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RESEARCH REPORT

DIAGNOSTIC ASSESSMENT OF CUBA'S AGRARIAN SYSTEM

Technical baseline for a National Project for Agrarian Modernization and Transformation

POPULATION PARTICIPATION

SOLIDARITY ECONOMY AND COOPERATIVES

FOOD SECURITY

LABOR AND TRADE UNION RIGHTS

ENVIRONMENTAL SUSTAINABILITY AND CLIMATE RESILIENCE

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Diagnostic Assessment of Cuba's Agrarian System

Technical Baseline for a National Project for Agrarian Modernization and Transformation.

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About the Observatory

The ODLS is an initiative dedicated to monitoring, documenting and analyzing the situation of labor, trade union and social rights in Cuba. Through research, technical reports and specialized studies, the Observatory seeks to generate independent evidence that contributes to knowledge of the national reality, strengthens public debate and supports researchers, civil society organizations and international bodies.

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Executive summary

Cuba's agrarian system is going through a structural crisis that cannot be explained solely by climate factors or by the short-term scarcity of inputs. Official and international evidence shows the simultaneous interaction of institutional constraints, insufficient incentives, deteriorating rural infrastructure, fuel shortages, falling output of essential crops, import dependence, climate vulnerability and the weakening of rural human capital.

Cuba's National Office of Statistics and Information (ONEI) records significant declines between 2020 and 2024 in vegetables, cereals, rice, beans, citrus and other fruits. Production of root crops (viandas) shows a relative recovery, but this does not offset the deterioration of foods that are essential for diet, nutrition and the stability of domestic supply.

The World Food Programme (WFP) warns of growing food and nutrition security difficulties for many Cuban families, low agricultural productivity and post-harvest losses. The Global Information and Early Warning System on Food and Agriculture of the Food and Agriculture Organization of the United Nations (FAO-GIEWS) reports agricultural damage from hurricanes in 2024, below-average maize and rice production and substantial cereal import requirements. Food security on the island must be treated as a humanitarian, productive and labor priority.

The report's central conclusion is that a viable agrarian modernization should integrate four dimensions: clear productive rights, a solidarity economy with genuine cooperatives, critical agri-food infrastructure, and effective participation of workers and communities. A democratic transition, taken as an analytical assumption, does not by itself guarantee better outcomes; it may open opportunities, but also risks of concentration, asset capture, territorial inequality and agrarian conflict if it is not managed under transparent rules.

Main findings

FINDING	DOCUMENTED EVIDENCE	IMPLICATION	CONFI-DENCE
Decline of strategic crops	ONEI 2024 shows declines in rice, beans, vegetables, cereals and citrus.	Greater pressure on imports and the basic diet.	High
Dependence on the non-state sector	In 2024 the non-state sector accounted for between 71.1% and 88.4% of the production of the crops analyzed.	Without producers, cooperatives and usufruct holders there is no viable modernization.	High
Vulnerable food security	WFP reports growing food security and nutrition difficulties.	Agrarian policy must prioritize availability, access, utilization and stability.	High
Structural climate risk	FAO-GIEWS documents hurricane damage; the IPCC identifies high risks for small island states.	Climate adaptation must be part of the core design, not an add-on.	High
Institutional risk during transition	Transition experiences show risks of institutional vacuum, concentration and capture.	Reform must be gradual, transparent and participatory.	Medium-high

Source: *Prepared by the authors based on ONEI, FAO-GIEWS, WFP, IPCC and comparative literature on agrarian transitions.*

Technical reading: The findings show that Cuba's agrarian problem is systemic. Public policy should not focus on a single variable, such as land ownership, but on an integrated sequence: immediate food security, productive rights, infrastructure, financing, genuine cooperatives, decent rural employment and climate adaptation.

Methodology, sources and limitations

The report uses a systemic approach: land, water, labor, capital, technology, infrastructure, climate, markets, regulations and institutions are treated as interdependent components. Agricultural productivity is not analyzed as an isolated outcome of the producer, but as the product of the entire production, marketing and consumption environment.

The analytical framework combines institutional economics, territorial development, value chains, food security, environmental sustainability, climate resilience and labor rights. This combination is essential because the Cuban agrarian system has direct consequences for employment, income, food, rural migration and community cohesion.

