WESTERN HEMISPHERE READINESS SERIES

HRS Resilience Foundation

COUNTRY READINESS ASSESSMENT 03

Cuba: Human Security, Critical Infrastructure, Energy Recovery, Food Systems and Institutional Readiness

A 50-year readiness architecture for civilian resilience

PUBLICATION TYPE	SCOPE	EDITION
Independent country readiness assessment	Cuba	September 2026

SERIES POSITION	AUTHOR	INSTITUTION
Country Readiness Assessment 03	André Vieira	HRS Resilience Foundation

Research integrity. Public research publication. Independent analysis. No U.S. Government endorsement or sponsorship. Not an intelligence estimate, a political rating, or a judgment on Cuban policy choices.

Evidence discipline. This publication distinguishes documented facts, analytical judgments and scenario propositions.

CONTENTS

— Executive Summary 3

— Purpose and Scope 4

— Current Regional and Governance Context 5

01 Cuba 2026 Baseline 6

02 2026 Energy and Humanitarian Shock as a National Readiness Test 7

03 HRS Method: Cuba as a System of Systems 8

04 Humanitarian Assistance as a Resilience Engine 9

05 Cuba Strategic Dependency Map 10

06 SRA 01 — Telecommunications & Digital Infrastructure 11

07 SRA 02 — Data Centers, Cloud & AI Infrastructure 12

08 SRA 03 — Critical Minerals & Strategic Materials 13

09 SRA 04 — Rare Earths & Mineral Security 14

10 SRA 05 — Energy & Strategic Power Infrastructure 15

11 SRA 06 — Ports, Logistics & Maritime Infrastructure 16

12 SRA 07 — Food Security & Strategic Agricultural Resilience 17

13 SRA 08 — Pharmaceutical & Medical Supply Chains 18

14 SRA 09 — Advanced Manufacturing & Industrial Capacity 19

15 SRA 10 — Western Hemisphere Strategic Infrastructure & Resilience 20

16 Energy-to-Reconstruction Architecture 21

17 Migration, Human Capital & Voluntary Return 22

18 Civilian Security, Rule of Law & Institutional Security 23

19 U.S.–Cuba Cooperation Framework 24

20 2027–2030 Humanitarian Stabilization & Critical Services 25

21 2031–2035 Productive Recovery 26

22 2036–2050 Diversification 27

23 2051–2065 Renewal 28

24 2066–2076 Intergenerational Resilience 29

25 Readiness Metrics and Governance 30

26 HRS Cuba Readiness Improvement Framework 31

27 Conclusion 32

— Methodology, Research Integrity and Limitations 33

— Selected Bibliography and Sources 34

POSITION WITHIN THE HRS SERIES

CRA 03 applies the HRS Readiness Cycle and Strategic Dependency Test at country level. It integrates SRA 01–10 into a Cuba-level system-of-systems assessment.

EXECUTIVE SUMMARY

Cuba: Human Security, Critical Infrastructure, Energy Recovery, Food Systems and Institutional Readiness

Cuba enters the final quarter of 2026 under simultaneous energy, food, health, economic and institutional pressure. A nationwide electrical-grid collapse on 18 September was reported as the latest in a series of major outages during 2026. The World Food Programme reports continuing food-security pressure, fuel shortages and supply-chain stress; PAHO/WHO describes severe constraints on health-service continuity linked to energy, transport and medical-supply shortages. [1][3]

The United States is pursuing two tracks at once: pressure on Cuban state and military structures, and measures intended to direct assistance and economic opportunity toward the Cuban people. In August 2026, OFAC stated that the U.S. government was working to operationalize $100 million in humanitarian assistance directly to the Cuban people through independent organizations operating under appropriate authorizations. The U.S. Embassy in Havana announced in September that additional humanitarian assistance would reach five provinces. [11][20]

The HRS assessment does not treat U.S. policy as a substitute for Cuban sovereignty or as a forecast of political transition. It asks a narrower readiness question: how could food, energy, health, communications, logistics, industrial capacity and institutional capabilities be rebuilt so that assistance produces durable civilian capacity rather than repeated emergency dependence?

> CENTRAL HRS PROPOSITION
>
> *Cuba's recovery will be more durable if humanitarian relief is converted into recoverable infrastructure, reliable energy, local productive capacity, secure communications, medical continuity, diversified supply chains and institutional decision rights that can function across political, commercial and disaster shocks.*

PURPOSE AND SCOPE

Purpose and Scope

This assessment extends the Western Hemisphere Readiness Series from Brazil (CRA 01) and Venezuela (CRA 02) to Cuba. It applies the HRS Readiness Cycle — Detect, Assess, Decide, Coordinate, Deploy, Sustain, Learn — at country level and integrates SRA 01–10 into one Cuban system-of-systems.

The assessment uses public information available through 21 September 2026. Statements about U.S. policy are identified as U.S. government positions; humanitarian conditions are drawn from UN, PAHO/WHO and other public sources; company or market statements are treated as representations rather than independent verification.

The intended audience includes U.S. institutions, humanitarian organizations, private-sector actors, Cuban civil-society and community organizations, and future Cuban authorities operating under applicable law. The report does not endorse a political party, candidate, faction or electoral outcome.

U.S. policy documents explicitly identify human rights, rule of law, free enterprise, internet access, civil society and democracy as objectives, while also emphasizing U.S. national-security interests. The HRS framework translates those policy objectives into measurable civilian capabilities without assuming a particular political timetable.

