BIDDING NATION
MOROCCO

2026 FIFA World Cup™ – Morocco

Environmental impact assessment

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Anticipated carbon footprint

February 2018

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1. Foreword

For many years, our planet has been confronted by many disturbances and disruptions in terms of the climate and ecosystems that are impacting ecological balances in an increasingly significant manner. Similarly, the interdependence of these ecosystems includes social and economic challenges within a sustainable development approach and demonstrates the need to act as part of a structured, global and harmonious action, given the risks with which we are confronted.

Cognizant of each country's vital role, Morocco has expressed its desire to be a reference actor that inspires confidence through its commitment, namely via its national Sustainable Development strategy. For more than a decade, Morocco has worked in support of sustainable development principles and has pursued the accomplishment of its contributions while being aware of the importance of dialogue with stakeholders in order to build responsible and lasting partnerships with added value.

Indeed, Morocco is now positioning itself as an active partner, lending its support to the fundamentals of sustainable development, primarily through respect and promotion for human rights, the preservation and protection of the environment, a commitment in favour of our community, efforts to combat corruption, as well as carrying out a rich and constructive dialogue with the various stakeholders, all under the aegis of healthy and transparent governance.As such, the national Sustainable Development strategy clearly illustrates the country's commitment in favour of sustainable development, and represents its crowning effort in this domain. This strategy also highlights Morocco's firm desire to give concrete shape to its ambitions as part of a responsible and lasting initiative while consolidating its primary role as the driving force on the African continent. This 2016 – 2030 strategy revolves around 4 essential pillars:

1. International compliance: The strategy aligns with international best practices and includes at least the challenges to which the Kingdom has committed itself in terms of sustainable development, notably the efforts to combat climate change, the efforts against desertification, and biodiversity protection.

2. Compliance with the principles of the framework law: The strategy aligns with the principles of Framework Law 99-12 establishing the Environment and Sustainable Development Charter, namely: integration, territoriality, solidarity, caution, prevention, responsibility and participation.

3. Commitment: The national sustainable development strategy has been designed as a continuous process in which the various stakeholders commit to reaching common objectives that contribute to meeting the key challenges in the area of sustainable development.

4. Operational: The strategy is intended to be operational, relying on strategies, plans and programmes that are now being implemented. The strategy in no way breaks with the development choices made by the Kingdom. It is based on concrete measures, with follow-up and/or result indicators.

This initiative also constitutes, as part of Morocco's commitments, a new impetus towards the implementation of the actions anticipated as part of the climate agenda that resulted from the Paris Accord, while expressing its desire to be a reference actor in order to contribute efficiently and over the long term to the efforts against climatic warming and to the Sustainable Development Objectives (SDO).

It is with this in mind that Morocco is reiterating its determination to become one of the most responsible of the Arab countries and on the African continent in order to give focus to its sustainable development initiative and to encourage all actors to actively contribute to the preservation of current resources, as part of lending their support to Morocco's sustainable development objectives.

2. Executive Summary

The environmental impact assessment was prepared in compliance with the national environmental laws, with the aim of determining the positive and negative consequences of organising the 2026 World Cup in Morocco.

This impact assessment constitutes an overall appraisal of the event's environmental component. It does not replace the individual environmental impact studies related to future developments and structures that will be required, and that are governed by Moroccan environmental law (Law n° 12-03 relative to EIS). Environmental Impact Studies are intended to assess, in principle, the repercussions of investment projects on the environment in order to anticipate the measures needed in order to overcome, mitigate or offset the project's negative impacts, while improving the positive impacts.

The objective of this assessment is to study the overall environmental impact of organising the 2026 World Cup in Morocco, in order for these challenges to serve as a demonstration of the Kingdom's environmental excellence. As such, the completed assessment has brought to light 7 levers for the FRMF environmental protection initiative:

1. **Carbon neutrality:** a projected inventory of greenhouse gas emissions (transport, construction sites, catering, etc.) has been drafted in order to identify offsetting actions. This aspect is covered separately from this environmental impact analysis.

2. **Environmentally exemplary construction projects:** in keeping with FIFA requirements and the desire of the FRMF, the investments will focus on lasting equipment, while limiting the use of agricultural or natural areas, and while relying on the environmental performance aspects (materials used, energy, consideration of biodiversity, etc.) of the construction standards. A response to these challenges will be provided by certifications, including HQE (High Environmental Quality) and/or BREEAM (environmental performance assessment method for buildings developed by the BRE).

3. **Energy:** the development of renewable energies is a national objective in Morocco. A quantified ambition of 100% renewable energies could be a key target for the organisation of this Cup.

4. **Transport:** mobility is a major aspect of this initiative, given the flows of fans following their teams from stadium to stadium. The foundations of the environmental protection initiative will involve the conditions for promoting public transit with a low environmental impact.

5. **Food:** the interest value of this axis is to prepare an approach based on promoting quality labels with Moroccan sourcing, while respecting national and international standards in order to contribute to sustainable development.

6. **Waste:** given the concentration of fans, exponential quantities of waste will be generated during a very short period, which could have a major saturation impact on the existing sectors. As such, it will be necessary to inventory and itemize the waste products (packaging, signage, temporary street furniture, etc.) in order to set organisational objectives for collection under good conditions in order to promote maximum recycling and reclamation, firstly, and secondly the collection sectors and [controlled rubbish tips].

7. **Water resources and water quality:** the concentration of fans for a very short period will result in pressure on water resources and could have an impact on the wastewater treatment capacities. A preliminary study of the anticipated flows would serve to limit this pressure, within the context of the water stress inherent to certain Moroccan cities.

3. Mission context

"Sport has the power to change the world"
Nelson Mandela

In August 2017, Morocco announced its desire to organise the 2026 Football World Cup. This is the country's fifth candidacy. As such, the Royal Moroccan Football Federation is in charge of preparing the application file, with the help of Moroccan and foreign experts, in order to meet the FIFA requirements.

For this candidacy, FIFA has included three sections on sustainable development such as to highlight its commitment in this domain, with the aim of contributing to the Sustainable Development Objectives (SDO).

The 3 sections are the following:

1. **Section 22: Sustainable Management of the Event**
2. **Section 23: Human Rights and Working Conditions**
3. **Section 24: Environmental Protection**

In compliance with the said sections of the new FIFA specifications, section 24 includes an environmental impact assessment in order to identify positive or negative consequences that will result from organising this event. This assessment must consider the regulatory aspects governing the environment and the FIFA requirements, in order to include all infrastructures and spaces concerned by the World Cup such as the 14 stadiums in the 12 host cities, the accommodations, transport spaces, sites of the FIFA Fan Fests, training sites, etc.

Moreover, a projected carbon footprint is prepared in order to identify emission factors and event-related impacts in terms of greenhouse gas emissions. This appraisal will be the subject of a separate document that complements this assessment.

The action recommendations relative to the environmental analysis and carbon appraisal are included in the Carbon appraisal document.

The FRMF has the following objectives for this environmental impact assessment:

- Identifying and assessing the environmental impacts of organising the 2026 World Cup in Morocco
- Setting ambitious and attainable objectives for controlling these impacts
- Improving the management of environmental impacts with a dedicated action and monitoring plan

- As such, the environmental impact assessment is a tool that will enable the FRMF to structure its environmental management initiative in order for it to contribute to enhancing Morocco's candidacy for the organisation of this event of worldwide importance.

4. Environmental impact assessment

4.1 Assessment methodology

4.1.1 Objective

In compliance with the relevant legislation, this assessment is intended to analyse the environmental impacts linked to the organisation of the 2026 World Cup in Morocco, in normal, abnormal and accidental situations, including but not limited to the following:

- Stadiums
- Reception and accommodation spaces
- Transport means
- Reception sites for fans // teams etc.
- Organisation-related logistics
- Waste management relative to the event's organisation
- Water consumption
- Air pollution
- Noise

4.1.2 Definitions

Environment: setting in which an institution operates, including the air, water, ground, natural resources, flora, fauna, human beings and their interrelations.

Environmental aspect: element of an institution's activities, products or services, that interact or could have interactions with the environment.

Environmental impact: negative or beneficial modification of the environment that totally or partially results from an institution's environmental aspects.

4.1.3 Significance assessment

The environmental impact assessment will focus on the environmental aspects identified after an examination of the significance (S) according to the calculation formula based on measurable criteria, as shown below:

$$S = G \times F \times R$$

G: Gravity (i.e. severity) **F: Frequency** **R: Regulation**

The regulation is indicated for each environmental aspect

4.1.4 Assessment scale

a. Gravity (i.e. severity)

This is an assessment of the consequences resulting from an identified environmental aspect on the exterior setting (natural or other). The assessment is made on the following levels:

Level	Description
1	Negligible: Non-measurable impact on the environment, image not affected, very low financial losses, controllable effect on the environment.
2	Critical: Image somewhat tarnished, controllable environmental effects that can be reversed in the short-term, financial losses.
3	Catastrophic: Serious and lasting environmental effects, image loss, major financial losses.

b. Frequency

This is an assessment of the frequency of occurrence of the identified environmental impact on the exterior setting (natural or other). The assessment is made on the following levels:

Level	Description
1	Rare: Never or a few times over the course of the period of the World Cup event
2	Occasional: Several times during the event
3	Frequent: Continuous or very often during the event

c. Regulation

This involves assessing if there is a regulatory text that governs this environmental impact, using the following scale:

Level	Description
1	Non-existence of a regulatory text: this aspect is not governed by a regulatory text
3	Existence of a regulatory text: this aspect is governed by a regulatory text

c. Determination of the SEA (Significant Environmental Aspect)

An environmental aspect is rated as **significant** according to the gross risk level calculated as follows:

Level	Description
R < 9	Fairly insignificant risk
18 < R < 9	Moderately significant risk
18 < R < 27	Very significant risk

Significant environmental aspects and impacts are defined in the following identification and assessment table of environmental aspects and impacts.

4.2 Assessment

Activities			Aspects	Impacts	Operating mode	Assessment			Gross risk
Activities	Sub-activities	Steps/Lifecycle				Gravity / severity	Frequency	Regulation	
Choice of location and construction of stadiums		Urban sites	Noise	Adverse noise effects	O	2	2	1	4
		Semi-urban or extra-urban / rural sites	Transport	Visual impact	N	2	2	1	4
				Significant air emissions due to the distance		2	2	1	4
				Construction of roads / motorways for accessing the site		2	2	3	12
				Positive economic impacts on the extra-urban / rural zone		Positive impact			
		Design and Construction	Construction materials	Depletion of natural resources	N	3	3	3	27
				Energy consumption		3	3	1	9
			Management of external companies (construction)	Generation of construction waste	N	3	2	3	18
				Use of chemical products		2	2	3	12
				Use of natural resources		3	3	3	27

				Air emissions linked to the transport of materials		2	2	1	4
14 Stadiums	Soil of the actual site	Raw materials and Manufacturing	Seeding in case of natural grass	Water consumption	N	2	3	3	18
				Waste production	O	2	2	3	12
			Production of synthetic turf	Energy consumption	N	2	2	1	4
				Waste production related to manufacturing (plastic waste)	O	2	2	3	12
		Implementation	Weeding of the platform, stripping, earthworks, levelling, installation of the drainage system and of the watering system in case of natural grass	Production of green waste in case of natural grass	O	2	3	1	6
				Production of plastic waste in case of synthetic turf		2	2	3	12
		Usage and Upkeep	Cleaning and maintenance of the synthetic turf; mowing, watering and mechanical upkeep operations for natural grass	Water consumption in case of the natural grass	N	2	3	3	18
				Accumulation of nutrients (nitrates and phosphates)	O	2	2	3	12

