WESTERN HEMISPHERE READINESS SERIES

HRS Resilience Foundation

COUNTRY READINESS ASSESSMENT 02

Venezuela: Institutional Readiness, Critical Infrastructure, Energy Recovery and Hemispheric Security

An independent country-level assessment applying the HRS Readiness Cycle to institutional capacity, critical infrastructure, energy recovery, supply-chain continuity, and hemispheric resilience in Venezuela.

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Country Readiness Assessment 02	André Vieira	HRS Resilience Foundation

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

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POSITION WITHIN THE HRS SERIES

CRA 02 applies the HRS Readiness Cycle and Strategic Dependency Test at country level. It integrates SRA 01–10 into one national system-of-systems assessment without replacing the sector assessments.

EXECUTIVE SUMMARY

Venezuela: Institutional Readiness

Venezuela enters the final quarter of 2026 with several readiness pressures converging at once: the June earthquake sequence, infrastructure and service-recovery needs, continued outward displacement, exposure to transnational criminal activity, and a petroleum sector entering a new investment phase. The World Bank's July GRADE assessment estimated US$19.6 billion in direct physical damage. A September PDNA, led by Venezuelan authorities with the United Nations, European Union and World Bank, estimated US$14.831 billion in damage and losses and up to US$21 billion in recovery needs. These figures use different methodologies and should be used together for planning rather than treated as competing totals. [1][2]

The petroleum environment has also changed. On 2 September, the U.S. Department of Energy reported agreements involving Chevron, Eni and GE Vernova that it said would expand production, unlock private investment and modernize the electric grid. Chevron announced more than US$7 billion of planned investment over five years and a production target of approximately 600,000 barrels per day. Eni announced a 25-year CPPH for Junín 5 and exclusive operatorship of the area. These are company and government representations of current arrangements; they do not, by themselves, establish national readiness. [3][4][5]

The central HRS finding is that petroleum recovery should be treated as an enabling mechanism, not as the reconstruction program itself. Resource revenues, industrial demand and external capital become durable national capability only when they are converted into reliable electricity, water, transport, ports, communications, health services, workforce depth, manufacturing, public administration and lawful security. The intended conversion chain is: Oil → Revenue → Infrastructure → Human Capital → Diversification → Institutional Capacity → Resilience.

The earthquake sequence makes the systems problem visible. Damage to a transport corridor can interrupt fuel and medical distribution; power failures can affect hospitals and water systems; telecommunications outages can degrade emergency coordination; and damage to public facilities can increase the burden on already constrained institutions. Reconstruction should therefore be designed as a system-of-systems program rather than a collection of isolated asset repairs. [1][2]

For U.S. institutions, a more resilient Venezuela could support several measurable objectives: more reliable commercial energy flows, stronger disaster-response continuity, lawful cooperation against trafficking and illicit finance, and reduced structural pressures associated with irregular migration over time. These are potential effects, not automatic outcomes. For Venezuela, the corresponding objective is sovereign capability and optionality: foreign capital and expertise can accelerate recovery, while multiple suppliers, alternative routes, domestic workforce depth, recoverable digital systems and clear national decision rights reduce concentration risk.

> CENTRAL HRS PROPOSITION
>
> *Venezuela's petroleum recovery can become a platform for national reconstruction only when energy revenues, external capital and technical capability are systematically converted into diversified, recoverable and sovereign national capacity.*

SECTION 01

Purpose and Scope

Country Readiness Assessment 02 extends the country-assessment architecture established by CRA 01 — Brazil. It applies the HRS Readiness Cycle to Venezuela and brings the ten Sector Readiness Assessments into a single system-of-systems framework.

The assessment is designed to be useful to U.S. institutions, including the Department of State and other relevant agencies, and to a future Venezuelan government established through democratic electoral processes. It does not endorse a political actor, party, faction or electoral outcome.

The analytical horizon begins in 2027 and extends to 2076. The purpose of this horizon is not to predict Venezuela's political or economic future. It is to identify infrastructure, workforce, institutional and supply-chain decisions whose useful lives extend beyond normal electoral and commodity cycles.

