COUNTRY PROFILE: PARAGUAY

Overview of Paraguay's health system

PREPARED BY: *The Bertha Centre for Social Innovation and Entrepreneurship, Graduate School of Business, University of Cape Town*

AUTHORS: *Joseph Lim, Eldi van Loggerenberg, and Rachel Chater*

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SOCIAL INNOVATION IN HEALTH INITIATIVE

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LIST OF ABBREVIATIONS

AIDS	Acquired immune deficiency syndrome
HIV	Human immunodeficiency virus
IPS	Institute of Social Welfare
MDG	Millennium Development Goal
MPHSW	Ministry of Public Health and Social Welfare
PEI	Institutional Strategic Plan
SNS	Paraguay Health National Service
TB	Tuberculosis
US$	United States dollar
WHO	World Health Organization

EXECUTIVE SUMMARY

Paraguay is in South America and landlocked between Brazil, Bolivia and Argentina. It has a population of nearly 6.6 million. The majority of people are of Mestizo descent; almost 60% of whom live in urban areas. Approximately 90% are Catholic and the remainder practise other denominations of Christianity. After decades of military dictatorship under Alfred Stroessner, the government is currently a constitutional republic with Horacio Cartes as president. While most of the workforce is engaged in agriculture, the economy has enjoyed continual growth largely due to agricultural exports, with a projected growth of 4.5% in 2015. However, poverty is widespread and socioeconomic inequality is high. The health system, which faces a major burden of non-communicable diseases, has made variable progress in achieving Millennium Development Goals 4, 5, and 6. The health sector is highly fragmented and suffers uneven distribution of insurance coverage, infrastructure and health-care workers. Most research in Paraguay is conducted in the health sector, underscoring the government's emphasis on health research and innovation.

1. COUNTRY AT A GLANCE

Component	Details/indicator/year	Data
Population	Total population (2014)	6 552 518[a]
	Percentage of urban vs. rural (2014)	Urban: 59, rural: 41[a]
Geography	Paraguay is landlocked in south-central South America. The Paraguay River divides the country into the Región Oriental, an extension of the Brazilian plateau, and the Región Occidental (Chaco Boreal), a featureless flatland. The climate is subtropical in most of the Eastern Region and tropical in most of Chaco Boreal.[b]	
Ethnic composition	Almost all mestizo, with a majority of Guaraní descent.[b]	
Government	Paraguay's constitution states that the government is a representative, pluralist democracy. The president serves as the head of state and government. The legislature is comprised of the Chamber of Deputies and the Senate. Members of the legislature and the president are elected to five-year terms. The highest court in the judicial system is the Supreme Court.[b]	
Economic and infrastructure data	GDP per capita (purchasing power parity) (2014)	US$ 8 911.4 (current international dollars)[a]
	Economic growth as percentage of GDP (2014)	4.7[a]
	Gini-index (2013)	52.4[c]
	HDI (2014)	0.679 (ranked 112)[d]
	Percentage of people below national poverty line (2014)	22.6[a]
	Percentage of unemployment (2014)	4.5[a]
	Percentage of adult literacy (2014)	95[a]
	Education gender parity index (2012)	1.00[a]
	Percentage of population with access to sanitation (2015)	Access to improved drinking water: 98 (urban: 100, rural: 95)[a] Access to improved sanitation facilities: 89 (urban: 96, rural: 78)[a]
	Percentage of population with access to electricity (2012)	98.2[a]
Health system	Health expenditure as percentage of GDP (2014)	9.8[a]
	Annual public expenditure on health as percentage of total health expenditure (2014)	45.9[a]
	Health expenditure per person (2014)	US$ 464 (current US$)[a]
	Number of physicians per 1 000 population (2012)	1.2[a]

	Number of nurses and midwives per 1 000 population (2012)	1.0[a]
	Percentage of births with skilled attendants (2011)	96[e]
	Average life expectancy in years (2014)	73[a]
Disease burden	HIV prevalence as percentage among adults aged 15–49 (2014)	0.4[f]
	Deaths due to AIDS (2014)	< 500[f]
	Deaths due to non-communicable diseases (2012)	23 000[g]
	Deaths due to homicide (2012)	649[g]
	Maternal mortality rate per 100 000 births (2015)	132[a]
	Infant mortality rate per 1 000 births (2015)	18[a]
	Under-five mortality rate per 1 000 births (2015)	21[a]
Top five causes of mortality as percentage of deaths (2012)[h]	1. Ischaemic heart disease	13
	2. Stroke	12.5
	3. Diabetes mellitus	6.7
	4. Road injury	5.3
	5. Lower respiratory infections	5.2
Top five causes of DALYs (2012)[h]		ND
	1. Cardiovascular diseases and diabetes	ND
	2. Neuro-psychiatric conditions	ND
	3. Other non-communicable diseases	ND
	4. Maternal/neonatal/nutritional	ND
	5. Unintentional injuries	ND

