time, we must note the significant efforts of the concessionaire to introduce the principles of openness and transparency of operation, regular communications with a wide range of stakeholders and to eliminate the negative impact caused by project implementation to the local communities.

The sustainable polygon for the M-11 highway project demonstrates that the actions of the concessionaire during the construction process led to a stable negative impact on the environmental and social situation in the project's attraction zone. Such a conclusion could be inferred from the fact that the diagram on Figure 2 is smoother than that on Figure 1. There are no prominent failures in some specific areas, except for some significantly less efficient governance practices than in the previous case. There are no significant successes either; on average the criterion is evaluated at a "satisfactory" or "good" levels. However, a number of significant offenses with respect to construction norms were revealed. What is more important, is the policy fully concealing company operations from the public attention, because significant offences, especially in the related to environmental impact and corruption may simply be hidden from the public scrutiny. That's why overall illustration provided by the M-11 highway sustainability polygon might be significantly biased in comparison to the WHSD polygon, and the project's actual integrated rating may prove to be lower than the current one.

**Figure 2.** Sustainable polygon for M-11 highway



Source: Prepared by author.

During the analysis of the obtained results we may infer the reasons for the similarity of the projects' overall sustainability ratings. In the case of the WHSD project, the

initial evaluation of environmental and social indicators is significantly worse than the same indicators for the M-11 highway, while the timeliness of the sources of information about the WHSD is significantly better than of those about the M-11. Thus, if we calculate the ESG rating without adjustment for the quality of information sources, the result obtained for the ESG rating of the M-11 highway could be even higher than the one for the WHSD. However, the significance of the data source's high quality is obvious, which is why the corresponding adjustment is required and the obtained ESG rating for WHSD could be set at a similar level with the one of M-11, with regard to all the above-mentioned limitations of analysis.

## Conclusion, Contribution and Limitations

This paper presents the methodology of compiling a ESG rating specific for PPP projects and based on public information only and voluntary disclosures by the project initiators. The numerical ESG ratings obtained in two case studies were visualized in Figures 1 and 2. The issues related to sustainability of PPP projects implemented in Russian practice were examined and addressed, however the conclusions and developed tools are applicable to many similar emerging markets.

The literature analysis from the *Sustainability in PPPs* bloc allowed to draw attention to other researchers' answer to the question "(1) What specific issues could be addressed when analyzing the sustainability considerations of a PPP project?" and to identify research gaps related to the question "(2) How to measure those specific issues?" The *ESG rating* bloc allowed to review current approaches to measuring sustainability issues for investment projects, and identifies the research gap regarding specific PPP project-related ratings.

This paper builds on the analysis of other research and takes into account the activities of both the private and the public parties. It also fills in this gap by quantifying ESG criteria, although previous researchers used qualitative measures only, and by taking into consideration the SD activities of project stakeholders in operational stage. In contrast to other academicians' approaches, the research framework in this paper doesn't provide for the use of questionnaires and direct interviews with project insiders due to lack of access to the corresponding insiders. Instead, the research is mainly based on the analysis of publicly available information and official sustainability reports disclosed by the project founders. The questionnaires and interviews could be able to improve the quality of projects evaluation, however they won't affect the author's development of an analysis framework. Another research gap filled in by this paper is the analysis of sustainability activities on emerging markets. Compared to similar project-based ESG ratings, i.e., that of Envision, the author's proprietary ESG rating provides for the evaluation of the activities of the public party in addition to the evaluation of activities of project founder. The research demonstrates that the introduction in cor-



porate governance guidelines of the board's responsibility for the evaluation and publication of the ESG rating could significantly improve the governance practices, including the efficient communication of sustainability issues to concerned stakeholders and shifting the board's focus from profit-making to sustainable development matters.

ESG impact was unfortunately not on the agenda of major PPP project participants in Russia in 2010–2021. As demonstrated by the calculation of the above rating scores, there is ample room for improvements at the state regulation level, as well as in private business practices in the coming years. Meanwhile, active participation in implementation of the projects launched by such international financial institutions (the IFIs) as EBRD makes it possible to ensure the disclosure of pertinent sustainability information to stakeholders and the introduction of relevant practices on stakeholder involvement and problem-solving measures. The research shows that participation of IFIs does not prevent significant failures in the implementation of technical solutions and obeying construction norms, probably due to the fact that it's a more complex problem in the sphere of statutory regulation and overall tender process. The positive role of IFI nonetheless lies in timely problem communication and stakeholder involvement in the search for efficient solutions.

This paper also demonstrates the positive impacts of timely disclosure of the pertinent sustainability matters in the integrated reporting of the concessionaire company, as well as the importance of disclosure of sustainability-related activities by public authorities directly involved in the implementation of PPP projects. The corresponding sustainability disclosure responsibility for both parties to a PPP project should be introduced in legislation.

The research carried out in this paper could be continued, since the sustainability-related rating may be supplemented by various criteria, not only in the studied areas, but also in other areas that may have an impact on the ESG assessment, for example, the level of technological complexity, innovativeness of project activities, etc. Therefore, the methodology developed in this paper could serve as a basis for ESG analysis of PPP projects on transport, as well as in other infrastructure sectors. However, when conducting further research, it is necessary to take into account the problem that emerged in the research process: the availability of public data on completed projects, or the reporting gaps. Unfortunately, a significant part of the information that supports the analysis is not available for research due to the fact that private investors and public partners in concessions and long-term investment agreements are not obliged to disclose up-to-date assessments of the environmental and social audits. Meanwhile, concession companies, which attract high public interest, actively use the gaps in reporting regulations and reporting standards that allow them to make only a very small part of project-related information publicly available and leaving stakeholders uninformed about important matters of project implementation. Among the relevant sources of sustainability-related information are the construction control and surveyor

reports, project stage commissioning reports and acts, environmental and social audits, legal documentation and public hearing protocols.

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