

**Green Financial Bond Assurance Opinions of
Ma 'anshan Rural Commercial Bank
CO.,LTD, Anhui, China**
(Pre-Issuance Assurance Summary)



June 2019

Scope and Objectives

Issuer

Ma'anshan Rural Commercial Bank CO., LTD, Anhui (Ma'anshan Bank), which was established in July 2009, headquartered at No.1659 Hongqi South Road, Yushan District, Ma'anshan City, Anhui Province. The primary business of Ma'anshan Bank included corporate banking, personal banking, capital business and so on. Until June 30th, 2018, the headquarters business department, a branch and fifty-six branches, with a total of fifty-eight institutions of Ma'anshan Bank were established. Recently, Ma'anshan Bank has been adhering to the green development concept, actively building green banks, and vigorously promoting the green economy development, low carbon economy and circular economy.

Bond

A Green bond, named "2019 Green Financial Bond of Ma'anshan Rural Commercial Bank Co., LTD, Anhui" (Green Bond) would be issued by Ma'anshan Bank, with a scale not exceeding one billion yuan (including one billion yuan) and the period not exceeding three years (including three years). Renewable Energy and Sewage Treatment Projects would be invested by Ma'anshan Bank, used by raising money of the Green Bond.

Verification Institution

China Lianhe Equator Environmental Impact Assessment Co., LTD. (Lianhe Equator) was established in 2015, which primarily engaged in green bond third-party certification, green financial advisory and environmental impact assessment business. The core technical force included a great number of senior environmental protection experts at the provincial and ministerial level, many registered consultants, financial analysts and more than sixty registered environmental impact assessors who have the leading green financial advisory service capabilities in the industry. The Lianhe Equator standardizes the specific certification work with the Green Bond Assessment and Certification Method System (LEIS0002-2017) was independently developed. The Lianhe Equator also have conducted this limited assurance engagement in accordance with the International Standard on Assurance Engagements 3000 (ISAE 3000): Assurance Engagements other than Audits or Reviews of Historical Financial Information. In

addition, the comprehensive performance of green bond from four dimensions, which were the characteristics of the project, the using and management of the fund-raising, the project evaluation screening and the information disclosure was evaluated. Ultimately, the green bond was evaluated and certified by it.

Verification Work

Verification Contents

Verification contents of Lianhe Equator about 2019 Green Financial Bond of Ma'anshan Bank's following aspects was included that:

- Policies and procedures of the using and management of funds.
- Evaluation and screening of project standards, green attributes and compliance.
- Information disclosure and process.

Standard

- *Climate Bonds Standard v2.1*
- *Climate Bonds Standard - Sector Criteria (Solar Version 2.1);*
- *Climate Bonds Standard - Sector Criteria (Water Infrastructure Version 1.0);*

Responsibilities

Issuers responsibilities were included the following aspects:

- Accept spot interviews and due diligence by the verification agency team.
- Provide relevant information data and system documents for the certification work of verification agency.
- Provide relevant information documents for the recruitment and investment projects for the the certification work of verification agency.
- Ensure that the supplied information data and system documents real and effective.

Verification agencies responsibilities were including the following aspects:

1. Conduct spot interviews and due diligence, which is based on the information data, system documents and information documents provided by issuers.

2. Issue the verification opinions and limited assurance conclusion on whether the debt

meets the climate bond standards.

Lianhe Equator conducted the verification in accordance with the Climate Bond Standard Version 2.1 and refer to the International Standard on Assurance Engagements 3000 – Assurance Engagements other than Audits or Reviews of Historical Information.

Overview of Nominated Projects

Table 1

No.	Project Name	Project Location	Total Requirement (CNY)	Plans to invest (CNY)	Green Definitions	instructions
1	Yong Bridge canopy photovoltaic power plant project	Su zhou city, Anhui province			Energy: Solar	A photovoltaic power project with 40MW of installed capacity. It is an agricultural light complementary solar energy utilization project.
2	Dang shan xinlou 20MW pv poverty alleviation power generation project	Su zhou city, Anhui province			Energy: Solar	A photovoltaic power project with 20MW of installed capacity. It is a rooftop photovoltaic project
3	10MW distributed photovoltaic power generation project of hefei xinren photovoltaic power co., LTD	He fei city, Anhui province			Energy: Solar	The project is a distributed photovoltaic distribution project, with a total installed capacity of 10MW. The generated electricity shall meet the owner's demand first, and the surplus electricity shall be supplied online.
4	Ma anshan southern sewage treatment plant	Ma anshan city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 40,000 tonnes of sewage a day. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13).</i>

