



THE COMMONWEALTH CLIMATE BILL

Glasgow 2026's Downsized Baseline & The Global South Challenge for India 2030

EXECUTIVE SUMMARY

Following Victoria's \$6B AUD cancellation, Glasgow 2026 adopts a lean operational model cutting emissions by 78%. As the Games transition to developing host nations in 2030, the primary threat shifts from construction waste to grid decarbonisation, heat adaptation, and severe air pollution.

AT A GLANCE:

EXECUTIVE DASHBOARD

110k–140k

tCO2e

Carbon Footprint

~78% lower than Birmingham 2022

10

Core Sports

Disciplines

Trimmed down from 19 disciplines

4

Existing Venues

Infrastructure

Zero new permanent builds

8–Mile

Compact Corridor

Urban Loop

High-density urban event loop

£160M

Budget

Investment

60% reduction vs. Birmingham

Distributed

Hotels

Accommodation

No Athletes' Village construction

VISUAL TIMELINE: THE EMERGENCY RESET



FEATURE FOCUS:

THE 8-MILE URBAN EVENT LOOP



38.2 km → 6.5 km

Per Spectator Trip Distance

Travel distance compressed from multi-city sprawl into a single compact urban corridor

68%

Journeys via Electric Rail, Zero-Emission Buses & Walking

Local spectator journeys absorbed by sustainable transit modes

97.3%

Net Local Transit Carbon Savings

Generated versus conventional multi-city dispersed venue models

GLASGOW 2026 AUDIT: GOOD VS. UNRESOLVED

Independent assessment of Glasgow's emergency delivery model — strengths and outstanding liabilities.

GOOD PRACTICES

- **100% Venue Reuse**

All four competition venues drawn from Glasgow's 2014 Commonwealth Games legacy infrastructure. Zero new permanent construction.

- **Distributed Hotel Housing**

Elimination of Athletes' Village saves an estimated £200M in construction costs and avoids 80k+ tCO₂e in embodied carbon.

- **Reverse-Logistics Circular Asset Leases**

Temporary overlay equipment sourced through circular lease contracts with guaranteed return-to-supplier pathways.

- **8-Mile Compact Corridor**

Entire Games footprint compressed into a single urban transit loop, enabling 97.3% local transport carbon savings.

UNRESOLVED RISKS

- **47% Reduction in Sports Disciplines**

Trimming from 19 to 10 sports alienates key Commonwealth nations — particularly South Asian members whose primary disciplines (cricket, hockey, badminton) were cut.

- **Long-Haul Aviation Dominance**

International flights account for 72% of the net carbon footprint. No meaningful mitigation strategy for Scope 3 aviation emissions.

- **Spectator Capacity Constraints**

Reduced venue count limits total spectator throughput, potentially undermining commercial viability and broadcast reach.

- **Governance Precedent Risk**

Emergency model may normalise last-minute downsizing rather than incentivising early sustainable planning by future hosts.

EXECUTIVE CONTRAST MATRIX

Glasgow 2026 vs. Birmingham 2022 vs. India 2030

METRIC	GLASGOW 2026	BIRMINGHAM 2022	INDIA 2030
Total Carbon Footprint	~125k tCO2e	640k tCO2e	1.0M tCO2e
Infrastructure Share	<2.0%	18.5%	35-45%
Grid Intensity (kg CO2/kWh)	0.018 (Wind)	0.233 (Mixed)	0.730 (Coal)
Athletes' Village	Distributed Hotels	Dedicated Build	High-Rise Build
Sports Disciplines	10 Core Sports	19 Disciplines	TBC (Target 15+)
Budget	£160M	£778M	Est. £1.2B+

Source: WCA Comparative Modeling (CGF, UK DESNZ, TERI India Energy Data)

THE GLOBAL SOUTH PARADOX: WHY ZERO-BUILD MODELS FAIL

European lean-delivery models cannot be transplanted to developing host nations without structural adaptation.

01

INFRASTRUCTURE DEFICIT

Emerging economies require sports facilities for youth development and community growth. Cutting infrastructure investment undermines the social contract of hosting.

The Games must leave a lasting physical legacy — not just operational efficiency.

02

REGIONAL INCLUSIVITY GAP

Cutting sports like cricket, hockey, and badminton disenfranchises South Asian member states whose primary disciplines define national sporting identity.

47% discipline reduction alienates the Commonwealth's largest population centres.

03

STRATEGIC SHIFT REQUIRED

Pivot from non-construction to modular demountable architecture and off-grid solar PPAs. Build smart, not less.

The answer is not zero-build — it is zero-waste build with renewable energy integration from day one.

KEY INSIGHT: The transition from Glasgow to India requires a paradigm shift — from operational minimalism to sustainable maximalism.

INDIA 2030 HAZARD PROFILE:

3 CLIMATE LIABILITIES

Critical risk factors that distinguish India 2030 from any previous Commonwealth Games host environment.

CRITICAL

01

HIGH GRID CARBON INTENSITY

0.73 kg CO₂/kWh

40x SCOTLAND'S WIND GRID

India's coal-dominant electricity grid produces carbon intensity 40 times higher than Scotland's renewable-powered system.

Every megawatt-hour consumed by venues generates 0.73 kg CO₂ — transforming routine stadium operations into a major emissions liability requiring complete off-grid renewable intervention.

