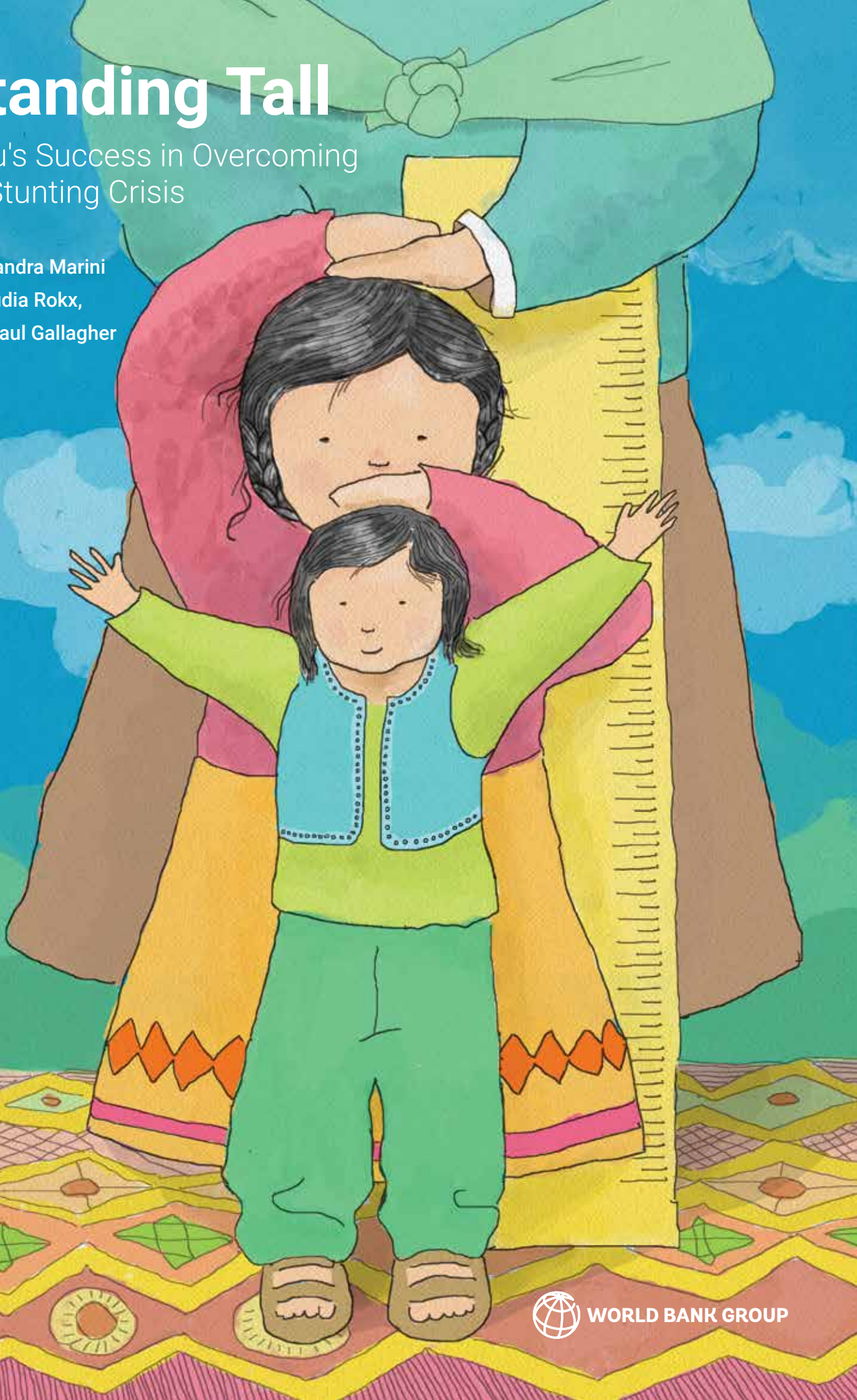


Standing Tall

Peru's Success in Overcoming
its Stunting Crisis

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& Claudia Rokx,
with Paul Gallagher



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This book tells the story of how Peru more than halved its high rates of stunting among under-five in less than a decade.

Great minds came together after persistent efforts from civil society to take concrete and affective actions. Widespread understanding and awareness about the devastating effects of chronic malnutrition was created thanks to a superb communication strategy. All the while 'stunting' remained on the political agenda as a serious human development and economic issue.

Resource flows and existing programs were reviewed and reformed while budget was reallocated to those areas with the highest burden problems. Under the leadership of the Ministry of Economy and Finance's result based approach to spending resources on nutrition, sectors converged and worked toward a common goal. The importance of real time data and well-functioning systems was recognized early and action taken.

Parents, local governments, and health professionals were encouraged, using clever nudging techniques, to seek and provide better nutrition and health services and change behaviour towards better feeding practices for children in their first 1,000 days of life.