The assessment uses public information available through 17 September 2026. Current political, legal and commercial statements are attributed to their sources. Company announcements are treated as company representations; U.S. government statements about bilateral arrangements are identified as government statements. Scenario propositions are analytical pathways, not forecasts. Country readiness cannot be reduced to a single number. A national system may have substantial capacity in one domain and severe dependency in another. The relevant question is whether critical functions can detect disruption, continue operating, recover, substitute and adapt.

AUDIENCE AND USE

This document is intended as a strategic research reference for reconstruction planning, sovereign-to-sovereign engagement, infrastructure investment, resilience design and long-horizon institutional capacity building. Project-level decisions require current technical, legal, environmental, financial, security and operational diligence.

CURRENT GOVERNANCE AND LEGAL CONTEXT

Current governance context: This assessment is situated within a transitional governance period following the January 2026 U.S. military operation that captured Nicolás Maduro. Delcy Rodríguez subsequently assumed the role of interim president; in September 2026, U.S. statements continued to describe her administration as an interim government. These conditions are relevant to long-horizon planning because institutional mandates, continuity and the durability of major public commitments may evolve as the governance framework changes. [19]

Legal and institutional uncertainty: The current U.S.–Venezuela petroleum framework has generated public questions concerning contractual authority, constitutional requirements, tendering, state-company participation and the duration of oil licenses. These issues remain contested; this CRA does not determine their legal validity. They are relevant to readiness because infrastructure recovery depends not only on capital and technical capacity, but also on durable authorization, governance continuity and enforceable institutional arrangements. [20]

01 · VENEZUELA 2026 BASELINE

A Country at a Reconstruction Inflection Point

The June 2026 earthquake sequence is the clearest current stress test of Venezuela's physical and institutional readiness. The World Bank's GRADE assessment estimated US$19.6 billion in direct physical damage: 47% residential, 27% infrastructure and 26% non-residential buildings, with La Guaira and Distrito Capital accounting for about half of the estimate. [1]

The September PDNA produced a different aggregate measure — US$14.831 billion in damage and losses — and estimated recovery needs of up to US$21 billion, including measures intended to build back better, strengthen resilience and reduce risk. GRADE measures rapid direct physical damage; PDNA incorporates broader losses and recovery requirements. The HRS approach uses both. [2]

Petroleum is an unusually important potential reconstruction-financing channel. Chevron's announced five-year plan exceeds US$7 billion and targets approximately 600,000 barrels per day. Eni's Junín 5 CPPH has a 25-year duration, with Eni as exclusive operator; Eni reports 35 billion barrels of certified oil in place and current production of approximately 12,000 barrels per day. [4][5]

The U.S. Department of Energy has also described the 28 August 2026 binational agreement as establishing U.S. majority control of an estimated 65 billion barrels of proven reserves. Because that characterization comes from the U.S. government, this CRA presents it as attributed evidence rather than an independently verified commercial characterization. [3]

The reconstruction sequence should therefore begin with capabilities whose failure can propagate across the system: electricity, water, transport, communications, health, fuel logistics, ports, food systems, emergency management and public-sector continuity. SRA 01–10 provide the sector logic for that sequencing.

02 · JUNE 2026 EARTHQUAKE

The Earthquake as a National Readiness Test

The 24 June event was a double-earthquake sequence reported at Mw 7.2 and Mw 7.5. Its readiness significance extends beyond physical damage: disasters expose the interfaces between systems. Hospitals depend on power, water, communications and medicines; ports depend on roads, electricity, digital systems and maritime access; emergency management depends on information moving across all of them. [1][2]

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

RECONSTRUCTION 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

Venezuela as a System of Systems

The HRS Readiness Cycle is applied as an operating discipline: Detect → Assess → Decide → Coordinate → Deploy → Sustain → Learn. The sector assessments use the same logic to identify baselines, exposure, dependencies, continuity requirements, recovery pathways and long-term adaptation.