No.	Project Name	Project Location	Total Requirement (CNY)	Plans to invest (CNY)	Green Definitions	instructions
5	Dang tu county third sewage treatment plant construction project	Ma anshan city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 15,000 tonnes of sewage a day. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13)</i>
6	The No.1 sewage treatment plant expansion and bidding project in Dang tu county	Ma nshan city, Anhui province			water distribution infrastructure	The project aims to improve the treatment capacity of the water treatment plant, increase sewage treatment capacity and optimize treatment process. Upon completion, the project will be capable of handling 60,000 tons/d.
7	Maanshan wangjiashan sewage treatment plant bid upgrading project	Ma anshan city, Anhui province			water distribution infrastructure	The project aims to improve the treatment capacity of the water treatment plant, optimize the process flow of water treatment and improve drainage quality. The sewage treatment plant has a capacity of 60,000 tons/d.
8	Lai an county sewage treatment project	Chu zhou city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 30,000 tonnes of sewage a day. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13)</i>
9	Chu zhou qing liu sewage treatment project	Chu zhou city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 50,000 tonnes of sewage a day. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13)</i>
10	Guangde jingkai district PCB industrial park sewage treatment plant project	Xuan cheng city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 10,000 tons/d. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13)</i>

No.	Project Name	Project Location	Total Requirement (CNY)	Plans to invest (CNY)	Green Definitions	instructions
11	Lang xi county sewage treatment plant bid transformation proje	Xuan cheng ciyy, Anhui province			water distribution infrastructure	The project aims to improve the treatment capacity of the water treatment plant and add new advanced treatment facilities on the basis of the original sewage treatment plant. After the reconstruction, the sewage treatment capacity is expected to be 20,000 tons/d.
12	Dong cheng sewage treatment plant of Lu an economic and technological development zone	Lu an city, Anhui province			water distribution infrastructure	The franchise period of the project is 28 years from the completion date. It has the capacity to process 20,000 tonnes of sewage a day. And it meets <i>the Water Criteria, which is Water treatment: Wastewater treatment facilities (on page 13)</i>
13	Wuhu economic and technological development zone administrative committee on wuhu tianmenshan sewage treatment plant (phase I) bid upgrading project	Wu hu city, Anhui province			water distribution infrastructure	The project aims to improve the treatment capacity of the water treatment plant and optimize the process flow of water treatment. The sewage treatment plant has a capacity of 60,000 tons/d.
14	Huaiyuan county vortex north sewage treatment plant phase ii project	Beng bu city, Anhui province			water distribution infrastructure	The project is the second phase of the existing sewage treatment plant, and the new water treatment project will have a capacity of 30,000 tons/d.

As shown in the table above, there are 3 photovoltaic power generation projects and 11 water treatment projects.

Pre-Issuance Requirements and Verification found

Table 2

Verification of requirements specified	Factual Findings	Error or Exceptions Identified
1. Selection of Nominated Projects & Assets	1.1 The issuer has developed a number of documents, such as "Ma'anshan Rural and Commercial Bank Green Industry Project Evaluation and Screening Management Measures (Temporary)" (Bank of Ma'anshan [2018] 261) was issued by Ma'anshan Bank. The evaluation and screening of green projects can be divided into two stages, which were project primary selection and project review. The branches of Ma'anshan Rural and Commercial Bank make preliminary judgments on the projects according to the Catalogue of Green Bond Support Projects and Climate Bonds Standard v2.1. The the proposed projects were reviewed by Credit Department of the head office, according to relevant standards and the final nomination list of green industry projects were formed.	None
	1.2 The issuer evaluated the environmental benefits of the proposed project. The project met the requirements. The benefits included energy conservation, less greenhouse gas emissions, reduced water pollutant emissions and reduced air pollutant emissions.	
	1.3 The issuer have drawn up lists of assets linked to green bonds	
	1.4 It is determined that the assets the issuer intends to invest in this bond are not related to other climate bonds.	
	1.5 After appraisal, the capital scale of the issuer's proposed investment does not exceed the asset value, as shown in Table 1.	
2. Internal Processes & Controls	2.1 The issuer has set up "Measures for the Management of Green Financial Bond Fund-raising of Ma'anshan Rural and Commercial Bank (Interim)" (Bank of Malaysia [2018] 260) and a special standing books to manage the financing funds of green bonds.	None
	2.2 The funds raised will be used to invest in other green bonds in China during the spare time, but will eventually be put into projects that are planned to be invested, rather than those that do not meet the requirements.	
	2.3 Same as 2.1, and will also assess the proportion of funds raised for investment or reinvestment.	
3. Reporting Prior to Issuance	3.1 It is confirmed that the funds raised will be used for the following projects, water distribution infrastructure and Energy: Solar.	None
	3.2 The Issuer has set up "Measures for the Management of Green Financial Bond Fund-raising of Ma'anshan Rural and Commercial Bank (Interim)" (Bank of Malaysia [2018] 260) and a special standing books to manage the financing funds of green bonds.	