AUDIENCE AND USE

This document is a strategic research reference for humanitarian stabilization, civilian infrastructure recovery, resilience design, institutional capacity building and long-horizon planning. Project-level decisions require current technical, legal, environmental, financial, security and operational diligence.

CURRENT REGIONAL AND GOVERNANCE CONTEXT

Current Regional and Governance Context

Cuba's 2026 energy emergency is situated within a wider regional shift. Cuba's most important foreign fuel benefactor, Venezuela, had supplied a substantial share of the island's fuel needs; following the January 2026 U.S. military operation that captured then-Venezuelan President Nicolás Maduro, those shipments were cut off, a development multiple public reports link directly to the intensification of Cuba's blackouts over the course of 2026. This report's companion Country Readiness Assessment 02 — Venezuela addresses that operation and the interim governance period that followed it in greater detail. [33]

U.S. restrictions on Cuba's fuel imports have been characterized in public reporting as a "U.S.-imposed oil blockade," a term used by multiple news organizations to describe the cumulative effect of sanctions and interdiction measures on the island's fuel supply; this CRA presents that characterization as attributed reporting, not as an HRS determination. Separately, the Cuban government and United Nations representatives have publicly described current U.S. measures as illegal and as a violation of the human rights of the island's residents, while the U.S. government characterizes its own measures as pressure on state and military structures paired with expanded humanitarian channels for the Cuban people. This assessment does not adjudicate between these positions. [34][5]

Cuban President Miguel Díaz-Canel remains in office. Senior U.S. officials have publicly called for his departure, and Havana has responded by pledging what it describes as firm resistance to any external intervention. [35] On 7 May 2026, the U.S. Department of State designated Grupo de Administración Empresarial S.A. (GAESA) — a Cuban military-controlled conglomerate that public estimates place as operating across a substantial share of the island's economy, including tourism, retail, import-export and financial services — under Executive Order 14404; further designations followed on 18 May 2026. [36] On 20 May 2026, the U.S. Department of Justice unsealed an indictment against former Cuban President Raúl Castro in connection with a 1996 incident. [37] The same day, the U.S. Navy's Nimitz Carrier Strike Group entered the Caribbean. [38] HRS treats these as documented U.S. government actions relevant to institutional and economic-actor mapping for readiness planning; this report does not take a position on their appropriateness, legality, or likely outcome.

> **Material to readiness planning:** Any organization engaging on Cuba readiness or humanitarian programming should track this contested characterization directly, since it affects sanctions interpretation, licensing, and the operating space available to humanitarian and private actors on the ground.

01 · CUBA 2026 BASELINE

A Country at a Readiness Inflection Point

Cuba's baseline is characterized by converging energy, food, health, transportation, communications and economic constraints, compounded by Hurricane Melissa, which struck eastern Cuba as a Category 3 storm on 29 October 2025, damaging over 215,000 homes and 1,860 educational institutions across Santiago de Cuba, Granma, Holguín and Guantánamo. PAHO/WHO reports that the hurricane's infrastructure damage and the subsequent energy contingency measures have compounded pre-existing public-health vulnerabilities. [3][4] WFP reports a prolonged contraction, inflation, fuel shortages, limited foreign currency and continuing pressure on the availability and affordability of food. [1] [2]

The September 18 nationwide grid collapse illustrates the system-of-systems nature of the problem. Electricity affects water pumping, telecommunications, hospitals, food refrigeration, transport, ports, banking and local commerce simultaneously. The readiness problem is therefore not simply generation capacity; it is the recoverability of interconnected critical functions. [21]

U.S. policy adds another layer. The June 2025 NSPM-5 directs executive agencies to support the Cuban people through expanded internet access, free press, free enterprise, free association and lawful travel, while restricting transactions that disproportionately benefit Cuban military, intelligence or security structures. In 2026, the administration expanded sanctions while also preserving or emphasizing channels for food, medicines, medical devices and humanitarian activity. [6][9][10]

> BASELINE CONCLUSION
>
> *The priority is to create civilian pathways that can deliver essential services while reducing single-point dependency, improving transparency and preserving lawful decision rights.*

02 · 2026 ENERGY AND HUMANITARIAN SHOCK

The Energy and Humanitarian Shock as a National Readiness Test

The 2026 energy emergency functions as Cuba's principal readiness test. Repeated grid failures expose dependencies among imported fuel, aging generation, transmission stability, maintenance capability, water systems, transport and health services. A readiness test should examine not only whether electricity returns, but how quickly hospitals, water systems, telecommunications, food distribution, ports, fuel logistics and financial transactions recover.

System	Primary Dependency	Cascading Effect	Readiness Response
Power	Generation, transmission, distribution, fuel	Hospitals, water, telecom, industry	Islanded operation; spare transformers; restoration plans
Water	Pumping, treatment, distribution	Health, households, industry	Backup power; distributed storage; alternate supply
Telecom	Fiber, wireless, data, backhaul	Emergency coordination, finance, logistics	Multiple routes; backup power; degraded-mode operation
Transport	Roads, bridges, airports, rail where available	Fuel, food, medical and reconstruction flows	Alternative corridors; pre-positioned equipment
Ports	Berths, cranes, navigation, customs, power	Oil, food, machinery, medicines	Alternative terminals; recovery contracts; digital continuity
Health	Facilities, medicines, cold chain, workforce	Life-saving continuity	Regional stockpoints; validated surge capacity

> READINESS PRINCIPLE
>
> *Do not rebuild a damaged node to its previous dependency profile. Rebuild it with explicit alternative pathways, maintainability, recovery windows and cross-sector continuity requirements.*

03 · HRS METHOD

Cuba as a System of Systems

The HRS Readiness Cycle is applied to five layers: immediate human needs; critical infrastructure; productive capacity; institutional capability; and long-horizon resilience.