HRS FUNCTION	VENEZUELA APPLICATION
Detect	Identify failures, shortages, infrastructure degradation, migration pressures, criminal activity 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 ministries, 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 critical nodes or suppliers carry the function?
- Substitutability: Can another qualified pathway perform the same function?
- Control: Who can operate, maintain, modify, isolate or recover the node?
- Recovery: How quickly can the capability return after failure?
- Cascading impact: What other systems fail if the node is unavailable?

04 · PETROLEUM RECOVERY

Petroleum as a Reconstruction Engine — Not a Substitute for Reconstruction

Petroleum is the most immediate potential source of export earnings, industrial demand and foreign investment in the reconstruction context. The strategic question is how much national capability is restored around each barrel produced.

Chevron's September announcement provides a current investment reference: more than US$7 billion over five years and a target of approximately 600,000 barrels per day. Eni's Junín 5 contract provides a second example of long-duration project development. The HRS proposition is to connect such projects to national infrastructure and capability planning rather than treat them as stand-alone oil developments. [4][5]

PETROLEUM LAYER	2027–2035 READINESS OBJECTIVE	NATIONAL EFFECT
Upstream production	Restore wells, gathering, field services and water handling	Revenue and industrial demand
Power	Stabilize generation, transmission and distribution around energy nodes	Reliable production and public-service continuity
Pipelines & storage	Repair, inspect, segment and add alternatives	Lower single-corridor exposure
Refining & fuels	Restore processing, storage and domestic distribution	Transport, agriculture and emergency continuity
Ports & logistics	Upgrade terminals, roads, customs and digital systems	Export reliability and reconstruction imports
Industrial suppliers	Develop maintenance, machining, electrical and engineering capacity	Domestic capability and jobs
Fiscal systems	Transparent measurement, collection, auditing and stabilization rules	Convert resource flows into public capability

PREFERRED CONVERSION CHAIN

Oil → Revenue → Infrastructure → Human Capital → Diversification + Institutional Capacity → Resilience. The alternative — oil revenue absorbed primarily by recurrent expenditure — can increase activity without removing underlying dependencies.

05 · STRATEGIC DEPENDENCY MAP

Venezuela’s Critical Capability Network

The map demonstrates why SRA 10 functions as an integration layer: 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	Electricity, fuel, gas	Power loss + water, telecom, health, industry	Diversified generation; grid recovery; fuel reserves
Digital	Telecom, data, cloud, cyber	Information loss + coordination and finance disruption	Multiple routes; backup power; recoverable systems
Materials	Steel, cement, minerals, chemicals	Construction and industry bottlenecks	Regional sourcing; processing; strategic stocks
Logistics	Ports, roads, airports, customs	Inputs cannot reach projects or people	Alternative corridors; interoperable systems
Food	Agriculture, fertilizer, cold chain	Food-price and availability shock	Domestic production + multiple validated external suppliers
Health	Medicines, devices, workforce	Public-health continuity failure	Stockpoints; manufacturing; validated alternatives
Industry	Machinery, repair, engineering	Slow restoration and high import dependence	Local repair and surge capacity
Security	Borders, customs, financial controls	Illicit flows and project disruption	Lawful interagency coordination
Governance	Regulation, procurement, audit	Capital does not become durable capability	Clear authorities; transparent controls; continuity

06 · SRA 01

Telecommunications & Digital Infrastructure

SRA 01 treats telecommunications as critical infrastructure. The relevant readiness issue is not connectivity alone, but continuity, route diversity, protected power, cyber resilience, institutional coordination and recovery after cascading failure. [6]

Venezuela application — priority actions

- Rebuild damaged fiber and wireless nodes with route diversity and protected power.
- Create emergency communications pathways that can operate when commercial networks are degraded.
- Map critical digital dependencies of petroleum, ports, hospitals, finance and government.
- Require lifecycle control over credentials, maintenance access, software updates and operational data for critical systems.
- Treat connectivity to remote production, agricultural and border areas as part of national resilience.

