



BUILDING A SUSTAINABLE FUTURE

How the Application of Standards for Sustainable Infrastructure Improves ESG Performance: A Review of Five Infrastructure Projects Assessed using SuRe[®] Standard Criteria

A Study Commissioned by the Sustainable Infrastructure Alliance (SIA)



Imprint

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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Photo credits:

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The German Federal Ministry for Economic Affairs and Energy (BMZ) supports this initiative on the basis of a decision adopted by the German Bundestag.

ICLEI South Asia and ICLEI East Asia secretariats were commissioned by the SIA to produce this report.

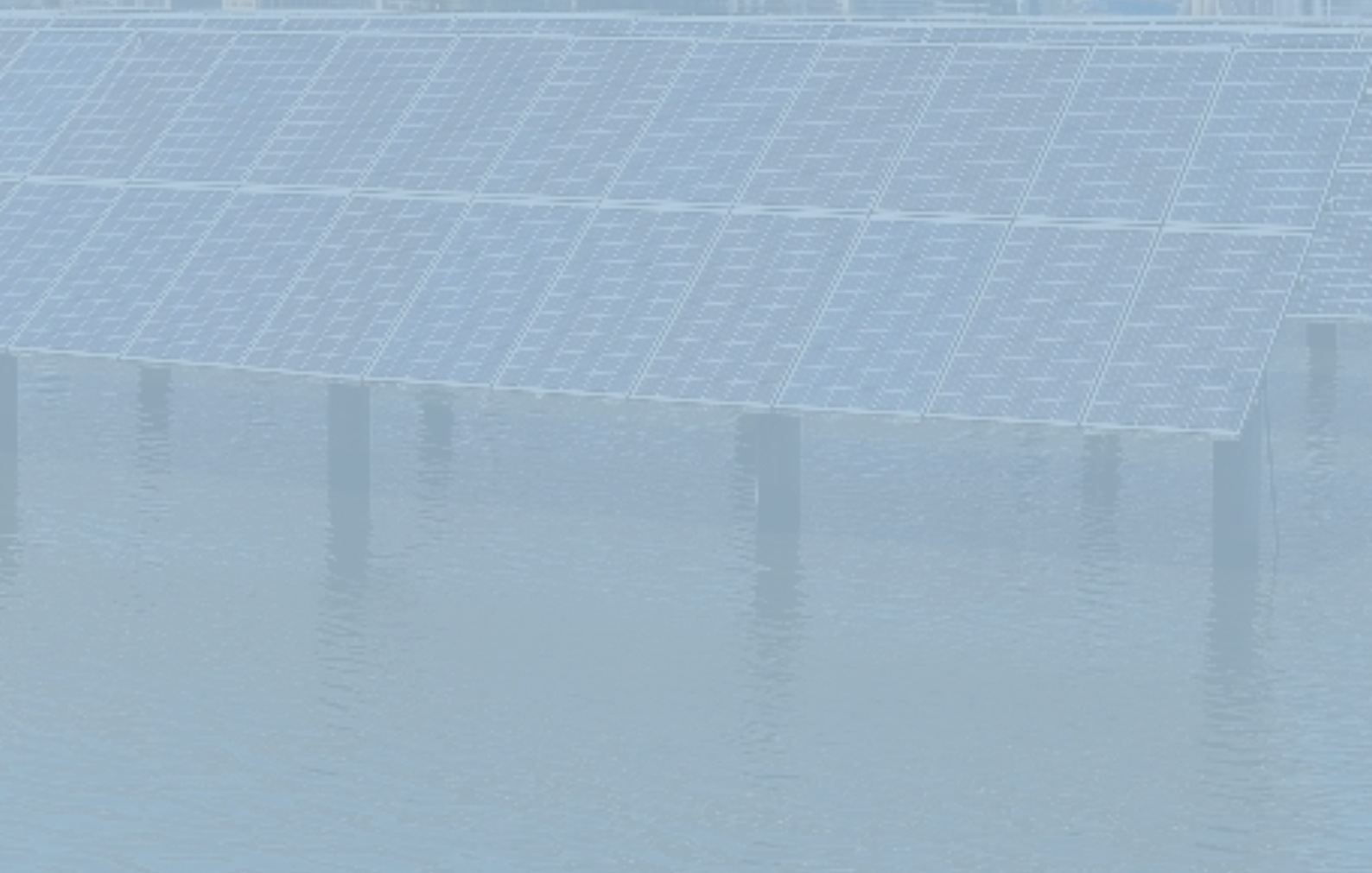
The authors are responsible for the content of this publication as at July 2021.