				Soil and water poisoning by fertilizers	O	3	2	3	18
				Generation of mowing waste	O	2	3	1	6
		End-of-life	Dismantling of the fields and waste treatment	Generation of waste	O	2	2	3	12
	Benches for substitutes	Usage and Upkeep	Cleaning of the benches	Use of chemical products for cleaning	N	2	3	3	18
				Generation of common waste	O	1	2	1	2
			Lighting of the benches	Electrical consumption	N	2	3	1	6
		End of lifecycle	Dismantling of the benches	Generation of plastic waste (end-of-life of the benches)	O	2	1	3	6
	Advertising panel around the field	Installation and Use	Installation of posters	Generation of hazardous waste linked to the installation of posters	N	2	2	3	12
			Use	Lighting of the Advertising panels	O	1	2	1	2
		End of lifecycle	Dismantling of the panels	Waste generation (end-of-life of the posters)	O	2	2	3	12
	Indoor warm-up area (covered)	Use of the area for warming up	Aeration of the zone	Electrical consumption	N	2	3	1	6
				Air conditioning		3	3	1	9
	Amphitheatre	Interior lighting of	Lighting	Electrical	N	3	3	1	9

		the stadium		consumption					
				Depletion of natural resources		2	2	1	4
			Use of a backup generator in case of a power cut	Consumption of diesel fuel	O	2	2	3	12
				Depletion of natural resources		2	2	3	12
		Exterior lighting of the stadium	Lighting	Electrical consumption	N	3	3	1	9
				Depletion of natural resources		2	2	1	4
				Nuisance for surrounding residents	O	2	2	1	4
	Stands	Covered area for spectators / Non-covered area for spectators	Night lighting	Electrical consumption	N	2	2	1	4
			Noise	Adverse noise effects	O	2	2	1	4
			Use of smoke and explosives	Generation of waste	O	3	2	3	18
				Fire	O	3	1	3	9
			Cleaning of the benches	Use of chemical products for cleaning	N	2	2	3	12
			Use by spectators	Waste management	O	2	3	3	18
			Dismantling of the benches	Generation of plastic waste (end-of-life of the benches)	O	2	2	3	12

		Toilets for spectators	Cleaning of the toilets	Use of chemical products for cleaning	N	2	3	3	18
				Water consumption	N	2	3	1	6
			Use by spectators	Generation of waste	O	2	3	3	18
				Water consumption	N	2	2	1	4
	VIP area	VIP room	Use by spectators	Generation of waste	O	2	2	3	12
				Electrical consumption	N	2	2	1	4
			Cleaning of the room	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
		VIP toilets	Use by spectators	Generation of waste	O	2	2	3	12
				Water consumption	N	2	2	1	4
				Electrical consumption	N	2	2	1	4

			Cleaning of the room	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
	Toilets and change rooms	Change rooms for the players	Cleaning of the change rooms	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
			Use of change rooms by the players	Generation of waste	O	1	1	3	3
				Water consumption	N	2	3	1	6
				Electrical consumption	N	2	3	1	6
		Toilets for the players	Cleaning of the toilets	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
			Use of toilets by the players	Generation of waste	O	2	2	3	12
				Water consumption	N	2	2	1	4
				Electrical consumption	N	2	2	1	4

		Showers for the players	Cleaning of the showers	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
			Use of showers by the players	Generation of waste	O	2	2	3	12
				Water consumption	N	2	2	1	4
				Electrical consumption	N	2	2	1	4
	Stadium outbuildings	Operations or control room	Use of the control room	Electrical consumption	N	1	2	1	2
			Cleaning of the room	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	1	3	3	9
		Medical centre for spectators	Consultations involving spectators (illness, incident…)	Generation of hazardous waste	N	2	2	3	12
				Electrical consumption and air conditioners	N	2	2	1	4
			Cleaning of the medical centre	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12

		Infirmary for players	Consultations involving players (illness, incident…)	Generation of hazardous waste	N	2	2	3	12
				Electrical consumption and air conditioners	N	2	2	1	4
			Cleaning of the infirmary	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
		Doping control room	Use by competent authorities for control purposes	Generation of hazardous waste	N	2	1	3	6
				Electrical consumption and air conditioners	N	1	1	1	1
			Cleaning of the infirmary	Use of chemical products for cleaning	N	2	2	3	12
				Water consumption	N	2	2	3	12
Related services	Parking	Parking for Visitors and players	Vehicle exhausts	Air pollution	O	2	3	1	6
			Noise	Adverse noise effects	O	2	3	1	6
			Vehicle oils leaking into the ground	Ground pollution	O	3	1	3	9
			Night lighting of the car park	Nuisance for surrounding residents	N	2	3	1	6

	Catering	Catering: Permanent concessions	Noise	Adverse noise effects	O	2	2	1	4
			Use by visitors	Generation of waste	O	2	3	3	18
				Lighting	N	2	2	1	4
			Economic	Positive impacts for the local economy	Positive impact				
		Catering: Temporary concessions	Noise	Adverse noise effects	O	2	2	1	4
			Use by visitors	Generation of waste	O	2	2	3	12
				Lighting	N				0
			Economic	Positive impacts for the local economy					
			End-of-life of the concession	Generation of waste from dismantling the concession	O	2	2	3	12
	Logistics	Ticket offices	Sale of tickets	Generation of waste (Tickets)	O	2	3	1	6
		Transport	transport of spectators and players	Air emission	O	2	3	1	6
				Ground pollution due to oil	O	3	1	3	9
				Consumption of diesel fuel	N	2	3	1	6

				Adverse noise effects	O	2	3	1	6
	Media	Media stands	Use by journalists	Generation of waste	O	2	2	3	12
				Electrical consumption	N	2	2	1	4
				Air conditioning	N	2	2	1	4
		Accreditation authority office	Use	Generation of waste	O	2	2	3	12
				Electrical consumption	N	2	2	1	4
				Air conditioning	N	2	2	1	4
		Press conference room	Use	Generation of waste	O	2	2	3	12
				Electrical consumption	N	2	2	1	4
				Air conditioning	N	2	2	1	4
		Telecommunications installation	Use	Generation of waste	O	2	2	3	12

				Electrical consumption	N	2	2	1	4
				Air conditioning	N	2	2	1	4
FIFA FAN FEST Sites (open air stages)	Outdoor stages	Installation of the stages	Management of external companies	Generation of waste	O	2	2	3	12
			Lighting	Electrical consumption	N	3	3	1	9
			Management of shows	Generation of waste	O	2	3	3	18
			Noise	Noise pollution	O	2	3	1	6
			Cleaning of the stage	Water consumption	N	2	3	3	18
				Use of chemical products for cleaning	N	2	3	3	18
		Removal of the stage	Management of external companies	Generation of waste	O	2	3	3	18
	Logistics	Transport	Transport of spectators	Air emission	O	2	3	1	6
	Catering	Catering: Temporary concessions	Noise	Adverse noise effects	O	2	2	1	4
			Use by	Generation of	O	2	2	3	12

			spectators	waste					
				Lighting	N	2	3	1	6
			Economic	Positive impacts for the local economy	Positive impact				
			End-of-life of the concession	Generation of waste from dismantling the concession	O	2	2	3	12
Draw venues (dedicated avenue)	-	Dedicated avenues	Noise	Adverse noise effects	O	2	3	1	6
			Use by spectators	Generation of waste	O	2	3	3	18
				Lighting	N	2	3	1	6
			Economic	Positive impacts for the local economy	-				
Transport	Air travel	National	Noise	Adverse noise effects	O	2	2	1	4
			Air emission	Air pollution	O	2	2	3	12
			Fuel consumption	Depletion of natural resources	N	2	2	1	4
				Energy consumption		2	3	1	6
			Economic	Positive impacts for the local economy	Positive impact				
		International	Noise	Adverse noise effects	O	2	2	1	4
			Air emission	Air pollution	O	2	2	3	12
			Fuel consumption	Depletion of natural resources	N	2	2	1	4
				Energy consumption		2	3	1	6
			Economic	Positive impacts for the	Positive impact				

				international economy					
	Maritime transport	International	Oil leaks	Contamination of maritime waters	O	2	2	3	12
			Air emission	Air pollution	O	2	2	3	12
			Economic	Positive impacts for the regional economy	Positive impact				
	Road transport	Inter-city	Noise	Adverse noise effects	O	2	2	1	4
			Air emission	Air pollution	O	2	2	3	12
			Fuel consumption	Depletion of natural resources	N	2	2	1	4
				Energy consumption		2	3	1	6
			Oil leaks	Ground pollution	O	3	1	3	9
			Economic	Positive impacts for the regional economy	-	Positive impact			
		Intra-city	Noise	Adverse noise effects	O	2	2	1	4
			Air emission	Air pollution	O	2	2	3	12
			Fuel consumption	Depletion of natural resources	N	2	2	1	4
				Energy consumption		2	3	1	6
			Oil leaks	Ground pollution	O	3	1	3	9
			Economic	Positive impacts for the local economy	-	Positive impact			
Hotel business	Hotel, guest houses and	-	Lighting	Electrical consumption	N	2	3	1	6

	rental of homes and/or apartments		Use	Generation of waste	O	2	2	3	12
				Water consumption	O	2	2	1	4
			Economic	Positive impacts for the local economy	-	Positive impact			
Catering	-	-	Noise	Adverse noise effects	O	2	2	1	4
			Use by spectators	Generation of waste	O	2	2	3	12
				Lighting	N	2	2	1	4
			Economic	Positive impacts for the local economy	Positive impact				

5. Legal and regulatory framework:

5.1 Legal and institutional framework

The legislative and institutional framework governing the implementation of the infrastructures linked to the 2026 World Cup event is summarized here via the main laws and provisions of the legal framework relative to environmental protection.

5.1.1 Law 12-03 relative to Environmental Impact studies

Law 12-03 relative to Environmental Impact studies, enacted by Dahir n° 1-03-06 of 10 Rabii I 1424 (12 May 2003), establishes the list of projects covered by the law, the procedure for performing the impact studies, and the content thereof.

This law creates a national committee as well as regional committees for environmental impact studies.

The national committee on environmental impact studies is chaired by the Department of the Environment. Its role is to decide, based on the results of the impact study, on the environmental acceptability required in order to implement the projects subject to this law.

The projects requiring an environmental impact study include:

- Unhealthy, inconvenient or hazardous establishments classified as first category (decree of 25 August 1914);
- Infrastructure projects, including wastewater purification stations and related structures;
- Industrial projects;
- Agriculture;
- Aquaculture and fish farming projects.

Pursuant to decree n°2-04-563 of 5 Di Kaada 1429 (4 November 2008), this law recently established the duties, operating provisions and composition of the regional committees in charge of environmental impact studies. Each regional committee is chaired by the region's wali, who must arbitrate the project (or his representative).

Also, decree n°2-04-564 of 5 Di Kaada 1429 (4 November 2008) established the provisions for organising and carrying out the public inquiry relative to projects subject to environmental impact studies.

5.1.2 Law 11-03 relative to the protection and promotion of the environment

Law 11-03 relative to the protection and promotion of the environment, enacted by Dahir N°1-03-59 of 10 Rabii I 1424 (12 May 2003), defines the principles and guidelines of an environmental legal strategy for Morocco. This general law is a response to the need to adopt an overall and integrated initiative that ensures the best possible balance between the need to protect the environment, and the country's economic and social development needs.

Law 11-03 is intended to ensure greater coherency, in legal terms, of all of the texts having an incidence with regard to the environment. As these texts necessarily fall within the sphere of different government agencies, this law is intended to provide a reference framework that establishes fundamental principles on the basis of which future texts relative to environmental protection will have to be prepared.

5.1.3 Law 13-03 relative to combating air pollution

Law 13-03 relative to combating air pollution and its decree n° 2-09-286 of 20 hijab 1430 (8 December 2009) establish air quality standards and the provisions for the monitoring thereof. Law 13-03 relative to combating air pollution was published in the BO (official bulletin) in June 2003.

Chapter II of this law, in its article 2, indicates that the law applies to every natural or legal person, subject to public or private law, that owns or holds or uses or operates mining, industrial, commercial, agricultural or craft-related buildings or installations. It also applies to vehicles or motorized machinery, waste combustion or incineration equipment, as well as heating and refrigeration facilities. Article 4 of chapter III of this law indicates that "it is prohibited to release, emit or discharge, or to allow the release, emission or discharge, into the air of pollutants such as toxic or corrosive gases, smoke, fumes, heat, dust or odours in excess of the quality or concentration authorised by the standards established by regulatory means."

5.1.4 Law 10-95 on water and its enabling texts

The law on water was enacted on 16 August 1995. Its objective is to implement a national water policy based on a forward-looking vision that considers firstly the evolution of the

resources, and secondly the national needs for water. It anticipates legal provisions intended to rationalise water use, generalized access to water, inter-regional solidarity and the reduction of disparity between cities and rural areas, in order to ensure water security throughout the entire territory of the Kingdom.

One of the aspects of the law is the management of water resources in connection with a geographical unit, with the water basin being used to design and implement decentralized water management.

Discharges, direct or indirect deposits, dumping, runoff into surface water or an underground water table, that could modify the physico-chemical and bacteriological characteristics thereof, require authorisation from the Water Basin Authority.

5.1.5 Law 28-00 relative to the management and disposal of solid waste

Law 28-00 relative to the management and disposal of solid waste and its decree N°2-07-253 of 18 July 2008 concerning waste classification and establishing the list of hazardous waste materials: this law covers household, industrial, medical and hazardous waste. It establishes an obligation to reduce waste at the source, the use of biodegradable raw materials and the responsibility for products throughout the production and usage chain.