Chronic malnutrition often results in stunted children who will suffer the negative consequences of being stunted, with a stunted brain being the most devastating consequence. Peru recognized its children are its future, made fighting chronic malnutrition everyone's business and took long-lasting good governance political decisions.

Peru more than halved its stunting rates in eight years from 28 percent in 2008 to 13 percent in 2016.

This book is about how Peru did that.

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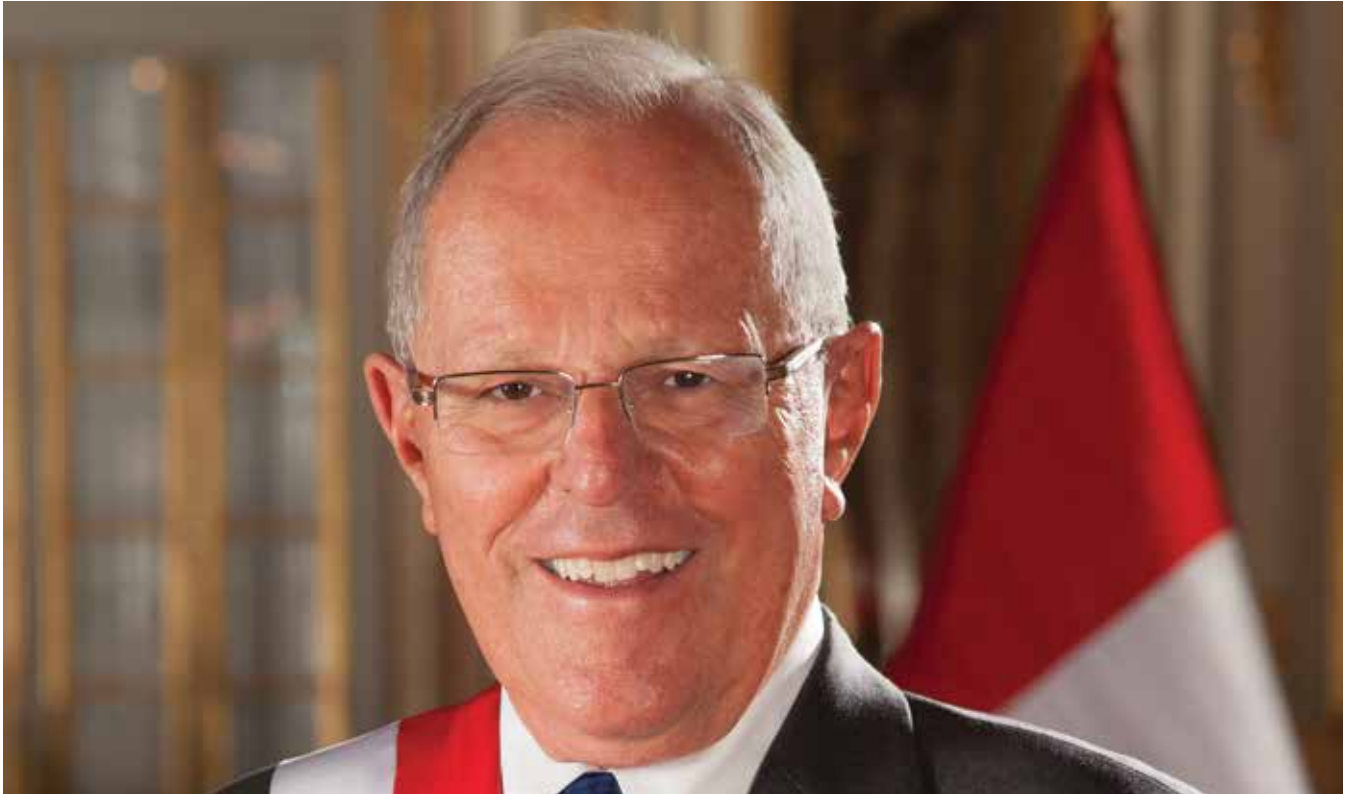
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FOREWORD I



Between 2005 and 2016, the rate of chronic malnutrition in children declined from 28 percent to 13 percent, an achievement of which the Government of Peru is very proud.

We recognize that this is the result of efforts of successive governments that maintained an effective public policy. It relies on a joint strategy closely coordinated among the different levels of government, with the collaboration of several national and international institutions and organizations. We would like to extend special thanks to the World Bank for its support and commitment. The organization helped us identify and apply the evidence from other countries, which demonstrated feasible, cost-effective interventions for combating chronic malnutrition.