HRS Function	Cuba Application
Detect	Identify failures, shortages, infrastructure degradation, migration pressures and supply-chain disruption early.
Assess	Fuse technical, economic, health, infrastructure and security information into a common operating picture.
Decide	Define authorities, thresholds, restoration priorities and investment decisions before crises occur.
Coordinate	Connect public authorities, utilities, regulators, municipalities, emergency services, operators and external partners.
Deploy	Move capital, equipment, fuel, personnel, medical supplies and emergency capacity to the point of need.
Sustain	Maintain essential services through prolonged disruption and protect maintenance, workforce and supply chains.
Learn	Convert disasters, exercises and project performance into changed standards, investment priorities and institutional practice.

The HRS Strategic Dependency Test asks five recurring questions: Concentration — how many essential functions depend on one supplier, route, fuel, platform or institution? Substitutability — can another source perform the function? Control — who has operational and decision authority? Recovery — how quickly can the function be restored? Cascading impact — what other services fail if the dependency fails?

> INSTITUTIONAL READINESS
>
> *Democratic and institutional readiness is treated as a capability dimension: transparent decision rights, lawful administration, independent information channels, accountable public institutions, civil-society participation and predictable rules for private activity. The assessment does not convert these dimensions into a political score.*

04 · HUMANITARIAN ASSISTANCE

Humanitarian Assistance as a Resilience Engine — Not a Permanent Substitute

The immediate objective of assistance is to protect human life and maintain essential services. The HRS long-horizon objective is to convert recurring assistance requirements into domestic and regional capability.

The United States reported in August 2026 that it was working to operationalize $100 million in humanitarian assistance directly to the Cuban people through independent organizations under appropriate authorizations. In September, the U.S. Embassy in Havana announced additional assistance for Camagüey, Ciego de Ávila, Cienfuegos, Matanzas and Pinar del Río. [11][20]

Assistance Input	Capability Transition	Readiness Outcome
Emergency food stocks	Local agricultural production, storage and processing	Reduced recurring food-distribution dependence
Emergency generators	Maintainable distributed power and protected critical loads	Faster hospital, water and telecom recovery
Medical shipments	Cold chain, device repair and selected domestic/regional production	Durable health continuity
Temporary logistics	Resilient ports, warehouses and transport corridors	Recoverable humanitarian and commercial flows
Connectivity assistance	Durable civilian communications and route diversity	Information and emergency coordination continuity

> HUMANITARIAN PRINCIPLE
>
> *Humanitarian needs should be addressed on humanitarian grounds. Separately, institutional and democratic capacity can be strengthened through lawful programs that support independent information, civil society, accountable institutions and private economic activity.*

05 · STRATEGIC DEPENDENCY MAP

Cuba's Critical Capability Network

The relevant unit is not an individual ministry or asset, but the chain of capabilities required for a critical function to operate and recover.

Capability	Critical Inputs	Failure Consequence	Readiness Response
Energy	Imported fuel, aging generation, transmission	Nationwide service interruption	Distributed generation; sectionalization; critical-load protection; maintenance depth
Digital	Telecom networks, international connectivity, power	Loss of communications and information access	Route diversity; protected power; resilient backhaul; civilian internet optionality
Food	Imports, fuel, fertilizer, storage, transport	Food insecurity and nutrition deterioration	Local production; storage; cold chain; diversified import routes
Health	Medicines, devices, cold chain, workforce, transport	Public-health continuity failure	Regional stockpoints; generators; validated alternatives; local repair
Logistics	Ports, roads, fuel, customs, warehousing	Humanitarian and commercial bottlenecks	Alternate corridors; port readiness; digital customs continuity
Materials	Nickel, industrial inputs, machinery	Repair and industrial bottlenecks	Strategic materials mapping; recycling; diversified suppliers
Industry	Machinery, spare parts, technical workforce	Low recovery capacity	Repair/refurbishment; apprenticeships; supplier development
Security	Border, maritime, financial and cyber controls	Illicit-finance and trafficking exposure	Lawful enforcement; maritime awareness; financial controls; accountable institutions
Governance	Decision rights, procurement, data, oversight	Assistance leakage or institutional fragility	Transparency; auditable flows; clear authority; civilian oversight

06 · SRA 01

Telecommunications & Digital Infrastructure

Cuba implementation objective: establish civilian communications that remain available during power interruptions, disasters and political or commercial shocks.

Cuba implementation — priority actions

- Map national and provincial network dependencies.
- Protect telecom sites with resilient power.
- Diversify backhaul and international connectivity where legally and technically feasible.
- Establish emergency communications pathways.
- Strengthen local repair capability and create transparent service-continuity metrics.

Reliable civilian communications support emergency warnings, health coordination, commerce, education, family communication and lawful access to information. U.S. policy documents identify expanded internet and telecommunications access as an objective.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Emergency connectivity and protected critical nodes → route and power diversification → local maintenance and workforce → resilient civilian internet architecture → long-horizon digital infrastructure renewal.*

07 · SRA 02

Data Centers, Cloud & AI Infrastructure

Cuba implementation should begin with basic digital continuity rather than large-scale AI deployment. Priority is recoverable data, secure backup, cloud portability and critical public-service availability.

