

An S&P Global Second Party Opinion (SPO) includes S&P Global Ratings' opinion on whether the documentation of a sustainable finance instrument, framework, or program, or a financing transaction aligns with certain third-party published sustainable finance principles. Certain SPOs may also provide our opinion on how the issuer's most material sustainability factors are addressed by the financing. An SPO provides a point-in-time opinion, reflecting the information provided to us at the time the SPO was created and published, and is not surveilled. We assume no obligation to update or supplement the SPO to reflect any facts or circumstances that may come to our attention in the future. An SPO is not a credit rating, and does not consider credit quality or factor into our credit ratings. See [Analytical Approach: Second Party Opinions](#).

Second Party Opinion

Zhengzhou Metro Group Co. Ltd. Sustainability Finance Framework

Oct. 22, 2024

Primary contact

Joyee Lam
Hong Kong
+852-2912-3057
joyee.lam
@spglobal.com

Location: China

Sector: Infrastructure Transportation

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Social Bond Principles, ICMA, 2023
- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Sustainability Bond Guidelines ICMA, 2021

See [Alignment Assessment](#) for more detail.

Strengths

The development of electric public rail networks contributes to the decarbonization of Zhengzhou city's transportation sector. It substitutes the use of private vehicles or public transportation that runs on fossil fuels. The accessibility aspects of social projects should also reduce connectivity issues in remote areas of Zhengzhou city.

Weaknesses

No weakness to report.

Areas to watch

The framework does not require quantitative thresholds ensuring minimum performance for all eligible projects. Likewise, there is limited consideration on eligible assets' life-cycle impacts (such as scope 3 emissions, and end-of-life treatment and circularity). Some projects could also involve fossil fuel-powered equipment, especially for construction works. These could weigh on the carbon benefits of the projects.

Zhengzhou Metro's non-financial disclosures are limited. It is unclear how the company manages environmental and social considerations beyond eligible projects under this framework.

Eligible Green Projects Assessment Summary

Over the three years following issuance of the financing, Zhengzhou Metro Group Co. Ltd. (Zhengzhou Metro) expects to allocate the proceeds to the extension of rail transit system, and related infrastructure projects. The company does not have an indicative allocation among the framework's eligible categories.

Eligible projects under Zhengzhou Metro's sustainability finance framework are assessed based on their environmental benefits and risks, using Shades of Green methodology.

Low carbon transportation **Dark green**

Technology research and development, and preliminary planning

Construction of rail transit stations, and associated rail infrastructure

Development, construction, and operation of electric rail infrastructure and rolling stock

Construction of modern communication systems

Pollution prevention **Dark green**

Technologies related to noise reduction

Energy efficiency **Dark green**

Design, manufacture, and installation of systems, products and technology associated with low-carbon transportation systems

See [Analysis Of Eligible Projects](#) for more detail.

Issuer Sustainability Context

This section provides an analysis of the issuer's sustainability management and the embeddedness of the financing framework within its overall strategy.

Company Description

Established in 2008, Zhengzhou Metro is headquartered in Zhengzhou city, the capital of China's Henan province. It primarily engages in the investment, construction, operation, and management of the public rail transit system. In 2023, the company recorded an operating income of RMB1.6 billion (US\$231 million) and had total assets of Chinese renminbi (RMB) 240 billion (US\$34 billion). Rail transit operation contributed 54% of operating income. Ancillary business, including souvenir sales, electricity supply, rental, and training services accounted for 36%, with the remaining 10% from the property and resource development and consultancy services.

As of the first half of the year, ended June 30, 2024, the company operates nine metro lines and two intercity rail transit lines, with a total route length of 345 kilometers across 220 stations. It had an annual passenger ridership of 583 million in 2023. It has three metro lines under construction in Zhengzhou city, with a total investment amount of RMB 85.5 billion (US\$12.1 billion).

The Zhengzhou government has an 88% stake in Zhengzhou Metro through the Zhengzhou Municipal Finance Bureau. The remaining 12% is owned by China Development Bank Development Fund Co. Ltd.