Our country still faces major challenges, however, and we are committed to continuing this work. Our government has proposed reducing chronic malnutrition in children from around 13 percent to 6.4 percent and anemia from 43.6 percent to 19 percent between 2016 and 2021. In other words, our goal is to eliminate anemia as a public health problem. To this end, we have implemented the National Plan

to Reduce and Control Anemia and Chronic Malnutrition. Many sectors are committed to this challenge, including the Ministry of Health, regional and local governments, institutions, community-based organizations and citizens. If we want a developed country, our children must be well-nourished. It is the only way to definitively break the cycle of poverty. We are implementing a broad water and sanitation program, a key requisite for public health.

At the end of our government administration, we want to be able to say that no child in Peru suffers from anemia or chronic malnutrition.

This book details the comprehensive strategy Peru implemented to achieve significant progress in reducing chronic malnutrition. We believe that other countries around the world facing similar challenges can replicate this experience, adapting it to their regional and cultural characteristics.

Pedro Pablo Kuczynski Godard
President of the Republic of Peru

FOREWORD II



Stunting is a silent killer. It deprives children of their right to grow, to thrive, and to prosper. Today, stunting snatches away the opportunity for 156 million children around the world to reach their full potential, locking them into lives of poverty and exclusion before their 5th birthday. It not only diminishes the development of children, it damages communities and entire countries.

The global epidemic of childhood stunting is one of the most serious threats to humankind, and it has escaped the world's attention for far too long. Children who are stunted have up to 40 percent less brain volume by the time they get past their first 1,000 days. This is an absolute stain on our collective conscience.

How will countries compete in an increasingly complex and digitized economy when one out of four of their children literally have fewer neuronal connections, which are the foundation of human capital? Creating equality of

opportunity is the core of our mission at the World Bank Group. But we can't begin to think about about equality of opportunity if children begin their lives unable to participate or to compete in the economy of the future.

Now is the time for action. The international community has already included nutrition and early childhood development among the Sustainable Development Goals. One of the targets of the SDGs aims to reduce stunting by 40 percent by 2025.

Globally, we have evidence of interventions that work – that are feasible and cost-effective in driving down chronic malnutrition. Peru understood that its biggest asset is its people. So the government worked with the World Bank Group to provide financing to women to incentivize them to take advantage of available programs designed to cut stunting. In just 8 years, Peru cut its stunting rate from 28 percent to just 13 percent last year.

A civil society movement put chronic malnutrition on the political agenda in Peru, and it took sustained political commitment at the highest levels to bring the stunting rate to the lowest level in decades. Peru has shown the world that country-wide engagement can reduce stunting, creating a path towards a brighter future for all children.

This report details how Peru's strong political commitment and good policies, coupled with economic growth, broke the cycle of poverty perpetuated by stunting. The country's experience demonstrates that investing in nutrition in the first 1,000 days of a child's life is critical to ending the world's stunting crisis.

But Peru is not completely there yet. There are still important challenges in need of more effective solutions. Stunting levels remain high in rural, remote areas. There are increasing rates of individuals who are overweight and high rates of anemia.

We need to work together and leverage every dollar of development assistance to help governments make investments in the early years a top priority. The World Bank Group is committed to the twin goals of eliminating extreme poverty and boosting shared prosperity. We cannot get there unless we tackle stunting with the speed and the scale that this crisis requires.

We have in front of us the opportunity to unlock the human potential of millions of children. Let's seize that opportunity together.

Jim Yong Kim
President
World Bank Group



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ABBREVIATIONS, ACRONYMS, REPORTS AND ORGANIZATIONS

Annual Balance of Actions to Reduce Chronic Child Malnutrition	- Score card on government performance against targets
Apega	- Peruvian Gastronomical Association (Asociacion Peruana de Gastronomía)
Budget Support Agreements	- (Convenios de Apoyo Presupuestario)
CARE Peru	- Peru branch of international humanitarian aid organization CARE International
CENAN	- National Food and Nutrition Center (Centro Nacional de Alimentación y Nutrición)
CCT	- Conditional Cash Transfer
Cordon Bleu	- The world's largest network of culinary and hospitality schools
Crecer (To Grow)	- National Strategy for Combating Poverty and Chronic Child Malnutrition in Peru
CRED	- Control of Growth & Development for infants and children in Peru (Control de Crecimiento y Desarrollo)
Cuna Mas (More than a Crib)	- Early childhood development program in Peru
CUI	- National Identity Code (Código Único de Identidad)
DBM	- Double Burden Malnutrition
GDP	- Gross Domestic Product
GRADE	- Group for the Analysis of Development (Grupo de Analisis para el Desarrollo)
DIRESA	- Regional Health Directorates (Direcciones Regionales de Salud)
ENDES	- Demographic and Family Health Survey (Encuesta Demográfica y de Salud Familiar)
EU	- European Union
FED	- Performance Incentive Fund (Fondo Estimulo al Desempeno)
FSC	- Food Safety Commission (Consejo de Seguridad Alimentaria)
INEI	- Peru's National Institute of Statistics (Instituto Nacional de Estadística e Informática)
The Initiative	- The Initiative against Chronic Infant Malnutrition
Juntos (Together)	- CCT program
FSC	- Food Security Strategy (Estrategia de Seguridad Alimentaria)
MCLCP	- Poverty Reduction Roundtable (Mesa de Concertación para la Lucha Contra la Pobreza)
MEF	- Ministry of Economy and Finance (Ministerio de Economía y Finanzas)
MIDIS	- Ministry of Development and Social Inclusion (Ministerio de Desarrollo e Inclusion Social)
MINSAL	- Ministry of Health (Ministerio de Salud)
NGO	- Non-Governmental Organization
Padron Nominado (Nominal Registry)	- National registry of children under six
PAN	- Articulated Nutrition Budget Program (Programa Articulado Nutricional)
PCM	- Presidential Council of Ministers (Presidencia Consejo de Ministros)
PRONAA	- Food distribution program in Peru (Programa Nacional de Asistencia Alimentaria)
Progresas/Oportunidades/Prospera	- Mexico's CCT program
Qali Warma	- School feeding program in Peru