The law also calls for local authorities to set up controlled rubbish tips within a maximum interval of three years as of the publication of the law, for household waste, and five years for industrial waste.

On an institutional level, the text calls for the creation of a national structure for managing hazardous waste.

5.1.6 Dahir n° 1-69-170 on soil protection and restoration

This dahir published in official gazette n° 2690 of 29 July 1969, includes rules relative to authorisations and prohibitions with regard to the use of natural resources. The dahir also regulates authorisations for works performed within the perimeters falling under the protection and restoration of soils, and the authorisations for setting up certain polluting establishments. It also imposes quite a significant number of prohibitions, notably in the sectors that are most important with regard to natural heritage.

5.1.7 Law 47-09 relative to energy efficiency

The purpose of this law is to increase energy efficiency in the use of energy sources, to avoid wastage, to mitigate the burden of energy costs on the economy, and to contribute to sustainable development. Its implementation is notably based on the principles of energy performance, energy efficiency requirements, energy impact studies, the mandatory energy audit and technical inspections.

In the following terms, article 1 of this law defines:

Energy efficiency: Any action, regardless of the activity of the sector in question, promoting:

- Optimal management of energy resources;
- Control of energy demands;
- Competitiveness of economic activities;
- Control of the technological choices of the future;
- Rational energy use.

With the aim being to do so with an equivalent level of results, service, product and quality of the obtained energy.

Energy performance: the quantity of energy actually used or estimated for a standardised usage.

Energy audit: all technical and economic investigations or energy performance inspections relative to technical equipment and processes that serve to identify causes of energy over-consumption and to propose a corrective action plan.

Energy service companies: any legal person that undertakes, relative to an energy consuming establishment, to:

- Perform studies intended to reduce energy consumption;
- Prepare a project that reduces energy use and ensure its execution, management, monitoring and possibly its financing;
- Guarantee the project's efficiency in the domain of energy reduction.

5.1.8 Law 78-00 relative to the community charter

In compliance with decree n° 1-02-297 enacting law 78-00 as amended in 2002 and 2009, the communal council monitors the safeguarding of hygiene, sanitary conditions and environmental protection (article 40). In accordance with this text, the community can therefore perform all verifications needed to ensure environmental protection. The community council notably decides on the communal policy with regard to:

- Protection of the coast, beaches, riverbanks, forests and natural sites;
- Water quality preservation, notably with regard to drinking water and bathing water;
- Evacuation and treatment of rain water and wastewater;
- Efforts to combat vectors of communicable diseases;
- Efforts to combat all forms of pollution, as well as deterioration of the environment and the natural balance.

Law 17-08 is an amendment to the community charter that thereby establishes one of the main laws intended to modernize the legal arsenal that organises the management of local affairs, in view of its impact on the communal management system in Morocco.

The reforms undertaken by the government with regard to managing local affairs are part of an overall vision that is notably based on implementing mechanisms that will ensure that the elected officials of the local councils are the main actors in the implementation of local development plans.

5.1.9 Law 07-81 relative to public expropriation for a public utility and temporary occupancy

Law N° 7-81 of the 6 May 1982 relative to expropriation for public interest and temporary occupancy has four parts, with the first being reserved for expropriation for public utility, the second covering temporary occupancy, the third on capital gains compensation, and the fourth on temporary and application provisions. This expropriation right is available to the State and to the local authorities, as well as to other legal persons governed by public or private law to which the public authorities have delegated rights in order to undertake works or operations declared to be of public interest. Public interest is declared by an administrative document that indicates the area potentially affected by the expropriation (Article 6).

5.2 Institutional framework of environmental management

Many institutions are directly or indirectly involved in environmental protection, according to the related infrastructures. They exercise their prerogatives through legal texts, some of which are presented above. It should be noted that there is a range of participants, and that their missions are very broad: oversight, monitoring, regulation, archiving, etc.

The main institutions looking after environmental protection are:

- The Ministry for Energy, Mines and Sustainable Development
- The High Commissioner for Water and Forests and the Efforts against Desertification
- The Ministry of Equipment and Transport;
- The Ministry of the Interior;
- The Ministry of Health;
- The High Council on Water and Climate

5.2.1 The Ministry for Energy, Mines and Sustainable Development

The Ministry for Energy, Mines and Sustainable Development is in charge of coordinating the government's actions with regard to environmental protection. Its main duties mean that it has a role in the coordination, supervision, control and set-up of a legal and institutional framework. This Ministry works to:

- Include the environmental dimension as part of studies and regional planning, notably the master plans for liquid sanitation and the waste management guidelines;
- Collect and update information regarding the status of the regional environment;
- Carry out awareness-raising actions with regard to environmental protection;
- Examine queries relative to environmental damage;
- Examine and formulate opinions regarding projects subject to the environmental impact study procedure;
- Assist the local authorities with regard to the environment.

5.2.2 The Water Basin Authorities

Water Law 10/95 established the Water Basin Authorities (ABH). As such, within each water basin or group of water basins, it created a public establishment known as a "basin authority", with a legal personality and financial autonomy.

The task of the ABHs is to assess, plan, manage and protect water resources, and to provide authorisations and concessions relative to the Water Public Domain (DPH) of their action zones:

In its article 20, the law notably sets out the missions assigned to them. These missions are very broad and of different types:

1) A decentralized planning and management mission spanning the catchment area:

- Preparing the PDAIRE (Integrated Water Resources Development Master Plan) for its action zone;
- Ensuring the application of the PDAIRE within its action zone;
- Managing and verifying the use of globalized water resources.

2) Sovereign missions to administer the Water Public Domain (DPH) and policing of waterways, as well as a general interest mission to provide quantitative and qualitative monitoring of water resources:

- Delivering authorisations and concessions for the use of the Water Public Domain (DPH);
- Maintaining a log of recognised water rights and granted collection authorisations;
- Performing all piezometric measurements and metering, as well as hydrological, planning and water management studies, on both quantitative and qualitative levels;
- Performing all quality measures and applying the provisions of law 10-95 and of the laws in effect relative to protecting water resources and the restoration of their quality, in collaboration with the government authority in charge of the environment;
- Proposing and implementing adequate measures to ensure water supplies in case of a declared water shortage, or to prevent flooding risks.

3) Technical support and financial aid missions for actors related to water: Provide all financial aid and other services, notably technical assistance, to public or private persons that request them, either to prevent the pollution of water resources, or for a development or use of the DPH.

4) Project ownership missions, notably to carry out the infrastructure needed to prevent and combat flooding.

5.2.3 National Electricity and Water Bureau Electricity (ONEE) – WATER Branch

By its nature, the ONEE is heavily involved in water management and the environment. It manages the kingdom's supply of drinking water, and is thus in charge of:

- The planning and sourcing of drinking water within the Kingdom;
- Economic development studies and drinking water conveyance management;
- Management of the drinking water distribution service within communities requesting it;
- Technical assistance with regard to monitoring the quality of drinking water;
- Control of pollution in the water that could be used as the drinking water supply.

5.2.4 High Commissioner for Water and Forests and the Efforts against Desertification

The HCEFLCD (High Commissioner for Water and Forests and the Efforts against Desertification) is in charge of:

- Administering, as delegated by the Prime Minister and in compliance with the provisions of the dahir of 20 hija 1335 (10 October 1917) the conservation and exploitation of the state's forestry reserves and other assets subject to forestry regulations, as well as the policing and control of the application of the relevant legislative and regulatory texts;
- Conserving, managing, developing and promoting forest, esparto cover and sylvo-pastoral resources in lands subject to forestry regulations, as well as continental wildlife and fishery resources, while promoting their many products, services and benefits;
- Working to promote and implement actions intended to extend and develop the forest on lands intended for forestry use, other than those of the state's forest reserves;
- Coordinating the preparation and implementation of development plans for watersheds, parks and natural reserves, and ensuring the monitoring and assessment thereof in concert with the various ministerial departments or other relevant institutions;
- Coordinating the preparation and implementation of integrated development programmes and projects in forest and esparto cover areas, participating in their implementation and ensuring their follow-up and assessment;
- Promoting cooperation and partnership actions with the various ministerial departments or other relevant institutions, local authorities, bilateral partners as well as regional and international organisations, professionals, NGOs and all users of the forestry domain;

- Coordinating, in conjunction with the various ministerial departments and institutions, the national implementation of the provisions of international agreements relative to combating desertification, and relative to forests, wildlife and natural habitat.

5.2.5 Ministry of Equipment and Transport

The Ministry of Equipment and Transport is in charge of preparing and implementing the government's policy with regard to roads, ports, public equipment and Transport (Road, Rail, Maritime and Air).

Through the Equipment department, this Ministry also looks after, on behalf of other Ministries or regional authorities or public institutions, the performance, supervision and oversight of technical studies, as well as the creation of technical structures or the technical verification of works.

5.2.6 Ministry of the Interior

The Ministry of the Interior looks after the hierarchical supervision of the municipalities. The communal charter establishes the principle of autonomy of municipalities and urban communities with regard to the management of solid waste, infrastructures and liquid sanitation. However, their budgets and investments are subject to oversight by the Ministry of the Interior.

5.2.7 The High Council on Water and Climate

Chaired by the King, this body was created in 1981 and is in charge of defining the national policy with regard to water. Its prerogatives primarily include:

- Preparing the general guidelines of the national water policy;
- Examining the national strategy with regard to climate-related knowledge and its impact on water resources;
- Examining the master plans for the development of the water basins while devoting particular importance to water distribution between users;
- Examining any draft text relative to water-related legislation.

The Council includes all concerned ministries, while the Equipment Ministry looks after the organisation and activities, as well as the Secretariat.

BIDDING NATION
MOROCCO

2026 FIFA World Cup™ – Morocco
Anticipated carbon footprint
February 2018

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6. Anticipated carbon footprint

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6.3 Introduction

Major international sports events, over and above the positive socio-economic fallout for the organising country, convey a positive image and dynamism while contributing to the country's social cohesion. However, the impact of these events on the environment and the climate is not insignificant.

This reality also applies to the 2026 FIFA World Cup, a planetary sporting event. The preparations for the Football World Cup and the conduct of the event require the use of stadiums, with their lighting, air conditioning or heating, upkeep of the various installations, transport for organisers, players and spectators to the various sports sites, resulting in the inevitable consumption and production of waste, etc.

All of these activities require the consumption of fossil fuels that generate GHG emissions impacting the planet's climate, in addition to the necessary consumption of water notably for maintaining the pitches.

In an effort to reduce the environmental impact of the World Cup, FIFA is determined to carry out all activities relating to the organisation of the World Cup in agreement with the principles relating to the sustainable management of events (ISO 20121).

It must be recalled that, in 2005, FIFA signed an agreement with the United Nations Environment Programme (UNEP). For the first time, it therefore included environmental considerations in its objectives. The objective of this collaboration is to develop a programme that will minimize the impact of a football world cup on the environment.

The action plan known as "Green Goal" (in French: but vert) was born in Germany before the 2006 World Cup. The FIFA Green Goal programme aims to "identify potential negative effects, to avoid or minimize them if possible, and to offset them when they are unavoidable".

To this end, FIFA has prepared the Guide to the organisation process for the 2026 World Cup, that asks the organising country to follow principles of sustainable management and the promotion of sustainable development that comply with the applicable international standards, with the prospect of organising a carbon-neutral World Cup.

This therefore provides the basis for this study, which is intended to assess the carbon footprint of the 2026 World Cup in Morocco and to propose options for reducing the

environmental impact of this major event, while identifying, insofar as possible, carbon offsetting projects in order to neutralize the event's incompressible emissions.

6.4 Presentation of the 2026 Football World Cup

The 2026 World Cup will be a turning point in the history of football. For the first time, the Cup will involve 48 teams instead of 32 as in the past.

In general, 3 phases are involved in the preparations for the organisation of the Football World Cup.

Preparation Phase

It includes all preparatory events and matches for the organisation of the World Cup, and notably the events related to the preliminary draw of the qualification phase and the final draw of the teams for the final phase of the World Cup.

During this preparation phase, all aspects related to the operation of the Offices and Staff of the Local Organising Entity in Morocco are taken into account.

Playoff Tournament Phase

During this phase, teams from the six confederations – with the exception of the European Confederation – will take part in a playoff round to determine the 2 teams that will complete the 46 teams selected during the qualifying phases.

World Cup Event Phase

This is the most important phase in terms of environmental impact, notably regarding the greenhouse gas (GHG) emissions that are responsible for climatic warming.