Material Sustainability Factors

Climate transition risks

Transportation is the fastest growing source of emissions worldwide, and accounts for about a quarter of global greenhouse gas emissions according to the International Energy Agency. Infrastructure design and condition can affect greenhouse gas emissions and existing transportation infrastructure may require investment to support wider decarbonization trends. Infrastructure development also produces significant emissions due to land use changes and reliance on carbon-intensive materials such as steel and cement. In the context of China, the country has national commitments to reach peak carbon emissions before 2030 and achieve carbon neutrality by 2060. According to the World Bank, the transition to a low-carbon economy will require a massive shift in resources, innovation, and new technologies to enhance energy efficiency and resource productivity as the country emits a third of global greenhouse gases.

Physical climate risks

Acute physical risks--such as storms, typhoons, and floods--can impair, disrupt, or even destroy assets, limiting the availability of essential infrastructure including roads and mass transit systems. Over time, both acute and chronic risks--changing temperature and precipitation patterns and rising sea levels --may shorten the useful life of the infrastructure. Many service interruptions are regional, but the key role of transportation access in communities and economies can lead to major impacts. Their impacts can also be much broader if key assets--like bridges or tunnels --are unavailable for extended periods. The increasing frequency and often severity of acute physical risks and the assets' long-term nature and fixed locations point to growing materiality. The impacts of physical climate risks may extend beyond the assets themselves and play out to an infrastructure provider's region or service area. This could have more prolonged impacts on demand, potentially affecting stakeholders. Unabated climate change could lead to estimated GDP losses of 0.5%-2.3% as early as 2030 for China, according to the World Bank. Chinese provinces account for half of the most exposed global spots to extreme weather events by 2050. Under the RCP 8.5 scenario, Henan province is ranked fifth globally in its exposure to aggregated damage risk in 2050 (source: 2024 XDI Gross Domestic Climate Risk Report).

Pollution

Pollution from electric transportation, such as electric metros, can take the form of emissions from electricity generation (such as CO₂ if powered by nonrenewable sources). While electric trains do not emit exhaust gases, substantial mechanical wear and frictional contact between the network rail, train wheels, and train brakes can increase airborne particulate matter (source: Atmospheric Environment, Volume 273, 15 March 2022). There has been some progress in reducing pollution through regulations. For instance, China is progressively aligning its air pollution levels with the more stringent interim targets set by the World Health Organization (WHO). China plans to halve the regulatory limits of key pollutants like inhalable particulate matter (PM_{2.5} and PM₁₀), and nitrogen oxide by 2030.

Health & Safety

The health and safety of employees and passengers is critical, given that the transportation industry sees regular incidents and accidents. Constructing and maintaining safe transportation infrastructure is key to policymakers and users, especially for tunnels, bridges, mass transport, and rail. In case of fatal or large-scale injury incidents, issues related to employees and customers health and safety can not only undermine public trust but question an entity's license to operate, lower usages, result in litigation, and disrupt future opportunities. China's metro safety measures emphasize improving emergency responses, flood control, and regular system inspections, with operators expected to prepare for natural disasters and equip rescue teams for emergencies, including suspending operations when needed (source: The State Council of PRC).

Issuer And Context Analysis

The framework's eligible categories aim to address climate transition risk, while social projects endeavor to provide accessible transportation services to all passengers. These are all material sustainability factors for the company. Nevertheless, eligible projects could potentially introduce additional considerations such as physical climate risk, pollution, and health and safety to both employees and passengers.

The company does not have specific sustainability targets or company-wide sustainability disclosures. This is despite the eligible projects' aims of contributing to China's 14th Five-Year Strategic Plan for the development of a low-carbon economy, and facilitating social mobility in Zhengzhou city. Zhengzhou Metro mainly manages climate considerations through facilitating the use of electrified public rail transit, and energy efficiency measures for its operations. These aim to contribute to the national carbon peak and neutrality goal by 2030 and 2060. However, this has not translated into any companywide decarbonization target. Similarly, it does not maintain any social quantified objectives despite social inclusion being one of its sustainability core areas. This limits insights on the company's agenda to address material sustainability considerations and on how its operations beyond the projects included in this framework may impact its consolidated sustainability performance. The company communicated that it would commit to annually disclosing the actual impact of financed projects in a sustainable financing transactions report. There are no concrete plans or timeline for disclosing more comprehensive information, such as company-level performance, targets, and initiatives.