Priority sources are Cuban official statistics, international organizations and technical literature. The report uses data from ONEI, FAO, FAO-GIEWS, FAO's global information system on water and agriculture (FAO-AQUASTAT), WFP, the Intergovernmental Panel on Climate Change (IPCC), Cuban legislation, and comparative studies by the World Bank and FAO on agrarian reforms in transition economies.

Methodological limitations

- There is not enough public information disaggregated by municipality, type of producer, form of tenure, costs, marketing margins, post-harvest losses or the condition of rural infrastructure.
- The land tenure data published by ONEI are based on the Ministry of Agriculture's Land Use and Tenure Balance dated June 30, 2017, so they should be used as a structural reference, not as an up-to-date snapshot.
- Aggregate production data do not make it possible to fully distinguish between output destined for self-consumption, state procurement, local markets, agro-industry, export or losses.
- The proposals are technical scenarios, not predictions. Their outcome would depend on governance, financing, social participation, macroeconomic stability and the quality of implementation.

Scope of the report: This document does not put forward a political program. It presents a technical, multidisciplinary baseline on production, food security, institutions, infrastructure, natural resources, climate risks, comparative transitions and solidarity economy, applicable to a hypothetical scenario of democratic transition.

Traceability criterion: Each substantive statement is classified as a documented fact, a technical inference or a prospective scenario. Where the evidence is insufficient, the report says so explicitly.

Comprehensive assessment of the Cuban agrarian system

Cuba's agrarian system combines state enterprises, cooperative units, private producers, usufruct holders of state land, urban agriculture, family farming and mixed forms of marketing. Non-sugarcane production includes root crops, vegetables, cereals, rice, maize, legumes, tobacco, citrus, tropical fruits, cocoa, livestock, forestry and fisheries.

ONEI data confirm a severe decline in foods of high nutritional and cultural importance. The contraction of rice and beans is especially critical because both are central components of the Cuban diet. The reduction in vegetables affects dietary diversity, micronutrients and urban supply.

Selected agricultural production, 2020-2024 (tonnes)

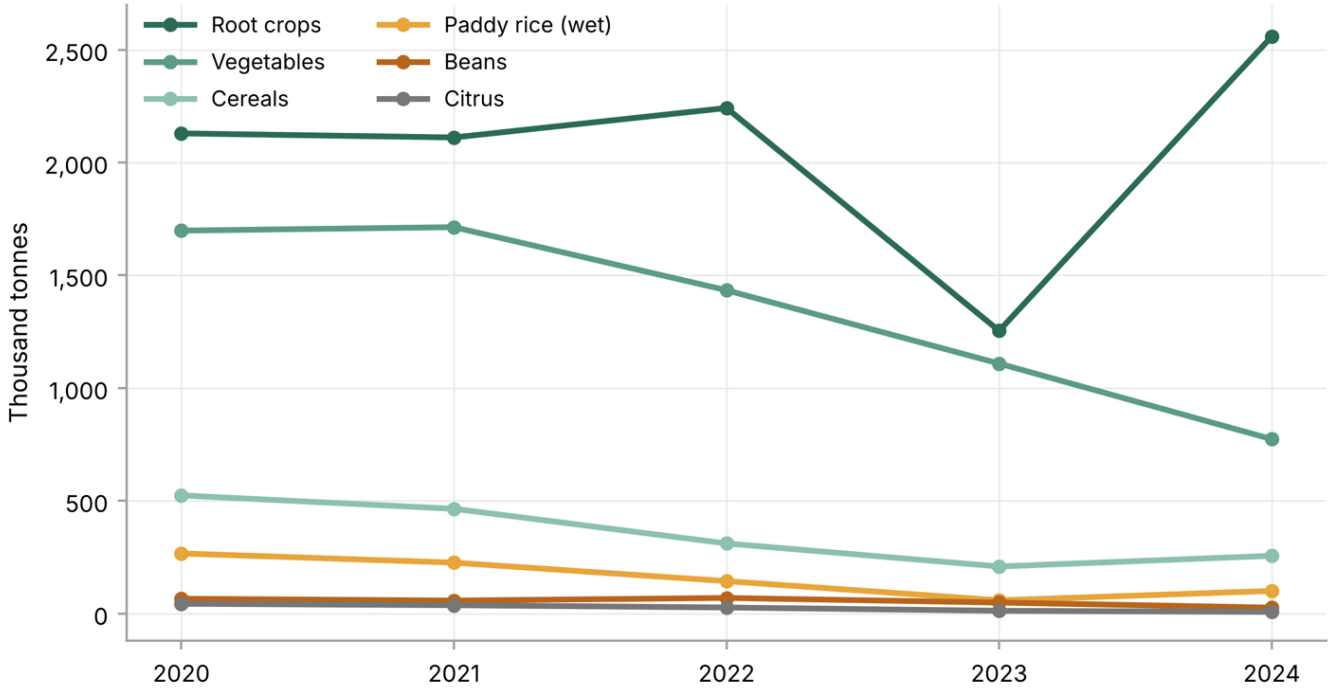
CROP	2020	2021	2022	2023	2024	CHANGE 2020-2024
Root crops	2,129,064	2,111,034	2,241,658	1,253,802	2,558,319	+20.2%
Vegetables	1,698,074	1,713,323	1,433,609	1,108,560	773,430	-54.5%
Cereals	523,913	464,507	310,866	208,685	256,040	-51.1%
Paddy rice (wet)	266,596	225,786	143,812	58,766	100,477	-62.3%
Beans	65,779	57,642	69,193	48,756	26,188	-60.2%
Citrus	43,352	37,078	26,888	12,399	7,479	-82.7%
Other fruits	863,310	770,082	732,282	865,115	291,011	-66.3%