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Purpose of this report and background on the partnership

The goal of this Impact Report is to highlight to stakeholders (infrastructure financiers, infrastructure project developers, public procurers and donors) the tangible and replicable benefits that result from the adoption of sustainable infrastructure standards. ICLEI South Asia and ICLEI East Asia secretariats have partnered to jointly deliver this impact report.

The Sustainable Infrastructure Alliance (SIA) is a Strategic Alliance (STA) between the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and ecos AG/Global Infrastructure Basel Foundation (GIB) together with SGS-CSTC Standards Technical Services Co., Ltd. (SGS), true&fair.expert, and TÜV NORD Indonesia. This partnership aims to create a market for sustainable infrastructure standards based on environmental, social, and governance (ESG) criteria in China, India and Indonesia. The STA has been approved by the German Federal Ministry for Economic Cooperation and Development (BMZ) in the context of the develoPPP.de program.

Approach and Methodology

The impact report includes three aspects: (1) identification and screening of the sustainable infrastructure projects, including collation of requisite project documents (2) review of project documents and interviews with project stakeholders to gain insights on the impacts of selected projects and (3) preparation of the impact report, highlighting the sustainability and inclusivity impacts of selected infrastructure projects.

The selected projects for this impact assessment project are as follows:

| Title | CAPEX size | Location |
|--|----------------------------------|--------------------------------------|
| Aquasun Agribusiness Project | 100-250 m US\$ | Santo Antao and Santiago, Cape Verde |
| Vertically Integrated Cargo Community (VICC™) Project | 1-2 bn US\$ | Los Angeles, USA |
| Andehu Eco-City Town Project | 250-500 m US\$ | Dezhou City, PR China |
| Landfill Redevelopment Project | 250-500 m US\$ | Casablanca, Morocco |
| Jaipur Metro - North South Corridor: India Gate (Sita-pura Industrial Area- SIA) to Ambabari - Phase 2 Project | 1-2 bn US\$ (total project cost) | Jaipur, India |

Project-related fact sheets are presented below, highlighting not only the expected sustainability and resilience impacts of proposed projects, but also the findings and aspired impacts of assessing the projects by applying GIB's SuRe® Standard for Sustainable and Resilient Infrastructure Certification and SmartScan Assessment. The assessment of the projects resulted in encouraging sustainable infrastructure development focusing on the environment, economy, and equity.

Summary of results

The large variety of projects, locations, development stages and stakeholders presented in this report, supports the key focus area of the SIA, by promoting the utilization of international standards for sustainable and resilient infrastructure and creating a positive and measurable impact for all stakeholders involved.

This report highlights the positive impact of ESG performance assessment at all stages of the project life cycle from design and planning, over contracting and construction to operation and decommissioning. The impacts are related to the Environmental-Society-Governance criteria of the SuRe® Standard, which you can explore via the website www.sure-standard.org.

We hope you find the information in this short document useful to understanding the role of standards in promoting sustainable infrastructure in Asia and worldwide, and invite you to contact the authors at any time with questions or feedback.

Key findings

The application of the SuRe® Standard for Sustainable and Resilient Infrastructure resulted in the following positive impacts, which cover a wide range of ESG criterion presented by the standard:

Aquasun Agribusiness Project (Cape Verde)

- 600 families, that account for 2,520 people, will gain financial and non-financial benefits through access to new job opportunities and skill development.
- Monetary saving of approximately US\$ 36 million (75% reduction of the annual electricity bill) using renewable energy for agriculture practices and consequent mitigation of 85% of GHG emissions.