- SDG** - Sustainable Development Goal
- SIAF** - Integrated Financial Management System (Sistema Integrado de Administración Financiera)
- SIGA** - Integrated Administrative Management System (Sistema Integrado de Gestión Administrativa)
- SIS** - Peru's Integral Health Insurance Program (Seguro Integral de Salud)
- RBB** - Results-Based Budgeting (Presupuesto por Resultados)
- RPP** - Peruvian radio station (Radio Programas del Peru)
- RENIEC** - National Registry for Identification and Civil Status (Registro Nacional de Identificación y Estado Civil)
- UNICEF** - United Nations International Children's Emergency Fund
- WBG** - The World Bank Group
- WHA** - The World Health Assembly
- WHO** - World Health Organization

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1. SETTING THE SCENE

This is the story of how Peru more than halved stunting rates in less than a decade

BOX 1: An "Invisible Epidemic"

Chronic malnutrition, or stunting, means children grow too slowly, reducing their physical abilities, cognitive and emotional development. It damages a child's health, affects the growth of the brain and intelligence. It reduces the time they spend in school and increases the likelihood that poor children will remain poor as adults. In addition, as adults they face an increased risk of chronic diseases, such as diabetes, heart problems and obesity.

Stunting not only holds back a child's growth and development, but it holds back the growth and

development of a country. For decades, stunting was an "invisible problem" in Peru. Parents, especially in poor, indigenous communities, often thought that their kids were growing normally, when they were not. Parents would compare the stature of their children with other stunted children and assume their height was normal. The country's lack of progress was even more striking given its rapid economic growth over much of the decade. It perpetuated the cycle of poverty down the generations, holding back the development of children and the country.

Standing Tall: Peru's success in overcoming its stunting crisis

This publication tells the story of how Peru, in less than a decade, more than halved its rate of chronic malnutrition, or stunting, among children under five from around 28 percent in 2008 to around 13 percent in 2016.

In 2005 Peru had one of the highest rates of chronic malnutrition in Latin America. The rate had hardly changed despite the country enjoying some of the fastest rates of economic growth in the region and significant investments in food and nutrition programs.

Since then, Peru has found a recipe for successfully reducing chronic malnutrition to give its children and the country a better future.

What was Peru's recipe and what were the crucial ingredients?

1. Establishing political commitment, cooperation and coordination

Persistent lobbying by civil society convinced presidential candidates during successive election campaigns from

2006-2016 of the tragic consequences of stunting and how vital it was to take significant steps to reduce its impact on the development of children, communities and the country.

Peru's politicians committed to reducing stunting and set clear goals after a coalition of international and local organizations -- The Initiative against Chronic Infant Malnutrition (or the "Initiative") and the Mesa de Concertación de Lucha contra la Pobreza (MCLCP -- Poverty Reduction Roundtable) -- helped to put the issue on the national agenda in the 2006 election. It has been on the agenda ever since.

MCLCP, set up by Peru's government, provided a vital platform for national, regional and municipal government representatives and grass-roots organizations to promote children's rights, including lowering rates of chronic malnutrition. By 2006 they were promoting a list of priorities for investment in early child development. A year later these were enshrined in the government's budget planning and paved the way for prudent and effective spending to significantly reduce chronic malnutrition in children. The Ministry of Economy and Finance (MEF) played a crucial role by creating incentives for a coordinated response

across government to address malnutrition through Result-Based Budgeting (RBB).

The ambitious, yet clear and feasible, goal of reducing stunting in children under five years of age by five percentage points in five years (The 5-by-5-in-5 Goal) was set in 2006 and turned into specific regional targets.

Stunting became a sustained political priority and was treated as a serious human development issue. It was recognized as a social, economic and health challenge. Successive governments showed their commitment to tackling the problem by setting a series of new and ambitious targets.