It includes the impact from the 80 matches in 12 stadiums dedicated to the various phases of the World Cup final, the FIFA Fan Fests organised on the national (12 cities) and international levels, as well as the operation of the FIFA / Local Entity offices.

The carbon footprint of the 2026 FWC will be calculated using anticipated data provided or confirmed by the FRMF and FIFA and as well as hypotheses resulting from feedback from the World Cups in 2010 and 2014.

In this context, the assessment of this event's carbon footprint will only include the main emission sources, and notably: international, national (inter-city) and local (intra-city) transport, visitor accommodations, operation of the stadiums (water / electricity consumption,

air conditioning, produced waste), offices of the Local Entity in Morocco, fixed assets (construction and renovation of stadiums, temporary installations) as well as the media.

It was not considered timely and relevant to consider the post-event phase that would allow for the preparation of a financial, organisational and political assessment, as well as in terms of environmental and social impact, communication and satisfaction of all persons present for the event. This assessment could be produced at a later time, and would then constitute an essential tool for perpetuating the event and for the experience feedback for the FWC. The assessment also does not take the qualification phase into account.

6.5 Methodology

The assessment of the anticipated carbon footprint of the 2026 FWC is based on the guidelines of the 14064-1 standard that sets out the principles and requirements for quantifying and drafting reports on the emissions of greenhouse gases (GHG) and their elimination.

It describes the principles used to determine the emission perimeters of an organisation's GHG and the activities that will be included in the calculation of the Greenhouse Gas (GHG) emissions appraisal.

The ISO 14064-1 standard also describes two consolidation methods for determining the **organisational perimeter**:

- **The "capital share" approach:** the organisation consolidates the emissions of assets and activities equal to its equity investment in the latter.
- **The "control" approach:**
  - financial: the organisation consolidates 100% of the emissions of installations over which it has financial control
  - or operational: the organisation consolidates 100% of the emissions of installations over which it has operational control.

The six GHG considered in this appraisal are primarily the ones resulting from the Kyoto Protocol, notably:

Greenhouse gas	Formula	Pre-industrial concentration	Current concentration	Lifespan in the atmosphere	GWP at 100 years
Carbon dioxide	**CO2**	280 ppm	396 ppm	100	1
Methane	**CH4**	0.6 to 0.7 ppm	1.8 ppm	12	25
Nitrous oxide	**N2O**	0.27 ppm	0.327 ppm	114	298
Hydrofluorocarbons	**CFC**	0	> 0	from a few weeks to a few centuries	Depends on each gas
Perfluorocarbons	**PFC**	0	> 0	from a few centuries to tens of thousands of millennia	Depends on each gas
Sulphur hexafluoride	**SF6**	0	0.008 ppm	3200	22,800

Table 1: List of greenhouse gases included in the GHG appraisal

The GHG of the 2026 FWC have been assessed by using the calculation tool of the Mohammed VI Foundation for Environmental Protection, the development of which was inspired by the Carbon Appraisal Method of the *Agence Française de l'Environnement et de Maîtrise de l'Energie* (ADEME) and the requirements of the ISO 14064-1 standard.

This tool includes the six main greenhouse gases and relies on a database of approximately 300 Emission Factors, with more than 150 adapted to the Moroccan context.

Its basic principle, like that of other calculation tools such as the GHG Protocol, PAS 2050 and Carbon Appraisal Method, involves an association of data from activities with emission factors that enable a conversion of the 2026 FWC activity data into CO2 equivalent tonnes.

Weight of the Emissions (tCO2e) = 2026 FWC activity data x Emission factor

FWC 2026 activity data: *Vehicle fuel consumption (litre/km), quantity of waste (kg), number of R/T by plane…*
Emission factor: *Multiplying coefficient (KgCO2e) for the conversion of FWC 2026 activity data into CO2 equivalent tonne (tCO2e). Most emission factors used to prepare an element's carbon footprint are determined from data drawn from the Lifecycle Analysis (LCA) or from source data.*

All of the emission factors considered as part of this study and their Reference sources are listed in Appendix.

Assessment element for uncertainties

As the GHG appraisal is an order of magnitude, it is subject to uncertainties linked to the calculation hypotheses. There are two main sources of uncertainty:

- Uncertainty regarding the activity data: while certain activity data are measured (e.g. kWh read on a meter), others are estimated (e.g.: km travelled between the supplier and the company for the transport of inputs, transport of funds...);
- Uncertainty regarding the emission factors: these emission factors were determined from a certain number of hypotheses that also include a degree of uncertainty.

6.6 Employed perimeters

To determine the carbon footprint of the Football World Cup, it was necessary to first perform a detailed analysis of its organisation and operating methods in order to identify flows that could generate greenhouse gas emissions.

However, Standard 14064-1 was developed to assess the greenhouse gas emissions (GHG) of companies and organisations, rather than over the space and time of a large-scale sports event.

Faced with the non-existence of a specific and standard method for assessing the carbon impact of a sports event, and notably the Football World Cup, it was decided to build on the feedback from past World Cups, most notably the ones in 2006, 2010 and 2014.

With this in mind, the organisational and operational perimeters were defined.

6.5.1 Organisational perimeter

As described above, the World Cup takes place in 3 phases beginning with the Preparation Phase, followed by the Playoff Tournament Phase and finally the Competition Phase.
In the case of the FWC 2026, the Playoff Tournament Phase was excluded from the organisational perimeter.

Accordingly, the emissions in question involve all activities occurring during the 2 phases of the **Preparation Phase and the Competition Phase**.

Phases	**Preparation**	**Conduct of the 2026 FWC**	
List of events	2026 FWC preliminary draw	✓ Matches	32 days
	2026 final draw	✓ FIFA Fan Fests	32 days
	Banquets (1 for each draw)		

Table 2: Events considered when estimating the carbon footprint of the FWC 2026

6.5.2 Operational perimeter

For the FWC 2026, consolidation by means of "**operational control**" was also adopted. This led to an action plan that takes into account all emissions generated by the assets and activities controlled by FIFA/Local Entity and therefore on which it is possible to have an impact.

The direct and indirect emissions of the FWC 2026, as described in the ISO 14064:1 standard, are linked to the activities that will occur during **the preparation and competition**

phases of the World Cup, thereby excluding the qualification phase, and involving primarily the emission sources indicated below.

Phases	Emission sources included	Emission sources excluded
Preparation Phase ▪ ***Preliminary Draw*** ▪ ***Final Draw*** ▪ ***Banquets***	▪ Energy ▪ Refrigerant gases ▪ International, inter-city and intra-city travel ▪ Treatment of waste / wastewater ▪ Logistics	
Playoff Tournament Phase	Excluded	
2026 FWC phase ▪ ***Matches*** ▪ ***Fan Fests***	▪ Energy *(Consumption of fossil fuels: fuel for generator sets and transport fleet, electricity usage in the stadiums and accommodations)* ▪ Refrigerant gases *(stadiums)* ▪ Food and beverage *(stadiums and accommodations)* ▪ Usage of water from the distribution network *(stadiums and accommodations)* ▪ Treatment of waste / wastewater *(Stadiums, FIFA Fan Fests)* ▪ International, inter-city and intra-city travel of the participants *(International, national, and Fan Fest)* ▪ Fixed assets (*Construction and Renovation of stadiums, and temporary installations)*	▪ International FIFA Fan Fests ▪ Logistics ▪ Production of merchandise

Table 3: Emission sources of the various phases of the FWC 2026

6.5.3 Source data and FWC 2026 hypotheses

According to the FRMF estimates, in the area of **3,440,000** tickets will be put on sale, including **2,060,000** for international visitors, i.e. 60% with 2 tickets per person, and **1,380,000** for national buyers, i.e. 40% with 1.5 tickets per person.

Category of participants	Number	Tickets sold	Tickets sold per participant	Tickets % Share
International (including Teams and Officials)	**1,030,000**	**2,060,000**	**2**	**60%**
National	**920,000**	**1,380,000**	**1.5**	**40%**
TOTAL	**1,950,000**	**3,440,000**		

Table 4: Participant hypotheses

The distribution of international visitors by continent is shown below:

Continents	Number of teams	% Number of teams	% Fans
Europe	16	33%	65%
Asia + Australia	8	17%	5%
Africa (not including Morocco)	8	17%	15%
Central and North America	6	13%	5%

South America	6	13%	10%
Oceania	1	2%	*Negligible*
Playoff tournament	2	4%	
Morocco	1		
TOTAL	48		

Table 5: Distribution of international participants per continent

6.7 Result of the FWC 2026 carbon footprint

6.1.1 Summary of the results

According to the adopted perimeters, the 2026 FWC will generate total emissions of 2,323,447 **tCO2e**, distributed between the competition phase for approximately **2,278,454 tCO2e i.e. 98%, and the preparation phase for approximately t44,993e, i.e. 2%.**

Phases	Emissions (tCO2e)	Share of emissions %	Observations
Preparation phase	44,993	2%	
Tournament phase	-	-	Excluded
2026 FWC phase including Media	2,278,454	98%	
Total	**2,323,447**	**100%**	

Table 6: Summary of the FWC 2026 GHG emissions

The table and figures shown below indicate the profile per emission source of the GHG appraisal for the 2026 FWC (in tCO2e and as a percentage):

Phases / Emission sources	Emissions (tCO2e)	Share of emissions of each source relative to the Total emissions
Preparation phase		
Preliminary draw	6,336	0.27%
Final draw	6,526	0.28%
FIFA / Local Entity operations	32,131	1.38%
Preparation phase total (1)	**44,993**	**1.94%**
Competition phase		
Energy	**181,003**	**7.79%**
Electricity	180,614	7.77%
Fuel (generator sets)	389	0.02%
Travel	**1,845,245**	**79.42%**
International	1,581,974	68.09%
Inter-city	248,790	10.71%
Intra-city	14,481	0.62%
Purchases	**67,867**	**2.92%**
Food and Beverages	61,848	2.66%
Water (distribution network)	2,119	0.09%
Sports merchandising	3,900	0.17%
Waste	**9,283**	**0.40%**
Solid	5,002	0.22%
Wastewater	4,273	0.18%
Fixed assets	**144,200**	6.21%

Air conditioning of the stadiums	**18**	0.00%
Partial total	**2,247,616**	**96.74%**
Media (including TV Production) (*)	**30,838**	**1.33%**
FWC Competition phase total (2)	**2,278,454**	**98.1%**
FWC 2026 total (1) + (2)	**2,323,447**	**100%**

Table 7 : Distribution of FWC 2026 estimated emissions by phase and source

(*) The media-related emissions have been extrapolated from the 2014 FWC data, with a 25% increase in order to account for the increase from 32 to 48 countries.

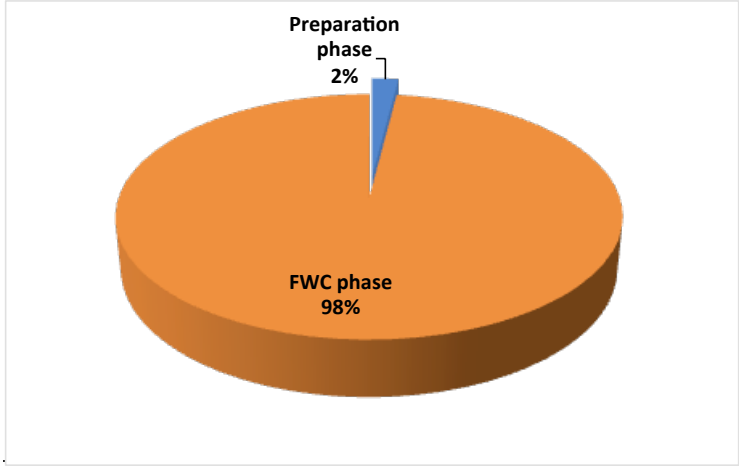


Figure 1: % Share of emissions of GHG during each Phase

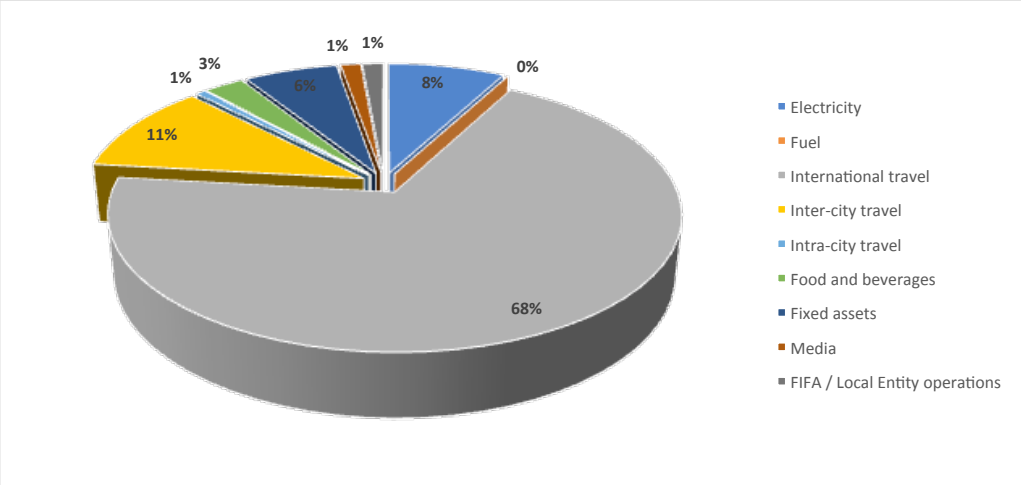


Figure 2: FWC Preparation and Competition Phases: Main GHG emission sources

As such, “travel of participants” is the most significant emission source with 79.42% of CO2 emissions, including 68.09% generated by international travel, 10.71% by inter-city travel, and 0.62% by intra-city travel. The consumption of purchased electricity generated by the

stadiums and accommodations of visitors represents 7.79% of the total emissions. The construction and renovation of stadiums as well as the temporary installations contribute 6.21% of the emissions. Regarding emissions due to purchases during the FWC 2026, notably food, drinks and sports merchandising, they account for approximately 2.92% of the total emissions. Finally, the GHG emissions generated by the activities of the Local Entity and of the media are each assessed at 1.3% of the total appraisal.