	<p>3.3 The issuer has approved a verification agency to confirm that the bond meets the climate bond standards, water distribution infrastructure, Low carbon buildings: Residential, and Energy: Solar.</p>	
	<p>3.4 It is confirmed that the issuer's approved verification body will conduct post-issuance verification within one year of the issuance of the bonds to ensure that the funds raised are used for assets that meet the climate bonds standards.</p>	

Verification and Conclusion

Verification Opinions

These green bond collection brochure, Ma'anshan Rural and Commercial Bank Green Financial Bond Collection Fund Management Measures (Interim), Ma'anshan Rural and Commercial Bank Green Industry Project Evaluation and Screening Management Measures (Interim), Ma'anshan Rural and Commercial Bank Green Financial Bond Special Information Disclosure Management Measures (Interim), and other documents were reviewed by Lianhe Equator. And Lianhe Equator had interviewed the leadership of Ma'anshan Bank, the credit management department, the planning and finance department and the coordinated executive office of Green Bank. In addition, it was not find any discrepancies of Ma'anshan Bank in the using and management of fund-raising, project evaluation and screening, information disclosure and reporting.

Limited Assurance Conclusion

This Green Bond issuance scale did not exceed RMB one billion, included 14 nominated projects, which were Renewable Energy and Sewage Treatment. The total credit limit arrived 1.00835 billion yuan, which was covering the green bond issuance quota. Based on the limited assurance procedures conducted, nothing has come to Lian he's attention that causes us to believe that, in all material aspects, Ma an Shan Bank's green bond is not in conformance with the requirements of the Climate Bonds Standard Version 2.1.

Statement

The copyright of the verification suggestions belongs to the verification agency and the issuer can publish the suggestions after obtaining the permission of the verification agency.

Except for the principal relationship between the verification authority and the issuer, there

is no relationship among the verification authority, the verification personnel and the issuer that influences the independence, objectivity and impartiality of the verification action.

The conclusion of this verification report is that on the basis of sufficient investigation, reasonable evidence collection and comprehensive analysis, the verification agencies make independent judgments according to reasonable standards and procedures without changing their verification suggestions due to the improper influence of issuers and any other organizations or individuals.

The primary purpose of this verification is to verify the purpose and management of the green bond fund-raising, project evaluation and screening, and information disclosure. It only provides information support in the above fields. The verification agencies do not accept the liability for damages arising from this suggestion and its information.

In this verification, the issuer is responsible for the completeness, accuracy and timeliness of the verification suggestions, which are based on the information provided by the issuers.

There are some inherent limitations in this verification process. For example, it may be difficult to detect fraud, errors and irregularities if the verification is conducted only on selected information.

This verification suggestion can not be interpreted as any indication or guarantee for relevant bond investment decisions. In any case, this suggestion can not be used as an explanation or guarantee for the actual situation of bond economic performance, credit evaluation and fund-raising purposes.

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Date :

Annex 1: Mitigation Component of water distribution infrastructure

The Mitigation Component of the Water Infrastructure Criteria is intended to provide transparency over the impact that the use of proceeds will have on GHG emissions and the degree of mitigation that will be delivered over the operational lifetime of the project or asset.

For use of proceeds subject to a Mitigation Assessment as indicated, they are eligible for certification only if either:

- a. No net GHG emissions impact is expected, and the issuer discloses the justification for this decision with supporting documentation; or
- b. A negative net GHG emissions impact is expected, and the issuer has estimated the GHG mitigation impact that will be delivered over the operational lifetime of the project or asset. This impact should be defined in terms of the decreased emissions or increased sequestration relative to a business as usual baseline.

Evaluation of the issuer's mitigation assessment

It's important to note that the amount of methane produced during the operation of sewage treatment plants is small, and Chinese standards require a maximum volume concentration of 1 percent of methane in wastewater treatment plants(《Pollutant discharge standards for urban sewage treatment plants》 GB18918-2002, on page 4, Table4, while the actual measurements are much lower. However, this part of the data can only be monitored after the sewage treatment project is officially launched.