> 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.*

07 · SRA 02

Data Centers, Cloud & AI Infrastructure

SRA 02 establishes that AI readiness is infrastructure readiness: compute is not operationally useful without dependable energy, connectivity, cooling, hardware, cybersecurity, workforce and recovery capability. [7]

Venezuela application — priority actions

- Distribute critical compute and data services across resilient nodes rather than one geographic concentration.
- Ensure cloud portability and exportable operational data so provider failure does not become national information failure.
- Build backup power, cooling and physical-security requirements into data-center recovery planning.
- Use AI for disaster mapping, infrastructure monitoring, logistics and public-service continuity only with defined data governance and human decision authority.
- Develop domestic technical depth for operations, cybersecurity and maintenance.

> HRS TEST
>
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08 · SRA 03

Critical Minerals & Strategic Materials

SRA 03 evaluates mineral resilience across geological knowledge, extraction, processing, refining, manufacturing, logistics, recycling and strategic reserves. The emphasis is concentration, substitutability, recovery and cascading impact rather than resource possession alone. [8]

Venezuela application — priority actions

- Map mineral inputs needed for construction, power, manufacturing and technology.
- Prioritize processing and industrial conversion where economically and environmentally justified, not extraction alone.
- Develop strategic stocks for materials with long lead times or limited substitution.
- Use Western Hemisphere supply relationships to expand options while preserving sovereign procurement decisions.
- Build workforce and technical capacity around geological, metallurgical and industrial systems.

> HRS TEST
>
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09 · SRA 04

Rare Earths & Mineral Security

SRA 04 extends strategic-material analysis to specialized minerals and processing. The relevant question is whether critical industrial systems have multiple qualified pathways and recovery options, not whether Venezuela can become self-sufficient in every input. [16]

Venezuela application — priority actions

- Identify rare-earth and specialty-material exposure in power electronics, communications, industrial machinery and advanced manufacturing.
- Separate geological potential from commercially recoverable and processable capacity.
- Develop regional sourcing agreements and recycling pathways where domestic production is not competitive.
- Avoid single-source dependencies in components required for grid, telecom and industrial recovery.
- Maintain sovereign decision rights over strategic stock decisions and long-term industrial policy.

> HRS TEST
>
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10 · SRA 05

Energy & Strategic Power Infrastructure

SRA 05 is central because petroleum production, water, telecom, health, agriculture, data centers and manufacturing all depend on reliable power. The readiness objective is continuity, not simply installed capacity. [17]

Venezuela application — priority actions

- Rebuild the grid with sectionalization, black-start capability, spare transformers and alternative generation.
- Use gas, hydro, petroleum-derived fuels and other feasible sources within a diversified energy architecture.
- Prioritize reliable electricity for hospitals, water, telecommunications, ports, refineries and emergency services.
- Establish maintenance and workforce pipelines so capacity remains operational over decades.
- Treat fuel storage, pipelines and electricity as one interconnected continuity system.

> HRS TEST
>
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11 · SRA 06

Ports, Logistics & Maritime Infrastructure

SRA 06 identifies ports and logistics as strategic connectivity systems. It emphasizes alternate corridors, technology assurance, maritime domain awareness, cyber continuity, maintenance access and the relationship between commercial infrastructure and authorized public-sector missions. [9]

Venezuela application — priority actions

- Restore major oil and commercial ports with alternative power, communications and access routes.
- Digitize customs and cargo visibility while preserving lawful government control and data continuity.
- Create alternative port and inland-corridor options so one damaged node does not halt reconstruction.
- Protect navigation, terminal-control systems and maintenance access from single points of failure.
- Integrate ports with road, fuel, rail where available, airports and emergency logistics.

> HRS TEST
>
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12 · SRA 07

Food Security & Strategic Agricultural Resilience

SRA 07 links food security directly to energy, fertilizer, irrigation, machinery, refrigeration, processing, transportation and data. It rejects single-buyer or single-supplier dependency as a resilience strategy and uses a 50-year horizon. [10]

Venezuela application — priority actions

- Restore irrigation, pumping, fertilizer access, farm machinery and rural roads alongside production.
- Build storage, cold-chain and processing capacity so higher farm output becomes reliable food availability.
- Use multiple import sources for fertilizer, seed, machinery and critical inputs.
- Develop regional food corridors and emergency reserves with rotation and replenishment rules.
- Connect agricultural modernization to domestic manufacturing, logistics and rural telecommunications.