The emissions by segment are shown in the following table:

Segmentation	Total GHG emissions (tCO2e)	Share per segment
Participants		
Teams and FIFA Officials	**35,841**	**1.56%**
International spectators	**1,984,332**	**86.60%**
National spectators	**95,295**	**4.16%**
Media	**30,838**	**1.35%**
FIFA / Local Entity Operations	**32,130**	**1.40%**
Construction and renovations		
Stadiums	**5,635**	**0.25%**
Temporary installations	**139,375**	**6.08%**

Table 8: Distribution of FWC 2026 emissions per segment

6.6.2 Preparation Phase

The emissions of the preparation phase are equal to approximately 45,000 tCO2e. They were obtained by extrapolating the 2014 FWC data and accounting for the increase from 32 to 48 teams during the 2026 FWC.

Emission sources	GHG emissions
Preliminary draw	6,336 tCO2e
Final draw	6,526 tCO2e
Activities of the Local Entity	32,130 tCO2e

Table 9: Emissions from preparation phase events

The emissions due to the Local Entity's activities, representing 71% of the total emissions from this phase, primarily involve international, inter-city and intra-city travel of officials from FIFA and the Local Entity, but also the energy consumption for the operation of the offices and activities of the 2026 FWC steering committees.

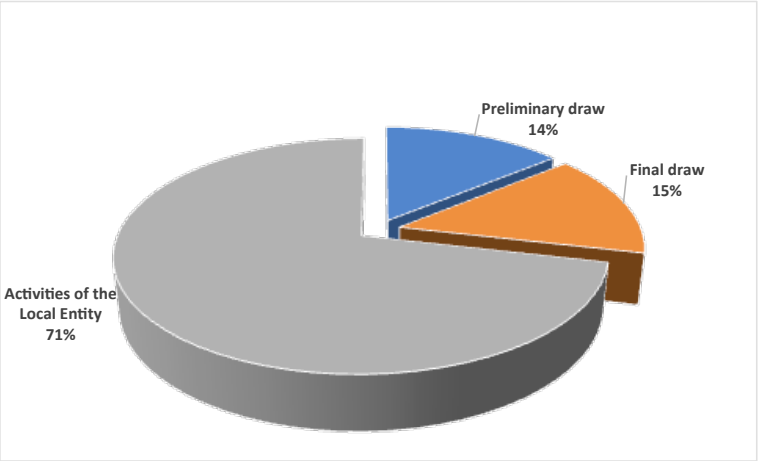


Figure 3: Distribution as % of the emissions per source relative to the total emissions of the preparation phase

6.6.3 2026 World Cup competition phase

To estimate the travel by teams, officials and spectators, both national and international, between the various host cities accommodating competition matches, within the cities (hotels – stadiums and airport – hotels) for the duration of the 2026 FWC over the course of 32 days, a breakdown into several phases (1 to 7) was used in compliance with the qualification phases of the 2026 FWC.

a. Energy

The calculation of the GHG emissions related to energy during the 2026 FWC includes the electricity consumption of the stadiums during 80 competition matches, and accommodations for the participants.

It was considered that, on average, a stadium uses 7 MWh of electricity and 1,500 L of fuel oil for a single football match *(Source: FRMF data on the large stadiums in Tangier and Agadir)*. The total consumption figures assessed for the entire duration of the 2026 FWC are shown in the following table:

Consumption source	Description	Average consumption per match	Total consumption during the 2026 FWC
Stadium	Electricity purchase from the Moroccan grid	7 MWh of electricity	560 MWh

Generator set	Generation of own electricity	1,500 litres of fuel oil	120,000 litres

Table 10: Energy needs (electricity and fuel oil) of the stadiums during the FWC 2026

The energy consumption linked to accommodating participants for each night is estimated on average at 25 kWh per participant, all hotel categories taken together *(Source: Morocco Data - Medener Report - Indicators, July 2013)*.

Based on the total estimated overnight stays per participant, the following table presents the electricity consumption estimates for each category of participant:

Consumption source	Total overnight stays for all competition phases	Electricity consumption (kWh)
Accommodation of Teams and Officials		
Players and Staff	94,080	2,352,000
Associations	21,000	525,000
Referee	12,000	300,000
FIFA personnel	49,350	1,233,750
FIFA VIP	15,750	393,750
Total	**192,180**	**4,804,500 KWh**
Accommodations International spectators		
International spectators	**10,173,000**	**254,325,000 kWh**

Table 11: Electrical consumption linked to accommodations of participants for the FWC 2026

The total number of overnight stays of players and international spectators is counted while considering the departure of eliminated teams and their fans during the various phases 1 to 7 (kick-off through to the final). However, it is assumed that each international fan will stay an average of 5 nights per ticket.

For the officials, however, all of the people are considered for a duration of 52 days: 10 days counted before and after the competition and 32 days of the FWC 2026.

The GHG emissions generated by energy consumption in the stadiums as well as the accommodations for participants, excluding local spectators, are in the area of 180,614 tCO2e, i.e. 99.6% of this source's emissions resulting from accommodations, as indicated in the following table and chart:

Consumption source	GHG emissions
Stadiums	778 tCO2e
Accommodations for participants	180,225 tCO2e

Table 12: GHG emission forecasts related to energy during the FWC 2026

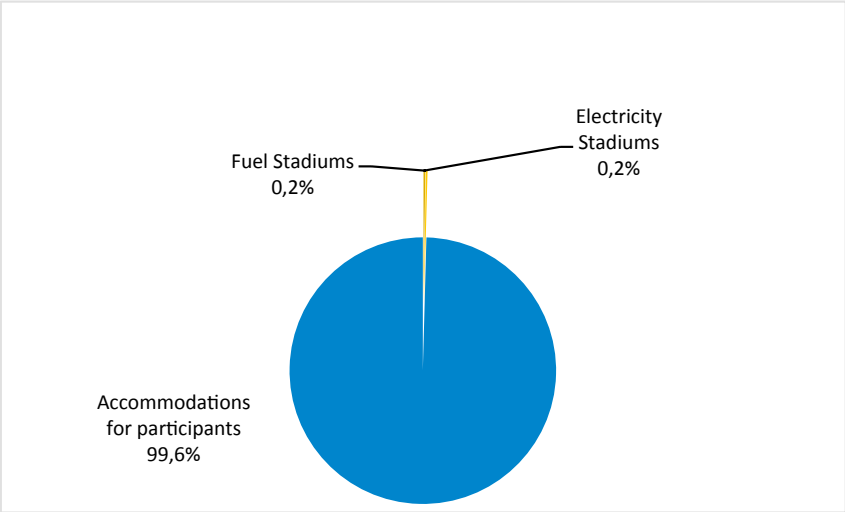


Figure 4: Distribution of the emissions per source (%) relative to the total emissions of the Energy source

The Emission factors used with regard to energy consumption are the following:

Emission factors		Sources
Electricity consumption	0.6955 kgCO2e/kWh	IEA Morocco Report – 2014 Edition (Energy policies outside of IEA countries)
Fuel oil consumption	3.24 kgCO2e/litre of fuel oil	Morocco Carbon Database

Table 13: Emission factors used for the energy source

b. Transport

The transport carbon footprint results from the average distances travelled by the participants, the number of passengers as well as the transport mode.

The estimated GHG emissions linked to transport are in the area of 1,845,245 tCO2e, accounting for international, inter-city and intra-city transport as shown below:

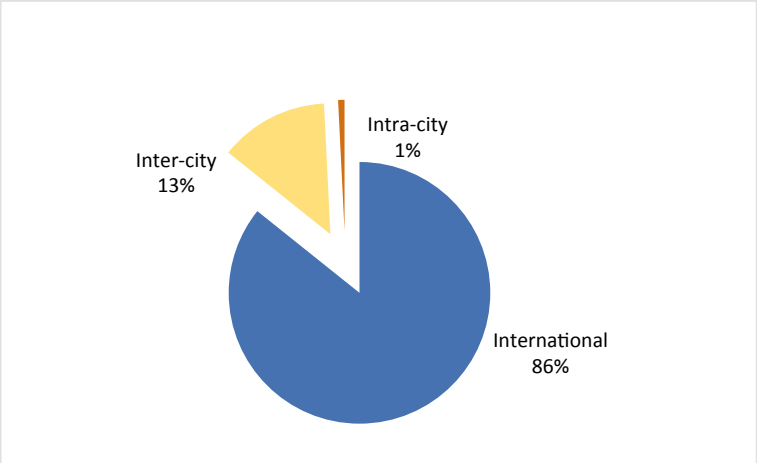


Figure 5: Distribution of the emissions by transport type relative to the total emissions of this source

b1. International transport

The GHG emissions for this source involve the international travel of teams, officials and international spectators, depending on their origins as shown in the following table:

	Number of teams	% Number of teams	Teams and Officials	% Fans	Number of Participants
Europe	16	33%	2,080	65%	**669,500**
Asia + Australia	8	17%	1,040	5%	**51,500**
Africa (not including Morocco)	8	17%	1,040	15%	**154,500**
Central and North America	6	13%	780	5%	**51,500**
South America	6	13%	780	10%	**103,000**
Oceania	1	2%	130		*Negligible*
Playoff tournament	2	4%	260		*Excluded*
Morocco	1	2%	130		**920,000**
Total	**48**		**6,240**		**1,950,000**

Table 14: Number of 2026 FWC participants per continent

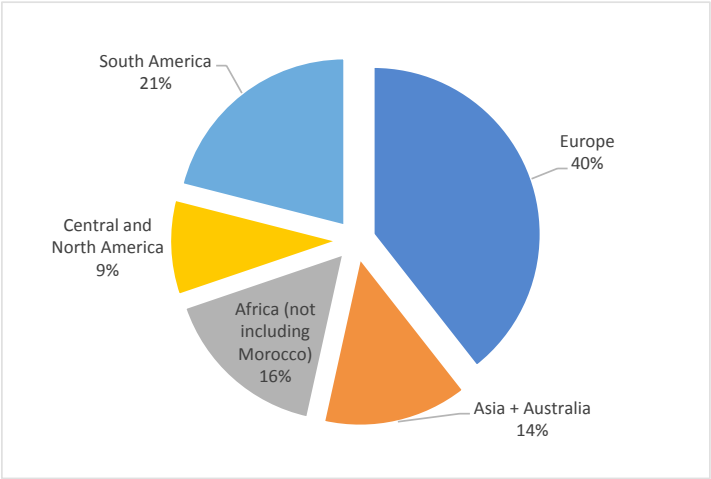
It has been considered that 100% of air travel will involve participants coming from all continents, except those coming from Europe, given its proximity with Morocco, that have been distributed by transport mode, namely: 50% by airplane, 25% by train and boat, 20% by car and boat, and 5% by coach and boat.