Vertically Integrated Cargo Community Project (USA)

- A net benefit equivalent of US\$ 1 billion will accrue to the community through the implementation of several sustainability measures (reduced heat island, reduced traffic congestion, reduced GHG emissions).
- 17,730 jobs (including 13,000 construction jobs and 4,730 cargo-handling jobs) will be created for the local community including disadvantaged groups (women, elderly and others).

Andehu Eco City Town Project (PR China)

- 47,454 tonnes of building material were recycled and reclaimed, accounting for a total cumulative value US\$ 20.7 million.

Landfill Redevelopment Project (Morocco)

- Identifying the need to develop an emergency response plan following national laws with regular revision and effective implementation.

Jaipur Metro – North/ South Corridor Project (India)

- 33% seats of metro coaches will be reserved for senior citizens, female, lactating women and specially-abled.
- In elevated stations, about 50 kW to 150 kW capacity of Solar PV power system will be installed.

Aquasun Agribusiness Project – Cape Verde



Brief Summary

- The project includes the design, construction and operation of a hybrid renewable energy generation plant with a Battery Energy Storage System (BESS) on the islands of Santo Antao and Santiago.
- A 6.8 MW solar photovoltaic plant with a BESS of 2 MW/11 MWh and a seawater desalination plant with a capacity of 3,500 m³/day will be installed on Santo Antao.
- A 13.7 MWp solar photovoltaic plant with an integrated 1.3 MW wind farm and a BESS with a capacity of 6 MW/33 MWh will be constructed in Sao Domingos on Santiago Island. It is proposed to construct and operate a seawater desalination plant with a capacity of 8,750 m³/day to provide water to local farmers.
- The project plans to link local farmers to a new agro-industrial cooperative center, where the agricultural products will be processed and verified before they are supplied to hotels, resorts and the national market, thereby substituting imports.
- 300 hectares of farmland will be protected from further soil degradation and desertification through sustainable water management and crop rotation practices.
- Monetary saving of approximately US\$ 36 million (75% reduction of the annual electricity bill)² through the use of renewable energy for agriculture practices and consequent mitigation of 85% of GHG emissions compared to emissions from equivalent grid-based consumption. (SuRe[®] Criterion E1.1)
- Through the deployment of renewable energy, a future need for the construction of dams for hydropower production and water retention is avoided. Consequently, 20,000 tons of carbon dioxide (CO₂) equivalent / GHG emissions will be avoided. (SuRe[®] Criterion E1.1)
- 100% recyclable materials will be used for all agricultural products packaging. (SuRe[®] Criterion E3.3)
- The project helps to address the problem of migration from rural to urban communities. (SuRe[®] Criterion G3.1)

Project facts

- Aquasun Energia e Agua S.A. and Aquasun Agroindústria Santiago S.A. (two Special Purpose Vehicles) will own and operate the project while the project is developed by the Brine Engineering Solutions.
- The construction phase is expected to begin in the second half of 2021 and it is expected to take 18 to 24 months to complete the project construction at both sites.

Project impacts

- 600 families,¹ that account for 2,520 people, will gain financial and non-financial benefits through access to new job opportunities and skill de-velopment on sustainable farming techniques and management practices. (SuRe[®] Criterion S5.1 and S5.3)
- More than 1,000 jobs including 70 management level positions will be created for the residents of Santa Antao and Sao Domingos islands during the life span of the project. These jobs will provide specialized services related to renewable energy generation, desalination plant system

management, food production and distribution facilities. Ultimately the long-term objective is that the local citizens take overall control of operations on a self-sustained basis. (SuRe[®] Criterion S5.1 and S5.3)

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Lessons learnt

The GIB's SuRe[®] assessment³ resulted in (a) prioritizing 'education' for underage children (SuRe[®] Criterion S2.4) while building their skills and knowledge on sustainable agricultural practices, (b) mainstreaming gender equality (SuRe[®] Criterion S5.3) into the project design and process; this also led to an update of the SPV's mission statements which reflect the company's focus on gender mainstreaming. The project is expected to achieve the Gold Certification of SuRe[®] Standard based on current plans and commitments of the project.⁴

Additional Resources

- 1) <http://www.brine-ei.co.uk/projects>
- 2) <http://www.aquasun-group.com/>

Vertically Integrated Cargo Community (VICC™)



Los Angeles, United States of America (USA)

Brief Summary

The VICC™ project provides on-airport, highly automated and robotic air cargo facilities. It is designed to address current cargo constraints at the Los Angeles International Airport (LAX). The VICC™ facility is conceptualized to provide not just cargo facilities but will also integrate services to communities such as provision of commercial and retail areas, food courts and retail services, space for financial services, childcare facilities, parking facilities and other related businesses supporting a high concentration of employment opportunities.