> HRS TEST
>
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13 · SRA 08

Pharmaceutical & Medical Supply Chains

SRA 08 maps upstream dependencies beyond finished medicines, including APIs, key starting materials, excipients, packaging, specialized machinery, testing and logistics. It emphasizes effective redundancy, regulatory readiness and recovery time. [11]

Venezuela application — priority actions

- Create a national critical-medicines list linked to inventory, supplier and substitution data.
- Develop regional stockpoints and multiple validated logistics corridors.
- Strengthen domestic or regional capacity for selected medicines, devices, sterile production and repair where feasible.
- Pre-qualify alternate suppliers and emergency regulatory pathways.
- Integrate health-supply continuity with electricity, water, telecom, ports and transport.

> HRS TEST
>
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14 · SRA 09

Advanced Manufacturing & Industrial Capacity

SRA 09 frames industrial capacity as the ability to produce, repair, maintain and surge. Petroleum investment can anchor machine shops, electrical equipment, construction materials, engineering services, industrial software and specialized manufacturing. [18]

Venezuela application — priority actions

- Create supplier-development programs around energy, ports, construction, health and agriculture.
- Build repair and refurbishment capacity before pursuing higher-complexity manufacturing.
- Develop technical institutes and apprenticeships linked to real industrial demand.
- Use procurement to create durable domestic maintenance capability without excluding qualified foreign suppliers.
- Measure industrial resilience by recovery time and substitution options, not only factory count.

> HRS TEST
>
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15 · SRA 10

Western Hemisphere Strategic Infrastructure & Resilience

SRA 10 is the integration layer of the HRS series. It examines interconnected critical capabilities across national and sector boundaries while preserving sovereign authority. Its matrix places telecommunications, compute, materials, energy, logistics, food, health and manufacturing into a common resilience architecture. [12]

Venezuela application — priority actions

- Establish a national critical-infrastructure dependency register.
- Run project-level Strategic Dependency Tests before declaring major assets resilient.
- Create cross-ministry continuity exercises involving energy, telecom, health, logistics, food and emergency management.
- Use 2030, 2050 and 2076 reference points to refresh infrastructure, technology and workforce assumptions.
- Treat Western Hemisphere cooperation as an expansion of options, not a substitute for sovereign decision-making.

> 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.*

16 · PETROLEUM-TO-RECONSTRUCTION

A National Conversion Architecture

The reconstruction model treats petroleum as one financing and industrial anchor within a wider capability program. The model is deliberately broader than oil-sector modernization.

Transparent project accounting should connect petroleum-linked capital from field activity through infrastructure investment, workforce development and public-service outcomes. The objective is not to prescribe a single fiscal model; it is to make resource income traceable to measurable national capability.

STAGE	CORE ACTION	READINESS RESULT
1. Measure	Production, revenue, infrastructure condition, damage, workforce and dependencies	Public baseline and auditability
2. Stabilize	Power, water, fuel, telecom, health, ports and emergency services	Continuity
3. Rebuild	Resilient infrastructure around productive nodes	Physical recovery
4. Industrialize	Local suppliers, repair, engineering, construction and manufacturing	Domestic capability
5. Diversify	Food, chemicals, services, manufacturing, gas, logistics and technology	Lower concentration
6. Institutionalize	Procurement, regulation, audit, workforce and emergency-management standards	Continuity across governments
7. Adapt	Technology renewal, climate/seismic standards, demographic change and new trade patterns	2076 resilience

HRS ALLOCATION PRINCIPLE

A reconstruction fund, stabilization mechanism and infrastructure pipeline should be designed so oil-linked revenues are not structurally absorbed by recurrent expenditure alone. The legal and fiscal mechanism is a matter for Venezuelan sovereign institutions and their authorized advisors.