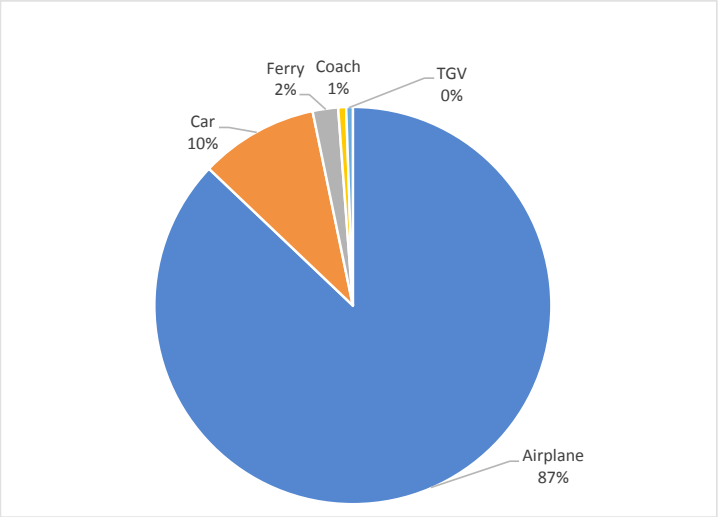
Based on the adopted hypotheses, the following table indicates the number of participants per continent, the average distances travelled, and the passenger*km product:

Origin	Transport mode	Number of passengers	Average one-way distance (km)	Summary (round-trip) Passenger.km
Airplane				
Europe	50% Airplane	334,750	3,000	2,008,500,000
Asia + Australia	100% Airplane	51,500	10,000	1,030,000,000
Africa (not including Morocco)	100% Airplane	154,500	4 000	1,236,000,000
Central and North America	100% Airplane	51,500	7,000	721,000,000
South America	100% Airplane	103,000	8,000	1,648,000,000
Oceania	100% Airplane	0		
Playoff tournament	100% Airplane	0		
TGV				
Europe (European territory)	25% Train	167,375	2,600	870,350,000
Europe (Moroccan territory)	25% Train	167,375	400	133,900,000
Coach				
Europe	5% Coach	33,475	3,000	200,850,000
Car				
Europe	20% Car	133,900	3,000	803,400,000
Ferry				
Europe	Crossing	334,750	50	33,475,000

Table 15: Passenger summary. Kilometre of International transport

On the basis of the above data, **the GHG emissions relative to international travel are estimated at 1,581,974 tCO2e**, distributed as shown below:





Figures 6a – 6b : Distribution of emissions from international travel per country and per employed means of transport

The employed emission factors corresponding with each transport mode are indicated below:

Emission factors		Sources
Car	0.190 kgCO2e/(passenger.km)	GHG Protocol
Bus	0.051 kgCO2e/(passenger.km)	MOROCCO Carbon Database
Morocco TGV	0.040 kgCO2e/(passenger.km)	ADEME Carbon Database (extrapolated according to the energy mix in Morocco)
France TGV	0.009 kgCO2e/(passenger.km)	ADEME Carbon Database
Airplane 2000-3000 km	0.2088 kgCO2e/(passenger.km)	ADEME Carbon Database
Airplane 3000-4000 km	0.2297 kgCO2e/(passenger.km)	ADEME Carbon Database
Airplane 4000-5000 km	0.3062 kgCO2e/(passenger.km)	ADEME Carbon Database
Airplane 7000-8000 km	0.2018 kgCO2e/(passenger.km)	ADEME Carbon Database
Airplane 9000-10000 km	0.2158 kgCO2e/(passenger.km)	ADEME Carbon Database

Table 16: Emission factors used for the international travel source

b2. Inter-city travel

The GHG resulting from inter-city travel include the travel needs of the teams and officials as well as international and national spectators, between the 12 Moroccan host cities of the 2026 FWC.

The emissions assessment is based on the estimated number of participants and trips per phase (from the round of 32 to the final), based on the number of matches per day, the

capacity of the stadiums with an average filling rate of 90%, and an average inter-city distance of 480 km.

The following hypotheses were considered with regard to the transport modes used as part of the inter-city travel for each category of participants, namely:

- Teams and officials: 100% by airplane;
- International spectators: 10% by airplane, 50% by train, 20% by coach, 20% by car;
- National spectators (40% coming from other cities): 20% by airplane, 50% by train, 20% by coach, 30% by car.

The estimated emissions for this source are therefore equal to 248,790 tCO2e, distributed by category of participants and transport mode as shown below:

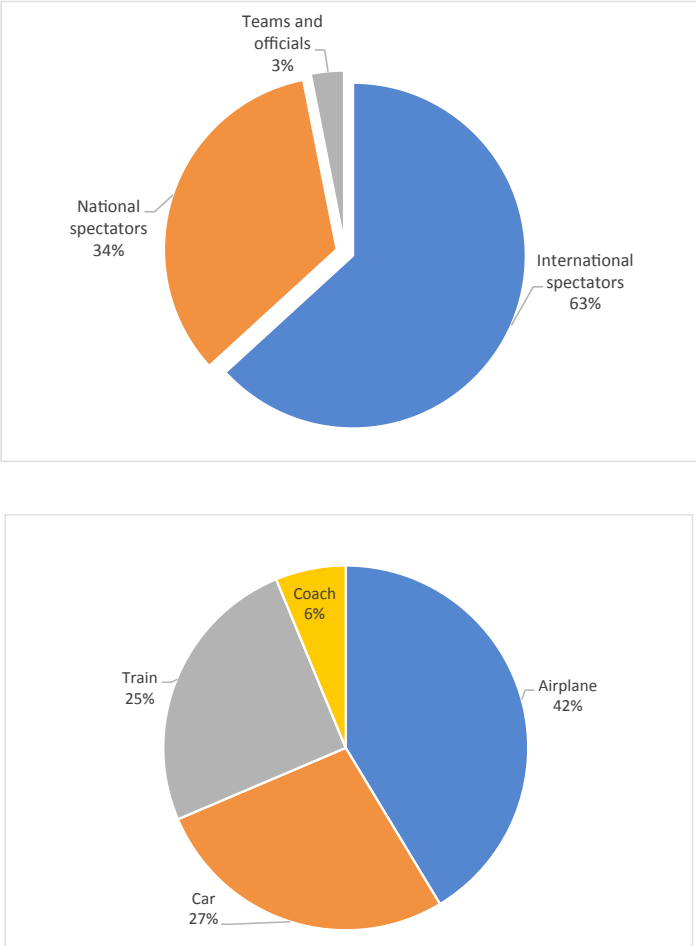


Figure 7: Distribution of the emissions from inter-city travel by category of participants and by means of transport

The employed emission factors corresponding with each transport mode are the following:

Emission factors		Source
Car	0.190 kgCO2e/(passenger.km)	GHG Protocol
Bus	0.051 kgCO2e/(passenger.km)	MOROCCO Carbon Database
Morocco train	0.096 kgCO2e/ (passenger.km)	ADEME Carbon Database (extrapolated according to the energy mix in Morocco)
Airplane 0-1000 km	0.3132 kgCO2e/(passenger.km)	ADEME Carbon Database

Table 17: Emission factors used for the inter-city travel source

b3. Intra-city travel

The GHG emissions linked to intra-city travel include the travel needs of all participants within the host cities of the matches for the 2026 FWC, and all of the following routes: airport - city centre, city centre - stadium, and city centre - FIFA Fan Fest.

The emissions due to airport - city centre travel have been calculated using the number of international participants travelling by air to Morocco, and a distance of 34 km defined as the average distance between the airport and the city centre.

The distribution used for each transport mode is indicated below:

- 50% travel by train;
- 40% travel by car;
- 10% travel by coach and bus.

The emissions resulting from city centre – stadium travel result from the number of participants and trips per phase (from the round of 32 to the final), based on the number of matches per day, the capacity of the stadiums with an average filling rate of 90%, and an average intra-city distance of 8 km.

The distribution used for each transport mode is indicated below:

City centre - stadium travel
International spectators
Bus and coach (50%)
Car (50%)

City centre - stadium travel
National spectators
Bus and coach (40%)
Car (55%)
Bicycle or on foot (5%)

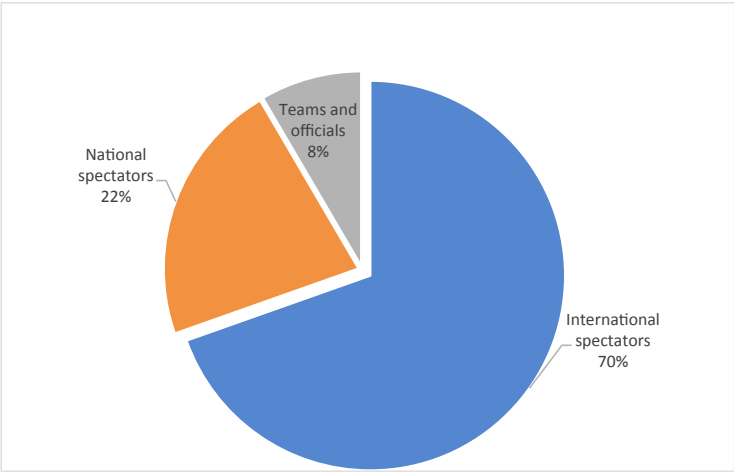
Regarding the City centre - FIFA Fan Fest travel, the relevant emissions are estimated according to the defined number of participants in the FIFA Fan Fests per match (40,000

people for Casablanca and 15,000 people for the other host cities, with a filling rate of 80%), and an average travel distance per segment of 5 km.

The distribution used for each transport mode is indicated below:

- 60% travel by bus and coach;
- 35% travel by car;
- 5% travel by bicycle or on foot.

As such, **the overall emissions estimated for intra-city travel are equal to approximately 14,481 tCO2e**. The following figure presents the share of emissions per category of participants and per transport mode:



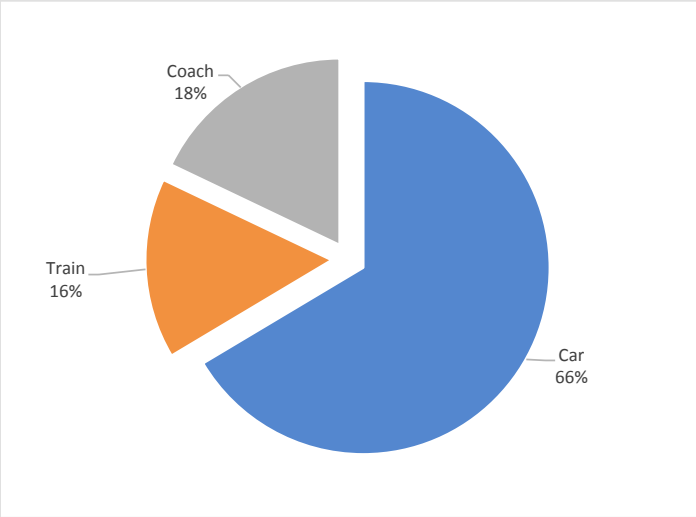


Figure 8: Distribution of the emissions from intra-city travel by category of participants and by means of transport

The emission factors used for each transport mode are the following:

Emission factors		Sources
Car	0.190 kgCO2e/(passenger.km)	GHG Protocol
Coach - Bus	0.051 kgCO2e/(passenger.km)	MOROCCO Carbon Database
Morocco train	0.096 kgCO2e/(passenger.km)	ADEME Carbon Database (extrapolated according to the energy mix in Morocco)

Table 18: Emission factors used for the intra-city travel source

c. Purchases

The emissions relative to this source are equal to 67,867 tCO2e, and include the consumption of food and beverages, the use of water from the distribution network both within the stadiums and the establishments accommodating participants, and for the sports merchandising. The distribution by emission source is the following:

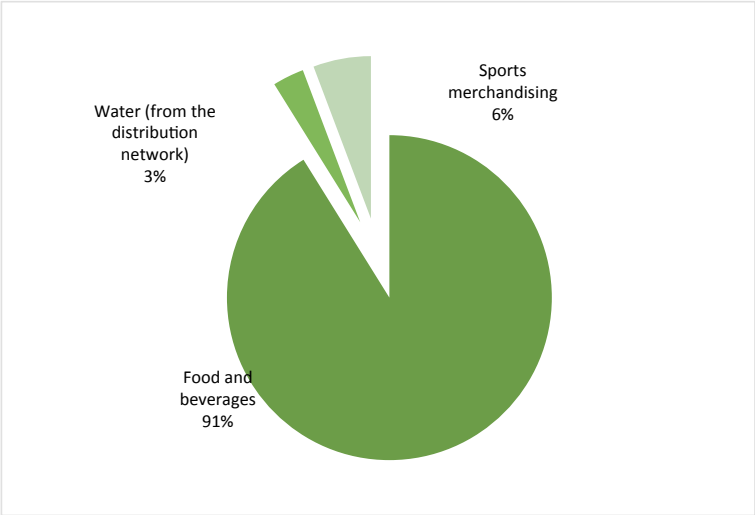


Figure 9: Distribution of the emissions per source (%) relative to the total emissions of the Purchases source

The hypotheses included in the calculation of these emissions are the following:

c1. Food and Beverages

It was considered that each participant would consume one meal and one beverage per match during the FWC, and that each team member, FIFA official and international visitor will consume two meals and 2 litres of water per day while staying in Morocco.