Source: *ONEI, Anuario Estadístico de Cuba 2024 (Statistical Yearbook of Cuba 2024), Chapter 09: Agriculture, Livestock, Forestry and Fisheries.*

The table reveals a productive fracture: root crops increased compared with 2020, while vegetables, cereals, rice, beans, citrus and fruits fell significantly. This suggests that modernization should combine support for resilient crops with a specific strategy to recover chains that are essential for the diet and the domestic market.

Chart 1.

Trends in selected crop production, 2020-2024



Source: *Prepared by the authors based on ONEI 2024 data.*

The chart shows that the decline is not limited to a single crop or a single season. The cumulative trend across several products points to structural constraints: shortages of inputs, energy, financing, irrigation, transport, incentives and logistical stability. The partial rebound of some products in 2024 does not remove the overall fragility of the system.

Non-state sector share of selected crops, 2024 (tonnes)

CROP	TOTAL 2024	NON-STATE SECTOR 2024	NON-STATE SHARE
Root crops	2,558,319	2,262,677	88.4%
Vegetables	773,430	550,000	71.1%
Cereals	256,040	195,425	76.3%
Rice	100,477	74,285	73.9%
Beans	26,188	18,621	71.1%
Citrus	7,479	5,982	80.0%
Other fruits	291,011	232,469	79.9%

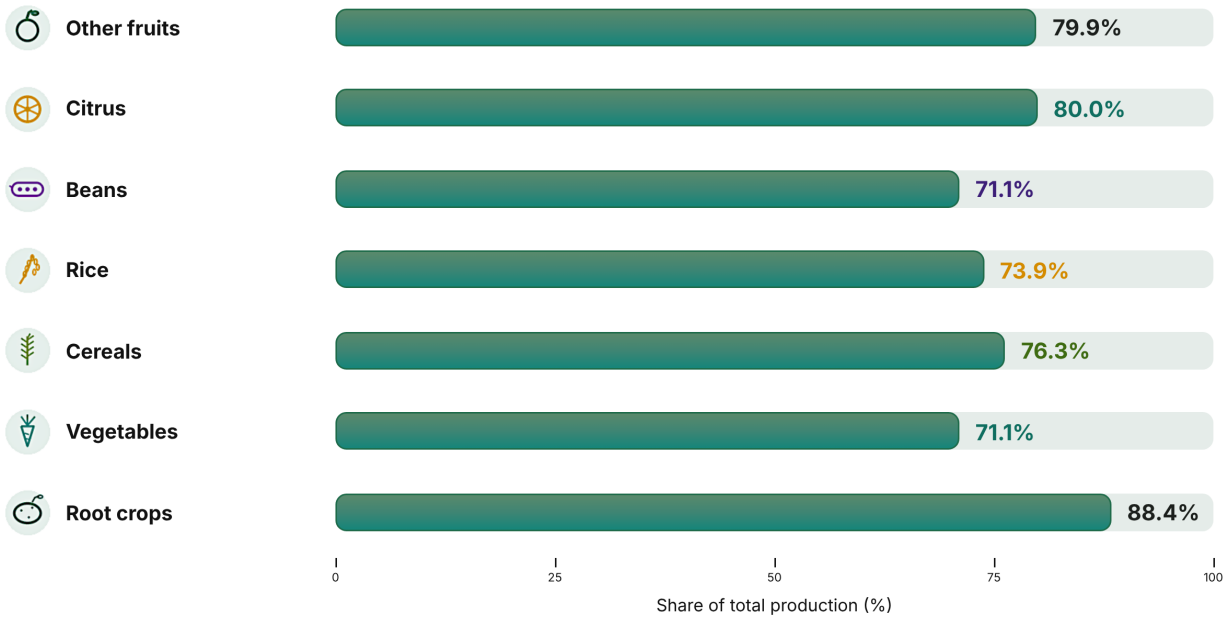
Source: *ONEI, agricultural production by state and non-state sector, 2024.*