Zhengzhou Metro has yet to systematically measure physical climate risk, despite its material exposure due to the fixed nature of its infrastructure. The region where the company operates is particularly exposed to typhoons, rainstorms, and floods. Zhengzhou Metro communicated that they would measure the risk of earthquakes, ground collapse, and groundwater intrusion in planning process. Nevertheless, it has limited public disclosure on how it addresses physical risks in general. It is also yet to systematically assess its portfolio's physical risk exposure.

In July 2021, extreme rainstorms (average rainfall reaching 253 millimeters) in Zhengzhou city led to heavy flooding in the several stations of Zhengzhou Metro. A train was trapped in the tunnel with water rising to chest levels. It has left passengers being stranded in the train for hours and caused 14 deaths. Following this incident, the State Council of China has demanded an investigation to identify issues in the company's emergency preparedness, safety protocols, and

Second Party Opinion: Zhengzhou Metro Group Co. Ltd. Sustainability Finance Framework

flood controls, as well as remediation measures. In all eligible projects, Zhengzhou Metro is required to assess groundwater intrusion and flooding risk and prepare environmental emergency evacuation plan during the planning process.

Zhengzhou Metro's rail transit projects are exposed to both occupational and customer health and safety risks. The company has a "safety first, prevention first" policy and an emergency evacuation plan to ensure employee safety during construction and operation process, in compliance with relevant national and local regulations and standards. It will also require safety compliance records from its contractors for regular monitoring. The company confirmed that no major occupational health and safety incidents have been recorded in recent years.

Zhengzhou Metro includes pollution prevention and control projects in the framework, which aim to mitigate the impacts from its rail transit construction and operation activities. These measures mainly relate to noise reduction exercises, as required from the third-party environmental impact assessment findings. The company stated that underground station exhaust booths may release exhaust gases. Its management in this regard appear largely in compliance with national laws and regulations requirements.

Alignment Assessment

This section provides an analysis of the framework's alignment to the Social and Green Bond/Loan principles and the Sustainability Bond Guidelines.

Alignment With Principles

Aligned = ✓ Conceptually aligned = ○ Not aligned = ✗

- ✓ Social Bond Principles, ICMA, 2023
- ✓ Green Bond Principles, ICMA, 2021 (with June 2022 Appendix 1)
- ✓ Sustainability Bond Guidelines ICMA, 2021

✓ Use of proceeds

All the framework's green project categories have a green shade, and the social project category aligns with the principles. The issuer commits to allocate the net proceeds issued under the framework exclusively to eligible green and social projects. Please refer to the Analysis of Eligible Projects section for more information on our analysis of the environmental and social benefits of the expected use of proceeds.

✓ Process for project evaluation and selection

Zhengzhou Metro's project management department is responsible for the preliminary screening, nomination, and submission of eligible projects to the finance department for review. After reviewing, the finance department will select projects and present to the sustainable financing transactions working group (SFTWG), which comprises representatives from the finance, firm management, quality and safety supervision, and project management departments. The SFTWG will meet annually to discuss and approve projects according to the framework's eligibility criteria. Shortlisted projects will then be presented to the company's senior management for approval. The framework's green projects refer to the China Green Bond Endorsed Projects Catalogue. Zhengzhou Metro will identify, manage, and mitigate potential environmental and social impacts associated with the financed projects based on its internal control and policy framework, which complies with the Energy Saving Regulation of the People's Republic of China, Energy Efficiency Standards for Public Buildings, and Regulations for Green Construction. It will also conduct feasibility studies on such risks before the eligible projects commence. The framework references the International Finance Corp.'s exclusion list and bars projects related to nuclear, luxury services or goods, tobacco, and weapons and ammunitions.

✓ Management of proceeds

The net proceeds will be deposited in Zhengzhou Metro's general funding accounts and earmarked for allocation. It will maintain a register to track the allocation of net proceeds. The company commits to monitoring the net proceeds of all outstanding transactions, including the adjustment of proceeds to match allocations that comply with the eligibility criteria, if need be. Pending allocation, proceeds will be held in cash.