The emissions relative to the consumption of food and beverages are in the area of 61,848 tCO2e, distributed as shown below: 16% at the stadium while the competition is in progress, and 84% via the accommodations.

c2. Water from the distribution network

Average water consumption to maintain the pitches of 20 m³ per stadium and per day (before, during and after the football match) was assumed on the basis of the data from the large stadiums in Tangier, Agadir, and Marrakesh.

Furthermore, average consumption of 0.6 m³ per overnight stay and per person was also assumed over the 52 days of the competition.

As such, the emissions from this source are estimated at 2,119 tCO2e, distributed as shown below: 97.8% for accommodations for international spectators, 1.9% for accommodations for teams and officials, and 0.2% for maintaining the pitches in the stadiums.

c3. Sports merchandising:

We consider that at least two articles will be sold per person, i.e. 3,900,000 articles sold in all during the 2026 FWC, **generating a total of 3900 tCO2e**.The emission factors used in order to estimate the GHG emissions from the "Purchases" source are:

Emission factors		Sources
Meals	2.250 kgCO2e/meal	ADEME Carbon Database
1 litre of water (mineral water / table water)	0.249 kgCO2e/litre	Average emission factor from the carbon appraisal prepared for the Oulmes mineral waters in Morocco
Soft drinks	1.090 kgCO2e/litre	ADEME Carbon Database
Article - sport	1.000 kgCO2e/article	ADEME Carbon Database
Water from the distribution network	0.340 kgCO2e/m³	Measuring scope 3 carbon emissions – water and waste, Arup and De Montfort University, 2012

Table 19: Emission factors used for the purchases source

d. Fixed assets

The emissions of fixed assets include the construction and renovation of stadiums, as well as temporary installations. The emissions generated by temporary installations are calculated using data from the 2014 FWC, with a multiplying factor of 1.25 in order to account for the increase from 32 to 48 teams. For the emissions linked to the construction and renovation of stadiums, they have been calculated using an average carbon footprint of 2.7 tCO2e/seat based on the 2010 FWC carbon footprint, each stadium's seating capacity, the number of matches per stadium, and also the number of days of use of the stadiums.

The following table provides details of the completed calculations:

Stadium - City	Number of matches	Capacity	Total emissions (tCO2e)	Emissions / event	2016 FWC total emissions (tCO2e)
Casablanca 1 (new stadium)	9	80,000	216,000	100	**900**
Rabat (renovated stadium)	7	40,000	108,000	50	**350**
Marrakesh 1 (extension)	8	60,000	162,000	75	**600**
Tangier (renovated stadium)	7	60,000	162,000	75	**525**
Agadir (renovated stadium)	7	40,000	108,000	50	**350**
Rabat (renovated stadium)	6	40,000	108,000	50	**300**
Tétouan (new stadium)	6	40,000	108,000	50	**300**
Oujda (new stadium)	6	40,000	108,000	50	**300**
Meknès (new modular)	6	40,000	108,000	50	**300**
El Jadida (new modular)	6	40,000	108,000	50	**300**
Nador (new modular)	6	40,000	108,000	50	**300**
Ouarzazate (new modular)	6	40,000	108,000	50	**300**
				Total	**4,825**

Table 20: GHG emissions of the fixed assets – Construction and renovation of stadiums

The GHG emissions linked to the amortisation of the fixed assets is equal to 144,200 tCO2e, distributed as shown below:

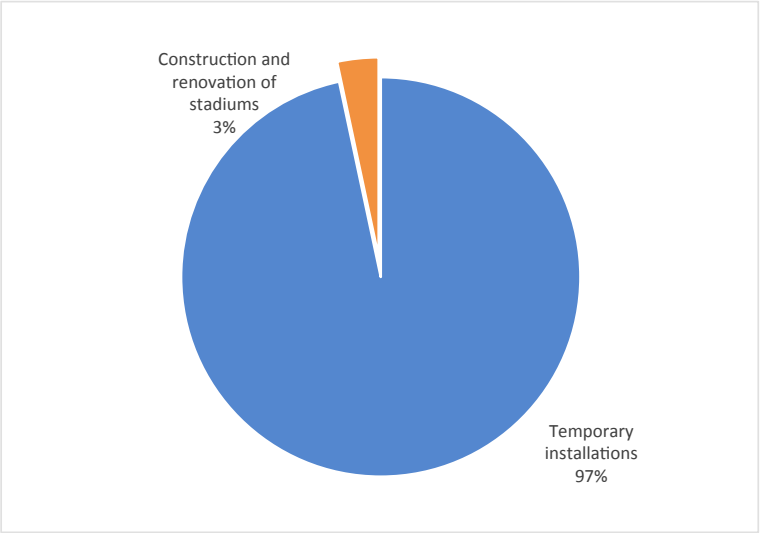


Figure 10: Distribution of the emissions per source (%) relative to the total emissions of the Fixed assets source

e. Waste

The calculation of GHG emissions generated by waste include the transport and treatment of solid waste produced by each 2026 FWC match, notably the plastic and paper / cardboard, and the waste from the FIFA Fan Fests, as well as the wastewater treatment used by the stadiums and accommodations during the period of the 2026 FWC.

It is assumed that each spectator will generate 0.5 kg of waste, i.e. 0.3 kg of plastic and 0.2 kg of paper / cardboard, with a plastic recycling rate of 9%. The assumed quantities of wastewater have been defined on the basis of the quantities of distribution network water used.

Type of waste	Description	Quantity generated for the entire 2026 FWC
Solid waste – Plastic	Waste generated during the 2026 FWC matches *(Fan Fests included)*	1,374 tonnes
Solid waste – Paper / Cardboard	Waste generated during the 2026 FWC matches *(Fan Fests included)*	916 tonnes
Wastewater	Water used in the stadiums and accommodations	6,231,588 m³

Table 21: Quantity of solid and liquid waste produced during the 2026 FWC

The estimated emissions generated by this source are equal to nearly 9,283 tCO2e, distributed between solid waste and wastewater treatment, excluding infrastructure, as shown below:

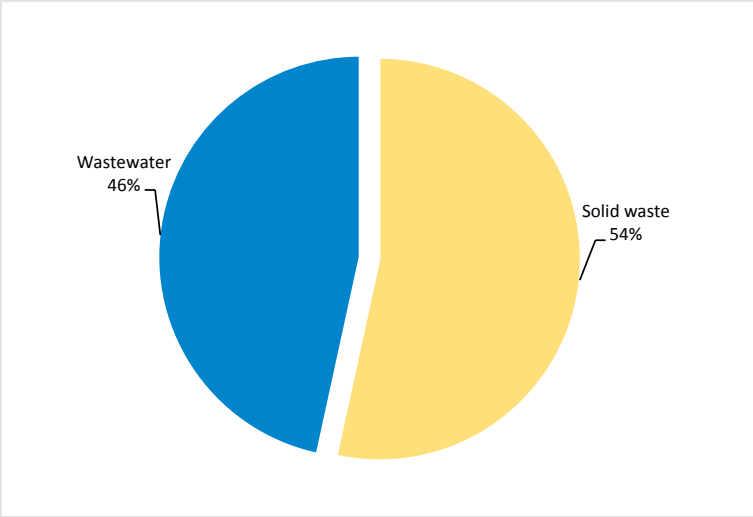


Figure 11: Distribution of GHG emissions per source (%) relative to the total emissions of the Waste source

The emission factors used to assess these emissions due to the transport and treatment of waste and wastewater are:

	Emission factor	Source
Plastic	1,990 kgCO2e/tonne	MOROCCO Carbon Database
Cardboard	2,744 kgCO2e/tonne	MOROCCO Carbon Database
Wastewater	0.7 kgCO2e/m³	Measuring scope 3 carbon emissions – water and waste, Arup and De Montfort University, 2012

Table 22: Emission factors used for the waste source

f. Air conditioning

The GHG emissions from this source are due to leaking cooling fluids from the refrigeration and air conditioning installations of the stadiums during the 32 days of the 2026 FWC.

They are calculated using the database provided by the FRMF (2018) relative to the two large stadiums of Agadir and Tangier, and an estimated average for the 10 other stadiums.

As such, the emissions generated by this source are estimated at 18 tCO2e as indicated in the following table:

Installation	GHG emissions	Emission factor	Sources
Agadir stadium	1.89 tCO2e	1,810 kgCO2e/kg	ADEME Carbon Database
Tangier stadium	1.16 tCO2e		
10 Stadiums	15.23 tCO2e		

Table 23: GHG emissions linked to the air conditioning in the stadiums

7. Recommendations for reduction and offsetting actions

7.1 Context

Preparing for an event the size of the Football World Cup takes several months, even several years, in view of the various infrastructures that will be required, whether new or renovated, linked to the spaces needed to accommodate the public and the competitions (stadiums and outbuildings), in addition to transport infrastructures (roads, engineering works, public transit, etc…). This all has a **harmful impact on the environment and the climate**.

To make this event eco-responsible and notably carbon neutral, in compliance with the requirements of the Green Goal 2026, the following threefold initiative is necessary:

1. **Identifying possible reduction actions;**
2. **Including eco-design during the organisation and preparation phases;**
3. **Offsetting the irreducible emissions.**

The actions needed for each of these initiatives are described below:

7.2 Reduction actions

Reducing the CO2 emissions of the 2026 FWC will involve two elements:

Element 1: Moroccan climate policy

The footprint of the 2026 FWC was assessed using the "**Business as Usual**" climate scenario.

However, it is important to recall that, as part of the Paris Accord, Morocco has provided the UNFCCC with its Nationally Determined Contribution (NDC), that includes an objective for a 42% reduction of its emissions over the 2020-2030 period.

These GHG reduction objectives will be met by carrying out projects in the sectors of energy, agriculture, transport, water, waste, forests, industry, housing and infrastructures.

Energy transition is the spearhead of this climate policy, that calls for increasing the share of **renewable energies** from the current 32%, to 42% in 2020 and 52% by 2030.

Average **energy savings** of 15% are also targeted, in buildings, industry and transport relative to the trend distributed by sector, which amounts to 48% for industry, 23% for transport, 19% for housing, and 10% for the tertiary sector.

Regarding **waste**, the aim is to develop "sorting-recycling-reclamation" sectors and to treat wastewater through to the tertiary level, with 50% reuse of such wastewater for internal cities in 2020.

The fulfilment of these projects as part of implementing the NDC will contribute to reducing the CO2 emissions generated by the 2026 FWC, distributed by source in the following manner:

Project type	Emission sources	Potential reduction of Emissions (tCO2e)
Renewable Energies (REn)	Stadiums	330
Energy Savings & REn	Accommodations	61,120
Energy Savings	Inter-city transport	44,500
Waste management	- Waste - Wastewater	1,000 2,000
TOTAL		**108,950**

Table 24: Potential reduction of emissions based on Morocco's commitments under the Paris Climate Accord

In conclusion, the Moroccan climate policy implemented in connection with the Paris Climate Accord will result in a total reduction of approximately 108,950 tCO2e, i.e. 17% of the overall emissions of the 2026 FWC, that are equal to approximately 741,500 tCO2e excluding air transport.

Element 2: 2026 FWC specific reduction actions

The specific reduction actions for the 2026 FWC are based on the results of the event's carbon footprint appraisal, and involve the main emission sources.

As such, the following are proposed as potential avenues for reducing CO2 emissions:

International transport: 1st emission source (69%)

- Asking international passengers to offset the CO2 emissions related to their travel by using a CO2 eco-calculator, such as the one developed by the Mohammed VI Foundation for Environmental Protection (www.fm6e.org);
- Combining train / match tickets for European spectators, with reduced rates that will encourage inter-modality. For example, if the targeted objective is to have 50% of European spectators travel by train and ferry, the reduction of CO2 emissions in this case could be equal to more than 205,000 tCO2e.

Inter-city and intra-city transport: 2nd emission source (11%)

- Encouraging fans to use public transit by means of information panels in the train stations and in the host cities;
- Facilitating the use of public transit;
- Encouraging carpooling and taxi-sharing between spectators by using mobile applications that contain all information regarding trip and travel options;
- Studying the possible use of combined ticket programmes that enable the ticketholders to use public transit for free on the corresponding match days;
- Using electric buses for the transport of fans.