The table confirms that non-state production is not marginal: it is the real backbone of a substantial part of the agricultural supply. Any modernization project must therefore place producers, usufruct holders, cooperatives and autonomous associative forms at its core, instead of treating them as secondary actors.

Chart 2.

Non-state sector share of selected crops, 2024

The non-state sector accounts for between 71.1% and 88.4% of the production analyzed.



Source: *Prepared by the authors based on ONEI 2024 data.*

The chart reinforces a public policy conclusion: national productivity depends critically on non-state actors. The priority should not be to replace them, but to provide them with legal certainty, credit, technical assistance, access to inputs, infrastructure and transparent marketing channels.

Food security: critical situation and vulnerabilities

Cuban food security should be assessed across the four dimensions used by FAO: availability, access, utilization and stability. At present, all four are compromised. The decline in strategic crops reduces availability; inflation and falling incomes affect access; the energy crisis undermines food preservation and preparation; and hurricanes, droughts and import constraints affect stability.

WFP indicates that many Cuban families face growing food and nutrition security difficulties, and reports that it supported 1.3 million people in 2024. FAO-GIEWS reported agricultural damage from hurricanes Oscar and Rafael in 2024, below-average rice and maize production and cereal import needs for the 2024/25 marketing year.

Food insecurity has a labor and social dimension. When food is scarce or expensive, real wages deteriorate, informality increases, migration grows and community cohesion weakens. For this reason, the Observatory considers that agrarian modernization must also be understood as a labor rights and social protection policy.

FOOD SECURITY BY DIMENSION AND RISK LEVEL

DIMENSION	SITUATION IN CUBA	CRITICAL FACTOR	RISK LEVEL
Availability	Decline in rice, beans, cereals, vegetables and fruits.	Insufficient domestic production and import dependence.	High
Access	Scarcity, high prices and loss of purchasing power.	Insufficient incomes and segmented markets.	High
Utilization	Problems with energy, refrigeration, water and cooking.	Electricity crisis and deterioration of basic services.	High
Stability	Hurricanes, droughts, fuel, foreign currency and logistics.	High exposure to simultaneous shocks.	Very high

Source: *Prepared by the authors based on FAO, WFP, ONEI and FAO-GIEWS.*

The table shows that food security does not depend solely on producing more tonnes. An effective policy must ensure that food exists, reaches households, is affordable, can be preserved and remains available during climate or energy crises.

Humanitarian-productive priority: the first phase of any agrarian transformation should concentrate on rice, beans, root crops, vegetables, eggs, milk, affordable animal protein and food for vulnerable populations. Local public procurement, community collection centers and rural energy for refrigeration and pumping are priority instruments.

Institutional framework, land and productive rights

Cuba's agrarian framework retains a strong state role in land, planning, input allocation and marketing. The granting of idle state land in usufruct has been a mechanism for bringing land into production, but its effects depend on the duration, security, transferability, financing and protection of the improvements made by producers.

Decree-Law No. 358 of 2018, which repealed Decree-Law No. 300, governs the granting of idle state-owned land in usufruct free of charge, for a fixed term to natural persons and for an indefinite term to legal persons, subject to restrictions on transfer to third parties. Law No. 148 of 2022 established a framework for food sovereignty and food and nutrition security. However, the existence of legal rules is insufficient unless they translate into effective productive rights, genuine access to inputs, financing and commercial autonomy.

In a democratic transition scenario, land rights reform must avoid two mistakes: rapid privatization without a cadastre or social protection, and the persistence of weak rights that discourage investment. The technically prudent route is a plural system with legitimate ownership, strengthened usufruct, protected leasing, autonomous cooperatives, rights to improvements and transparent dispute resolution.