Here's what sewage treatment plants do to treat methane:

1. Optimize the treatment process and reduce the external carbon source(《Study on methane emission estimation and control strategy of municipal sewage treatment plant》, page48,5.2 “1”)): Adopt biological treatment carbon saving process, reduce external carbon sources; Using anaerobic process to treat high concentration wastewater, methane gas can be collected easily;
2. Carry out methane recovery projects for industrial wastewater treatment(《Study on methane emission estimation and control strategy of municipal sewage treatment plant》, page48,5.2 “2”)): In the anaerobic treatment process, the methane recovery process is added;
3. Strengthen sewage treatment and water reuse(《Study on methane emission estimation and control strategy of municipal sewage treatment plant》, page48, 5.2 “3”)): Reduce the sewage water going into natural water bodies such as oceans, rivers or lakes, which in turn reduces the amount of methane and other greenhouse gases it produces;

4. Improve sludge treatment(《 Study on methane emission estimation and control strategy of municipal sewage treatment plant》 , page48,5.3): The sludge is dried or resource , to reduce the emission of greenhouse gas;

Currently, the plan is to optimize the treatment process and install methane recovery facilities, but details of the facilities have not been made public. In China, methane emissions from sewage treatment plants were not required before construction. You can refer to the standard(《Pollutant discharge standards for urban sewage treatment plants》 GB18918-2002).

Due to these processes described here, all of these 11 water treatment plants will not result in an increase in the net GHG emissions from the wastewater. This aligns with the option (a) of the Mitigation Component.

Lianhe Equator has received assurances from the Issuer and the developers of the sewage and wastewater treatment plants, that the plants will take measures to control methane gas in accordance with the regulatory requirements. Methane levels in the plants are regularly monitored during the operational phase.

The Issuer has confirmed that it will only invest in the treatment plants if they meet the government regulations on the methane treatment processes. In other words, if the sewage and wastewater plants do not meet these regulations, the issuer will withdraw its funds away from the plants.

Annex 2: Adaptation & Resilience Component of water distribution infrastructure

Ma anshan southern sewage treatment plant (No.4), Dang tu county third sewage treatment plant construction project (No.5), The No.1 sewage treatment plant expansion and bidding project in Dang tu county (No.6), Maanshan wangjiashan sewage treatment plant bid upgrading project (No.7), Lai an county sewage treatment project (No.8), Chu zhou qing liu sewage treatment project (No.9), Guangde jingkai district PCB industrial park sewage treatment plant project (No.10), Lang xi county sewage treatment plant bid transformation proje (No.11), Dong cheng sewage treatment plant of Lu an economic and technological development zone (No.12), Wuhu economic and technological development zone administrative committee on wuhu tianmenshan sewage treatment plant (phase I) bid upgrading projectct (No.13) and Huaiyuan county vortex north sewage treatment plant phase ii project (No.14), All of these 11 treatment project covers the Yangtze river basin in Anhui province.

Water Projects Vulnerability Assessment (VA) and Adaptation Plan (AP) Scorecard:

Criteria: The project must score at least 60% of the maximum potential score in all four parts of the Scorecard.

VA SECTION 1: ALLOCATION				
		<i>Max Score</i>	<i>Actual Score</i>	<i>Requirement: Evidence and/or Disclosure AND Comments</i>
1.1	Are there accountability mechanisms in place for the management of water allocation that are effective at a sub - basin and/or basin scale?	1	1	Evidence 《水利部关于印发<长江经济带沿江取水口、排污口和应急水源布局规划>的通知（水资源函〔2016〕350）》 （ Layout planning of water intake, sewage discharge and emergency water sources along the Yangtze river economic belt） http://www.ywrrp.gov.cn/jnyw/4454.html ；《安徽省十三五水利发展规划皖政办〔2016〕81号》（ The 13th five-year plan for water conservancy development