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index; DALYs: disability-adjusted life years; ND: not determined.
Sources: [a] World Bank (2015b); [b] Painter (2015); [c] UNDP (2013); [d] UNDP (2015); [e] UNICEF (2014); [f] Joint United Nations Programme on HIV and AIDS (2014); [g] WHO (2015b); [h] WHO (2015c).

2. COUNTRY CONTEXT

2.1 COUNTRY HISTORY AND POLITICAL SYSTEM

Originally colonised in 1537 by the Spanish Empire, Paraguay gained independence on 14 May 1811. The Paraguayan War, also known as the War of the Triple Alliance, was waged against Argentina, Brazil and Uruguay and it lasted from 1865 to 1870. Paraguay lost over half of its population and large amounts of land, leaving it landlocked without access to the Atlantic Ocean. Territory was gained in the west during the Chaco War against Bolivia from 1932 to 1935 (BBC, 2012a).

General Alfredo Stroessner led a successful coup in 1954 and established a military dictatorship that was in power for over 30 years. Stroessner's regime ended in 1989 in a coup led by General Andres Rodriguez, resulting in Stroessner's exile and the election of Rodriguez as president. However, Stroessner's centre-right National Republican Association-Colorado Party prevailed in parliamentary elections. The first free multi-party elections were held in 1993, with the Colorado Party winning the majority of seats in the legislature and the Colorado Party candidate, Juan Carlos Wasmosy, winning the presidency (BBC, 2012a).

Although the Colorado Party was elected again in 1998 with the victory of presidential candidate, Raul Cubas, allegations of election fraud emerged. Cubas resigned the following year after the assassination of Vice-President Luis Maria Argana, resulting in a caretaker administration with Luis Gonzalez Macchi as president. Instability remained when General Lino Oviedo attempted a failed coup and was exiled in 2000, while Macchi survived an impeachment vote in 2002 amid protests demanding his resignation. The Colorado Party remained in power after the victory of Nicanor Duarte Frutos in the presidential elections in 2003. Macchi was later indicted on charges of corruption and sentenced to six years of imprisonment in 2006, while Oviedo was arrested upon an attempted return to the country in 2004 (BBC, 2012a).

In 2008, former bishop Fernando Lugo from the centre-left Patriotic Alliance for Change was elected president ending the Colorado Party's rule. After a series of scandals, Lugo was later deposed in 2012 over the mismanagement of a land eviction that resulted in 17 deaths and Vice-President Federico Franco completed the term. In 2013, the Colorado Party won national elections with Horacio Cartes as president (BBC, 2012a).

2.2 POPULATION

Paraguay's population of 6 552 518 (World Bank, 2015b) is nearly homogeneous, comprised of nearly all mestizos, with the majority of Guaraní descent (Painter, 2015). Nearly 60% of the population reside in urban areas (World Bank, 2015b). Spanish and Guaraní are the official languages, with at least half the population bilingual. About nine-tenths of the population practise Roman Catholicism, while a minority are Protestant (Painter, 2015). Life expectancy is 73 years (World Bank, 2015b) with a median age just less than 24 years (United Nations, 2015).

2.3 ECONOMY

Table 1. Economic measures of Paraguay

Indicator/year	Data
GDP per capita (purchasing power parity) (2014)	US$ 8 911.4 (current international dollars)[a]
Economic growth as percentage of GDP (2014)	4.4[a]
Debt as percentage of GDP (2014)	23.8[b]
Gini-index (2013)	52.4[c]
HDI (2014)	0.679 (ranked 112)[d]
Percentage of people below national poverty line (2014)	22.6[a]
Percentage of unemployment (2014)	4.5[a]

GDP: gross domestic product; gini-index: measures the extent to which the distribution of income (or consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution; HDI: human development index.
Sources: [a] World Bank (2015b); [b] IMF (2015); [c] UNDP (2013); [d] UNDP (2015).

Paraguay's economy relies heavily on agriculture, foreign trade and the informal sector, which absorbs over 80% of the workforce (ILO, 2014). Exports, particularly soybean and beef, constituted 40% of total exports in 2013. Other notable components of Paraguay's economy include microenterprises and urban street vendors as well as subsistence farmers in rural communities.