Cuba implementation — priority actions

- Identify critical government, health, food, logistics and financial data sets.
- Create independent backup and recovery pathways.
- Establish data-exportability and interoperability requirements.
- Protect data centers and network nodes against power instability.
- Create secure disaster-recovery capacity and require human authority and auditability for AI-supported public decisions.

The objective is digital sovereignty through optionality, not technological isolation. Systems should remain usable if a provider withdraws, a route fails, a facility loses power or a future administration changes procurement policy.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Critical-data inventory → backup and recovery → secure distributed capacity → interoperability → selective AI applications for logistics, health operations, agriculture and infrastructure maintenance.*

08 · SRA 03

Critical Minerals & Strategic Materials

Cuba's nickel and other mineral resources are strategically relevant, but the HRS approach separates geological potential from commercially recoverable, legally authorized and resilient supply capacity.

Cuba implementation — priority actions

- Establish a national strategic-materials map.
- Identify critical inputs for power, telecommunications, medical equipment, transport and industrial repair.
- Assess processing and logistics dependencies.
- Establish recycling and recovery pathways.
- Diversify suppliers for materials not available domestically.

The U.S. Department of State announced sanctions on Cuban entities connected to nickel resources on 17 September 2026. The assessment treats those designations as a documented U.S. policy action, not as proof of future mineral-development outcomes.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Data validation → strategic-materials dependency register → regional supplier options → processing and recycling studies → project-level readiness assessments.*

09 · SRA 04

Rare Earths & Mineral Security

Cuba should distinguish between mineral occurrences, commercially recoverable deposits, processing capacity and secure access to downstream markets.

Cuba implementation — priority actions

- Validate geological and industrial data.
- Map dependencies for imported critical minerals.
- Develop regional sourcing options.
- Build recycling and recovery pathways.
- Establish qualified supplier networks, transparent licensing and environmental safeguards.

Western Hemisphere cooperation can provide alternative sources and processing pathways, but it should not replace Cuban decision rights. The HRS test evaluates each arrangement by dependency, control, substitutability, recovery and cascading impact.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Data validation → strategic-materials dependency register → regional supplier options → processing and recycling studies → project-level readiness assessments.*

10 · SRA 05

Energy & Strategic Power Infrastructure

Energy is the central Cuban readiness constraint because electricity and fuel underpin nearly every other sector.

Cuba implementation — priority actions

- Sectionalize the grid.
- Protect hospitals, water systems, telecom nodes and food facilities.
- Deploy distributed and renewable generation where technically appropriate.
- Establish black-start and emergency restoration capability; pre-position transformers, switchgear and critical spares.
- Develop maintenance and workforce programs and diversify fuel and generation inputs.

The HRS objective is not simply more megawatts. It is a power system that can recover after transmission failure, fuel disruption, storm damage or equipment failure without causing island-wide cascading collapse.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Critical-load protection → emergency generation → grid sectionalization → maintenance/spares → diversified generation → integrated energy-water-health-food continuity.*

11 · SRA 06

Ports, Logistics & Maritime Infrastructure

Cuba's geography makes maritime logistics essential for both humanitarian assistance and economic recovery. Port performance depends on electricity, fuel, communications, roads, warehousing, customs and maintenance.

Cuba implementation — priority actions

- Assess Mariel and other strategic ports through dependency mapping.
- Protect port power and communications.
- Maintain alternate access routes.
- Strengthen cargo tracking and lawful customs digitization.
- Pre-plan humanitarian unloading and distribution and preserve navigation, terminal and maintenance capability.

U.S. and international logistics should be treated as temporary or complementary capacity unless and until durable Cuban or regionally contracted capability is established. Maritime security and humanitarian logistics should remain legally distinct but operationally coordinated where appropriate.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Port dependency mapping → protected power/communications → alternate access → customs and cargo visibility → maintenance depth → resilient maritime logistics.*

12 · SRA 07

Food Security & Strategic Agricultural Resilience

Cuba's food system combines import dependence, fuel constraints, low agricultural productivity, post-harvest losses, storage limitations and distribution stress. WFP's 2026–2030 strategy emphasizes food assistance during shocks, stronger food systems, local agricultural value chains and shock-responsive social protection.

Cuba implementation — priority actions

- Protect seed, fertilizer and farm-machinery supply.
- Restore irrigation and pumping.
- Reduce post-harvest loss and expand storage and cold-chain capacity.
- Connect producers to institutional demand and establish emergency food reserves.
- Diversify import sources and improve rural roads and logistics.

Food security should be measured by calories, nutrition, recovery time, local production, storage duration and route diversity — not by a single import-volume measure.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Emergency nutrition and food distribution → local production inputs → storage and cold chain → producer-market linkages → processing → resilient regional food corridors.*

13 · SRA 08

Pharmaceutical & Medical Supply Chains

Health continuity is inseparable from energy, transport and cold-chain resilience. PAHO reports that fuel shortages and power instability affect hospitals, ambulances, diagnostics and temperature-sensitive medicines.

Cuba implementation — priority actions

- Establish a national critical-medicines list.
- Create regional stockpoints and protect cold-chain facilities with backup power.
- Diversify suppliers and strengthen local repair of medical devices.
- Develop validated alternatives and improve emergency transport.
- Establish transparent inventory and expiry monitoring.

U.S. policy and law provide channels for authorized medicines and medical devices. The HRS framework does not assume that external shipments alone solve health vulnerability; it connects imports to maintenance, logistics, workforce and selected domestic or regional production.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Critical medicines → cold chain → emergency logistics → device repair → selected local/regional production → health-system continuity exercises.*

14 · SRA 09

Advanced Manufacturing & Industrial Capacity

Cuba's recovery requires an industrial base capable of repairing and maintaining infrastructure before attempting broad industrial expansion.