✓ Reporting

Zhengzhou Metro will report at least annually the allocation of net proceeds and the impact of financed projects until full allocation. The information will be disclosed in a sustainable financing transactions report. The allocation reporting will include projects description, the balance of the unallocated proceeds, share of financing and refinancing, and material developments or issues related to the financed projects. Impact reporting will include both the actual environmental and social impacts of financed projects.

Analysis Of Eligible Projects

This section provides details of our analysis of eligible projects, based on their environmental benefits and risks, using the "[Analytical Approach: Shades Of Green Assessments](#)," as well as our analysis of eligible projects considered to have clear social benefits and to address or mitigate a key social issue.

Green project categories

Low Carbon Transportation

Assessment

Dark green

Description

Technology research and development, and preliminary planning: Research costs associated with surveying, planning, and assessing site suitability

Rail transit stations: Construction of station buildings, including internal modernization, and investment into ventilation, lighting, fire, water, and waste management

Associated rail infrastructure: Construction of infrastructure to support low-carbon transportation, such as signal equipment, network interfaces, passenger passages, utilities, and other infrastructure

Electric rail infrastructure and rolling stock

- Development, construction, and operation of electric public transport rail systems, and the expansion, maintenance, and upgrade of such infrastructure to improve service levels or extend asset life and retain passenger capacity
- Purchase and maintenance of electric multiple units (excluding fossil fuels, diesel, nuclear powered assets, projects), train cars, etc.
- Construction of related infrastructure, including but not limited to track, tunnel construction etc.

Modern communication system: Construction of modern signaling systems, train control, and traction systems

Analytical considerations

- The use of electrified public transport is essential to realizing a decarbonized 2050 given it is less resource and emissions-intensive than conventional internal combustion engines. China is the world's second largest transport carbon emitter following the U.S., and its transport emissions account for about 9% of the national total emissions, according to World Resources Institute.
- The research and development, acquisition and maintenance of electric powered rolling stock, and the construction and modernization of public transport stations, installation of equipment, and related rail infrastructure, are well-aligned with a low-carbon, climate-resilient future. The company confirmed that eligible projects will not include the construction or operation of shops and car parks in the rail transit stations, but only metro lines and stations.
- According to Zhengzhou Metro, the average energy consumption per unit of transportation for taxis, buses, and rail transit are 8,000 kilograms (kg), 1,500kg, and 600kg of standard coal per 100,000 passengers, respectively. The electricity emission factor of Henan province stood at 0.74 kgCO₂/kWh in 2020 (0.84 and 0.79 kgCO₂/kWh in 2010 and 2018 respectively) (source: China Regional Power Grids Carbon Dioxide Emission Factors (2023). Zhengzhou Metro confirmed that it will not include the financing of machinery or equipment using fossil fuels under this category. This further strengthens the climate benefits of electrified public passenger transport and dedicated infrastructure and support our Dark green assessment.
- Research and development could cover infrastructure dedicated to the electrified public transport system. Examples include energy efficient ventilation and air conditioning systems and sewage control systems in subway stations, intelligent operation

solutions for rail transit systems, and the application of magnetic levitation flywheel energy storage systems for the operations of metro.

- Construction, modernization, and maintenance works are often emissions and resource intensive. Zhengzhou Metro stated that it will require measures to ensure energy efficiency during construction and low energy consumption during buildings' use phase. Nevertheless, there is limited information on how this will work in practice and on how the company will address embodied emissions (such as details on building materials), and what the eligibility criteria could be. Similarly, the framework includes investments into ventilation, lighting, fire, water, and waste management, but has not specified any quantifiable thresholds for the equipment performance compared to a baseline. Investments in fire equipment have safety, rather than climate benefits. However, they are an important enabling part of clean transportation.
- Zhengzhou Metro stated that it will prioritize the procurement of energy-efficient electric rolling stock. It is conducting research to measure the life-cycle impacts of its entire metro system. Nevertheless, there is limited information regarding its management of eligible projects from a circular economy perspective, such as procurement or end-of-life treatment of the rolling stock.
- Physical climate risks are material considerations due to the fixed nature of metro stations and rail infrastructure. Zhengzhou city is prone to extreme rainfalls and flooding. Zhengzhou Metro stated that it will prepare an environmental study to evaluate the vulnerability of all eligible assets and projects to climate weather events, such as earthquakes and flooding. For instance, it assesses groundwater intrusion and flooding risk and prepares environmental emergency evacuation plans during the planning process of its network. It also has safety protocols in place during both construction and operation phases, such as independent warning systems at each station. These initiatives appear largely limited to compliance with relevant laws and regulations.
- The selection of sites for infrastructure construction may raise potential biodiversity issues and land use impacts. The company requires all eligible projects to obtain approval from the Zhengzhou government authority prior to all project commencements. Before project implementation, Zhengzhou Metro prepares an environmental plan, which involves preliminary investigation and research, to mitigate impacts to natural habitat (and local residents).