Paraguay has made significant improvements in the provision of access to clean water, telephone services, electricity, primary health care, and primary education. Conditional cash transfer programmes have also been implemented in order to improve the lives of the poor. Economic growth is expected to reach 4.5% in 2015 (World Bank, 2015a).

However, about one fourth of the population is impoverished and this is compounded by socioeconomic inequality as indicated by a Gini-index of 52.4 (UNDP, 2013). Other significant challenges include the deceleration of emerging economies and regional performance and the resulting impact on exports and foreign direct investment. The government has recently drawn up a National Development Plan for the period from 2014 to 2030, focusing on poverty reduction, social development, inclusive growth and engagement in the global economy (World Bank, 2015a).

2.4 ENVIRONMENT

Paraguay is landlocked in South-Central South America. Division by the Paraguay River results in two distinct regions: the Región Oriental and the Región Occidental, otherwise known as the Chaco Boreal. The former is an extension of the Brazilian plateau, while the latter is a generally flat and featureless tropical region. The climate is subtropical in most of the Eastern Region and tropical in most of Chaco Boreal. Precipitation varies from 1 650 mm in the southeast to 1 400 mm along the Paraguay River. Periodic floods and droughts sometimes result in agricultural losses (Painter, 2015).

3. HEALTH SYSTEM

3.1 OVERVIEW

The predominant burden of disease in Paraguay stems from non-communicable diseases (WHO, 2015b). Other challenges include maternal and infant mortality and infectious diseases such as malaria. Paraguay has achieved varied success in attaining Millennium Development Goals (MDGs) 4, 5, and 6. Challenges in the health system include a lack of coordination, fragmentation (PAHO, 2009), a lack of access to universal health care and gaps in quality of care due to the uneven distribution of human resources and infrastructure. Furthermore, health insurance coverage remains low and mostly concentrated in Asunción (PAHO, 2012).

3.2 ORGANIZATION

Paraguay's National Health System is led by the Ministry of Public Health and Social Welfare (MPHSW), which provides health care strategy. However, the MPHSW has overlapping functions with the Institute of Social Welfare (IPS), while the IPS overlaps with the private sector. Hence, a lack of coordination results in duplication of efforts and uneven distribution of health facilities and services. Although decentralisation was passed as a reform in 1996, the country has not legally, administratively, or financially implemented actions requiring decentralisation agreements between the MPHSW and individual municipalities or institutions (PAHO, 2009).

The health system consists of four levels (Flanagan, 2012):

1. **Primary care**: services provide for most remote rural communities of fewer than 1 000, using health posts staffed by volunteers, rotating nursing staff and birth attendants.
2. **Secondary care**: services provide for rural and peri-urban communities with populations between 2 000 and 20 000, with centres generally comprising of a few beds and a team of doctors, nurses, dentists, pharmacists, biochemists and administrative and support staff (often filled by volunteer or part-time staff).
3. **Tertiary care**: hospitals and regional health-care centres provide general medical services, including diagnostics, treatment of chronic illness and some specialised services.
4. **Quaternary care**: comprehensive health care services are provided to treat specialised conditions — most quaternary care is located in the capital, including the National Hospital, Institute of Tropical Medicine, Central Laboratory, Urgent Care Hospital and the Cancer and Burn Hospital.

The system has been criticised for its lack of coordination and communication between different levels and institutions resulting in delays in service upgrades and in the duplication of services. The division between the public, semi-public and private sectors also complicates the distribution of services. Vertical interventions by international aid and development organisations as well as donor groups also contribute to the fragmentation in the health care system.

Traditional Guaraní healers play a significant role in the health system, dispensing herbal remedies and providing geographically and financially accessible services to isolated rural populations (Flanagan, 2012).

3.3 CAPACITY

Table 2. Number of facilities and health workers per population, Paraguay

Indicator/year	Data
Ministry of Public Health and Social Welfare (2011)[a]	
Family health units	503
Dispensaries	12
Health posts	669
Health centres	105
District hospitals	33
Regional hospitals	17
Specialised hospitals	10
Specialised centres	9
Maternal and child hospitals	7
Blood banks/haemotherapy centres	29
Institutes of social welfare (2011)[a]	
Health posts	48
Peripheral clinics	5
Health units at primary care level	25
Hospitals at secondary level	15

Private sector (2007)[b]	
Hospital-sanatoriums	143
Clinics with hospitalisation	127
Clinics without hospitalisation	240
Physician's offices	240
Dentist offices/clinics	267
Prepayment facilities	85
Haemodialysis facilities	9
Diagnostic imaging facilities	15
Blood banks/haemotherapy centres	20
Beds per 1 000 population (2011)	1.2[a]
Physicians per 1 000 population (2012)	1.2[c]
Nurses and midwives per 1 000 population (2012)	1.0[c]
Dentists per 1 000 population (2008)	0.6[d]

[a] Alum & Cabral de Bejarano 2011); [b] PAHO (2009); [c] World Bank (2015a); [d] Centro Paraguayo de Estudios de Población (2009).