Cuba implementation — priority actions

- Identify industrial bottlenecks around energy, water, ports, health, agriculture and construction.
- Prioritize repair/refurbishment.
- Establish technical training and apprenticeships.
- Develop qualified local suppliers and transparent procurement requirements.
- Measure recovery and substitution rather than factory counts.

Private-sector growth is part of U.S. policy toward Cuba. HRS implementation should prioritize lawful private and community economic activity where permitted, while maintaining transparent rules and avoiding dependence on any single foreign supplier.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Repair capability → supplier mapping → workforce → small-scale production → regional supply chains → advanced manufacturing.*

15 · SRA 10

Western Hemisphere Strategic Infrastructure & Resilience

SRA10 is the integration layer. It converts the ten sector assessments into a country-level dependency architecture.

Cuba implementation — priority actions

- Maintain a System Dependency Register.
- Develop Strategic Node Profiles and Corridor Readiness Assessments.
- Run Scenario Stress Tests and Project-Level Dependency Reviews.
- Use Readiness-to-Investment Assessments for major projects.
- Specify decision rights, maintenance responsibility, recovery time, alternate suppliers and an exit/transition pathway.

For Cuba, first integrated scenarios should include nationwide grid collapse; fuel-distribution interruption; hurricane plus power failure; port disruption; medicine cold-chain failure; telecommunications outage; food-import disruption; and simultaneous energy-health-water stress.

> HRS TEST
>
> *For every major project, identify concentration, substitutability, control, recovery time and cascading impact. A second supplier or facility is effective redundancy only when both are not dependent on the same upstream failure point.*

Implementation sequence: *Western Hemisphere partnerships should create options, not substitute for Cuban institutional capacity.*

16 · ENERGY-TO-RECONSTRUCTION

A National Resilience Architecture

The HRS sequence links immediate protection to long-horizon capability. Each stage should reduce the probability that the same emergency requirement reappears without a corresponding increase in recoverability.

Stage	Readiness Objective	Cuba Application
Protect	Secure life-critical functions	Hospitals, water, food, telecom and emergency services
Stabilize	Restore essential service continuity	Electricity, fuel logistics, medicine and food distribution
Rebuild	Repair critical physical systems	Generation, transmission, ports, roads, storage and health infrastructure
Industrialize	Create maintenance and repair depth	Technical workforce, local suppliers and equipment repair
Diversify	Reduce structural concentration	Agriculture, manufacturing, digital services, logistics and lawful private enterprise
Institutionalize	Make capability durable	Transparent procurement, auditable assistance, clear decision rights and civilian oversight
Adapt	Refresh the system over time	Dependency registers, stress tests and periodic renewal as conditions change

> ALLOCATION PRINCIPLE
>
> *Emergency assistance should preserve life immediately while project design identifies the capability that reduces the same emergency requirement next time.*

17 · MIGRATION AND HUMAN CAPITAL

Migration, Human Capital & Voluntary Return

Cuba's sustained outward migration reduces the available workforce and affects health, education, engineering, agriculture and entrepreneurship. PAHO has documented migration of health personnel as one pressure on the health system.

Return should not be treated as automatic or as a single policy outcome. A durable return environment requires safety, lawful mobility, housing, reliable electricity and water, schools, healthcare, employment and predictable economic rules.

Priority	Readiness Action	Expected Capability
Skills	Diaspora skills registry and credential recognition	Visible technical workforce capacity
Professional pathways	Remote-to-local pathways and project employment	Re-entry without immediate relocation dependency
Housing & services	Return-oriented housing and service packages	Basic conditions for voluntary return
Enterprise	Entrepreneurship support and private-sector pathways	Local productive capacity
Workforce	Technical programs; health-worker retention and replenishment	Ability to attract, retain and replace skilled workers

HRS MIGRATION READINESS METRIC

Whether essential sectors can attract, retain and replace skilled workers even when migration patterns change.

18 · CIVILIAN SECURITY

Civilian Security, Rule of Law & Institutional Security

Security readiness should protect people and infrastructure while preserving lawful civilian authority. The HRS framework treats border management, port security, financial controls, cyber resilience, emergency management and justice-sector capability as interconnected.

Function	Readiness Priority	Institutional Requirement
Borders & customs	Lawful procedures and continuity	Clear authority and auditable processes
Maritime	Maritime domain awareness and port security	Defined roles for civilian and authorized security actors
Finance	Protection from illicit finance	Transparent controls and accountable investigation
Cyber	Incident response and continuity	Defined decision rights and recovery procedures
Emergency management	Preparedness and coordinated response	Cross-agency operating picture
Justice	Dispute resolution and lawful enforcement	Predictable procedures and civilian oversight

The U.S. government identifies rule of law, human rights, free association and democracy as policy objectives. The HRS assessment translates these objectives into institutional capabilities rather than electoral predictions.

> HRS PROPOSITION
>
> *Infrastructure and humanitarian systems are more resilient when lawful institutions can protect assets, investigate abuse, resolve disputes, maintain transparent records and preserve civilian decision rights.*

19 · U.S.–CUBA COOPERATION

A Readiness-Based Cooperation Framework

The current U.S. policy architecture contains both restrictive and supportive elements. NSPM-5 calls for engagement that advances U.S. interests and the interests of the Cuban people, including human rights, private-sector growth, internet access, agriculture, public health and safe civil aviation.