			<p>in anhui province) http://xxgk.ah.gov.cn/UserData/DocHtml/731/2017/1/11/661851285493.html; 安徽省政府令第212号《安徽省取水许可和水资源费征收管理实施办法》 (Measures of Anhui province for the administration of water licensing and water resources fee collection) http://www.ahsl.gov.cn/psh/content/detail/5c85aec10a58674d0e8b47d7.html;</p>
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1.2	<p>Are the following factors taken into account in the definition of the available resource pool?</p> <p>a) Non - consumptive uses (e.g., navigation, hydroelectricity)</p> <p>b) Environmental flow requirements</p> <p>c) Dry season minimum flow requirements</p> <p>d) Return flows (how much water should be returned to the resource pool, after use)</p> <p>e) Inter - annual and inter - seasonal variability</p> <p>f) Connectivity with other water bodies</p> <p>g) Climate change impacts</p>	7	<p>Disclosure</p> <p>a: The 13th five-year plan: Chapter 1, section 1, article 5;</p> <p>b: The implementation rules of "Layout planning" shows that Total water use control requirements. For tributaries with limited water resources, the red line of total water consumption shall be strictly followed on the premise of giving priority to domestic water intake and ecological water use.</p> <p>c: same with 1.2 b</p> <p>d: The latest water bulletin from Anhui province shows that the water resources department is counting the amount of return flows each year.</p> <p>e: Water bulletin from Anhui and The 13th five-year plan will analyze these factors and make short-term plans.</p> <p>f: same with 1.2 d & e.</p> <p>g: /</p>
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1.3	Are arrangements in place to accommodate the potentially adverse impacts of climate change on the resource pool? (E.g. using best available science to plan for future changes in availability, undertaking periodic monitoring and updating of available pool.)	1	1	Evidence The 13th five-year plan and Measures of Anhui have taken into account the potential adverse effects, prioritized domestic and ecological water use in times of scarcity or drought, strictly followed the red line of total water use control, and planned emergency water pools
1.4	Is there a distinction between the allocation regimes used in “normal” times and in times of “extreme/severe” water shortage?	1	0	-
1.5	Are there plans to define “exceptional” circumstances, such as an extended drought, that influence the allocation regime? (E.g., triggers water use restrictions, reduction in allocations according to pre - defined priority uses, suspension of the regime plan, etc.)	1	1	Evidence Same as 1.3
1.6	For international / trans boundary basins, is there a legal mechanism in place to define and enforce water basin allocation agreements?	1	1	Disclosure The Yangtze river is located in China and is managed by Chinese government departments
1.7	Are water delivery agreements defined on the basis of actual in situ seasonal/annual availability instead of volumetric or otherwise inflexible mechanisms?	1	1	Evidence Measures of Anhui (Article 9.) approves projects that draw different amounts of water, and analyses water use and consumption in the water bulletin.

1.8	Has a formal environmental flows (e - flows)/sustainable diversion limits or other environmental allocation been defined for the relevant sub - basin or basin? (If there is a pre - existing plan, then has the environmental flows program been updated to account for the new project?)	1	1	Evidence Measures of Anhui (Article 5.) sets requirements for water use, strictly requiring the red line of total water use, giving priority to domestic and ecological water use, for example, water storage projects and hydropower projects should ensure the minimum ecological discharge
1.9	Have designated environmental flows / allocation programs been assured / implemented?	1	1	Disclosure Measures of Anhui (Article 4.) mentioned that the water administrative departments of local people's governments shall be responsible for the organization, implementation, supervision and administration of the water licensing system according to their respective administrative powers
1.10	Has a mechanism been defined to update the environmental flows plan periodically (e.g., every 5 to 10 years) in order to account for changes in allocation, water timing, and water availability?	1	1	Disclosure “ The 13th five-year plan ” means new plans every five years.
1.11	Is the amount of water available for consumptive use in the resource pool linked to a public planning document? (E.g., a river basin management plan or another planning document – please indicate)	1	1	Evidence Measures of Anhui (Article 25. &26.) has set out plans for the use of water for the next year.

1.12	If present, is the river basin plan a statutory instrument that must be followed rather than a guiding document?	1	1	Evidence With 1.1, These are legal documents published by the government
Total Allocation Score		18	16/18	
Eligibility Criterion 1 passed/not passed			89%	

1VA SECTION 2: Governance				
		<i>Max Score</i>	<i>Actual Score</i>	<i>Requirement: Evidence and/or Disclosure AND Comments</i>
2.1	Have water entitlements been defined according to one of the following? .Purpose that water may be used for .Maximum area that may be irrigated .Maximum volume that may be taken in a nominated period .Proportion of any water allocated to a defined resource pool	1	1	Disclosure Classification by use, including domestic water, ecological water, agricultural water, industrial water, etc. See " Measures of Anhui " for details.
2.2	Is the surface water system currently considered to be neither over allocated nor over - used? N.B. Over - allocated would be if e.g. current use is within sustainable limits but there would be a problem if all legally approved entitlements to abstract water were used. Over - used would be if existing abstractions	1	1	Evidence Measures of Anhui (Article 9. & 11.) , The total water amount approved by the water administration department of the people's government at the next higher level shall not exceed the amount of water available for use by the administrative region, and shall go through the examination and approval process in accordance with the regulations.