Pollution Prevention

Assessment

 **Dark green**

Description

Noise reduction technologies such as noise barriers, modification of turnouts, rail dampers, and insulation booths

Analytical considerations

- Noise reduction measures help reduce negative impacts from constructing and operating the rail transit system. They contribute to preserve health of the metro passengers, local community, and fauna near the rail transit stations.
- Zhengzhou Metro stated that eligible activities under this category will focus on noise reduction control during construction and operation of rail infrastructure and rolling stock. These measures contribute to the deployment of low carbon transportation and indirectly support climate change mitigation as a result. This is consistent with a Dark green shade. In isolation, their environmental benefits are likely lower.
- According to Zhengzhou Metro's environmental impact assessment survey, the main sources of noise and vibration are machinery and transportation vehicles used at excavation sites, concrete pouring sites, and loading and unloading sites during the construction stage. The company has set a target to maintain the sound level equivalent to the weighted arithmetic mean of daytime road traffic sound level in Zhengzhou city at 68 decibels (dB).
- Examples of eligible measures include the design and construction of sound barriers, use of low-noise metro vehicles (6A type) with acoustic performance that complies with the General Technical Specification for Metro Vehicles (GB/T 7928-2003), and low-noise fans and cooling towers in underground section with a distance of at least 15 meters away from sensitive points. It can also include the installation of sheet muffler inside the subway wind pavilion. Zhengzhou Metro stated that it will manage the airflow regeneration by maintaining the wind speed of the exhaust booth below 4 meters per second (m/s).
- The company will comply with relevant national regulations, such as the Standard for Limits and Measurement Methods of Building Vibration and Secondary Radiation Noise Caused by Urban Rail Transit (JGJ/T170-2009), Emission Standard for Environmental Noise at the Boundary of Construction Sites (GB12523-2011), and Limits and Measurement Methods of Railway

Boundary Noise (GB12525-90). There is limited information to the extent which eligible projects will go beyond compliance requirements.

- Zhengzhou Metro stated that eligible noise remediation projects could involve the use of machinery powered by fossil fuels given limited market alternatives. Considerations to physical climate risks and biodiversity impacts will be included as part of the environmental impact assessments, as required by relevant laws and regulations.

Energy Efficiency

Assessment

 **Dark green**

Description







Design, manufacture, and installation of systems, products and technology associated with low-carbon transportation systems

- Modernization of lighting systems such as upgrades to LED
- Reduce energy consumption or improve efficiency, mitigate greenhouse gas emissions in railway construction and operations