In August 2026, OFAC stated that the U.S. government was working to operationalize $100 million in humanitarian assistance through independent organizations. The U.S. Embassy in Havana subsequently announced assistance for five provinces. These are documented policy and implementation steps, not evidence that a full reconstruction program already exists.

Domain	Illustrative Readiness Objective	Authority / Accountability
Food & agriculture	Emergency nutrition → local production and food systems	Humanitarian and civilian authorities
Energy	Critical-load protection → distributed and recoverable power	Civilian infrastructure / applicable U.S. authorities
Health	Medicines → cold chain, repair and selected production	Health and humanitarian authorities
Telecom	Connectivity → resilient civilian information access	Applicable communications authorities
Ports & logistics	Humanitarian throughput → durable logistics	Civilian logistics and customs authorities
Civil protection	Contingency logistics and disaster response	Authorized emergency/security authorities
Private sector	Lawful enterprise and supplier development	Applicable commercial and regulatory authorities
Institutions	Rule-of-law and accountable administration	Cuban institutions and authorized partners

DOD / SOUTHCOM ROLE

Where authorized, defense capabilities can provide contingency logistics, disaster-response support, maritime security, migration support and regional security. Current public materials document State-led disaster assistance supported by U.S. military forces in Venezuela and Colombia in 2026; this assessment does not identify a comparable Cuba-specific DoD relief operation as of 21 September 2026.

20 · 2027–2030

Humanitarian Stabilization & Critical Services

Objective: prevent avoidable loss of life and restore basic civilian service continuity.

Priority portfolio

- Protected hospital power
- Emergency food distribution
- Water and sanitation continuity
- Medicine and cold chain
- Telecom restoration
- Port and warehouse throughput
- Emergency fuel logistics
- Local repair teams

Readiness milestones: critical hospitals with protected power; regional medicine stockpoints; food reserves and local production inputs; defined emergency communications; alternate logistics corridors; documented restoration procedures.

> HRS LONG-HORIZON TEST
>
> *Assistance flows should be traceable to recipients and service outcomes, with independent monitoring where authorized.*

21 · 2031–2035

Productive Recovery

Objective: move from emergency logistics toward productive civilian capacity.

Priority portfolio

- Agriculture and food processing
- Distributed energy
- Telecom modernization
- Medical supply-chain development
- Port and logistics modernization
- Repair/refurbishment industries
- Technical institutes
- Private-sector supplier networks

Metrics: domestic maintenance share; recovery time; supplier diversity; cold-chain uptime; food-storage duration; power reliability; port turnaround; skilled-worker retention.

> HRS LONG-HORIZON TEST
>
> *The central transition is from importing solutions to building the capability to maintain and replace them.*

22 · 2036–2050

Diversification

Objective: reduce structural dependence on single energy, food, technology and supplier pathways.

Priority portfolio

- Agriculture and food processing
- Energy systems
- Logistics
- Digital services
- Medical production and device repair
- Industrial maintenance
- Tourism-independent services
- Selected advanced manufacturing

Strategic test: a resilient Cuban system should continue functioning if one foreign partner withdraws, a supplier fails, a hurricane strikes, a major port is disrupted or energy prices change sharply.

> HRS LONG-HORIZON TEST
>
> *Transparent rules, independent information access, lawful association and predictable economic rights should support durable private and civic capacity.*

23 · 2051–2065

Renewal

Objective: replace first-generation recovery infrastructure before it reaches systemic failure.

Priority portfolio

- Grid renewal
- Water systems
- Ports
- Telecom
- Hospitals
- Transport
- Food storage
- Industrial equipment
- Digital infrastructure

Each renewal project should be assessed against lifecycle cost, maintainability, supplier optionality, cybersecurity, workforce requirements and recovery time.

> HRS LONG-HORIZON TEST
>
> *Long-horizon readiness means avoiding a second generation of infrastructure that reproduces the dependencies of the first.*

24 · 2066–2076

Intergenerational Resilience

Objective: establish a continuously renewing portfolio of Cuban civilian capabilities.

Priority portfolio

- Effective redundancy
- Recoverable digital systems
- Diversified energy and food pathways
- Resilient health supply chains
- Skilled workforce renewal
- Transparent institutions
- Multiple lawful international partnerships
- Recurring national stress tests

By 2076, the readiness cycle should be refreshed for the next 50-year horizon. The objective is not permanent dependence on any foreign partner, including the United States.

> HRS LONG-HORIZON TEST
>
> *Build systems that remain useful when governments change, suppliers fail, technology changes, commodity prices fall, disasters occur or international relationships evolve.*

25 · READINESS METRICS

Readiness Metrics and Governance

Country readiness should not be reduced to a single score. The dashboard should be used by sector, geography and critical function, with emphasis on continuity, recovery, substitution and institutional accountability.

