

July 2020

A R O A D M A P

# PARAGUAY POST-PANDEMIC

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*Sustainable Recovery*

*Sustainable Transition*

*Resilient Economy, Health & Education*

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## Executive Summary

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By investing strategically and prioritizing resilience in the economy, education, and health, Paraguay can lay the groundwork today for recovery.

Paraguay should work from its strengths and from new lessons from the COVID-19 crisis in order to build a sustainable future.

# LESSONS FROM THE CRISIS

## GOAL

Study how to build a sustainable recovery and transition to post-pandemic Paraguay.

## METHODOLOGY

- Analyzed COVID-19 impacts and responses throughout the Latin American region; **Paraguay is a notable leader** in acting quickly to flatten the curve, with technical expertise rather than politics determining the pandemic emergency response and with solidarity from citizens in adhering to guidelines & supporting their vulnerable neighbors.
- Spoke to experts in many fields in Paraguay to **understand the reality** on the ground.
- Diagnosed the dimensions of the problem and designed **empirically-backed proposals** for how Paraguay can pivot out of the crisis.

## THE CRISIS

The crisis is not just a public health emergency, but the complexity of the social, political, and economic impacts.

A RECOVERY PLAN MUST INCLUDE:

RESILIENT HEALTH

RESILIENT ECONOMY

RESILIENT EDUCATION

# LESSONS FROM THE CRISIS

## LESSON 1

### Digital Acceleration

The crisis accelerated an existing trend to digital, one that is reliant on digital for economic transactions, telehealth, at-home education, work-from-home.

**Does Paraguay have what it needs to thrive in a digital world?**

## LESSON 2

### Environment & Ecology

The crisis accelerated an existing trend to emphasize responsible care for environment and ecology as part of the bottom line.

**How can Paraguay build on its renewable energy strengths & extend environmental protection?**

## LESSON 3

### Holistic Development

The crisis accelerated an existing trend to recognize that meaningful, sustainable economic development must include investment in quality health & education.

**What concrete steps can Paraguay take today to improve the quality of its health & education?**

# LESSONS FROM THE CRISIS

## Caveat

In this report, we do not address some key measures that have been developed elsewhere in response to the COVID-19 crisis, including:

- Urgent need to ensure that the lifeline of Paraguayan economy--the **Small/Medium Enterprises**--survive.
- Need for **tax reform & increased transparency** in public licitation.

## We Propose

**Resilient Health**  
+  
**Resilient Education**  
+  
**Resilient Economy**

These three are interlinked and necessary for a post-pandemic recovery.

Our recommendations emphasize Paraguay's existing strengths, concrete results & long-term planning.

This report is the result of a student team research project. We want to open a dialogue.

We urge that **Paraguayan university student** research teams take up these questions, too.

# Digital Infrastructure

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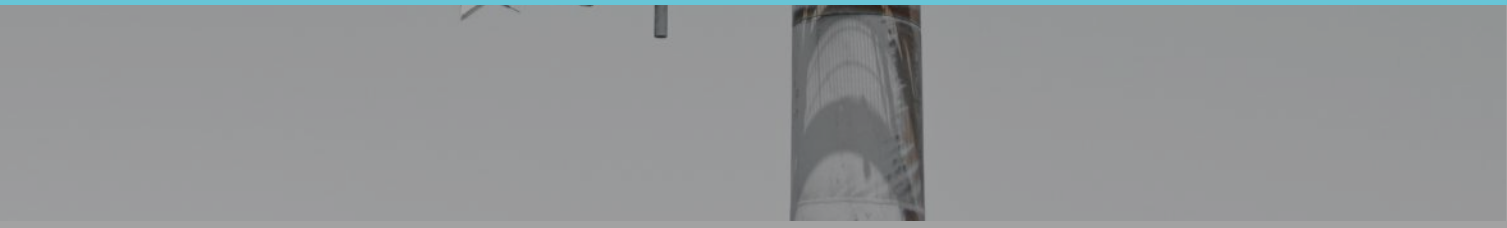
**For every 10% increase in connectivity,  
GDP grows 1-2%.**

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**Fixed-line broadband is the backbone of every  
modern economy.**

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**Mobile coverage works best for healthcare and  
banking.**



# Digital Infrastructure



## Importance

Expanding access to the Internet has a multiplier effect on a wide range of economic industries and services, including telehealth, education, and banking. **A scalable and sustainable digital infrastructure is the foundation of a 21st century economy.** Failing to increase access will limit opportunities and stunt Paraguay's long-term growth.

## Objectives

Deliver mobile and fixed-line services to extend internet access to **every citizen, SME, school, and government institution.**

**Reduce connectivity costs** for users by 50% for both mobile and fixed-line plans.

## Benefits

In addition to fundamental improvements to healthcare, education, and banking, internet access provides both **general** and **targeted** benefits including but not limited to:

**Increasing GDP by 1-2%** for every 10% increase in connectivity<sup>1</sup>

Enabling access to market pricing information, weather forecasts, disease control information and livestock tracking that can increase small-scale farmers' profits by **8%** and result in a **4%** drop in prices for consumers.<sup>2</sup>

Reducing transaction costs and distance constraints, allowing SMEs to innovate and reach a broader market, resulting in an average productivity gain of **11%**. Providing universal coverage to SMEs leads to a **25% increase in long-term productivity** in developing nations.<sup>2</sup>