17 · MIGRATION & HUMAN CAPITAL

Voluntary Return, Skills and Institutional Renewal

Venezuelan displacement remains a hemispheric issue. UNHCR's 2025 year-end reporting recorded 6.9 million Venezuelan refugees and migrants in the 17 countries covered by the R4V platform; UNHCR's broader global situation page reports nearly 7.9 million refugees and migrants worldwide. The figures have different coverage and should not be conflated. [13][14]

The HRS approach does not assume that economic recovery automatically produces return. Return becomes more plausible when people can reasonably expect safety, functioning services, professional opportunity, education, housing, reliable infrastructure and lawful institutions.

PROGRAM	MECHANISM	READINESS OBJECTIVE
Skills registry	Voluntary database of professional, technical and entrepreneurial skills	Identify capability gaps
Recognition	Fast recognition of qualifications and experience	Lower barriers to return
Project pathways	Link diaspora professionals to reconstruction projects	Transfer expertise
Housing & services	Coordinate housing, schools, health and utilities in priority regions	Make return sustainable
Entrepreneurship	Credit, procurement access and technical support	Create productive jobs
Institutional renewal	Recruitment and training for public administration, utilities and emergency management	Rebuild operating capacity

MIGRATION-SECURITY LINKAGE

The policy objective should be to reduce structural pressures that contribute to irregular migration while expanding lawful mobility, voluntary return and productive participation. No single petroleum or infrastructure project should be treated as a guaranteed migration solution.

18 · ORGANIZED CRIME & SECURITY

Institutional Security, Border Control and Illicit Finance

U.S. Department of Justice reporting in 2026 describes prosecutions involving alleged members and associates of Tren de Aragua and characterizes the organization as a transnational criminal organization originating in Venezuela. Charges and allegations are not equivalent to convictions. [15]

For this CRA, the relevant readiness question is how reconstruction can increase lawful state capacity to detect and disrupt criminal activity without treating infrastructure policy as a substitute for policing, prosecutorial or judicial institutions.

CAPABILITY	READINESS INVESTMENT	POTENTIAL EFFECT
Borders & customs	Cargo and identity systems; lawful information sharing	Better detection and fewer blind spots
Ports	Cargo visibility, access controls, maintenance and cyber continuity	Reduce illicit-use opportunities
Finance	Beneficial ownership, suspicious-transaction and asset-tracing capability	Increase cost of illicit finance
Digital	Cybersecurity and evidence-preservation capability	Protect state and commercial systems
Police & justice	Training, case management, forensic and prosecutorial capacity	Improve lawful enforcement
Community resilience	Jobs, services and infrastructure in vulnerable corridors	Reduce structural conditions exploited by criminal networks

THE HRS PROPOSITION IS CONDITIONAL

Stronger infrastructure and institutions can reduce the operating space available to organized crime when they are paired with lawful enforcement, border management, financial controls, judicial capacity and accountable governance.

19 · U.S.–VENEZUELA COOPERATION

A Readiness-Based Cooperation Framework

The September 2026 U.S. energy agreements create a current platform for cooperation around petroleum and power. The Department of Energy reported agreements involving Chevron, Eni and GE Vernova and described the wider bilateral framework as supporting investment, oil production and grid modernization. Chevron and Eni independently announced their respective project terms. [3][4][5]

The framework should be project-based and sovereign-to-sovereign where government authorities are involved. It should preserve lawful commercial competition, multiple suppliers and transparent decision rights. U.S. participation should not be treated as the only pathway to Venezuelan resilience; the objective is to expand options and capability.