Function	Illustrative Metrics
Power	Critical-load uptime; restoration time; distributed capacity; spare-equipment availability
Water	Protected pumping; treatment continuity; storage; recovery time
Telecom	Network uptime; route diversity; emergency communications; repair time
Food	Reserve duration; local production; storage/cold-chain uptime; supplier diversity
Health	Critical-medicine availability; cold-chain uptime; hospital power continuity; device repair capacity
Ports	Cargo throughput; alternate access; power/communications continuity; recovery time
Industry	Repair capacity; qualified suppliers; workforce depth; substitution time
Digital	Backup coverage; recovery time; interoperability; data continuity
Security	Border/customs continuity; maritime awareness; cyber response; financial controls
Governance	Transparent procurement; auditable assistance; decision-right clarity; civilian oversight

26 · GOVERNANCE & IMPROVEMENT FRAMEWORK

HRS Cuba Readiness Improvement Framework

Cycle	Cuba Implementation
Detect	Maintain a national dependency register and early-warning dashboard.
Assess	Stress-test critical nodes and identify cascading failure pathways.
Decide	Establish clear civilian decision rights and priority functions.
Coordinate	Align humanitarian, commercial, diplomatic and security activities under their respective authorities.
Deploy	Execute project packages with measurable readiness outcomes.
Sustain	Fund maintenance, workforce, spares, cybersecurity and operating costs.
Learn	Conduct annual continuity exercises and update the 2030, 2050 and 2076 assumptions.

> MANAGEMENT PRINCIPLE
>
> *The HRS improvement framework should be used as a management system rather than a one-time report.*

27 · CONCLUSION

Conclusion

Cuba's September 2026 condition is a system-readiness problem. Energy instability affects food, health, water, communications, transport and economic activity simultaneously.

The United States has publicly articulated a policy that combines pressure on Cuban state and military structures with stated support for the Cuban people, humanitarian assistance, internet access, private enterprise, human rights, rule of law and democracy. The current $100 million humanitarian-assistance effort and September provincial aid announcements show that assistance channels are being operationalized, while sanctions demonstrate that U.S. policy remains restrictive toward targeted Cuban actors.

DoD and SOUTHCOM should be understood within their statutory and operational roles: contingency support, logistics, maritime and regional security, migration-related support and disaster assistance where authorized. They are not substitutes for civilian development agencies or Cuban institutions.

The HRS opportunity is to connect immediate assistance to durable capability. Food can stabilize households; resilient agriculture can reduce recurring shortages. Generators can keep hospitals operating; resilient power systems can reduce nationwide collapse risk. Medical shipments can save lives; cold-chain and repair capacity can make health continuity durable. Connectivity can enable information access; resilient civilian networks can preserve it under stress.

> FINAL HRS PROPOSITION
>
> *Cuba's resilience should be measured by whether the Cuban people can maintain food, energy, health, information, mobility, lawful economic activity and institutional continuity when governments change, suppliers fail, infrastructure is damaged or international relationships evolve.*

METHODOLOGY, RESEARCH INTEGRITY AND LIMITATIONS

Methodology, Research Integrity and Limitations

This assessment is an original HRS Resilience Foundation synthesis based on public-source evidence and the Foundation's Western Hemisphere Readiness Series. It integrates the HRS Readiness Cycle, Strategic Dependency Test, effective-versus-nominal redundancy distinction, sector readiness logic and 50-year planning principles.

The assessment does not claim access to classified intelligence, confidential commercial information or privileged government information. Conditions in Cuba, U.S. policy, humanitarian operations and regulatory authorities can change rapidly.

Statements attributed to the U.S. government are presented as U.S. government positions. UN, PAHO/WHO and WFP data are used for humanitarian and sector conditions. Scenario propositions are analytical pathways, not forecasts.

The report is not a political judgment, electoral recommendation, intelligence product, procurement recommendation, legal opinion, engineering certification or investment solicitation. Country conditions are analytical categories, not rankings.

Foreign participation is evaluated through dependency, control, substitutability, recovery and cascading impact rather than nationality alone. Sovereign Cuban institutions and legally authorized actors remain responsible for policy, contracting and partnership decisions.

SELECTED BIBLIOGRAPHY AND SOURCES

Sources

[1] World Food Programme. Cuba Country Strategic Plan 2026–2030. Approved June 2026.

[2] World Food Programme. Cuba country overview and food-security profile. 2026.

[3] Pan American Health Organization / World Health Organization. Public Health Situation Analysis No 2: Aftermath of Hurricane Melissa amid energy constrains in Cuba. 6 March 2026 (revised and updated 31 March 2026).

[4] Pan American Health Organization / World Health Organization. PAHO Sends Emergency Medical Supplies to Countries Affected by Hurricane Melissa. 29 October 2025.

[5] United Nations System in Cuba. Cuba is Running Out of Time. We Need Fuel Now to Save Lives. 1 May 2026.

[6] U.S. White House. National Security Presidential Memorandum 5 — Strengthening the Policy of the United States Toward Cuba. 30 June 2025.

[7] U.S. White House. Executive Order 14380 — Addressing Threats to the United States by the Government of Cuba. 29 January 2026.

[8] U.S. White House. Executive Order 14404 — Imposing Sanctions on Those Responsible for Repression in Cuba and for Threats to U.S. National Security and Foreign Policy. 1 May 2026.

[9] U.S. Department of State. Further Sanctions on Cuba's Elites, Financial Channels, and Resource Exploitation Apparatus. 3 September 2026.

[10] U.S. Department of State. Further Sanctions on Cuba's Mineral Wealth and Military Modernization Apparatus. 17 September 2026.

[11] U.S. Department of the Treasury, OFAC. Frequently Asked Questions — Cuba Sanctions, newly added guidance. 6 August 2026.

[12] U.S. Department of the Treasury, OFAC. Cuba Sanctions — agricultural commodities, medicines and medical devices guidance. 2026.

[13] U.S. Southern Command. 2026 Posture Statement to Congress. 17 March 2026.

[14] U.S. Southern Command. Support to Venezuela Earthquake Relief. 29 June 2026.

[15] U.S. Southern Command. Support to Colombia Earthquake Relief. 18 August 2026.