Project facts

- VICC™ is a joint venture between Airis USA LLC (lead project developer) and CCR USA Airport Management, Inc., who will (provide project financing and operational services). VICC™ proposes to build, operate, maintain and transfer a cargo management system for the Los Angeles World Airports (LAWA).
- VICC™ facility will have a capacity to handle more than 4.5 million metric tonnes of cargo annually; and is spread over 168,000 square meters.
- The project is in preliminary planning stages and the construction is expected to be completed within 4 years.

Project impacts

- 17,730 jobs (including 13,000 construction jobs and 4,730 cargo-handling jobs) will be created for the local community including disadvantaged groups (women, elderly and others). (SuRe® Criterion S5.1 and S5.3)
- US\$ 1.1 billion and US\$ 287 million value generation to Los Angeles County during construction and operations, respectively. (SuRe® Criterion S5.2)
- US\$ 4.9 billion revenue expected from the upgraded cargo facility. (SuRe® Criterion G1.8)
- A net benefit equivalent of US\$ 1 billion will accrue to the community through the implementation of several sustainability measures:
 - o Vertical and horizontal landscaping and use of energy efficient systems and architectural applications, will

reduce heat island impacts around the site. (SuRe® Criterion E1.1 and E5.1)

- o A well-integrated public transit system connecting the City of Los Angeles and the Los Angeles airport, will reduce traffic congestion, leading to an increase in economic productivity and reduction in fuel consumption and resulting emissions. (SuRe® Criterion G1.6)
- o Increasing operational efficiency will reduce CO₂ emissions by 0.2 million tons. (SuRe® Criterion E1.1 and E3.4)
- o The design of the project ensures employees' safety, wellbeing, and workplace satisfaction. (SuRe® Criterion S2.5)
- Decrease of Vehicle Kilometers Traveled (VKT) annually by 88 million which results in an emissions reduction of 0.5 million tonnes. (SuRe® Criterion E1.1)
- Commitment to implementing the Airport Carbon Accreditation Standard.⁵

Lessons learnt

The GIB's SuRe® assessment resulted in (a) enabling the project owners to incorporate best practices on sustainability and resilience (SuRe® Theme G2) in air cargo operations, (b) transparent, objective and accurate reporting (SuRe® Theme G1) over the project's life. The project is expected to achieve the Gold Certification of SuRe® Standard based on current plans and commitments of the project.⁶

Additional Resources

- 1) [Executive Summary: External Sustainability and Resilience Appraisal of the Vertically Integrated Cargo Community \(VICC™\) at Los Angeles International Airport.](#)
- 2) [Final Assessment Report: External Sustainability and Resilience Appraisal of the Vertically Integrated Cargo Community \(VICC™\) at Los Angeles International Airport.](#)

Andehu Eco-City Town



Brief Summary

Andehu Eco-City Town is a commercial real estate project which integrates residences, care facilities, education centers, leisure activities and tourism facilities. The project was established on December 25th, 2014 by the Andehu Investment Development Co. Ltd.

Project facts

- The project was implemented by the Andehu Investment Development Co., Ltd. and financed by the Yongfeng Group Co., Ltd., the parent company of Andehu Investment Development Co., Ltd.
- Andehu Town is composed of a Southeast Block and a Northeast Block 30/31 with a total land area of 358,098 m² and construction area of 513,497.5 m².
- The Southeast Block takes up 245,507m² land area, mainly composed of Chinese, French-style low-rise residential, high-rise residential, supporting housing, supporting commercial housing, a kindergarten, underground garage, underground storage room, underground heat exchange station, equipment room, etc.
- The Northwest Block is built over 112,591m² of land area and contains small high-rise bungalows, supporting housing, supporting commercial housing, underground garages, underground storage rooms, and equipment rooms.