# Current Environment | Digital Trends in Paraguay<sup>4</sup>

## Mobile Phone Penetration

2016

104.8%

Since 2014  
▼ 0.8%

Regional Average  
116%

## Household Internet Access

2016

26%

Since 2014  
^ 3.3%

Regional Average  
11%

## Individuals Using Internet

2016

51%

Since 2014  
^ 8%

Regional Average  
56%

## Fixed Broadband Access

2016

3.4%

Since 2014  
^ 0.7%

Regional Average  
13%

## Mobile Broadband Access

2016

41.7%

Since 2014  
^ 10%

Regional Average  
61%

## Computer Access

2016

30%

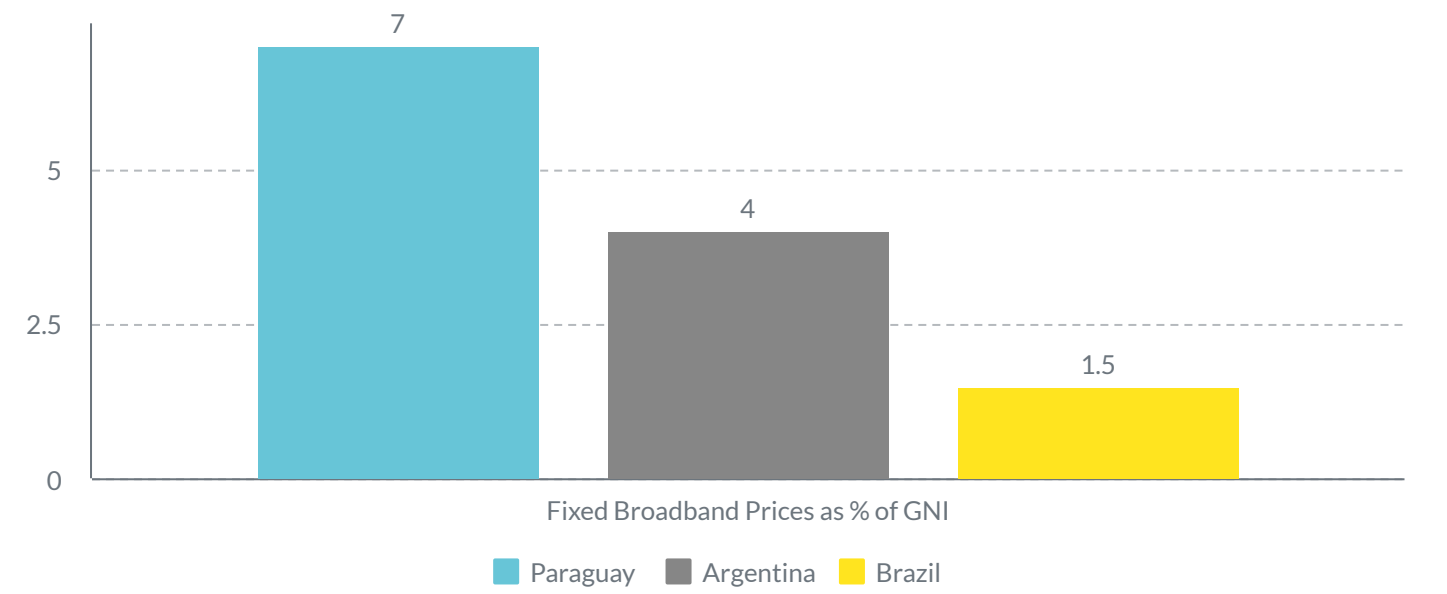
Since 2014  
^ 1%

Regional Average  
50%

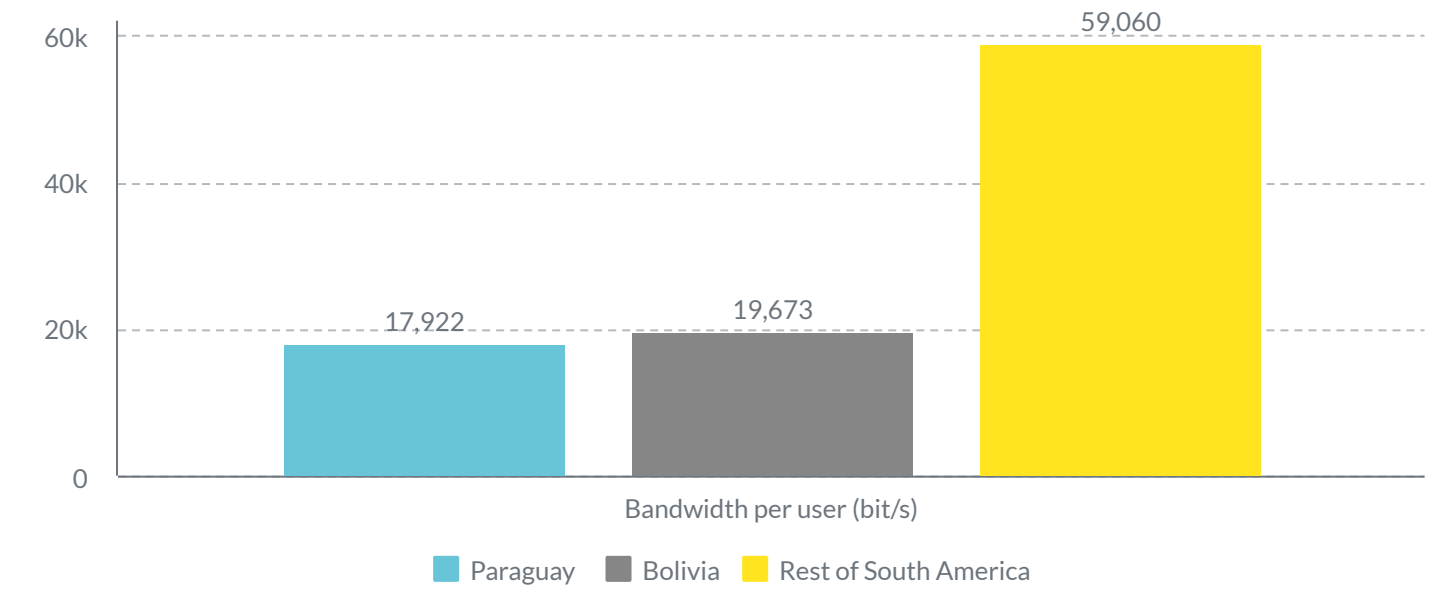


Current Environment | Price and Quality<sup>4</sup>

# Fixed Broadband is Prohibitively Expensive



# Mobile and Fixed Coverage is Limited



## Solutions

### Reduce Prices



Open fixed-line market to competition



Competition lowers prices & improves quality for fixed-line services.<sup>5</sup>



Upgrade cable connections to submarine lines in Brazil & Argentina



Connecting to subsea cables reduces international connectivity costs by 87% & other costs by 53%.<sup>6</sup>



Build at least 2 more Internet Exchange Points



Internet Exchange Points (IXPs) improve quality, lower cost & help develop local internet industry.<sup>7</sup>



Provide subsidies for low-income communities



Subsidies increase demand even before prices decrease; access is too expensive for many (see above chart).

### Increase Coverage



Expand fibre optic networks



Fixed-line broadband provides different services than mobile internet & is the backbone of every modern economy.



Provide 4G access to entire population



Mobile coverage provides rapid & more cost-effective solutions across healthcare and banking.



Improve cell tower bandwidth capacity



Coverage without quality is inadequate, Paraguayans must have access to speeds of at least 6 mb/s.<sup>8</sup>



Connect fiber to every school



Will improve quality and help mitigate external stressors in a post-COVID world.

# Cost

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CONATEL will need to direct at least **\$150 million a year for 5 years** to build/extend the broadband network<sup>3</sup>

Mobile operators will need to invest a further **\$100 million** to expand mobile 4G networks<sup>4</sup>

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## Sources

<sup>1</sup>Minges, Michael. 2015. "Exploring the Relationship Between Broadband and Economic Growth." World Bank. <https://web.archive.org>.

<sup>2</sup>2014. "Value of Connectivity Economic and Social Benefits of Expanding Internet Access." Deloitte. February 1, 2014. [https://www2.deloitte.com/content/dam/Deloitte/ie/Documents/TechnologyMediaCommunications/2014\\_uk\\_tmt\\_value\\_of\\_connectivity\\_deloitte\\_ireland.pdf](https://www2.deloitte.com/content/dam/Deloitte/ie/Documents/TechnologyMediaCommunications/2014_uk_tmt_value_of_connectivity_deloitte_ireland.pdf).

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<sup>7</sup>2015. "Policy Brief: Internet Exchange Points (IXPs) | Internet Society." Internet Society. October 30, 2015. <https://www.internetsociety.org/policybriefs/ixps/>.