	exceed the estimated proportion of the resource that can be taken on a sustainable basis.			
2.3	If monitored and the investment uses groundwater, is the groundwater water system currently considered to be neither over - allocated nor over - used? N.B. Over - allocated would be if e.g. current use is within sustainable limits but there would be a problem if all legally approved entitlements to abstract water were used. Over - used would be if existing abstractions exceed the estimated proportion of the resource that can be taken on a sustainable basis.	1	1	<p>Evidence Measures of Anhui (Article 10. & 11.) , The total amount of groundwater approved for use shall not exceed the amount of groundwater that can be extracted within the administrative area and shall meet the requirements of the plans for the development and utilization of groundwater.</p>
2.4	Is there a limit to the proportion (e.g. percentage) of water that can be abstracted?	1	1	<p>Disclosure Measures of Anhui (Article 9. 10. & 11.) has set an upper limit on water intake and gives priority to domestic and ecological water use in special times.</p>
2.5	Are governance arrangements in place for dealing with exceptional circumstances (such as drought, floods, or severe pollution events), especially around coordinated infrastructure operations?	1	1	<p>Disclosure With 1.1, It refers to watershed planning, building reservoirs, DAMS and emergency resource pools to cope with events such as droughts, floods or environmental pollution</p>

2.6	Is there a process for re - evaluating recent decadal trends in seasonal precipitation and flow OR recharge regime, in order to evaluate “normal” baseline conditions?	1	1	Evidence The latest bulletin of water resources issued by the ministry of water resources reports the precipitation, water supply, drainage and water use of the year. The bulletin is issued once a year
2.7	Is there a formal process for dealing with new entrants?	1	1	Evidence Please refer to Layout planning & Measures of Anhui for details.
2.8	For existing entitlements, is there a formal process for increasing, varying, or adjusted use(s)?	1	1	Evidence Same as 2.7
2.9	Is there policy coherence across sectors (agriculture, energy, environment, urban) that affect water resources allocation, such as a regional, national, or basin - wide Integrated Water Resources Management (IWRM) plan?	1	1	Disclosure Water resources management is required by the unified planning of national ministry of ecology and environment, ministry of agriculture and ministry of water resources, then the provinces further organized their plans and requirements.
2.10	Are obligations for return flows and discharges specified and enforced?	1	1	Evidence Measures of Anhui (Article 11.) shall require the location, quantity and quality of the water returned

2.11	Is there a mechanism to address impacts from users who are not required to hold a water entitlement but can still take water from the resource pool?	1	1	Disclosure Users are divided into two parts: some users obtain domestic water through water works, whose usage system is controlled by the water price of the water supply company; others, such as lawn maintenance and car washing, can only use reclaimed water instead of directly using water from the resource pool
2.12	Is there a pre - defined set of priority uses within the resource pool? (E.g., according to or in addition to an allocation regime)	1	1	Evidence Priority would be given to water for living and ecological purposes, Layout planning & Measures of Anhui.
2.13	If there are new entrants and/if entitlement holders want to increase the volume of water they use in the resource pool and the catchment is open, are these entitlements conditional on either assessment of third party impacts, an Environmental Impact Assessment (EIA) or an existing user(s) forgoing use?	1	1	Evidence Measures of Anhui (Article 9. 10. 11. & 27.), New water users of the need for water resources argumentation water-drawing permit and for classification according to different water withdrawals for examination and approval, but the area of the total water use should not exceed issued by the department of water administration under the people's government at the next higher level for the administration of access of water, which means that even if the area of water to achieve the highest load will also ensure life and ecological water.
2.14	Are withdrawals monitored, with clear and legally robust sanctions?	1	1	Disclosure Measures of Anhui (Article 27. 33. & 34.): The water drawing permit is usually valid for 5 years, and a new water drawing permit will be required at that time; Environmental

				supervision departments, the ministry of water resources and other law enforcement departments supervise users to draw water. If users break the law, they will be fined or closed;
2.15	Are there conflict resolution mechanisms in place?	1	1	Disclosure The ministry of water resources or local water bureaus are responsible for the completion of relevant work,
Total Governance Score		15	15/15	
Eligibility Criterion 2 passed/not passed			100%	