ELEMENTS OF THE INSTITUTIONAL FRAMEWORK AND POSSIBLE TECHNICAL REFORMS

ELEMENT	CURRENT PROBLEM	POSSIBLE TECHNICAL REFORM	RISK TO CONTROL
Cadastre	Incomplete or not fully updated information.	Transparent registry of land, improvements and disputes.	Disputes and asset capture.
Usufruct	Use rights with limits on investment and transfer.	Bankable, renewable and protected usufruct.	Concentration or speculation.
Cooperatives	Risk of formality without real autonomy.	Democratic governance, auditing and economic freedom.	Bureaucratic control.
Input market	Constraints on foreign currency, fuel and supply.	Joint purchasing, revolving funds and regulated suppliers.	Abusive intermediation.
Marketing	Distortions and low transparency.	Territorial markets, contracts and traceability.	Regional inequality and hoarding.

Source: *Prepared by the authors based on Cuban legislation, ECOLEX, ONEI and comparative literature on agrarian transition.*

The table shows that institutional modernization should not be reduced to changing landholders. Its core must be the creation of effective productive rights: the capacity to invest, associate, obtain financing, sell, innovate and receive legal protection under public and verifiable rules.

Infrastructure, natural resources and climate risks

Infrastructure bottlenecks affect the entire agri-food chain: rural roads, transport, fuel, energy, irrigation, drainage, storage, cold chain, machinery, spare parts and agro-industry. These constraints turn agricultural production into a fragile system, with losses, poorly timed harvests and declining quality.

Natural resources also show vulnerabilities: erosion, salinization, soil degradation, water stress, damage to watersheds, saline intrusion and loss of fertility. FAO-AQUASTAT highlights the importance of water resources, irrigation and drainage in Cuba, while the IPCC warns of high risks for small island states from tropical cyclones, storm surges, droughts and sea-level rise.

Climate adaptation must be a design condition of agrarian modernization. It cannot remain a secondary environmental chapter. Rural infrastructure must be built to withstand hurricanes, droughts, floods and power failures.

INFRASTRUCTURE BOTTLENECKS AND PRIORITY INTERVENTIONS

INFRASTRUCTURE	BOTTLENECK	PRODUCTIVE EFFECT	PRIORITY INTERVENTION	TIMEFRAME
Rural roads	Deterioration and poor connectivity.	Delays and losses.	Critical agri-food corridors.	0-24 months
Rural energy	Blackouts and scarce fuel.	Failures in irrigation, refrigeration and pumping.	Productive solar, biogas, microgrids.	0-36 months
Cold chain	Insufficient capacity.	Loss of fresh food.	Community cold-storage centers.	0-24 months
Irrigation and drainage	Limited coverage and maintenance.	Low resilience to drought and flooding.	Efficient irrigation and territorial drainage.	12-60 months
Agro-industry	Obsolescence and low capacity.	Little added value.	Selective local processing.	24-72 months

Source: *Prepared by the authors based on WFP, FAO-AQUASTAT, FAO-GIEWS and IPCC.*

The table orders investments by productive function. The interventions with the highest social return are those that reduce losses, stabilize supply and allow small producers to access markets: roads, energy for refrigeration and pumping, collection and efficient irrigation.

Human capital, rural labor and solidarity economy

Agrarian modernization must be a labor policy. Cuba's countryside needs technical training, real incomes, occupational safety and health, social protection, trade union participation, opportunities for young people, leadership by rural women and basic services that make it viable to remain in rural areas.

The solidarity economy offers a middle path between unproductive centralization and exclusionary liberalization. It can enable scale, bargaining power, shared access to machinery, community credit, collective procurement, local processing and equitable distribution of surpluses.

The critical point is to distinguish genuine cooperatives from merely formal ones. A genuine cooperative has autonomy, democratic governance, transparent accounting, freedom of association, contractual capacity, access to markets and equitable distribution of benefits. Without these elements, cooperativism becomes delegated administration, not solidarity economy.