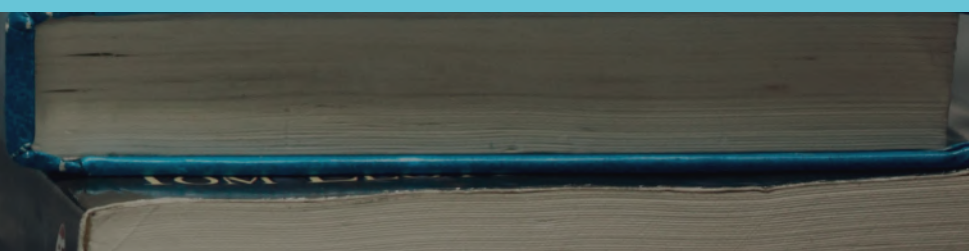
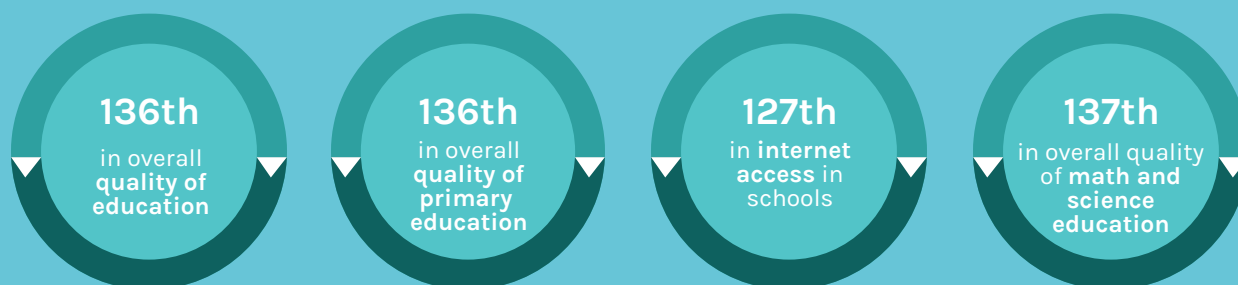
<sup>8</sup> 2018. "State of Mobile Internet Connectivity 2018." GSMA Connected Society. <https://web.archive.org>.

# Resilient Education



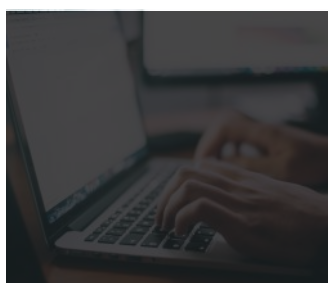
**Education is vital to economic growth & sustainable development**

According to the 2016-2017 Global Competitive Index of the World Economic Forum<sup>1</sup>, out of **138** countries, Paraguay ranked:



# Resilient Education

## Importance



Education reform is an essential component of Paraguay's sustainable development. Education on its own is an intrinsic benefit and a human right enshrined in the Paraguayan constitution, but it is also vital to economic growth. Addressing rampant inequality, unemployment, low labor productivity, and high levels of informal work is impossible without first addressing the shortcomings of the educational system<sup>2</sup>. Boosting the quality of Paraguayan education is essential to attracting new industries and building a **resilient economy**.

## The Education Crisis

According to the OECD's baseline levels of proficiency, of the 15-year-old students who took the PISA-D exam<sup>3</sup>:

**32%**  
of students  
reached baseline  
proficiency  
in reading

**8%**  
of students  
reached baseline  
proficiency in  
mathematics

Education reform over the past few decades has improved **access** to primary and lower-secondary public education. However, **significant disparities** exist in the **quality** of education and access to **pre-primary and post-secondary education**<sup>4</sup>. According to data collected by the OECD<sup>5</sup>, "...students' performance varies mainly based on their **geographical location**, their **socio-economic condition** and their **language**..." Any attempt at reform must center the need to address these gaps.

## Tu escuela en casa

**7 in 8**  
Schools  
don't have  
internet  
access<sup>6</sup>

**73%**  
Of teachers  
don't have  
access to a  
computer<sup>6</sup>

Existing inequalities were exacerbated when the COVID-19 pandemic forced schools to shift to remote learning. Tens of thousands of students and teachers across the country lack access to the internet and computers. While some schools and families are able to support students through remote learning, this is shaping up to be a **lost year** for many. The government must **act now** to pass short-term and long-term solutions to this **education crisis**.

# Resilient Education

Recommendations for remote learning, transitions to a digital education landscape

Device & Internet Access

Cost

Internet costs are rising up to 65% for some families<sup>6</sup>

Digital Literacy

Learning Experience

## Short-term Objectives

Although these are important emergency measures, **these short-term reforms cannot substitute robust long-term reforms.**

- Expanded, nation-wide TV and radio educational programming<sup>7</sup>
- Printed materials
- Offline videos and platforms
- Zero-rating educational websites as an immediate solution
- Subsidizing internet costs
- Easy to understand tutorials for teachers and students through Whatsapp, TV, and radio in Guarani and Spanish
- Unified, organized, and accessible portal
- Daily lesson plans organized by grade

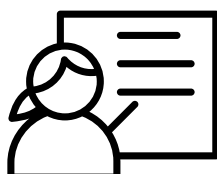
## Long-term Objectives

- Internet access** in every school & every child's home (see digital infrastructure section)
- One laptop per child**
- Avoid zero-rating as a long-term solution<sup>11</sup>
- See **digital infrastructure** for sustainable cost-cutting solutions
- Require teacher training programs on **educational technology** in combination with a One Laptop Per Child initiative
- Increase **teacher access to computers**
- Increase the use of **edtech in classrooms** through increased infrastructure & teacher training programs

While the government has made some progress on these steps, it **has not gone far enough**. The education portal provides little guidance and no lesson plans. TV programming is limited to half-hour sessions, compared to robust full-day programs offered in other countries (See Mexico and Argentina's example)<sup>8</sup>. School kits have reached only a fraction of students in Paraguay<sup>6</sup>.

# Resilient Education

In addition to enhancing digital educational infrastructure, other top priorities include:



## Quality of teaching<sup>5</sup>

Teacher training institutions must be strengthened and more formally accredited. Increase salaries coupled with improved evaluation structures to attract better talent



## Labor market transition<sup>5</sup>

*In 2018, youth unemployment (ages 15-24) was over 3 times the national unemployment rate*

Expand technical & vocational training to equip students with skills relevant to the market. Collect labor market data to help match the supply & demand of skills.



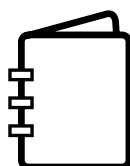
## Education Funding<sup>9</sup>

In 2016, Paraguay spent 3.4% of GDP on education - well below the regional average of 5.45%. Paraguay needs to increase education spending & ensure transparency & strategy in resource allocation.



## Data Collection<sup>5</sup>

Improving educational data collection is vital to inform policy and hold teachers and schools accountable



## Pre-primary education<sup>5</sup>

...improved PISA test scores "by the equivalent of one additional year of secondary schooling". Expanded coverage and access is essential.