**IVA SECTION 3:
TECHNICAL
DIAGNOSTICS**

		<i>Max Score</i>	<i>Actual Score</i>	<i>Requirement: Evidence and/or Disclosure AND Comments</i>
3.1	Does a water resources model of the proposed investment and ecosystem (or proposed modifications to existing investment and ecosystem) exist? Specify model types, such as WEAP, SWAT, RIBASIM, USACE applications). Scale should be at least sub - basin.	1	1	Evidence “Research on water resources allocation model in the Yangtze river basin (planning office of Yangtze river survey, planning, design and research institute)”. This model takes MIKE BASIE software developed by the Danish hydraulic research institute as the software platform of the water resource allocation model in the Yangtze river basin. And it takes the three-level water resources area as the allocation unit of the model and establishes a simulation model of water resources allocation in the Yangtze river basin on the basis of GIS based on the

				relationship among river systems, water conservancy projects and water consumption nodes, according to the characteristics of water resources allocation in the Yangtze river basin. The water resource allocation rules or water resource allocation schemes are formulated and the model is used to simulate the proposed water resource allocation schemes
3.2	Can the system model the response of the managed water system to varied hydrologic inputs and varied climate conditions?	1	0	/
3.3	Are environmental performance limits (ecosystem, species, ecological community) and/or ecosystem services specified?	1	0	/
3.4	Can these performance limits be defined and quantified using the water resources model?	1	0	/
3.5	Have these limits been defined based on expert knowledge and/or scientific analysis?	1	0	/
3.6	Are these performance limits linked to infrastructure operating parameters?	1	0	/
3.7	Are these limits linked to an environmental flows regime?	1	0	/
3.8	For new projects, is there an ecological baseline evaluation describing the pre - impact state?	1	1	Disclosure New projects in the basin will be subject to ecological demonstration, planning environmental assessment, water

				resources ecological demonstration or sewage outlet demonstration, and environmental impact assessment, which will be supervised by the water and ecological environment bureaus and approved by the project itself
3.9	For rehabilitation / reoperation projects, is there an ecological baseline evaluation available before the projects was developed?	1	1	Disclosure Same as 3.8
3.10	Has there been an analysis that details impacts related to infrastructure construction and operation that has been provided?	1	1	Disclosure Same as 3.8
3.11	Are lost species and/or lost or modified ecosystem functions specified for restoration in the environmental evaluation?	1	1	Disclosure Same as 3.8, and strict ecological protection measures and supervision, after the operation of the project, led by the ministry of ecology and environment
3.12	Have regional protected areas / nature reserves been included in the analysis for impacts from the investment asset and future climate impacts?	1	1	Disclosure Yes, During the construction of the project, sensitive points in the surrounding environment (including protected areas and residential areas) will be examined, and the project will try to avoid sensitive points and take protective measures. Sewage treatment projects are also being built and operated within the government's planned industrial sites
3.13	Does the model include analysis of regression relationships between climate	1	1	Disclosure Based on the water demand data and

	parameters and flow conditions using time series of historical climate and stream flow data?			engineering status of the Yangtze river basin in the current level year, as well as the monthly runoff data from 1956 to 2000, the model carries out the basin water resources allocation in the current level year.
3.14	Does the model include climate information from a multi - modal ensemble of climate projections (e.g., from the Climate Wizard or the World Bank's Climate Portal) to assess the likelihood of climate risks for the specified investment horizon(s)?	1	1	Disclosure This is done by the climate division of the ministry of ecology and environment
3.15	Are changes in the frequency and severity of rare weather events such as droughts and floods included?	1	1	Evidence Yes, see the "Discussion on water resources allocation in the Yangtze river basin under extreme climate conditions (planning office of Yangtze river survey, planning, design and research institute)" for details.
3.16	Are sub - annual changes in precipitation seasonality included?	1	1	Evidence Same as 3.15
3.17	Is GCM climate data complemented with an analysis of glacial melt water and sea level rise risks, where appropriate (e.g., high or coastal elevation sites)?	1	1	Disclosure Same as 3.14
3.18	Is paleo - climatic data (e.g., between 10,000 and >1000 years before present) included?	1	1	Disclosure Same as 3.14, and some of this work will be carried out by scientific institutions, such as universities, research institutes or design

				institutes
3.19	Is the number of model runs and duration of model runs disclosed?	1	1	Evidence Yes , See as 3.1
3.20	Has a sensitivity analysis been performed to understand how the asset performance and environmental impacts may evolve under shifting future flow conditions?	1	1	Evidence "Research on water resources allocation model of the Yangtze river basin (planning department of the Yangtze river survey, planning, design and research institute)", in which it is mentioned that the runoff series from 1956 to 2000 is assumed to repeat, reflecting the current level of water supply and demand in the current year; "A brief discussion on water resources allocation in the Yangtze river basin under extreme climate conditions (planning department of the Yangtze river survey, planning, design and research institute)" also reflects the trend of precipitation change in the Yangtze river basin from 1960 to 2004