SOLIDARITY ECONOMY INSTRUMENTS FOR THE AGRARIAN SYSTEM

SOLIDARITY MODEL	FUNCTION	BENEFICIARIES	CONDITION FOR SUCCESS	RISK
Autonomous cooperatives	Joint production, purchasing and sales.	Producers, workers, usufruct holders.	Democratic governance and autonomy.	Bureaucratic control.
Machinery banks	Shared use of tractors, irrigation and transport.	Small producers.	Maintenance and transparent fees.	Capture by local elites.
Collection and cold-storage centers	Reduce losses and improve quality.	Producers and consumers.	Stable energy and professional management.	Inefficiency or corruption.
Rural revolving funds	Working capital for inputs and improvements.	Women, young people and family producers.	Credit rules and social auditing.	Arrears and discretionary allocation.
Local public procurement	Supply schools, hospitals and canteens.	Communities and vulnerable populations.	Timely payments and clear contracts.	Fiscal dependence.
Social agro-industrial enterprises	Process food and add value.	Workers, cooperatives, municipalities.	Health standards and market.	Poor business management.

Source: *Prepared by the authors based on cooperative literature, comparative experiences and a territorial rural development approach.*

The table turns the solidarity economy into concrete instruments. Its advantage is that it enables scale and efficiency without pushing out small producers. Its condition for success is governance: transparency, auditing, autonomy, business training and effective participation of members and workers.

Agri-food chains and agro-industry

Agrarian modernization must be organized by

value chains. Producing more is not enough if there is no collection, transport, grading, processing, packaging, refrigeration, traceability or markets. In Cuba, the priority chains for food security are rice, beans, root crops, vegetables, eggs, milk and affordable animal protein. For added value and selective exports, tropical fruits, honey, cocoa, coffee, tobacco, preserves and tourism-related foods stand out.

Territorial agro-industry would make it possible to reduce post-harvest losses, create rural employment, raise incomes and stabilize prices. However, it requires investment, health standards, energy, packaging, financing and business management. It cannot be designed as an indiscriminate expansion; it must prioritize territories and chains based on demand, available raw materials and logistical capacity.

Priority agri-food chains and suggested institutional model

CHAIN	MAIN OBJECTIVE	CRITICAL INTERVENTION	SUGGESTED INSTITUTIONAL MODEL	HORIZON
Rice and beans	Basic food security.	Seeds, irrigation, contracts, collection.	Grain cooperatives and public procurement.	0-36 months
Root crops and vegetables	Local supply and nutrition.	Collection centers, refrigeration and transport.	Territorial markets and producer associations.	0-24 months
Milk and eggs	Affordable protein.	Feed, animal health, refrigeration, energy.	Livestock cooperatives and public procurement.	12-48 months
Tropical fruits	Added value and loss reduction.	Pulps, preserves, drying, packaging.	Social agro-industrial enterprises.	24-60 months
Coffee, cocoa, honey, tobacco	Export and tourism niches.	Quality, traceability, certification.	Regulated cooperative and commercial partnerships.	36-84 months

Source: *Prepared by the authors based on ONEI, FAO-GIEWS, WFP and comparative agro-industrial development experiences.*

The table separates two complementary logics: food security chains and added-value chains. The first must protect the basic diet and popular access to food; the second can generate foreign currency, employment and innovation, provided it does not displace the priority of domestic food supply.

International comparison and agrarian transitions

Transitions from communist or socialist models to democracies or regulated market economies offer important lessons, but none can be mechanically transferred to Cuba. Outcomes depended on agrarian history, prior ownership structure, institutional capacity, access to financing, external markets, infrastructure and social protection.

Vietnam shows the importance of use rights, gradual reform, cooperative restructuring and market opening, although it is not a democratic transition. Poland shows that family farming can be a basis for resilience, but that farmers remain weak in the absence of strong associations. Estonia and Lithuania highlight the importance of the cadastre, restitution and clear registries, but also the risks of distortion and concentration. Central and Eastern Europe shows that privatization without rural institutions can lead to fragmentation, falling output or capture.

COMPARATIVE EXPERIENCES OF AGRARIAN TRANSITION AND APPLICABILITY TO CUBA

CASE	TYPE OF TRANSITION	GOOD PRACTICE	CAUTION	APPLICABILITY TO CUBA
Vietnam	Gradual socialist reform with an agricultural market.	Use rights, incentives, pilots and cooperative reform.	Not a democratic transition; risks of political control.	High as a technical lesson, limited institutionally.
Poland	Democratic transition with family farming.	Producer associations and agro-industrial integration.	Institutional vacuum and producers weak vis-à-vis buyers.	Medium-high.
Estonia/Lithuania	Post-Soviet transition with restitution and privatization.	Cadastre, registry and legal clarity.	Property disputes and concentration.	Medium.
Central and Eastern Europe	Reforms from planned economies.	Combination of family farms and viable enterprises.	Unproductive fragmentation or asset capture.	Medium-high.
Costa Rica/Uruguay	Agro-exporting democracies.	Animal and plant health, traceability, cooperativism and access to differentiated markets.	Exports without resolving domestic food supply.	Medium.
New Zealand	Advanced agricultural liberalization.	Competitive cooperatives and export efficiency.	Abrupt liberalization with limited transition measures; not replicable.	Low-medium.