## Coverage<sup>5</sup>

Rural & under-served communities need better access to education (build new schools + provide transportation. Bilingual education must be better tailored to students who speak Guaraní at home.



## Infrastructure<sup>10</sup>

From basic infrastructural needs like restrooms & sturdy rooftops to learning resources & technology, educational infrastructure in Paraguay needs focus & investment.

<sup>1</sup> Schwab, Klaus. The Global Competitiveness Report 2016-2017: Insight Report. Geneva: World Economic Forum, 2016.

<sup>2</sup> Berry, Albert. LOSING GROUND IN THE EMPLOYMENT CHALLENGE: the Case of Paraguay. London, United Kingdom: ROUTLEDGE, 2017.

<sup>3</sup> Ward, M. PISA for Development: Results in Focus, PISA in Focus, No. 91, Paris: OECD Publishing, 2018. <https://doi.org/10.1787/c094b186-en>

<sup>4</sup> OECD. Multi-dimensional Review of Paraguay Volume 1. Initial Assessment. OECD Publishing, 2018.

[https://www.oecd.org/development/mdcr/countries/paraguay/Paraguay\\_Vol\\_1\\_Overview\\_En.pdf](https://www.oecd.org/development/mdcr/countries/paraguay/Paraguay_Vol_1_Overview_En.pdf)

<sup>5</sup> OECD. Multi-dimensional Review of Paraguay Volume 3. From Analysis to Action. OECD Publishing, 2019. <https://doi.org/10.1787/5e722f8e-en>

<sup>6</sup> Ultima Hora. "Petita Dice Que La Educación Está En Pie: ¿Cuál Es El Análisis De Los Directores, Docentes y Alumnos?" *ultimahora.com*. Ultima Hora, July 14, 2020.

<https://www.ultimahora.com/petita-dice-que-la-educacion-esta-pie-cual-es-el-analisis-los-directores-docentes-y-alumnos-n2894934.html>

<sup>7</sup> World Bank. "Ejemplos exitosos de cómo escalar la enseñanza y el aprendizaje en tiempos del COVID-19." *blogs.worldbank.org*. April 24, 2020.

<https://blogs.worldbank.org/es/education/ejemplos-exitosos-de-como-escalar-la-ensenanza-y-el-aprendizaje-en-tiempos-del-covid-19>

<sup>8</sup> World Bank. "How Countries Are Using Edtech (Including Online Learning, Radio, Television, Texting) to Support Access to Remote Learning during the COVID-19 Pandemic." World Bank, 2020. <https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>

<sup>9</sup> UNESCO. Education: Government expenditure on education as a percentage of GDP. UNESCO Institute of Statistics, 2020. <http://data.uis.unesco.org/>

<sup>10</sup> Editors, The. "Can Paraguay's Dysfunctional Education System Be Reformed?" *World Politics Review*, October 16, 2018. <https://www.worldpoliticsreview.com/trend-lines/26442/can-paraguay-s-dysfunctional-education-system-be-reformed>

<sup>11</sup> Sequera Buzarquis, Maricarmen. "¿Por Qué Ofrecer Plataformas Estatales Con Zero Rating Es Una Forma De Precarizar Internet? #NeutralidadEnLaRed." *TEDIC*, December 6, 2018. <https://www.tedic.org/zero-rating-es-una-forma-de-precarizar-internet/>

# Resilient Health

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## **EXPAND HOSPITAL CAPACITY**

Build 2 new permanent hospitals with 1000 ICU beds at the cost of \$80million each.

Teaching hospitals allow the formation of new medical professionals.

Generate employment + permanent health infrastructure + access to healthcare.

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## **CONTACT TRACING**

Increase participation through a public communication campaign.

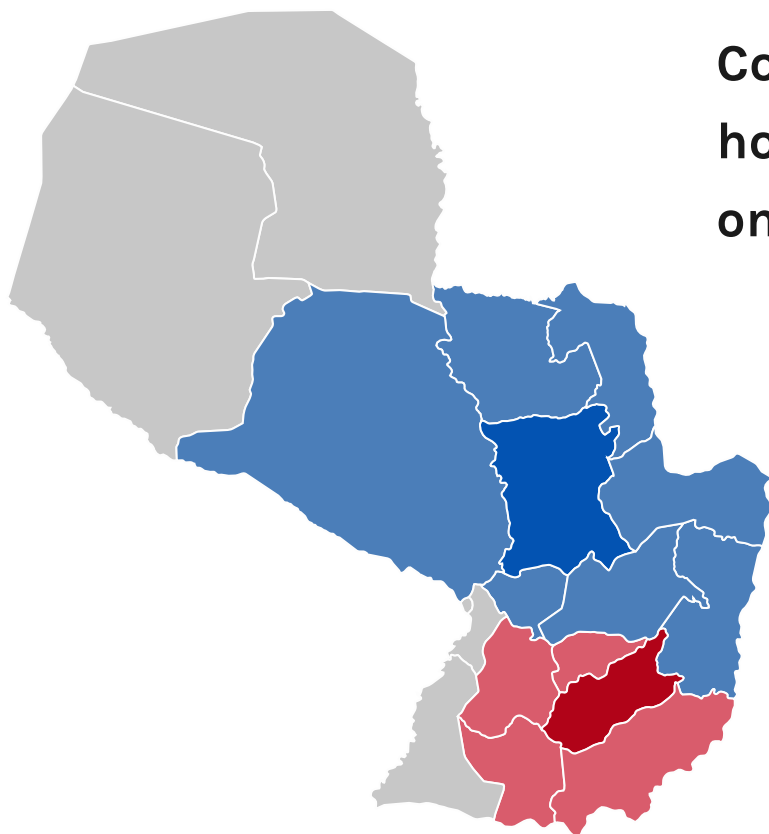
## **TELEHEALTH**

Expanding digital infrastructure is key.