Project impacts

- The project generated employment for 773 constructions workers.
- Out of the total construction workers, 483 people were local accounting for 62% of the total construction workers. (SuRe[®] Criterion S5.1 and S5.3)
- 47,454 tonnes of building material were recycled and reclaimed, accounting for a total cumulative value US\$ 20.7 million. (SuRe[®] Criterion E3.3)

- The project resulted in greater awareness on the sustainable development principles and activities among residents of surrounding villages. (SuRe[®] Criterion G3.2 and G3.3)

Lessons learnt

- The project has achieved a SuRe[®] Bronze certificate based on the comprehensive assessment of Environmental, Social and Governance performance.
- Andehu became the world's first SuRe[®] certified project in May 2020.
- The SuRe Assessment was very useful for the project owner in terms of overall sustainability and resilience management, considering the adopted life cycle approach. (SuRe[®] Theme G2 especially the Criterion G2.2)

Additional Resources

- 1) <http://www.yfgt.cn/anderhu/index.html>

Landfill Redevelopment Project



Brief Summary

The Casablanca landfill redevelopment project is a proposed landfill site near the city of Casablanca covering 35 hectares. This landfill site is designed with a daily capacity of 4,000 tonnes of municipal waste as well as the leachate storage basin with a capacity of 38,000 m³. The project is a joint partnership of the Municipality of Casablanca, the Ministry of Interior of Morocco and Casablanca Baia Ltd.⁷

Project facts

- The project meets the requirements of the local region and proposed as a follow-up site to the exhausted Médiouna landfill.⁸
- The project is currently in the planning phase, with a feasibility study focusing on financial, environmental and climate-related aspects.

Project impacts

The Casablanca landfill redevelopment project feasibility study is ongoing thus the tangible benefits and impacts to the local community are not yet known, however initial research considers the following impacts:

- Comprehensive assessment of local challenges and opportunities to optimize project resources utilization. (SuRe[®] Criterion E3.4)
- Integration of the project into other infrastructure services to support the requirements of regional and national master development plans, and environmental policies. (SuRe[®] Criterion G1.6)
- Active involvement of all relevant stakeholders including representatives of the public sector, infrastructure developers and operators, and waste management groups (for example local rag pickers). (SuRe[®] Criterion G3.2)
- Need of an emergency response plan following national laws with regular revision and effective implementation. (SuRe[®] Criterion G2.4)

Lessons learnt

The GIB's SmartScan assessment recommended improvement in project design considering following (a) resilience planning (b) anti-corruption and transparency (c) commitment to human rights (d) non-discrimination policy (e) responses to complaints to improve the service delivered by the infrastructure (f) decommissioning and long-term environmental impact (g) risks for future generations (h) waste as energy resource (i) preservation of the ozone layer (j) preservation of biodiversity (k) pest management (l) noise pollution (m) choice of materials/ use of resources (n) choice of site (o) restoration of soil at the end of the project life cycle. The project feasibility assessment is currently being conducted keeping these recommendations in mind.

Additional Resources

- 1) <https://www.casablancacity.ma>
- 2) <https://www.casabaia.ma>

Jaipur Metro - North South Corridor: India Gate (Sitapura Industrial Area- SIA) to Ambabari – Phase 2



JAIPUR METRO



Brief Summary

The Jaipur Metro – North South Corridor: India Gate (SIA) to Ambabari metro project is part of the Jaipur Metro Phase-2 Mass Rapid Transit System (MRTS) project being proposed for construction by JMRC. A maintenance depot with a total area of 27 hectares will be located at Sitapura Industrial Area on the bank of the Dravyavati River.

Project facts

- Jaipur Metro North South Corridor project is owned and operated by Jaipur Metro Rail Corporation Ltd (JMRC).⁹
- Jaipur Metro North South Corridor is 23.51 km long with a total of 21 elevated stations.
- The project is expected to take 38 months for completion and currently its detailed project report is under public review, subsequently being sent to the Government of Rajasthan for final approval. It is expected that the project will be operational in 2023.
- Daily passenger volume of 120,667 and peak hour peak direction trips (PHPDT) of 3,930 are expected.
- Modern Supervisory Control and Data Acquisition (SCADA) system with intelligent remote terminal units (RTUs) are planned for installation, resulting in an increase of operational efficiency.