Energy

- Performing an energy appraisal of the stadiums with the aim of optimising the energy consumption (electricity and fuel oil);
- Using energy-efficient lighting systems and LED panels (*).
- Performing a regulatory inspection of the electrical installations and of the preventive maintenance plan of the installations in order to avoid electricity cuts;
- Studying the possibility of more daytime events in order to minimize electricity consumption;
- Using air conditioning installations with low electricity consumption and automatic shut-off;
- Monitoring the maintenance of vehicles and machinery, as well as of fuel consumption;
- Encouraging the use of hotels with ecological certifications.

(*) In case of lighting technologies using LED equipment for the stadiums, the savings in terms of electricity consumption would be in the area of at least 16% per match (Reference:

Engie study), i.e. 89.6 MWh during the 80 matches of the 2026 FWC; this corresponds with 62 tonnes of avoided emissions.

Water

- Raising spectator awareness regarding rational water use;
- Using dry toilets in the stadiums;
- Selecting the most resistant grass varieties that are best adapted to the climate context of the sports field;
- Watering the fields at night in order to avoid evaporation (*);
- Storing and using rainwater for the purposes of watering within the stadiums;
- Improving drainage for better mechanical resistance and impermeability of the soil;
- Rationalizing water use with the help of new technologies (sprinkler);
- Installing economical flow taps;
- Posting awareness-raising instructions;
- Preparing a Periodic plan for equipment maintenance.

(*) Based on an average evaporation factor 2 mm/day in Morocco, watering the stadiums at night would mean a reduction of 12,250 m3 during the 2026 FWC.

Also, water savings of 20% relative to the accommodations as a result of encouraging eco-gestures of spectators would correspond with 423 tCO2e of avoided emissions.

Waste

Generalizing the use of selective sorting and applying the 3R principle (reduction, reuse and recycling) through the following actions:

Reduction:

- Studying the feasibility of dematerialized ticketing;
- Encouraging the rental of certain equipment such as furnishings, barriers, containers and portable toilets;
- Disseminating advertising announcements, publications and competition programmes by means of smartphone applications in order to reduce paper use;
- Sensitizing the companies in charge of cleaning, and planning specific cleaning rounds.

Reuse:

- Using reusable cups in the stadiums and supporter areas;
- Reusing the sports equipment via local sports teams;
- Distributing items, after the end of the 2026 FWC, such as office supplies, uniforms and so on to foundations and associations in support of children, orphans, etc.

Recycling:

- Generalizing the use of waste selective sorting;
- Signing contracts with company specialising in managing the generated waste (rubble, plastic, hazardous waste (used motor oil, chemical products…));
- Signing contracts with recycling sectors, notably for plastic and paper;
- Encouraging the use of recycled materials when manufacturing the synthetic coverings (polyethylene, polypropylene, latex), and for the turf;
- Compacting and composting the grass clippings;
- Maintaining and recycling the benches.

If the targeted objective of the 2026 FWC is a recycling rate of 100% both for plastic and paper, the avoided emissions would be in the area of 5,000 tCO2e.

Purchases

- Promoting responsible purchases of products and services;
- Preparing an eco-responsibility charter to be signed by suppliers and service providers of the 2026 FWC, while promoting socially and ecologically responsible purchases;
- Developing a strategy for local purchases by the 2026 FWC.

Sustainable design of the stadiums (eco-design)

- Ensuring that all 2026 FWC events are organised in compliance with the requirements of the ISO 20121 standard;
- Building stadiums using the eco-stadium concept (positive energy stadiums (*), rainwater recovery systems for watering the pitches, choice of construction materials, choice of organic fertilizers: reasoned and controlled fertilizing, natural aeration of the zone and

adjustment of the air conditioning, replacement of chemical products with products that respect the environment, reduction of sound nuisances, etc…);

- Installing solar water heaters in the stadiums undergoing renovation;
- Setting up a process for controlling and regulating water consumption (monitoring of soil humidity rates, automated sprinkler system…);
- Considering the impact of stadium lighting on surrounding residents (night lighting study);
- Analysing the environmental impacts of the activities of external companies.

Electricity consumption could be as much as 315 MWh, i.e. 219 tCO2e of avoided emissions.

Temporary installations

- Favouring temporary installations made from reusable and recyclable materials;

FIFA / Local Entity personnel and officials:

- Using videoconferences for discussions whenever possible, in order to reduce travel needs;
- Using ecological transport means for intra-city and inter-city travel, such as electric buses and hybrid vehicles;
- Providing drivers with theoretical and practical training relative to safety and eco-driving, in order to limit accidents and reduce fuel consumption;
- Setting up an Eco-responsibility committee with the role of bringing together all concerned actors around the eco-responsibility objectives of the 2026 FWC.

Public awareness-raising and information

- Providing fans, through FIFA websites and dedicated smartphone applications, with regular information that includes eco-citizen messages linked to protecting the environment and combating climate change;
- Disseminating eco-citizen messages in the airports, train stations and bus stations.

7.3 2026 FWC carbon offset

Context

The Green Goal 2026 programme and FIFA organisation criteria require the event to be eco-responsible. This therefore involves reducing negative impacts on the environment,

supporting a social and solidarity-based economy, and involving the local partners in promoting sustainable development values.

One of the fundamental objectives of eco-responsibility is carbon neutrality, the principle of which is based on offsetting irreducible GHG emissions.

At this stage, it is still premature to describe projects that are eligible for carbon offsetting.

However, it was considered useful to present certain information on offsetting and the carbon market in Morocco, and to begin reflecting on the initiative that the organisers will have to follow in order to reach the carbon neutrality objective of the 2026 FWC.

Voluntary Carbon Offset in Morocco

It must be recalled that regulated carbon offsetting is an outcome of the mechanisms of the UNFCCC Kyoto protocol (that took effect in 2005), which provides developed countries with the possibility of offsetting part of their emissions by buying carbon credits that come from GHG mitigation projects carried out in other countries.

In parallel with regulated carbon offsetting between States, NGOs have promoted voluntary carbon offsetting.

In Morocco, the Mohammed VI Foundation for Environmental Protection is leading a voluntary offset programme that it launched in 2009, and the objectives of which are to encourage public and private operators to firstly reduce their CO2 emissions, and then to offset any irreducible emissions by financing projects that reduce part or all of these emissions.

The projects selected as part of this programme and that meet the eligibility criteria, notably relating to additionality, focus on renewable energies in the rural world and the planting of palm trees in the Marrakesh palm grove.

The Carbon Market in Morocco

As part of the Paris Climate Accord, Morocco made an unconditional commitment to reduce its CO2 emissions by 17% by 2030 relative to the projected emissions in that same year under a “Business as Usual” scenario, and by 42% on the condition of receiving additional financial support from the international community.

With this in mind, the World Bank is currently working with Morocco as part of the **Partnership for Market Readiness (PMR)** project, in order to help it to design and deploy low carbon development strategies using pricing tools for GHG emissions.

The results of this support should enable Morocco to set up carbon market mechanisms in order to promote the national efforts to mitigate greenhouse gas emissions, and consequently to have, in time, a portfolio of projects that are potentially eligible for carbon offsetting, while also testing innovative market instruments such as the domestic exchange market for quotas, a carbon tax, etc.

Certain projects marketed as part of the PMR could be covered by the offset programme of the 2026 FWC.

Cost of carbon neutrality for the 2026 FWC

The anticipated carbon footprint of the 2026 FWC, excluding international travel and the media, is equal to approximately **665,640 tCO2**. If we consider the aforesaid reductions carried out as part of implementing the NDC of the Paris Climate Accord, which amount to **108,950 tCO2e**, the total CO2 emissions of the 2026 FWC to be offset would be equal to approximately **556,690 tCO2e**.

According to World Bank statistics drawn from the 2017 edition (The State and Trends of Carbon Pricing Targets), the price of carbon is under $10 per tonne of CO2 in 75% of cases. At a constant price per tonne of CO2, the financing needs for the carbon offsetting of the 2026 FWC could be equal to $5.5 million.

Governance of 2026 FWC offsetting projects

To identify and validate projects that could be used for the carbon offsetting of the 2026 FWC, it is strongly desired that an ad hoc committee will be able to give a ruling and monitor the offsetting projects.

This Committee could consist of experts representing both institutionals and concerned NGOs, and would be the guarantor of the implementation of the projects during the preparation and organisation phases of the competition.

Appendices

Abbreviations and acronyms

EA: Environmental Aspect

SEA: Significant Environmental Aspect

SD: Sustainable Development

EIS: Environmental Impact Study

FIFA: Fédération Internationale de Football Association

FRMF: Fédération Royale Marocaine de Football (Royal Moroccan Football Federation)

L: Legal

SDO: Sustainable Development Objectives

R: Regulatory

R/L/A: Regulatory / Legal / Applicable

Summary of the employed emission factors

Emission factor		Source
Domestic fuel oil	3.240 kgCO2e/litre	MOROCCO carbon database
HCFC-22 refrigerant	1,810 kgCO2e/kg	ADEME carbon database
Electricity	0.695 kgCO2e/kWh	IEA Morocco Report – 2014 Edition (Energy policies outside of IEA countries)
Car	0.190 kgCO2e/(passenger.km)	2010 FWC carbon footprint
Bus	0.051 kgCO2e/(passenger.km)	ADEME carbon database
Morocco train	0.096 kgCO2e/ (passenger.km)	ADEME Carbon Database (extrapolated according to the energy mix in Morocco)
Morocco TGV	0.040 kgCO2e/(passenger.km)	ADEME Carbon Database (extrapolated according to the energy mix in Morocco)
France TGV	0.009 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 0-1000 km	0.3132 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 2000-3000 km	0.2088 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 3000-4000 km	0.2297 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 4000-5000 km	0.3062 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 7000-8000 km	0.2018 kgCO2e/(passenger.km)	ADEME carbon database
Airplane 9000-10000 km	0.2158 kgCO2e/(passenger.km)	ADEME carbon database
Meals	2.250 kgCO2e/meal	ADEME carbon database
1 litre of water (mineral water / table water)	0.249 kgCO2e/litre	Average EF from the carbon appraisal on the Oulmes mineral waters in

		Morocco
Soft drinks	1.090 kgCO2e/litre	ADEME carbon database
Jersey - sports	1.000 kgCO2e/article	ADEME carbon database
Water from the distribution network	0.340 kgCO2e/m³	Measuring scope 3 carbon emissions – water and waste, Arup and De Montfort University, 2012
Wastewater	0.700 kgCO2e/m³	Measuring scope 3 carbon emissions – water and waste, Arup and De Montfort University, 2012
Plastic	1,990 kgCO2e/tonne	ADEME carbon database
Cardboard	2,744 kgCO2e/tonne	ADEME carbon database

Appendix 1: Complete list of employed emission factors

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Glossary

For easier reading of the document, a few basic definitions are given below:

- **Greenhouse Gases (GHG):** gaseous component of the natural or anthropogenic atmosphere, which absorbs and emits radiation of a specific wavelength of the infrared radiation spectrum emitted by the surface of the Earth, the atmosphere and the clouds.

- **Greenhouse gases emission appraisal:** assessment of the total volume of GHG released into the atmosphere over a given period by the legal person's activities within the national territory, expressed in equivalent tonnes of carbon dioxide.

- **Greenhouse gas emissions:** total mass of a GHG released into the atmosphere during a given period.

- **Greenhouse gas source:** physical unit or process releasing a GHG into the atmosphere.

- **Emission sources:** greenhouse gas emissions coming from uniform sources or types of sources. An emission source can be qualified as a sub-category.

- **Factor for emission or reduction of greenhouse gases**: factor relating the activity data to of GHG emissions or reductions.

- **Global Warming Potential (GWP) Or Planet Warming Potential (PWP)**: factor describing the radiation forcing impact of one mass unit of a given greenhouse gas relative to an equivalent unit of carbon dioxide for a given period.

Note: Definitions taken from the standard NF-ISO 14064-1.

Acronyms

ADEME: Agence Française de l'Environnement et de la Maîtrise de l'Energie

IEA: International Energy Agency

UNFCCC: United Nations Framework Convention on Climate Change

NDC: National Determined Contribution of Morocco to the UNFCCC

FWC: FIFA World Cup

GES: Gaz à Effet de Serre

GHG: Greenhouse Gas

EF: Emission factor

FIFA: Fédération Internationale de Football Association

FRMF: Fédération Royale Marocaine de Football (Royal Moroccan Football Federation)

ISO: International Organisation for Standardisation

KgCO2e: CO2 equivalent kilogram

PMR: Partnership for Market Readiness

GWP: Global Warming Potential

tCO2e: CO2 equivalent tonne

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