# Expand Hospital Capacity

**Construct 2 new permanent hospitals, one in San Pedro & one in Caazapá.**



**San Pedro** gives access to the departments of Concepción, Amambay, Canindeyú, Caaguazú & Cordillera.

**Caazapá** gives access to the departments of Paraguari, Misiones, Itapúa, Alto Paraná, Guairá & parts of Ñeembucú.

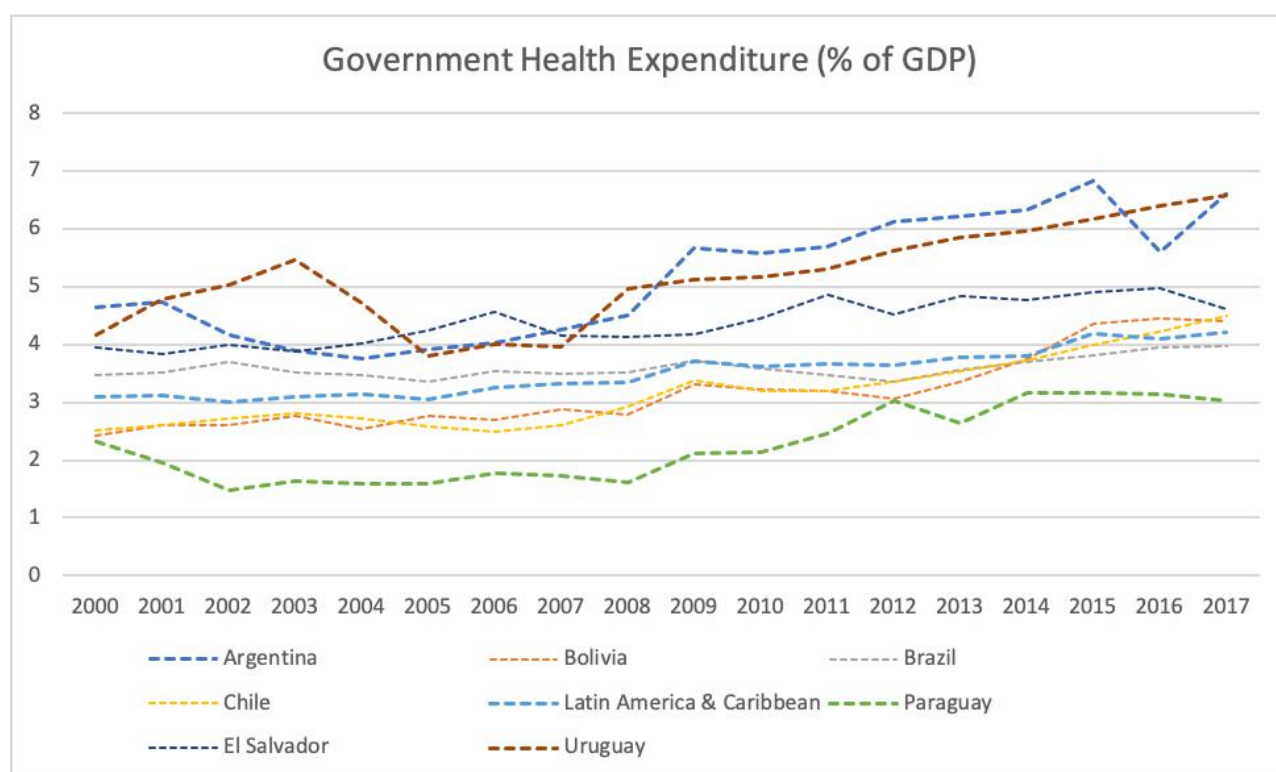
COVID-19 and the dengue epidemic of 2019 have revealed that **Paraguay has a public health deficit**. The Paraguayan government investments in health represent 3.03% of GDP, lower than the Latin American regional average of 4.21% and lower than its Mercosur partners (World Bank).

The government of El Salvador (pop. 6.4 million) built a new hospital for \$75million in the first 3 months of the COVID-19 pandemic, adding 1000 ICU beds.

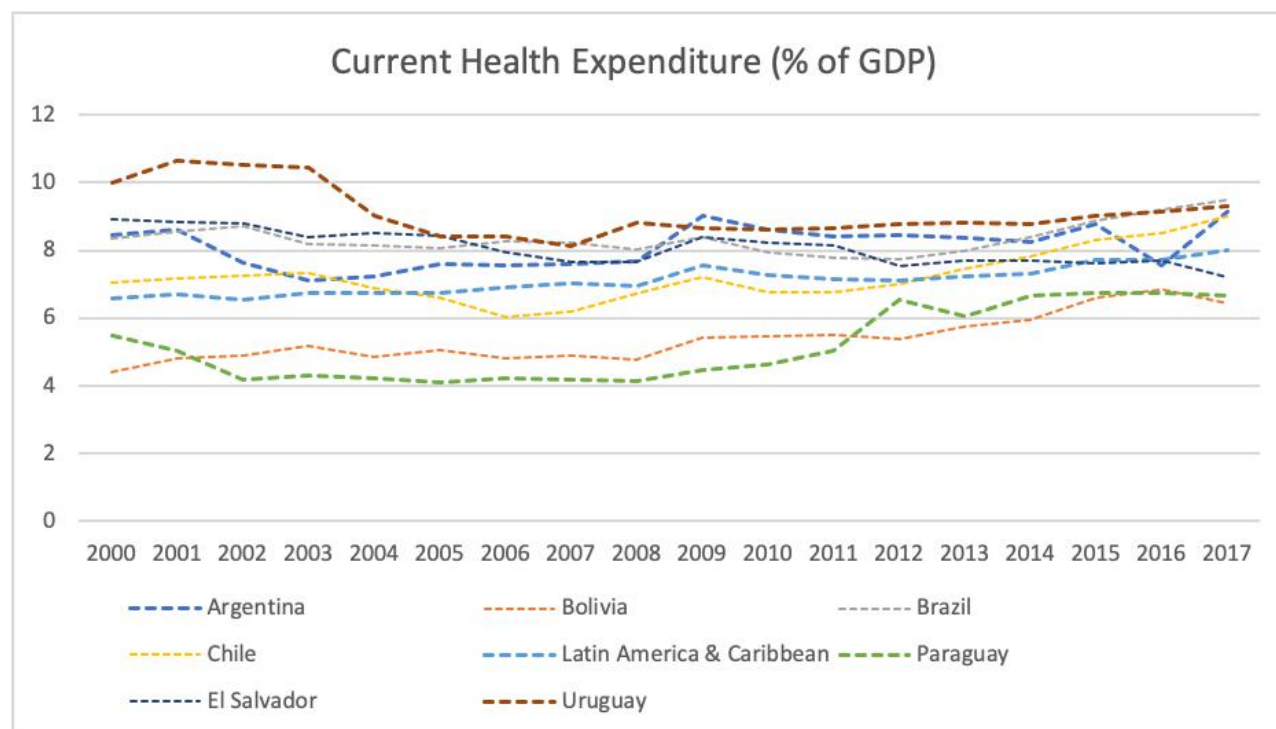
We urge that the Paraguayan government prioritize the **immediate construction of permanent teaching hospital complexes** in the under-served interior of the country.

Asunción & Central department possess medical facilities, including 2 new contingency hospitals built to combat COVID-19 (MOPC), increasing the capacity by 200 beds.

# Expand Hospital Capacity



Source: World Bank



Source: World Bank

MOPC entrega el segundo hospital de contingencia en Itauguá Publicado: 22/04/20 <https://www.mopc.gov.py/mopcweb/index.php/noticias/mopc-entrega-el-segundo-hospital-de-contingencia-en-itauguá>

Paraguay. Overall Context. Pan-American Health Organization: <https://www.paho.org/salud-en-las-americas-2017/?p=4292>

WorldBank. Data from World Health Organization Global Health Expenditure database [apps.who.int/nha/database](https://apps.who.int/nha/database)

# Contact Tracing



## PARAGUAY'S CURRENT PLATFORM

On March 31st, the Paraguay Minister of Information and Communication Technologies announced the country would be releasing an app in which individuals who enter the country could register their personal and medical data as well as track the location of these individuals under the General Directorate of Health Surveillance.