[16] United States Code, 22 U.S.C. §6004. Support for Cuban people: food donations and medicines/medical supplies.

[17] United States Code, 22 U.S.C. §6061. Policy toward transition government and democratically elected government in Cuba.

[18] United States Code, 22 U.S.C. §6062. Assistance for Cuban people under a transition or democratically elected government.

[19] United States Code, 22 U.S.C. §6039. Support for democratic and human-rights groups and international observers.

[20] U.S. Embassy in Cuba. September 2026 humanitarian coordination and assistance announcements.

[21] Reuters. Cuba's electrical grid collapses again, plunging island into darkness. 18 September 2026.

[22] Reuters. As lines grow at banks, Cuba tiptoes away from communism but stability seems distant. 21 September 2026.

[23] HRS Resilience Foundation. Sector Readiness Assessment 01 — Telecommunications & Digital Infrastructure. 2026.

[24] HRS Resilience Foundation. Sector Readiness Assessment 02 — Data Centers, Cloud & AI Infrastructure. 2026.

[25] HRS Resilience Foundation. Sector Readiness Assessment 03 — Critical Minerals & Strategic Materials. 2026.

[26] HRS Resilience Foundation. Sector Readiness Assessment 04 — Rare Earths & Western Hemisphere Mineral Security. 2026.

[27] HRS Resilience Foundation. Sector Readiness Assessment 05 — Energy Security & Strategic Power Infrastructure. 2026.

[28] HRS Resilience Foundation. Sector Readiness Assessment 06 — Ports, Logistics & Maritime Infrastructure. 2026.

[29] HRS Resilience Foundation. Sector Readiness Assessment 07 — Food Security & Strategic Agricultural Resilience. 2026.

[30] HRS Resilience Foundation. Sector Readiness Assessment 08 — Pharmaceutical & Medical Supply Chains. 2026.

[31] HRS Resilience Foundation. Sector Readiness Assessment 09 — Advanced Manufacturing & Industrial Capacity. 2026.

[32] HRS Resilience Foundation. Sector Readiness Assessment 10 — Western Hemisphere Strategic Infrastructure & Resilience. 2026.

[33] HRS Resilience Foundation. Country Readiness Assessment 02 — Venezuela: Institutional Readiness, Critical Infrastructure, Energy Recovery and Hemispheric Security. September 2026.

[34] Al Jazeera. Grid failure plunges Cuba into nationwide blackout. 3 August 2026.

[35] Primicias. Díaz-Canel responde a Trump: Cuba promete "resistencia inexpugnable" ante amenazas de intervención. March 2026.

[36] U.S. Department of State. U.S. Sanctions Target Cuba's Military Regime, Elites. 7 May 2026.

[37] U.S. Department of Justice, Office of Public Affairs. United States Unseals Superseding Indictment Charging Raul Castro and Five Castro Regime Co-Defendants for 1996 Shoot-Down of Brothers to the Rescue Aircraft. 20 May 2026.

[38] U.S. Southern Command. Nimitz Carrier Strike Group Arrives in the Caribbean. 20 May 2026.

Suggested citation: HRS Resilience Foundation. Country Readiness Assessment 03 — Cuba: Human Security, Critical Infrastructure, Energy Recovery, Food Systems and Institutional Readiness. Western Hemisphere Readiness Series. September 2026.

About the HRS Resilience Foundation: The HRS Resilience Foundation is an independent research organization advancing institutional readiness and health security across the Western Hemisphere.

WESTERN HEMISPHERE READINESS SERIES

HRS Resilience Foundation

Independent research for institutional readiness, continuity, and 50-year resilience planning across the Western Hemisphere. Research Outputs span Strategic Reports, Policy Briefs, Technical Papers, Sector Readiness Assessments and Regional Assessments, translating public-source evidence into practical frameworks built to remain valid for governments, infrastructure operators, investors, and institutional decision-makers across changes in technology, suppliers, and political leadership.

RESEARCH OUTPUTS TO DATE

STRATEGIC REPORTS

Strategic Report 01 — Health Security and Institutional Resilience in the Americas

Strategic Report 02 — Resilient Infrastructure Investment in the Western Hemisphere

POLICY BRIEFS

Policy Brief 01 — Strengthening Regional Health Emergency Readiness in the Americas

TECHNICAL PAPERS

Technical Paper 01 — Building Resilient Health Supply Chains

REGIONAL ASSESSMENTS

Country Readiness Assessment 01 — Brazil

Country Readiness Assessment 02 — Venezuela

Country Readiness Assessment 03 — Cuba

SECTOR ASSESSMENTS

SRA 01 — Telecommunications & Digital Infrastructure

SRA 02 — Data Centers, Cloud & AI Infrastructure

SRA 03 — Critical Minerals & Strategic Materials

SRA 04 — Rare Earths & Western Hemisphere Mineral Security

SRA 05 — Energy Security & Strategic Power Infrastructure

SRA 06 — Ports, Logistics & Maritime Infrastructure

SRA 07 — Food Security & Strategic Agricultural Resilience

SRA 08 — Pharmaceutical & Medical Supply Chains

SRA 09 — Advanced Manufacturing & Industrial Capacity

SRA 10 — Western Hemisphere Strategic Infrastructure & Resilience

André Vieira, MD

FOUNDER & CHAIRMAN, HRS RESILIENCE FOUNDATION

© 2026 HRS Resilience Foundation. Western Hemisphere Readiness Series. All rights reserved. No U.S. Government or foreign-government endorsement is implied or claimed.