DOMAIN	POTENTIAL COOPERATION	ILLUSTRATIVE PARTICIPANTS	READINESS OBJECTIVE
Energy	Production, grid, gas, fuel continuity	DOE, Venezuelan institutions, operators	Continuity and investment
Infrastructure	Earthquake reconstruction, standards, project finance	Venezuelan authorities + U.S./multilateral partners	Build back better
Health	Medical supply continuity and emergency readiness	HHS/CDC/PAHO + Venezuelan institutions	Reduced disruption
Ports & logistics	Cargo, customs, maritime continuity	State/USCG/MARAD + Venezuelan authorities	Trade and emergency mobility
Security	Illicit finance, trafficking, border and cyber cooperation	DOJ/DHS/State + Venezuelan institutions	Lawful enforcement capacity
Human capital	Technical training and diaspora participation	Universities, agencies, industry	Workforce depth

> COOPERATION PRINCIPLE
>
> *Build systems that remain useful if a contract changes, an administration changes, a supplier exits, a commodity cycle turns or a disaster occurs.*

20 · 2027–2030

Reconstruction Phase

- Complete a national critical-infrastructure and dependency baseline.
- Prioritize earthquake recovery for power, water, transport, health, telecom and public facilities.
- Create petroleum-linked reconstruction accounting and a transparent project pipeline.
- Establish emergency reserves for fuel, medicines, food and critical materials.
- Launch workforce and diaspora skills programs.
- Run cross-sector continuity exercises annually.

> **DECISION RULE**
>
> *Every major investment should specify the capability being restored, the dependency being reduced, the alternative pathway being created, the expected recovery time and the institution responsible for sustaining it.*

21 · 2031–2035

Productive Recovery

- Move from emergency reconstruction toward industrial and productive capacity.
- Expand oil, gas and power reliability while upgrading ports and logistics.
- Develop domestic maintenance, engineering, construction and manufacturing suppliers.
- Expand agricultural processing, fertilizer access, cold chain and food storage.
- Create interoperable national digital infrastructure and recoverable public data systems.
- Measure recovery times and supplier substitution across critical systems.

DECISION RULE

Every major investment should specify the capability being restored, the dependency being reduced, the alternative pathway being created, the expected recovery time and the institution responsible for sustaining it.

22 · 2036–2050

Diversification

- Use restored infrastructure to expand non-oil productive sectors.
- Develop petrochemicals, industrial services, food processing, manufacturing, logistics and digital services where competitive.
- Build regional supply relationships across the Western Hemisphere.
- Renew major infrastructure before end-of-life rather than waiting for failure.
- Institutionalize procurement, audit, regulatory and emergency-management standards.
- Refresh the Strategic Dependency Test for new technologies and trade patterns.

> **DECISION RULE**
>
> *Every major investment should specify the capability being restored, the dependency being reduced, the alternative pathway being created, the expected recovery time and the institution responsible for sustaining it.*

23 · 2051–2065

Renewal

- Replace first-generation post-2027 infrastructure systems.
- Upgrade energy, communications, water and transport around new technology standards.
- Maintain technical workforce depth through education and professional institutions.
- Increase recycling and circular-economy capacity for strategic materials.
- Maintain diversified food, medicine and industrial supply chains.
- Reassess demographic, climate, seismic and geopolitical exposure.

> **DECISION RULE**
>
> *Every major investment should specify the capability being restored, the dependency being reduced, the alternative pathway being created, the expected recovery time and the institution responsible for sustaining it.*

24 · 2066–2076

Intergenerational Resilience

- Maintain infrastructure as a continuously renewed national portfolio.
- Ensure critical functions have effective redundancy and recoverable digital systems.
- Preserve sovereign decision rights while maintaining multiple international partnerships.
- Embed disaster preparedness, workforce renewal and institutional learning.
- Use 2076 as a transition point for the next 50-year national readiness cycle.

> **DECISION RULE**
>
> *Every major investment should specify the capability being restored, the dependency being reduced, the alternative pathway being created, the expected recovery time and the institution responsible for sustaining it.*

25 · READINESS METRICS

Measure Capability, Not Just Spending

HRS recommends avoiding a single national readiness score. A dashboard can identify weak links without hiding them inside an aggregate number. Metrics should be tracked by sector, geography and critical function, with explicit recovery targets.