## LIMITATIONS

Digital contact tracing apps were created to identify people who were potentially exposed to the coronavirus so that they can self-isolate and control the epidemic. About 60% of the population download a contact tracing app in order for it to be effective. Paraguay's platform was only created for those coming into the country.

## LOOKING FORWARD

Countries, like Australia and India, have created contact tracing apps to aid public health investigators search for contacts between individuals after a resident tests positive for COVID-19. As restrictions ease in Paraguay, an application that notifies residents after contact with a COVID-19 positive individual can mitigate the risk of another large outbreak.

# Proposed Application



## The App

- Paraguay currently uses an app that uses **geo-reference location for COVID control** - individuals log their location daily using Internet Routers or cellular data. This in turn provides greater privacy protection compared to GPS tracking.
- This form of tracking - and **encouraging the general public to download the app** - will allow for greater communication between public health investigators and individuals who may have been exposed.

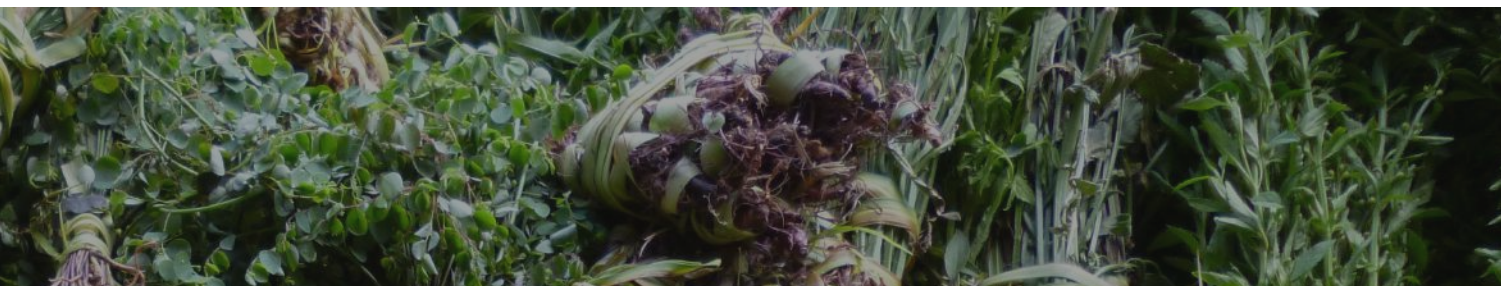
<https://www.mitic.gov.py/noticias/control-de-personas-en-cuarentena-se-realizara-con-app-que-facilita-datos-clinicos-y-localizacion>



## Advertising

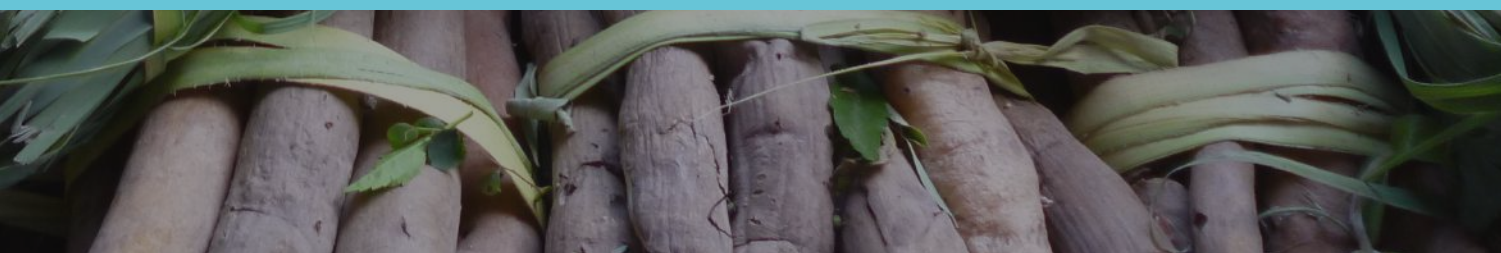
- **60% of the population must download the application in order for it to be effective:** by following Thailand's lead and branding the app as a means to return to normalcy, there will likely be greater adoption.
- According to the International Telecommunications Union, 99.4% of the population has a mobile-cellular telephone subscription, and 90.18% of subscribers use FaceBook.
- **By advertising on social media platforms, like FaceBook,** there will likely be greater mobile app engagement.

# Resilient Economy



## KEY COMPONENTS TO A SUSTAINABLE, RESILIENT INDUSTRIALIZATION PLAN:

- Draws on existing strengths in Paraguay,
- Fosters innovation + entrepreneurship,
- Incorporates informal sector + rural economy,
- Prioritizes job creation and upskilling of Paraguayan workers,
- Uses lessons learned from the economic development of the Asian Tigers: learning by exporting; putting Paraguay on the leading edge of market developments.





# Hydrogen and Fuel Cell Production

## The Proposal

### Establish hydrogen production + hydrogen fuel cell manufacturing in Paraguay

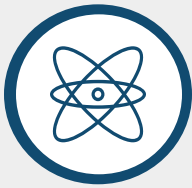
Hydrogen has enormous growth potential as an energy source. When produced sustainably, it can be completely clean from production through utilization. As auto industry leaders seek to reduce the industry's carbon footprint, corporations have invested in fuel cell technology to power vehicles. Paraguay has attractive qualities for such emerging hydrogen industries & has the potential to become a regional leader.

### Hydrogen: a renewable energy source



#### What and How

Hydrogen is an energy carrier that can be used as fuel. Hydrogen can also be used as an energy storage and energy source for industrial processes.



#### Costs

While it is cheap to produce hydrogen from fossil fuels, sustainable hydrogen is more expensive. **Access to inexpensive hydroelectricity brings the price of green hydrogen down.**



#### Production

Hydrogen can be obtained in several ways. To produce hydrogen without fossil fuels, one separates hydrogen from water through a process called electrolysis that relies on green electricity.



#### Sustainability

Hydrogen as a fuel is **carbon neutral**, and when produced with clean electricity, it is **100% clean**. When using it in a fuel cell, the only byproducts are water and heat.

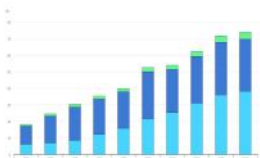
## Hydrogen Economy and Why Paraguay

### Overview

Market Value by 2026

**\$126 billion**

Recent demand growth



73.9 MT in  
2018

#### Uses

- Transportation/ fuel cells
- Industry
- Energy storage

### Potential

The main resources needed to produce green hydrogen through electrolysis are water & clean electricity. **Paraguay is well-positioned** with these resources to produce sustainable hydrogen. In addition, the surplus energy from ITAIPU can lower the cost of production to make it more efficient.

### Benefits

- Opportunity for economic growth and employment (skilled & unskilled).
- Attract industries to invest & create a sustainable transportation market in the region.
- Improve Paraguay's transportation system.

## Transportation for exportation

One of the main challenges of hydrogen is transportation. Currently used transport strategies are listed below and more technologies are being developed quickly. This will allow Paraguay to export hydrogen to meet the increasing global demand.