Source: *Prepared by the authors based on FAO on Vietnam, Poland and New Zealand; World Bank on Central and Eastern Europe and Uruguay; EU CAP Network on Poland; OECD on Costa Rica and New Zealand; INE of Uruguay; New Zealand Treasury; and comparative literature on land reform.*

The comparison shows that Cuba should not have to choose between centralized statism and abrupt liberalization. The most prudent route is a plural agrarian transition: clear rights, organized producers, genuine cooperatives, responsible investment, critical infrastructure, social protection and transparently regulated markets.

SWOT, PESTEL and risk matrices

Technical SWOT matrix

STRENGTHS	WEAKNESSES
• Tropical agro-ecological diversity. • Rural tradition and urban agriculture. • Scientific and biotechnological capabilities. • Productive weight of the non-state sector.	• Falling output of essential crops. • Deteriorated rural infrastructure. • Shortages of inputs and fuel. • Insufficient productive rights.
OPPORTUNITIES	**THREATS**
• Modernization of genuine cooperatives. • Rural solar energy and community cold storage. • Climate finance and international cooperation. • Territorial solidarity agro-industry.	• Hurricanes, droughts and saline intrusion. • Prolonged energy crisis. • Rural migration and aging. • Concentration or asset capture during transition.

Source: *Prepared by the authors.*

The SWOT analysis shows that opportunities exist, but they are not automatic. The same structure that could drive a transition—non-state producers, cooperatives, biodiversity and a strategic location—may deteriorate if legal certainty, infrastructure, energy and community participation are not addressed.

PESTEL matrix

FACTOR	DIAGNOSIS	IMPLICATION FOR MODERNIZATION
Political	Strong state centrality and low autonomy of productive actors.	Requires decentralization, participation and accountability.
Economic	Foreign currency constraints, inflation, low investment and import dependence.	Prioritize food security and chains with low initial cost.
Social	Rural aging, migration and pressure on vulnerable households.	Training, decent rural employment and solidarity economy.
Technological	Scientific capabilities with technology transfer gaps.	Agricultural extension, digitalization and appropriate technologies.
Environmental	Droughts, hurricanes, salinization and soil degradation.	Mandatory climate adaptation.
Legal	Usufruct and food security are regulated, but productive rights are limited.	Cadastre, guarantees, autonomous cooperatives and dispute resolution.

Source: *Prepared by the authors.*

The PESTEL matrix confirms that agrarian transformation does not depend on a single sectoral reform. Political, economic, social, technological, environmental and legal variables must be managed in a coordinated, territorially grounded way.

Risk matrix

RISK	PROBABILITY	IMPACT	MITIGATION	CONTINGENCY
Worsening food insecurity	High	Very high	Prioritized production of staple foods and local public procurement.	Territorial reserves and targeted assistance.
Capture of land or assets	Medium-high	High	Cadastre, transparency and anti-trust limits.	Administrative and judicial review.
Failure of cooperatives due to bureaucratic control	High	High	Autonomy, auditing and democratic governance.	Restructuring and technical assistance.
Abrupt liberalization with inequality	Medium	High	Gradual approach, inclusive credit and social protection.	Territorial compensation funds.
Extreme climate events	High	High	Resilient infrastructure, insurance and early warning.	Municipal food response plans.
Persistence of the energy crisis	High	High	Productive solar, biogas and logistics corridors.	Energy priority for essential foods.

Source: *Prepared by the authors based on comparative evidence and documented risks for Cuba.*

The matrix shows that an agrarian transition can fail for reasons other than production. Institutional risks—capture, concentration, bureaucratic control or abrupt liberalization—are as relevant as climate and energy risks.