Project impacts

- In elevated stations, about 50 kW to 150 kW capacity of Solar PV power system will be installed depending on the type of roof structure, shadow-free roof area, and the orientation of stations towards the sun. (SuRe[®] Criterion E1.1)
- In 2023, emission reduction of 18,517 gm per metro kilometer travelled and annual financial benefit of US\$ 0.80 million are expected in terms of air pollution and environmental safety. (SuRe[®] Criterion G1.6, E1.1, and E4.1)
- 33% seats of metro coaches will be reserved for senior citizens, female, lactating women and specially-abled. (SuRe[®] Criterion G3.2 and S5.3)

- Rainwater harvesting will be installed in the metro premises to collect rain and make it available for use. (SuRe[®] Criterion E3.2)
- Metro operation is expected to reduce road traffic significantly and thus reducing the number of road accident. The cost of the accidents include: medical expenses, insurance expenses and damage costs of vehicles. The financial value of these benefit for 2023, 2031 and 2041 are projected at US\$ 0.36, 0.92, and 2.61 million respectively. (SuRe[®] Criterion S4.4)

Lessons learnt

The GIB's SmartScan assessment recommendation was instrumental for JMRC regarding (a) assessment of GHG emissions and aligning with national emission reduction targets (SuRe[®] Criterion E1.1), (b) determination of energy resource input into the project through a life cycle assessment and implementation of actions to reduce energy losses. (SuRe[®] Criterion E1.1).

Additional Resources

- 1) <http://transport.rajasthan.gov.in/jmrc>
- 2) [Detailed Project Report of Jaipur Metro - North South Corridor: India Gate \(Sitapura Industrial Area- SIA\) to Ambabari](#)

- 1 Standard family size in Cape Verde is 4.2 as per the United Nations Database of Household Size and Composition 2017. Available at: https://digitallibrary.un.org/record/3799696/files/household_size_and_composition_around_the_world_2017_data_booklet.pdf (accessed 23rd April 2021).
- 2 Cost of electricity purchase from the grid is 28-30 cent per kwh however the project generates renewable electricity at only 7-8 cent per kwh.
- 3 For information on SuRe[®] assessment process and criteria requirements, please see Global Infrastructure Basel Foundation, SuRe[®] - The Standard for Sustainable and Resilient Infrastructure; ST01 ENG Version 1.1; 2018, Basel, Switzerland, Available at: https://sure-standard.org/wp-content/uploads/2019/10/ST01_Normative_Standard_v1.1_clean.pdf (accessed 23rd April 2021).
- 4 If the project developer seeks formal certification at a more advanced stage of the project development. Source: Sustainable Investment Programme, Cape Verde, Aquasun Project Summary, Brine Engineering Solutions.
- 5 a voluntary global carbon management standard for airports, with the ultimate objective of becoming carbon neutral. For more information, please visit <https://www.airportcarbonaccreditation.org>.
- 6 If the project developer seeks the formal certification at a more advance stage of the project development, Source: GIB Final Assessment Report: External Sustainability and Resilience Appraisal of the Vertically Integrated cargo community (VICC[™]) at Los Angeles International Airport, Version 1.0; August 2020.
- 7 Casablanca Baia Ltd is one among seven public limited companies created at the initiative of local community with the capital share of 80% and objective to ensure city's environmental protection, for more information please visit <https://www.casablancacity.ma/fr/article/243/societes-de-developpement-local> (accessed 1st May 2021).
- 8 <https://www.morocoworldnews.com/2018/02/241035/casablancas-largest-landfill-to-close-next-april-where-the-waste-will-go/> (accessed 1st May 2021).
- 9 JMRC is a Government of Rajasthan owned company that operates the Jaipur Metro. For further information, please visit <http://transport.rajasthan.gov.in/jmrc>.



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