### Compressed Gas cylinders

- Best option for short distance transport.
- Flexible
- Can be expensive



### Liquid

- More efficient for greater quantities & distance
- Requires a substantial amount of energy to liquify

### Pipelines

- Most cost-effective option for transporting large amounts of hydrogen.
- Requires high initial investment in infrastructure

#### Sources:

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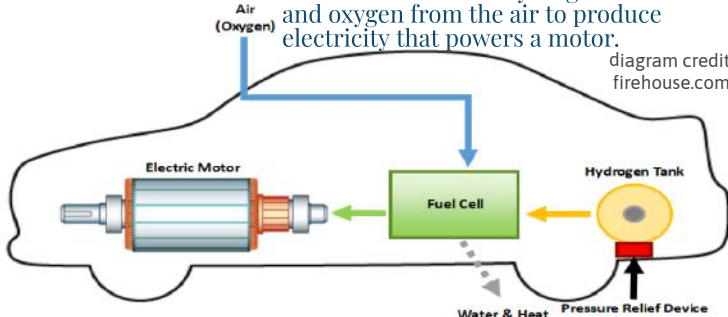
# Hydrogen Fuel Cells: a renewable alternative to gasoline

The hydrogen car market is expected to grow at exponential rates. Vehicle manufacturers have invested in fuel cell technology to reduce emissions. Latin America has a strong growth potential. **Paraguay can capitalize on this emerging industry early by producing exportable fuel cells and, over time, shifting export focus to the more proximate region.**

## How does it work?

A fuel cell combines hydrogen from a tank and oxygen from the air to produce electricity that powers a motor.

diagram credit: firehouse.com



## WHY PARAGUAY?

- Access to reliable, renewable electricity
- Competitive labor costs
- Employs domestic skilled workers
- Broaden Paraguay's export partnerships
- Regional hydrogen market expansion
- Complements hydrogen production and exports

# Currently Manufactured H-Cell Vehicles



Hyundai Nexo (image source HyundaiUSA)



Toyota Mirai (image source Toyota)



Honda Clarity (image source Honda)

## Revolutionary Public Transportation

Hydrogen cell public busses are in use across the planet. As the technology advances, Paraguay's public transportation has potential to evolve.

See: Deloitte Report: Fueling the Future of Mobility Hydrogen and fuel cell solutions for transportation



Image Credit: Hydrogen Europe

## Market Data

▲ \$42b

**Market size**

Allied Market Research

By 2026, the hydrogen cell market is projected to be worth \$42 billion USD

▲ 66%

**Annual Growth**

The global market CAGR is projected at 66% through 2026

▲ 71%

**LATAM Annual Growth**

The Latin America market will grow at an CAGR rate of 71% until 2026

## Export Potential

Paraguay can strengthen ties to the international market by exporting fuel cells to countries that manufacture hydrogen-powered cars.



**Japan**

The Toyota Mirai and the Honda Clarity are hydrogen-powered cars, manufactured in Japan.



**United States**

The hydrogen-powered Hyundai NEXO is manufactured in the United States



**Korea**

Hyundai also manufactures vehicles in Korea



# Agricultural Machinery Manufacturing

## The Proposal

Leverage Paraguay's excess energy & friendly business environment to develop a domestic agricultural machinery manufacturing industry.

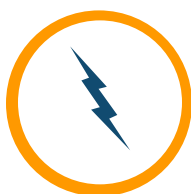
Paraguay's agricultural sector relies on imported machines. Domestic production of agricultural machinery would **industrialize** the economy, **modernize** the substantial small producer industry & **create wealth**.

## Using Itaipu to develop new industry



### Clean Energy

Greener than competitors-- both sustainable & attractive to investors.



### Cheap Energy

Paraguay has access to competitively priced energy.

## Sustainable development requires domestic, as well as foreign, demand

Domestic companies would buy domestic products because production costs are lower.

Small producers would buy domestic machinery, with government support.

Regional companies would buy Paraguayan because production costs are lower.

## Agriculture Industry Overview



Agricultural exports bring in \$5.9 billion annually. Paraguay is a global top-10 exporter of soy, beef & sugar.

Small producers, an important part of the population, need support to increase productivity.



3/4 of Paraguay's agricultural machinery is imported from Brazil, a global powerhouse in the field.

Paraguay imports \$129m in agricultural machinery. Domestic production could reduce this trade deficit.



## Brazil's Rural Credit program helped develop their small farmer industry.

Brazil's Rural Credit program offers low-interest loans to small producers to upgrade their operations.

In 2018, most tractors sold in Brazil were low-power tractors & small producers are the primary buyers of low-power tractors.

The Rural Credit program both increased output for small producers & increased demand for agricultural machinery.

# Government role in attracting and sustaining the market.



## Attract companies to Paraguay

Encourage multinational companies with operations in Brazil to open additional production in Paraguay.



## The sales pitch

Lower labor & production costs plus cheap, reliable energy. Paraguay has an extremely business friendly environment.