Analytical considerations

- Energy efficiency brings various environmental benefits, such as greenhouse gas emissions reduction from reduced usage of power. Therefore, increasing energy efficiency is critical to limiting global warming to below 2 C. According to the IEA's net zero emissions by 2050 scenario, a 35% improvement in energy efficiency, equivalent to 4% per year, is necessary by 2030. But the average improvement from 2017 to 2021 was only 1.3%. Zhengzhou Metro aims to invest in installing energy efficient LED lighting systems, as well as energy saving technologies during the railway construction and operations.
- Energy efficiency measures dedicated to the Low Carbon Transportation project category support climate change mitigation objectives and we therefore assign them the Dark green shade. However, these investments may have lower climate benefits if assessed on a standalone basis, all the more as projects have no minimum reduction in energy consumption. There are also limited considerations to the development and manufacturing required for the supply chain, limiting the visibility of the life-cycle benefits to these projects.
- According to Zhengzhou Metro, energy efficiency investments will improve the operation of the electric rail transit system. The company has divided the system into two categories: 1) the traction power load of rail transit system and their auxiliary equipment, and 2) the power and lighting load of the associated facilities, such as stations, and sections. The former includes electric motor, weight and control of the train, and equipment within the train (e.g. ventilation, electric heating), and the longitudinal section of the metro line. The latter covers the stations' ventilation, water supply, drainage, escalators, communication, signaling, automatic ticket vending machines, disaster prevention alarms, and lighting.
- The company stated that different target metrics may apply, depending on projects. For instance, it upgrades the elevator system with permanent magnet synchronous traction system that replace the traditional worm gear traction system with a 10%-20% energy saving target. In addition, the adoption of regenerative braking energy recovery technology in metro vehicles can lead to around 10% energy efficiency improvement.
- Zhengzhou Metro stated that the use of fossil-fuel equipment will be allowed during the construction stage, given limited market alternatives. However, any equipment running on fossil fuels will not be included during the operation stage.
- The exposure to physical climate risks appear less material compared to eligible infrastructure projects, that are by nature, larger in scale.

S&P Global Ratings' Shades of Green

Assessments					
Dark green	Medium green	Light green	Yellow	Orange	Red
Description					
Activities that correspond to the long-term vision of an LCCR future.	Activities that represent significant steps toward an LCCR future but will require further improvements to be long-term LCCR solutions.	Activities representing transition steps in the near-term that avoid emissions lock-in but do not represent long-term LCCR solutions.	Activities that do not have a material impact on the transition to an LCCR future, or, Activities that have some potential inconsistency with the transition to an LCCR future, albeit tempered by existing transition measures.	Activities that are not currently consistent with the transition to an LCCR future. These include activities with moderate potential for emissions lock-in and risk of stranded assets.	Activities that are inconsistent with, and likely to impede, the transition required to achieve the long-term LCCR future. These activities have the highest emissions intensity, with the most potential for emissions lock-in and risk of stranded assets.
Example projects					
 Solar power plants	 Energy efficient buildings	 Hybrid road vehicles	 Health care services	 Conventional steel production	 New oil exploration

Note: For us to consider use of proceeds aligned with ICMA Principles for a green project, we require project categories directly funded by the financing to be assigned one of the three green Shades.

LCCR--Low-carbon climate resilient. An LCCR future is a future aligned with the Paris Agreement; where the global average temperature increase is held below 2 degrees Celsius (2 C), with efforts to limit it to 1.5 C, above pre-industrial levels, while building resilience to the adverse impact of climate change and achieving sustainable outcomes across both climate and non-climate environmental objectives. Long term and near term--For the purpose of this analysis, we consider the long term to be beyond the middle of the 21st century and the near term to be within the next decade. Emissions lock-in--Where an activity delays or prevents the transition to low-carbon alternatives by perpetuating assets or processes (often fossil fuel use and its corresponding greenhouse gas emissions) that are not aligned with, or cannot adapt to, an LCCR future. Stranded assets--Assets that have suffered from unanticipated or premature write-downs, devaluations, or conversion to liabilities (as defined by the University of Oxford).

Social project categories

Access to essential services

Provide accessible transportation

- Build barrier-free facilities
- Build transportation tracks for local residents with poor connectivity issues to facilitate their traveling