The overall network of health facilities in Paraguay is hindered by the lack of human resources and supplies and unplanned growth (PAHO, 2009). Furthermore, there is an inequitable distribution of health workers, with 70% concentrated in the Asunción metropolitan area and a lack of infrastructure in rural areas. In addition, many health workers migrate due to poor working conditions (Global Health Workforce Alliance, 2015).

There is a shortage of public health training programmes for human resource training. Furthermore, the model used to train health workers is incongruent with the demands of the health sector and no system is in place to regulate medical resident internships. A total of 10 medical schools and 109 other health-training facilities exist, including the National University of Asunción. There is currently an excess of doctors (Alum & Cabral de Bejarano, 2011).

3.4 POLICY ENVIRONMENT

The World Health Organization (WHO) (2014) states:

> The Constitution of 1992 established that the State shall protect and promote health as an essential human right and to the best interest of the community (art. 68). Values assumed by the health sector are universal coverage, integrality of its services, equitable benefits, solidarity and social responsibility.
>
> The Paraguay Health National System (SNS) is regulated by Law 1032/96, and establishes that the system will provide services through the public, private, or public-private subsectors, from health insurances and universities. (art. 4). It includes the establishment of the National Health council as a coordinating body of inter-institutional participation of the public and private health sector (art. 19).
>
> MoH takes the leading role for programs and activities of the health sector to guide and regulate public and private actions that impact individual and collective health (decree 21376/98). During 2005-2008, the motto "Building a State Policy Together – Health for All with Equity" has led the work in health.

Between 2008 and 2013, the Institutional Strategic Plan (PEI) was developed that reflected the Government health goals. The National Plan of Development and the National Plan of Extreme Poverty Reduction have been the basis for the PEI. The PEI for the 2013-2018 period is based on principles of universality, social inclusion, social equity, integrality, complementarity, efficiency, quality, sustainability and sustainability. It is oriented towards four cross-sectorial approaches: Right to health; gender equity; inter-culturality; and social determinants. The PEI 2013- 2018 has identified three pillars for work: 1. strengthening the steering role; 2. strengthening the provision of health services (promotion, prevention, attention, and rehabilitation) focused on right, equity, gender and inter-culturality; and 3. Guaranteeing transparency, efficiency, efficacy, civic participation and management quality.

WHO (2014) lists the following seven strategic priorities for Paraguay:

1. Development of cross-sectorial structural changes that prioritize health as a human right and social asset. Changes that are guaranteed by the State, with a focus on gender equality, inter-culturality, participation and social works, in terms of life quality.
2. Strengthening the National Health System based on the Primary Health Care Strategy, focused on social determinants and through the organizations of service networks.
3. Incorporation of health policies in social sustainable development.
4. Development of human resources in a triple perspective, normative, knowledge management, and work approach.
5. Strengthening the information system, with emphasis in basic statistics, epidemiological information and information on inequalities, research and communication for the knowledge management for decision-making.
6. Attention to risk factors and social determinants for high burden epidemic diseases, as well as communicable, non-communicable, and neglected diseases that affect family and community health.
7. Development and strengthening of PAHO/WHO as an organization of excellence in Paraguay for technical cooperation in health, through the exercise of their mandates with leadership, responsibility, and accountability.

3.5 HEALTH FINANCING

Table 3. Health financing data for Paraguay, 2014

Indicator	Data
Total health expenditure (current US$)	US$ 3 040 974 000
Public expenditure on health as percentage of total expenditure	45.9
Public expenditure on health as percentage of general government expenditure	11.9
Out-of-pocket expenditure on health as percentage of total private expenditure	91.3
Private insurance expenditure on health as percentage of total private expenditure	8.7
Expenditure of non-profit institutions serving households as percentage of total private expenditure	-
External funding (current US$)	11 676 000
Health expenditure as percentage of GDP	9.8

GDP: gross domestic product.
Source: WHO (2015a).