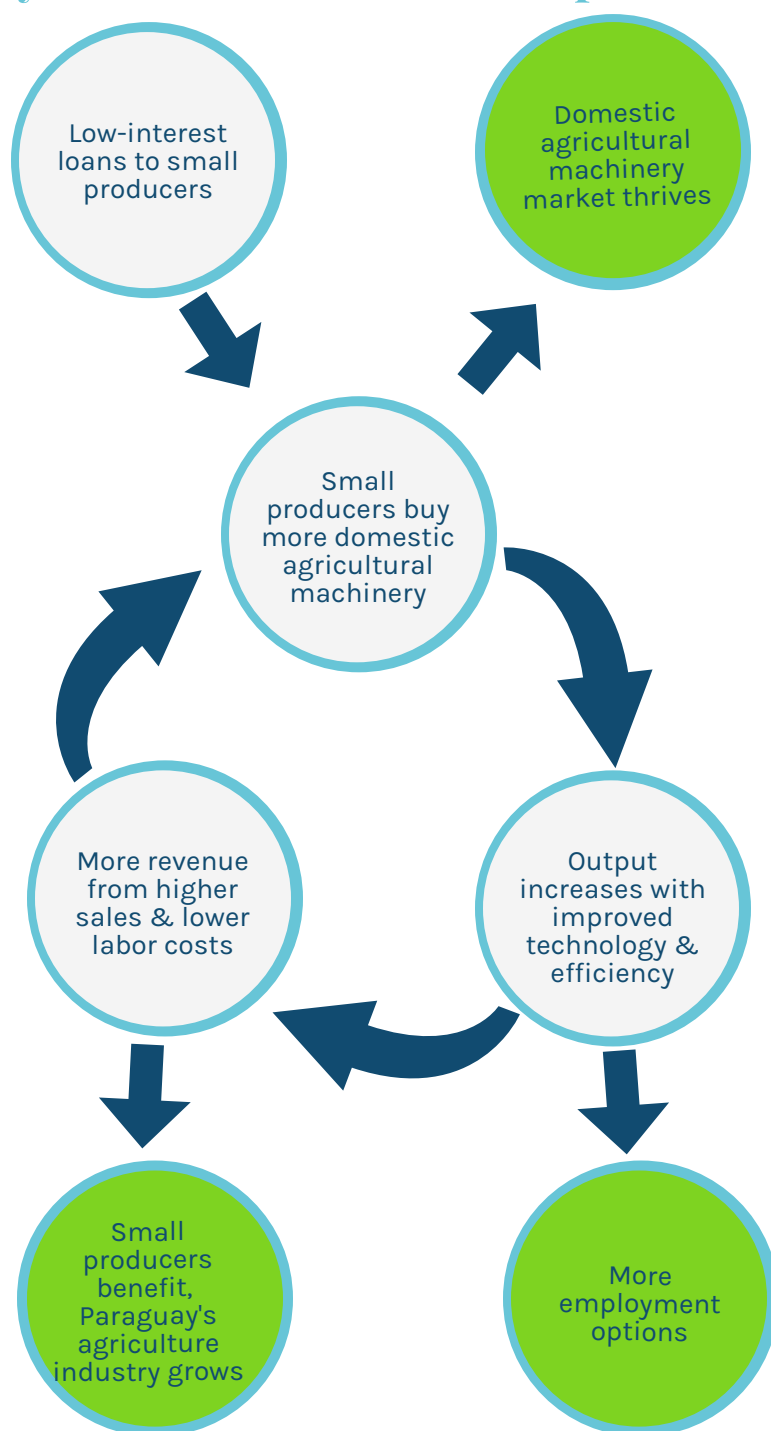
## Government aid for small producers

Paraguay's government should provide low-interest loans for capital to small producers to sustain domestic demand, advance the industrialization of the economy.

Brazil enacted a similar policy, and small farmers were big buyers in the machinery market.

**Government support of small producers is crucial for the future of the industry.**

# Government subsidies start a cycle of sustainable development



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# Expanding Financial Services

**Most Paraguayans lack access to basic financial services.**

Individuals and SMEs both felt this burden in a profound way during the COVID-19 pandemic. Furthermore, this pandemic exposed the need for the **formalization of the economy** in order to access social services and government protections.

By expanding and investing in **Credit Unions**, Paraguayans can bank with membership-based, community-oriented organizations that offer needed financial services.

Paraguay already has the infrastructure and connections in place. **CENCOPAN**, a Paraguayan Cooperative network, is a member of the **World Council of Credit Unions (WoCCU)**, a non-profit that provides numerous services, financial education, product development, and an international network.



# Bringing Paraguayans into Banks

CENCOPAN has 50 affiliates throughout Paraguay that offer financial services to members from any participating cooperative.

By **increasing** CENCOPAN's network within Paraguay, **encouraging** credit union membership by stressing community ideals, and **capitalizing** on the WoCCU's resources, Paraguay can begin to formalize the economy to promote the safety and well-being of Paraguayans.

## Services Provided by the WoCCU



### Agricultural Finance

Works with small farmers or agricultural SMEs to grow businesses or access export markets, as well as aggregate borrowing risk through alternative assets or other means.

### Financial Literacy Training

Provides a curriculum for financial literacy based in budgeting, savings, and credit, which would be vital for people in banks for the first time.



### Institutional Strengthening

Serving as a consultant, the WoCCU offers services to help grow community lending unions into developed financial institutions set for growth, including modern IT services.

### Shared Global Network

With CENCOPAN as a member of WoCCU, the affiliated cooperatives have access to a global community of 85,400 Credit Unions for sharing information and ideas.



By expanding CENCOPAN, more Paraguayans will be able to access previously unattainable financial services, allowing for the potential for economic growth.

COVID-19 demonstrated the need for these expanded financial services, as many were unable to access social services, such as Ñangareko or Pytyvõ.

# Past Successes

After the Guatemalan Civil War, the WoCCU was brought in to help stabilize & grow credit unions. As a result, Guatemala is now regarded by many as the model for credit unions throughout Latin America.



## Moving Forward

Bringing more people into banks stimulates the economy & gradually formalizes the economy.

This pandemic has made it apparent that Paraguay needs a greater tax base. The graphic (pictured right) illustrates the negative correlation between informal employment & tax revenue.

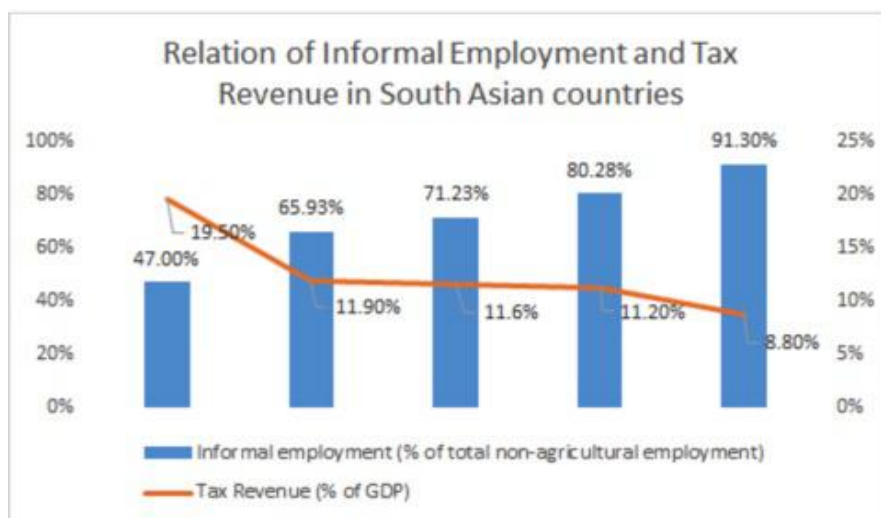
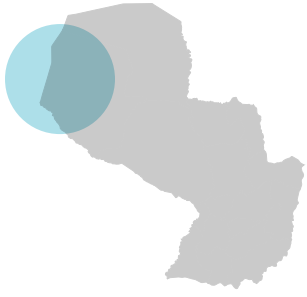


FIGURE: Relation of Informal Employment and Tax Revenue in South Asian countries/ Source: World Bank

As the use of **financial services** & the **formalization of the economy** progresses, with **expanding broadband coverage** across the country, Paraguay can start the conversation about **financial technology**. With a need for E-commerce and other **mobile-mediated money transferring solutions**, banking is an imperative step needed to address this problem.

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## Acknowledgements

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First and foremost, we are **immensely grateful** to the many Paraguayans who generously gave their time and their perspective to our research team. In spite of their busy schedules, we met with representatives of many sectors: energy, development, economy, education, innovation, business, sociology, technology, the media, the academy.

We specifically thank the DukeEngage Office at Duke University, Richard Rubin Mentorship Program at Swarthmore College, Dionisio Borda, Nahum Dam, Bruno Defelippe, Pedro Ferreira, Gabriela Galilea, Milda Rivarola, Estela Ruíz Díaz, Gustavo Setrini and everyone who spoke with us.

## Disclaimer

This is the work of the authors & not the opinions of Duke University or its representatives or those with whom we spoke in Paraguay. Any errors and shortcomings are our own.

## Who We Are

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