What is remarkable about Peru is the fact that four successive governments under Presidents Alejandro Toledo, Alan Garcia, Ollanta Humala and now Pedro Pablo Kuczynski have ensured continuity and commitment in the push to reduce child stunting.

Peru made conquering chronic malnutrition everyone's business with national, regional and local governments, the private sector, Non-Governmental Organizations (NGOs), parents, prime ministers and presidents working in unison to give children the best start in life.

2. Smarter policies: focus on evidence, incentives and results

After spending millions of dollars on ineffective feeding programs, Peru was careful to only spend money on tried-and-tested methods, so-called "evidence-based interventions," that had already improved nutrition and children's health.

The government looked at the global evidence of what caused stunting and sought out proven ways to reduce stunting rates. It prioritized investments in areas of higher stunting, with a focus on results.

Cash incentives, through a Conditional Cash Transfer (CCT) program known as Juntos (Together), were a crucial part of the mix.

Juntos, launched in 2005, provided cash to mothers while requiring them to take their young children regularly to

health, growth monitoring and promotion check-ups at the health centers and for ensuring their older children attended school. As the money started to reach poor households, demand for health and social services in poor and rural communities increased. Juntos' payment of 200 Peruvian Soles – the equivalent of about \$61 at today's exchange rate – every two months became a catalyst for the country's major reduction in chronic malnutrition in children.

Central to improving child health and nutrition in Peru, was the Control of Growth & Development for Infants and Children in Peru (CRED) program. The program, delivered in health centers, supports parents in tracking a child's growth (both in terms of weight and height), health and nutrition, and provides counseling to foster behavioral changes.

At the same time, regional Governments were given monetary incentives, through the regional health directorates, encouraging them to provide more and better nutrition services. Also in 2005, the Integral Health Insurance Program (SIS) for the poor, which had been created in 2002, was expanded, ensuring access to preventive health and nutrition services for the most vulnerable, creating a virtuous circle.

Growth monitoring and promotion attendance for children under three years of age increased from 24 percent in 2008 to 58 percent in 2016. The rise in rates in rural areas was even more pronounced, climbing from 21 percent to 66 percent over the same period. Early stimulation activities (such as teaching parents to sing songs to their children and read to them from birth) were included as part of growth monitoring and promotion.

In 2007, Peru created a strategic road map for reducing stunting rates. The national nutrition strategy Crecer (To Grow) helped to focus spending on the poorest communities to improve the health and nutrition of children in the first two years of life.

In 2008, Peru established a RBB system for ensuring money was well-spent and produced the results that politicians had pledged to achieve. The incentive system set up by the MEF contributed to improvements in the quality of health and nutrition services. The successful steps taken then are evident today.

Cash incentives to parents alone were not the answer. It was the combination of the CCT program and improvements in the availability and use of health services, increased health insurance coverage by SIS, the rigor of RBB and the strategic focus of Crecer which forged a convergence in the government's approach to reducing stunting.

Evidence showed that a multi-sectoral approach involving health, social assistance and education, among others, was the only way to prevent malnutrition. Peru's multi-pronged approach to reducing rates of stunting took that into account.

The importance of real-time, individualized data, regular surveys and comprehensive monitoring systems was recognized early on and action taken. Accountability mechanisms were established at the local level to monitor the steps taken to reduce child malnutrition.

Peru spent money where it made the biggest difference. It also cancelled, consolidated and revamped feeding programs to ensure more targeted spending on pregnant women and children in the first two years of life, when nutrition, hygiene and health is most decisive.

The focus emphatically shifted from providing food assistance to poor households to a multi-sectoral approach to nutrition that included incentives and improved provision of services, and involved government ministries and

national, regional and municipal governments coming together to achieve a common goal (5-by-5-in-5).