Severe

02

WINTER PM_{2.5} SMOG EMERGENCY

250–350 µg/m³

15x WHO SAFE LIMIT

Seasonal agricultural burning pushes particulate matter to catastrophic levels during the proposed competition window.

Athletic performance degraded by 3–7% VO₂ max reduction. Outdoor endurance events face potential cancellation without active air purification infrastructure.

HIGH

03

EMBEDDED CARBON FROM CONSTRUCTION

350k–500k tCO₂e

CONCRETE & STEEL PROCUREMENT

Traditional procurement of permanent venues using conventional concrete and steel adds between 350,000–500,000 tonnes CO₂e to the Games' lifecycle footprint.

This single factor could make India 2030 the highest-carbon Commonwealth Games in history without modular intervention.

MATHEMATICAL FORMULATIONS: TRANSIT & GRID POWER

LOCAL TRANSIT CARBON SAVINGS

Glasgow's 8-mile compact corridor compresses spectator transit into a single electric loop, eliminating multi-city sprawl emissions.

$$E_{\text{transit}} = \sum (P_m \times D_m \times EF_m)$$

52.65 tCO₂ (Glasgow) vs 1,976.85 tCO₂ (Conventional) = 97.3% savings

STADIUM GRID DRAW (COAL GRID)

India's coal-dominant grid at 0.73 kg CO₂/kWh transforms standard venue operations into a major carbon liability.

$$30 \text{ MWh} \times 0.730 \text{ kg CO}_2/\text{kWh} = 21.90 \text{ tonnes CO}_2$$

SOLAR PPA IMPACT (RENEWABLE GRID)

Off-grid solar PPAs eliminate venue grid carbon entirely, proving the decarbonisation pathway for India 2030.

$$30 \text{ MWh} \times 0.000 \text{ kg CO}_2/\text{kWh} = 0.00 \text{ tonnes CO}_2$$



INDIA 2030 DECARBONISATION BLUEPRINT: 4-PILLAR STRATEGIC EXECUTION

A modular implementation framework to deliver the lowest-carbon Commonwealth Games in developing-nation history.

01

100% RENEWABLE OFF-GRID PPAs

Contract utility-scale solar and wind farms across Gujarat and Rajasthan to supply 100% of venue electricity demand off-grid.

Eliminate 0.73 kg CO₂/kWh coal grid dependency entirely. Target: zero operational grid carbon across all competition and training venues.

02

OVERLAY-FIRST ARCHITECTURE

Cap permanent concrete construction below 20% of total venue infrastructure. Deploy demountable steel and cross-laminated timber overlay structures.

Reduce embedded carbon by 60–75% versus traditional procurement. All temporary structures designed for post-Games community redeployment.

03

SOLAR AIR PURIFICATION CORRIDORS

Deploy solar-powered outdoor air filtration domes and green barrier corridors around all competition zones during the winter smog window.

Target: reduce athlete PM_{2.5} exposure from 250+ to below 25 µg/m³ within venue perimeters. Protect VO₂ max performance integrity.

04

100% EV RAPID TRANSIT MANDATE

Restrict all private vehicles within 10 km of venue clusters. Deploy dedicated EV bus rapid transit fleets on priority lanes.

Eliminate local spectator transit emissions entirely. Model: Glasgow's 97.3% transit savings scaled to Indian urban density.

THE ATHLETE CATALYST

Mobilising 1.4 Billion Fans



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When a sports icon speaks about clean air and climate protection, millions of fans listen with an open heart.

— Kishan Changlani, CEO, World Climate Athletes

KEY INSIGHT

Technical fixes alone are insufficient. Mass public behavioural transformation — driven by athlete advocacy — is the multiplier that converts infrastructure gains into societal-scale decarbonisation across transit choices, home energy, and municipal waste sorting.

LESSONS FOR GLOBAL SPORTS GOVERNANCE

Cross-Industry Translation & Governance Framework

CROSS-INDUSTRY TRANSLATION

COP Climate Summits

Scope 3 aviation accounting must become mandatory for all mega-events, mirroring UNFCCC reporting standards for national delegations.

Olympic & Paralympic Games

IOC carbon neutrality pledges require independent verification and real-time grid intensity disclosure during competition.

International World Expos

Modular demountable architecture pioneered in Glasgow can replace permanent pavilion waste across expo host nations.

Corporate Summits & Forums

Transition capital mechanisms can fund green overlay subsidies for developing host nations via blended finance instruments.

GOVERNANCE QUESTIONS

Transit Accountability

Should host cities be legally required to guarantee zero-emission spectator transit within competition corridors, with penalties for non-compliance?

Carbon Inventory Standards

Can a universal mega-event carbon ledger — covering Scopes 1, 2, and 3 including passenger flights — become a binding condition of hosting rights?

Air Quality Guarantees

Must host nations in polluted zones provide legally enforceable air purification obligations and real-time PM2.5 monitoring for athlete health?

Scaling Limits

At what point does downsizing sports programmes to reduce emissions undermine the inclusivity mandate of multi-sport Games?

For additional information, collaboration opportunities, or media enquiries regarding this report, please reach out directly.

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PRIMARY SOURCES

Commonwealth Games Federation (CGF) | Commonwealth Games Scotland | UK DESNZ
Central Pollution Control Board (CPCB) India | TERI Energy Data | WCA Independent Analysis

Driving global collective climate action through the unparalleled voice of sports.