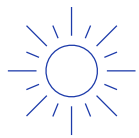


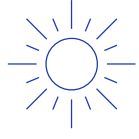


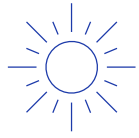


Analytical considerations

- Providing access to public transportation services such as barrier-free facilities in the rail station, and rail transit extension projects to remote areas in Zhengzhou city can contribute to improve social mobility and translate into greater efficacy of existing transportation infrastructure.
- Mobility services are key to social inclusion. The provision of subsidized public transportation services touch on affordability and accessibility, which can have overall benefits on economic empowerment. Eligible projects include the construction of barrier-free facilities (i.e. installing elevators to ensure people with mobility issues can access all the services in a given station) in each station, from the ground to the station hall. The company stated that elevators will be set up near schools, hospitals, and nursing homes to ease access for families with infants, the elderly (accounting for a fifth of the Chinese population), the disabled, and pregnant women. Another barrier-free elevator will be installed within the paid area of the station between the platform and the concourse. Proceeds will also be used for the installation of accessible toilets inside the station.
- Eligible projects also include the expansion of metro line 7. The project has a total route length of 29.3 kilometres and 21 stations, starting at Huanghe National Museum and ending at Nangangliu stations. Zhengzhou Metro stated the project will connect remote villages and rural towns to the center Zhengzhou city, with an aim to provide convenient, fast, and low-cost public transportation for rural residents. To that extent, the general population as an inclusive target group does not undermine the social benefits of the funded projects.
- According to the 2023 Statistical Bulletin on National Economic and Social Development in Henan Province, the per capita disposable income of rural residents in Henan Province is RMB 20,053, which is half of that of urban residents (RMB 40,234). Zhengzhou Metro stated that the expansion of rail transit system will enhance the mobility for villagers to travel to the city area, for work, study, and medical treatment. According to Zhengzhou Metro, medical resources are mostly concentrated in the city area. For instance, the First Affiliated Hospital of Zhengzhou University (located in the heart of Zhengzhou city) provides over 8,500 beds and has 15,000 employees, of which around 13,000 health technicians, where many people from the remote areas in Henan province have come to seek medical treatment.
- The fares of Zhengzhou Metro are calculated by distance traveled, with a price ceiling of RMB 12. Student fares (in full-time primary and secondary schools) are half of the adult fare. The system is free for elderly citizens (aged above 60) of Zhengzhou city during nonpeak hours (operating hours except 7-9AM and 5-7PM of Mondays to Fridays) and public holidays. It will always be free for the disabled, according to the definition from Zhengzhou Urban Rail Transit Operation Management Measures.
- Climate and environmental risks associated with the construction of infrastructure stem from the use of materials with high embodied emissions such as steel and cement, or those with a direct link to fossil fuels such as asphalt. Projects imply local pollution, the use of fossil-fuel-powered equipment during construction, and land use change and biodiversity impacts from urban expansion. While the framework does not set out specific performance criteria for the infrastructure projects, the environmental survey from the environmental impact assessment should include measures to address potential environmental negative impacts.

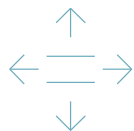
Mapping To The U.N.'s Sustainable Development Goals

Where the Financing documentation references the Sustainable Development Goals (SDGs), we consider which SDGs it contributes to. We compare the activities funded by the Financing to the International Capital Markets Association (ICMA) SDG mapping and outline the intended linkages within our SPO analysis. Our assessment of SDG mapping does not impact our alignment opinion.

This framework intends to contribute to the following SDGs:

Use of proceeds	SDGs		
Low Carbon Transportation	 7. Affordable and clean energy	 11. Sustainable cities and communities*	 13. Climate action
Pollution Prevention	 7. Affordable and clean energy	 11. Sustainable cities and communities*	 13. Climate action
Energy Efficiency	 7. Affordable and clean energy*	 11. Sustainable cities and communities	 13. Climate action

Access to Essential Services



10. Reduced inequalities



11. Sustainable cities and communities*

*The eligible project categories link to these SDGs in the ICMA mapping.

Related Research

- [Analytical Approach: Second Party Opinions: Use of Proceeds](#), July 27, 2023
- [FAQ: Applying Our Integrated Analytical Approach for Use-of-Proceeds Second Party Opinions](#), July 27, 2023
- [Analytical Approach: Shades of Green Assessments](#), July 27, 2023
- [S&P Global Ratings ESG Materiality Maps](#), July 20, 2022

Analytical Contacts

Primary contact

Joyee Lam
Hong Kong
+852-2912-3057
joyee.lam
@spglobal.com

Secondary contacts

Bertrand Jabouley
Singapore
+65-6239-6303
bertrand.jabouley
@spglobal.com

Research contributor

Aditya Padhy
Pune
CRISIL Global Analytical Center, an S&P affiliate

Second Party Opinion: Zhengzhou Metro Group Co. Ltd. Sustainability Finance Framework

Standard & Poor's Financial Services LLC or its affiliates (collectively, S&P) receives compensation for the provision of the Second Party Opinions product (Product). S&P may also receive compensation for rating the transactions covered by the Product or for rating the issuer of the transactions covered by the Product. The purchaser of the Product may be the issuer.