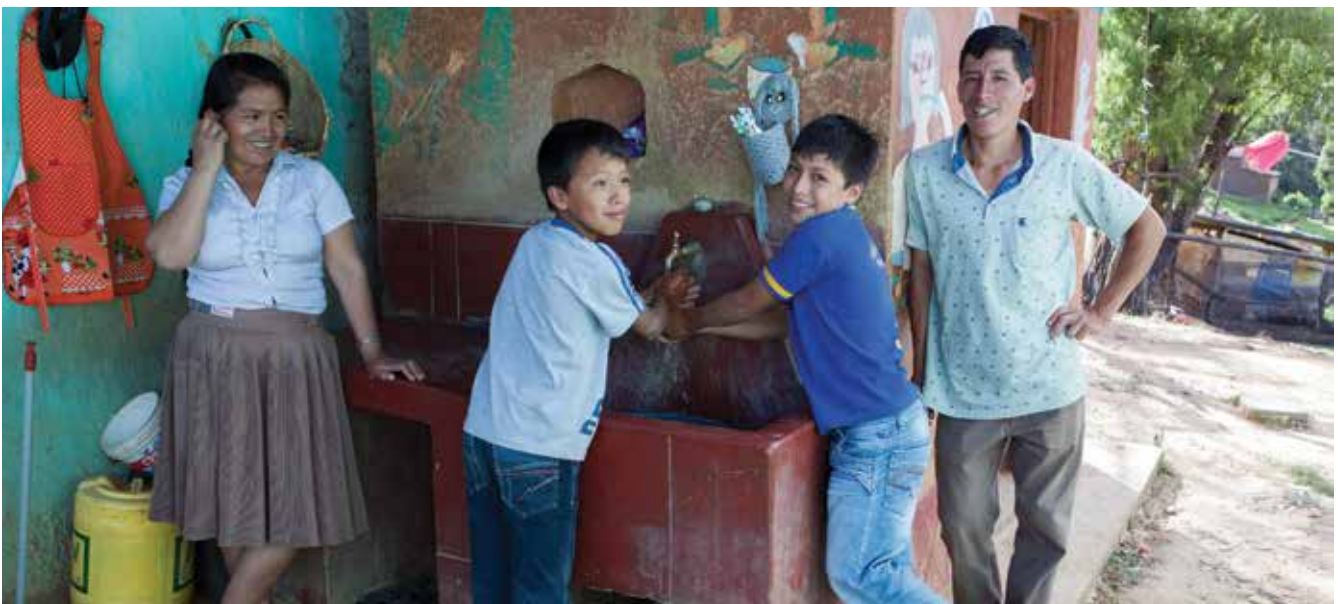
Malnutrition was no longer seen as a hunger problem but a public health matter, requiring smarter and coordinated responses.

3. Changing behavior

For political commitment and smarter policies to make a lasting impact, parents had to be educated and empowered. In addition, they needed the government to provide health and social services to ensure their children grew at a healthy rate.

A superb communications strategy led by NGOs, the government and international partners created widespread understanding and awareness about the devastating impact of chronic malnutrition. As more mothers met more regularly with doctors, nurses and nutritionists in clinics, their habits started to change and with it the health of millions of Peruvian children.

What was earlier an "invisible problem" to most parents and policy makers became visible (Box 1). The irreversible consequences of child stunting became evident to everyone: parents, health officials and political leaders were finally ready to deal decisively with stunting.



Peru's lessons to the world

Although Peru has not yet fully eliminated child stunting, its progress has been extraordinary. And it provides lessons for other countries ready to end this social and economic scourge.

Peru is by no means alone in making significant progress in this area. Other countries which have accelerated the rate at which they have reduced stunting include Vietnam, Bangladesh, Senegal and Ethiopia.

But Peru stands out on the world stage for its rapid and pronounced progress in more than halving stunting rates in less than a decade. Peru recognized that its children are its future, made fighting chronic malnutrition everyone's business, took vital political decisions and prioritized long-lasting good governance.

This publication is the story of how Peru did that.

It recounts Peru's success in **chronological order**. It starts with a brief overview of Peru's geography, population and

context in 2005, including an explanation of what chronic malnutrition (stunting) is and its consequences (Box 2).

Specific attention is given to Peru's phenomenal economic growth. This contributed to the reduction in stunting, but it was not enough to drive the rapid decline of chronic malnutrition rates.

Throughout the publication, boxes and spotlights point to specific issues and activities that cross the different periods or do not lend themselves to a strict chronology. A timeline of the major relevant events is added as a reference at the end.

This publication is based on extensive interviews with former policy makers and political leaders, program and project task managers and development partners. It is also based on a careful review of existing studies of Peru's experience in reducing stunting and documents on the topic. Focus group discussions were held with beneficiaries, health workers and local government officials in Santa María del Valle, Huánuco, one of the regions with the highest stunting rates and the fastest rates of decline.

BOX 2: Anthropometric Definitions of Malnutrition

Stunting (Chronic Malnutrition): Stunted growth refers to low height for age, when a child is short for his/her age but not necessarily thin. It is caused by inadequate nutrient intake and frequent infections over a long period of time. It is a leading indicator of chronic malnutrition and carries long-term developmental risks.

Wasting (Acute Malnutrition): Wasting refers to low weight for height, when severe food shortage and/or

debilitating disease causes muscle and fat tissue to "waste" away. This is also known as "acute malnutrition" because the process of wasting occurs rapidly in contrast to stunting. It is a strong predictor of mortality in children.

Underweight or weight for age reflects body mass relative to chronological age. It is the combination of height for age or stunting and weight for height or wasting.