The public sector accounts for nearly 40% of health expenditure, while out-of-pocket payments account for over 90% of private expenditure (WHO, 2015a). Health insurance coverage remains low and is concentrated in the capital. Social security covers 17% of the economically active population, while only 12.2% of the indigenous population had health insurance as of 2008 (PAHO, 2012).

3.6 COUNTRY DISEASE PROFILE

Table 4. Disease profile for Paraguay

Indicator/year	Data
Age-standardized DALYs per 100 000 for communicable diseases (2012)	5 478[a]
Age-standardized DALYs per 100 000 for non-communicable diseases (2012)	21 444[a]
Age-standardized DALYs per 100 000 for injuries (2012)	3 940[a]
Under-five mortality rate per 1 000 live births (2015)	21[b]
Infant mortality rate per 1 000 live births (2015)	18[b]
Maternal mortality rate per 100 000 live births (2015)	132[b]
Estimated cases of malaria (2013)	0[a]
Estimated deaths due to malaria (2013)	0[a]
Prevalence of TB per 100 000 (2014)	55[a]
Incidence of TB per 100 000 (2014)	43[a]
Deaths due to TB among HIV-negative people per 100 000 (2013)	2.9[a]
Prevalence of HIV as percentage among adults aged 15–49 (2014)	0.4[c]
Deaths due to AIDS (2014)	< 500[c]
Deaths due to non-communicable diseases (2012)	23 000[a]
Deaths due to homicide (2012)	649[a]
Percentage of top five causes of mortality (2012)[d]	
1. HIV/AIDS	13.0
2. Stroke	12.5
3. Diabetes mellitus	6.7
4. Ischaemic heart disease	5.3
5. Lower respiratory infections	5.2
Top five causes of DALYs (2012)[d]	
1. HIV/TB/malaria	ND
2. Cardiovascular diseases and diabetes	ND
3. Other noncommunicable diseases	ND
4. Neuro-psychiatric condiitons	ND
5. Maternal/neonatal/nutritional	ND

DALYs: disability-affected life years; TB: tuberculosis; ND: not determined.
Sources: [a] WHO (2015b); [b] World Bank (2015a); [c] Joint United Nations Programme on HIV and AIDS (2014); [d] WHO (2015c).

Maternal mortality is a significant problem in Paraguay, with the most recent estimates at 132 deaths per 100 000 births in 2015 (World Bank, 2015b), a slight increase from 125.3 in 2009 (Alum & Cabral de Bejarano, 2011). The main causes of maternal mortality are postpartum haemorrhage, preeclampsia, eclampsia and sepsis. Infant mortality has increased from 15.5 deaths per 1 000 population in 2009 (Alum & Cabral de Bejarano, 2011) to 18 in 2015 (World Bank 2015b), while under-five mortality remained relatively unchanged at 23 deaths per 1 000 in 2009 (Alum & Cabral de Bejarano, 2011) and

21 deaths in 2015 (World Bank, 2015b). Overall, there has been insufficient progress in achieving MDGs 4 and 5 (PAHO, 2009).

Tuberculosis (TB) has declined from 38.4 cases per 100 000 population in 2005 to 32.8 in 2010 (Alum & Cabral de Bejarano, 2011), though it has increased to 55 in 2014 (WHO, 2015b). The last significant epidemics of malaria occurred in 1999 and 2000, with over 16 000 infections (Alum & Cabral de Bejarano, 2011). Overall, Paraguay has had mixed results in achieving targets in MDG 6, having halted the spread of malaria without significantly decreasing the prevalence of TB (PAHO, 2009). While infectious diseases remain prevalent, non-communicable diseases comprise most of the burden of disease (WHO, 2015b). Other challenges include dengue epidemics, cervical cancer and Chagas disease (PAHO, 2009). Lack of access to health care and gaps in the quality of service are considered to be the most significant factors contributing to the country's disease burden (PAHO, 2012).

4. INNOVATION ECO-SYSTEM

The National Council of Science and Technology has promoted health research and innovation since 2007 in an effort to increase the country's profile in scientific publications. Just under a quarter (23%) of the country's researchers are based in the health care sector and contribute the majority of international publications. The MPHSW released a national health research strategy in 2010 and also coordinated the design of the Health Information System. This resulted in a Strategic Plan for 2007–2011 that included a new policy for information management as well as information and communications technology (PAHO, 2012). Other scientific and technological entities include the National Board of Science and Technology, the National Secretariat of Technology, the legally mandated System of Science, Technology and Innovation, the National Board of Science and Technology, and the National Fund of Science and Technology (PAHO, 2009).

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