Prospective scenarios

SCENARIO	ASSUMPTION	LIKELY OUTCOME	RISKS	CONFIDENCE
Continuity	Central rules are maintained with partial adjustments.	Weak recovery, import dependence and persistent vulnerability.	Deterioration of productive capital and rural migration.	Medium-high
Gradual reforms	Greater autonomy, strengthened usufruct and territorial markets.	Partial improvements in staple foods and local production.	Insufficient change if there is no energy, credit or inputs.	Medium
Accelerated modernization	Legal certainty, infrastructure, cooperation and investment.	Gradual increase in productivity and agro-industry.	Asset capture, inequality and land conflicts.	Medium
International integration	Trade opening and external financing.	Expansion of export niches and technology.	Import dependence if food security is not protected.	Medium-low

Source: *Prepared by the authors.*

The scenarios are not predictions. They serve as a planning tool. The preferable scenario is not necessarily the fastest, but the one that combines production, food security, rights, social legitimacy, protection of small producers and institutional capacity.

Strategic priorities

PRIORITY	IMPACT	RELATIVE COST	FEASIBILITY	TIMEFRAME	SEQUENCE
National baseline: land, water, infrastructure, producers and chains.	High	Medium	High	0-12 months	1
Community-based emergency food security plan.	Very high	Medium	High	0-18 months	2
Legal certainty of productive rights and autonomous cooperatives.	High	Low-medium	Medium	0-24 months	3
Agri-food corridors: roads, energy, refrigeration and collection.	Very high	High	Medium	0-36 months	4
Program for inputs, seeds, biofertilizers and agricultural extension.	High	Medium	Medium-high	0-36 months	5
Revolving funds, rural credit and climate insurance.	High	Medium	Medium	12-48 months	6
Territorial solidarity agro-industry.	High	High	Medium	24-72 months	7
Digitalization, traceability, prices and climate alerts.	Medium-high	Medium	Medium	12-60 months	8

Source: *Prepared by the authors.*

Prioritization avoids dispersion. The first step is to know precisely what exists and where; then to protect food, productive rights and critical infrastructure. Agro-industry and exports should come after the food and logistics base has been stabilized.

Technical conclusions

01 Structural crisis

Cuba faces a structural agrarian and food crisis. The evidence shows deterioration in strategic crops, insufficient production, climate damage, low productivity and logistical constraints.

02 Food security at the center

Increasing production is not enough: food availability, access, utilization and stability must be guaranteed, especially for vulnerable populations.

03 The rural population as protagonist

Workers, producers, usufruct holders, cooperatives, women, young people and communities must take part in modernization as economic actors, not as passive recipients.

04 Solidarity economy with autonomy

It can be a strategic tool if it rests on transparency, credit, technical assistance, market access and equitable distribution of surpluses.

05 A gradual and protected transition

Comparative experiences recommend a cadastre, clear rights, rural institutions, producer associations, infrastructure and social protection, and warn against disorderly privatization and asset concentration.

06 Democracy: an opportunity, not a guarantee

A democratic transition could rebuild institutions and attract cooperation, but its results will depend on sequencing, social participation and the effective protection of rights.

Strategic conclusion of the Observatory: Cuba's agrarian transformation must be conceived as a policy on food, labor, territory, rights and economic democracy. Modernization will only be sustainable if it produces food, generates income, protects labor rights, distributes opportunities and enables the effective participation of rural communities.

Information gaps and research agenda

Designing a National Agrarian Modernization Project requires more precise information than is publicly available. We propose building a national baseline with statistical, territorial and social modules. The lack of reliable data can lead to errors in investment, targeting and public policy.

INFORMATION MODULES FOR THE NATIONAL BASELINE

INFORMATION MODULE	REQUIRED CONTENT	USE IN PUBLIC POLICY
Cadastre and tenure	Plots, usufructs, properties, improvements and disputes.	Legal certainty and investment.
Soils and water	Fertility, erosion, salinity, watersheds, irrigation and drainage.	Productive zoning and climate adaptation.
Producers and cooperatives	Area, production, inputs, financing, employment and marketing.	Design of credit, extension and associative schemes.
Infrastructure	Roads, energy, refrigeration, collection, machinery and agro-industry.	Prioritization of investments.
Food security	Availability, prices, access, nutrition and vulnerability.	Public procurement, social protection and reserves.
Post-harvest losses	Losses by chain, territory and cause.	Waste reduction and design of cold storage and collection.

Source: *Prepared by the authors.*

The research agenda must produce operational information, not just general assessments. Each module should help decide where to invest, whom to support, which chain to prioritize and how to measure results.

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