2. PERU'S ONCE PERSISTENTLY HIGH STUNTING RATES

Despite Peru's economic success during 2000-2006, chronic malnutrition rates stagnated



Chapter Snapshot

- In 2005, 28 percent of preschool children suffered from chronic malnutrition. This rate had hardly changed for over a decade.
- Poverty, lack of awareness and lack of access to quality social and health services led to particularly high rates of stunting in remote, rural areas. Inefficient feeding programs failed to dent this.
- Economic growth, urbanization, women's education and improved access to water helped reduce poverty and contributed to reducing stunting rates but these developments alone were not enough.
- The percentage of Peruvians living below the poverty line more than halved from 58.7 percent in 2004 to 22.7 percent in 2014.
- Prosperity played a part in Peru's success in reducing stunting but it was targeted policies that played a pivotal role in changing mindsets and meals.

Peru's diverse geography and population

Peru's geography is incredibly diverse. It is made up of a western coastal plain, the Costa, the mountainous and rugged Andes in the center, the Sierra, and the eastern lowland jungle of the Amazon Basin, the Selva. Approximately one-third of its 31 million population lives along the desert coastal belt in the west, with a strong concentration in the capital city of Lima. The Andean highlands, or Sierra, are the heartland of the country's indigenous population. Roughly half of Peru's population

lives there. The eastern slopes of the Andes and nearby rainforest are sparsely populated.

The country's latitude, mountain ranges, sharp variations in topography and the ocean create widely varied climatic zones. Peru is vulnerable to natural disasters, including flooding and landslides. Its diverse geography also makes it hard to reach remote areas, raising the cost of providing public services. The Sierra and the Selva regions, with their remote communities, are difficult to travel across.

Today, more than 75 percent of the population lives in urban areas, the result of significant urbanization in the last 60 years.

The home of the Inca Empire, Peru was cradle to one of the oldest civilizations in the world and the oldest in the Americas. Peru has three official languages, following the main ethnicities of its population groups: around 84 percent speak Spanish, about 13 percent speak Quechuan and less than 2 percent speak Aymara.

For over a decade Peru has been enjoying the fruits of success from these endeavors.

Peru has a relatively young population, with a median age of 27, but is clearly in demographic transition with about one fourth of its population under 16, the bulk being between 25 and 40 years of age (40 percent) and a growing 65+ population (7 percent in 2016).

Peru today is labelled a "growth star"

Although politically stable for several decades, for much of the 20th century Peru suffered from coups and a guerrilla war resulting in high unemployment, poverty and economic setbacks. Today, Peru is dubbed a "growth star." It has enjoyed an "economic miracle", successfully cutting poverty by half during a decade-long boom in prices of gold, copper and other metals. Peru is rich in these and

other natural resources. The country has also reformed, attracting more foreign investment. It is now classified as an "upper-middle income country."

The improvement in living conditions among the poor and the bottom 40 percent of the population has been remarkable.

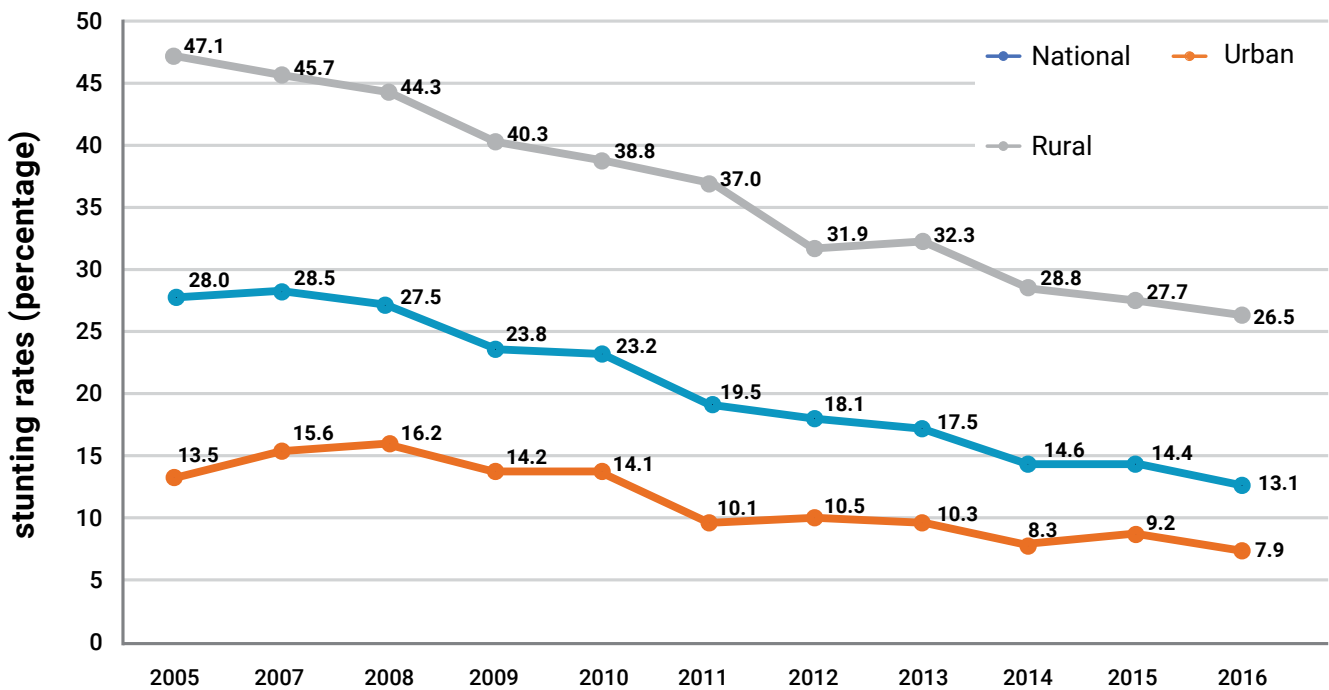
Persistently high rates of economic growth for more than a decade were key to reducing monetary poverty and extreme poverty. Between 2002 and 2013, the Peruvian economy expanded at an annual rate of 6 percent, much higher than the Latin American average. Peru doubled its per capita income, an impressive performance by global standards. In that period, the country's Gross Domestic Product (GDP) tripled from almost \$67 billion to more than \$201 billion (World Bank, 2015).