The Product is not a credit rating, and does not consider credit quality or factor into our credit ratings. The Product does not consider, state or imply the likelihood of completion of any projects covered by a given financing, or the completion of a proposed financing. The Product encompasses Use of Proceeds Second Party Opinions and Sustainability-Linked Second Party Opinions. An S&P Global Use of Proceeds Second Party Opinion provides an opinion on an issuer's sustainable finance instrument, program, or framework, and considers the financing in the context of the issuer's most material sustainability factors, the issuer's management of additional sustainability factors relevant to the sustainable financing, and provides an opinion regarding alignment with certain third-party published sustainable finance principles ("Principles"). An S&P Global Ratings Sustainability-Linked Second Party Opinion considers features of a financing transaction and/or financing framework and provides an opinion regarding alignment with relevant Principles. For a list of the Principles addressed by the Product, see the Analytical Approach, available at www.spglobal.com. The Product is a statement of opinion and is neither a verification nor a certification. The Product is a point in time evaluation reflecting the information provided to us at the time that the Product was created and published, and is not surveilled. The Product is not a research report and is not intended as such. S&P's credit ratings, opinions, analyses, rating acknowledgment decisions, any views reflected in the Product and the output of the Product are not investment advice, recommendations regarding credit decisions, recommendations to purchase, hold, or sell any securities or to make any investment decisions, an offer to buy or sell or the solicitation of an offer to buy or sell any security, endorsements of the suitability of any security, endorsements of the accuracy of any data or conclusions provided in the Product, or independent verification of any information relied upon in the credit rating process. The Product and any associated presentations do not take into account any user's financial objectives, financial situation, needs or means, and should not be relied upon by users for making any investment decisions. The output of the Product is not a substitute for a user's independent judgment and expertise. The output of the Product is not professional financial, tax or legal advice, and users should obtain independent, professional advice as it is determined necessary by users.

While S&P has obtained information from sources it believes to be reliable, S&P does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives.

S&P and any third-party providers, as well as their directors, officers, shareholders, employees, or agents (collectively S&P Parties) do not guarantee the accuracy, completeness, timeliness, or availability of the Product. S&P Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for reliance of use of information in the Product, or for the security or maintenance of any information transmitted via the Internet, or for the accuracy of the information in the Product. The Product is provided on an "AS IS" basis. S&P PARTIES MAKE NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDED BUT NOT LIMITED TO, THE ACCURACY, RESULTS, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT, OR FOR THE SECURITY OF THE WEBSITE FROM WHICH THE PRODUCT IS ACCESSED. S&P Parties have no responsibility to maintain or update the Product or to supply any corrections, updates, or releases in connection therewith. S&P Parties have no liability for the accuracy, timeliness, reliability, performance, continued availability, completeness or delays, omissions, or interruptions in the delivery of the Product.

To the extent permitted by law, in no event shall the S&P Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs or losses caused by negligence, loss of data, cost of substitute materials, cost of capital, or claims of any third party) in connection with any use of the Product even if advised of the possibility of such damages.

S&P maintains a separation between commercial and analytic activities. S&P keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of S&P may have information that is not available to other S&P business units. S&P has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

For PRC only: Any "Second Party Opinions" or "assessment" assigned by S&P Global Ratings: (a) does not constitute a credit rating, rating, sustainable financing framework verification, assessment, certification or evaluation as required under any relevant PRC laws or regulations, and (b) cannot be included in any offering memorandum, circular, prospectus, registration documents or any other document submitted to PRC authorities or to otherwise satisfy any PRC regulatory purposes; and (c) is not intended for use within the PRC for any purpose which is not permitted under relevant PRC laws or regulations. For the purpose of this section, "PRC" refers to the mainland of the People's Republic of China, excluding Hong Kong, Macau and Taiwan.

For India only: Any "Second Party Opinions" or "assessments" assigned by S&P Global Ratings to issuers or securities listed in the Indian securities market are not intended to be and shall not be relied upon or used by any users located in India.

Copyright © 2024 by Standard & Poor's Financial Services LLC. All rights reserved.