3.21	Is directly measured climate data available for more than 30 years and incorporated into the water resources model?	1	1	<p>Evidence "A brief discussion on water resources allocation in the Yangtze river basin under extreme climate conditions (planning department of the Yangtze river survey, planning, design and research institute)", expounds the precipitation change trend in the Yangtze river basin from 1960 to 2004. On this basis, the unfavorable situation of the Yangtze river basin under the background of climate change is discussed. In order to cope with the influence of climate change on the water resources allocation in the Yangtze river basin, some countermeasures are put forward, such as optimizing the joint operation of large reservoirs of main and tributaries, making effective use of flood resources, constructing water source projects and promoting the construction of water-saving society.</p>
3.22	Has evidence demonstrated that climate change has already had an impact on operations and environmental targets? Are these impacts specified and, to the extent possible, quantified? These impacts should be responded to directly in the Adaptation Plan.	1	1	<p>Evidence Same as 3.21</p>
3.23	Does the evidence suggest that climate change will have an impact on operations and environmental targets	1	1	<p>Evidence Same as 3.21</p>

	over the operational lifespan? Are these impacts specified and, to the extent possible, quantified? These impacts should be responded to directly in the Adaptation Plan.			
3.24	Is there a discussion of the uncertainties associated with projected climate impacts on both operations and environmental impacts?	1	1	Evidence Same as 3.21. And "A brief discussion on water resources allocation in the Yangtze river basin under extreme climate conditions" analyzes the extreme weather conditions from 1960 to 2004, and puts forward the challenges of water resources allocation under extreme climate conditions
Total Governance Score		24	18/24	
Eligibility Criterion 3 passed/not passed			75%	
SECTION 5: ADAPTATION PLAN				
		<i>Max Score</i>	<i>Actual Score</i>	<i>Requirement: Evidence and/or Disclosure AND Comments</i>
AP.1	Is there a plan to restore or secure lost/modified ecosystem functions / species?	1	1	Disclosure There will be planned projects to improving the impact of the target project, not only the target project itself to reduce the damage to the environment. For example, the sewage treatment project of this assessment is to alleviate the ecological impact of return flows within the basin.
AP.2	Is the adaptation plan for environmental targets / infrastructure robust across specified observed / recent climate conditions? Confer VA	1	0	-

AP.3	Is the adaptation plan for environmental targets / infrastructure robust across specified projected climate conditions? Confer VA	1	1	Evidence "A brief discussion on the allocation of water resources in the Yangtze river basin under extreme weather conditions (the planning department of the Yangtze river survey, planning, design and research institute)" mentioned that a number of large-scale comprehensive reservoirs with regulated capacity are being built in the Yangtze river basin, with a total regulated storage capacity of about 93 billion cubic meters and a total flood control storage capacity of 50 billion cubic meters.
AP.4	Is there a monitoring plan designed to track ongoing progress and impacts to inform future decisions?	1	1	Disclosure Led by national government departments (ministry of water resources, ministry of ecology and environment, Yangtze river basin water resources protection bureau, etc.), the research is conducted jointly with relevant research institutions (Yangtze river water resources protection research institute, Yangtze river survey, planning and design research institute, local environmental science research institute, etc.)
AP.5	Is there a plan to reconsider on a periodic basis the VA for operational parameters, governance and allocation shifts, and environmental performance targets?	1	1	Disclosure Same as AP.4
TOTAL ADAPTATION PLAN SCORE:		5	4/5	
Eligibility Criterion 5 passed/not passed			80%	

Instructions

The score of each module

NO.	Max Score	Actual Score	Percentage of actual score effective
VA SECTION 1: ALLOCATION	18	16	89%
VA SECTION 2: Governance	15	15	100%
VA SECTION 3: TECHNICAL DIAGNOSTICS	24	18	75%
SECTION 5: ADAPTATION PLAN	5	4	80%

As shown in the table above, Project scores were all above 60% in the evaluation of each module. So We identify the project as a qualified asset.