DOMAIN	ILLUSTRATIVE METRIC
Power	Critical load with backup/alternative supply; restoration time after outage
Water	Critical facilities with independent supply; pumping restoration time
Telecom	Route diversity; backup-power duration; emergency communications availability
Ports	Alternative terminal capacity; cargo recovery time; system-isolation capability
Health	Days of critical-medicine coverage; qualified alternate suppliers; regulatory substitution time
Food	Storage days; diversified input suppliers; processing capacity; corridor alternatives
Industry	Repair capacity; local supplier share; time to restore critical machinery
Digital	Recoverable systems; data portability; cyber-incident isolation and recovery time
Security	Customs coverage; financial-intelligence capacity; lawful interagency response time
Governance	Audit completion; procurement cycle; trained workforce; continuity across government transitions

26 · GOVERNANCE & IMPROVEMENT FRAMEWORK

HRS Venezuela Readiness Improvement Framework

The governance architecture should distinguish policy authority from operational responsibility. A ministry can set standards; an operator can maintain an asset; a regulator can enforce requirements; an emergency authority can coordinate response. Clear role separation improves accountability and makes continuity less dependent on individual officeholders.

PRINCIPLE	IMPLEMENTATION MECHANISM	READINESS EFFECT
Institutional continuity	Multi-year infrastructure and emergency-management authorities	Survive electoral and commodity cycles
Transparency	Project-level accounting, procurement and audit	Convert capital into durable capability
Sovereignty	Clear decision rights over critical infrastructure	Preserve national control and optionality
Competition	Multiple qualified suppliers and operators	Reduce concentration
Workforce	Technical education, apprenticeships and professional retention	Sustain systems
Learning	Exercises, after-action reviews and standards updates	Institutionalize adaptation
Regional cooperation	Alternative trade, energy, logistics and supply pathways	Expand substitutability

HRS LONG-HORIZON TEST

Would the system still function if the current government changed, a principal foreign partner withdrew, a major supplier failed, oil prices fell sharply, or a major disaster occurred? If not, the system has not yet achieved effective resilience.

27 · CONCLUSION

From Petroleum Recovery to Systemic Resilience

Venezuela's 2026 circumstances bring reconstruction need, infrastructure shock, petroleum investment, migration pressure and hemispheric security concerns into the same planning environment. That convergence creates an opportunity for capability-building, but not an automatic recovery path.

The principal HRS risk is reconstruction without systemic transformation: restoring damaged assets, increasing production and spending revenues without reducing the dependencies that made earlier gains fragile. The corresponding opportunity is to use petroleum recovery as one anchor for a national resilience architecture that strengthens infrastructure, human capital, public services, lawful security and productive diversification together.

The United States can have a legitimate interest in reliable energy, resilient infrastructure, lawful security cooperation and reduced structural migration pressures. Venezuela can have a legitimate interest in sovereign capacity, economic diversification, institutional continuity and multiple international options. These objectives can be pursued together when cooperation is structured around measurable capability rather than permanent dependency.

The HRS 50-year objective is not to define Venezuela by the size of its petroleum production. It is to establish a country capable of converting resource wealth and external capital into durable national capability while retaining alternative pathways for energy, trade, technology, health, food, manufacturing and security.

> FINAL HRS PROPOSITION
>
> *Energy can finance recovery; infrastructure can enable growth; institutions can preserve it; human capital can sustain it; and resilience can make it durable across generations.*

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 long-horizon planning principles.

The assessment does not claim access to classified intelligence, confidential commercial information or privileged government information. Current Venezuelan political, legal, commercial and security conditions can change rapidly. Statements about the August 2026 U.S.–Venezuela petroleum arrangement are attributed to the U.S. government where applicable; company project announcements are attributed to the companies.

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. Scenario propositions are not forecasts.

HRS research-integrity principles are: documented fact is distinguished from analytical judgment; scenario reasoning is not presented as current evidence; foreign participation is evaluated through dependency, control, substitutability and recovery rather than nationality alone; and sovereign institutions remain responsible for their own policy and partnership decisions.

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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

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

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