Moreover, the economic gains have been widely shared. Lower income households -- the bottom 40 percent -- have gained more from growth than the national average. Their the last decade, against a 4.4 percent gain for the whole population. The percentage of Peruvians living below the poverty line more than halved from 58.7 percent in 2004 to 22.7 percent in 2014, World Bank data shows. The Gini index -- a measure of inequality -- fell from 51 in 2004 to 44 in 2014 (World Bank, 2015).

The country's record on combating chronic malnutrition can now also be added to its list of achievements in the early part of the 21st century.



Chart 1: Remarkable results: Stunting in children under five-years of age (2005-2016)



Note: The ENDES survey began in 1986 and collected demographic and health data, including anthropometrics, every five years until 2000. In 2004, ENDES moved to a continuous survey scheme, collecting data every year. However, the sample was not initially designed to estimate the prevalence of malnutrition. In 2007, with the launch of Results-Based Budgeting, the sample size of the continuous survey was increased to be sufficient to estimate the prevalence of malnutrition by department starting in 2008. Given the sample design, estimates of malnutrition were available for 2005 and 2007, and on a yearly basis after 2008.

Source: ENDES.

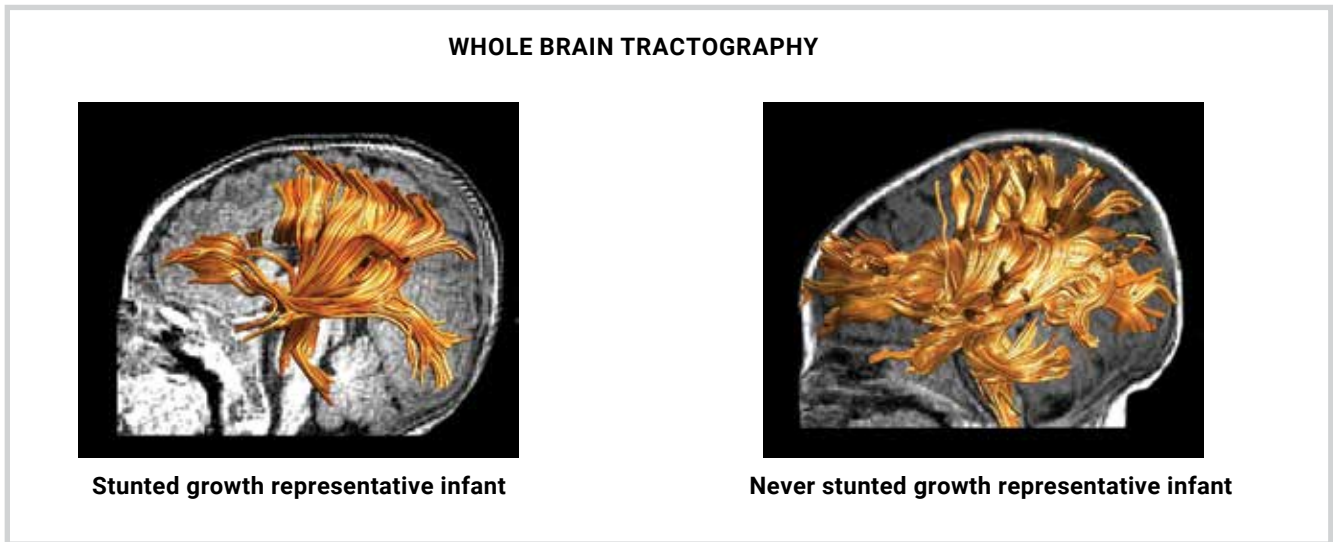
In 2005, 28 percent of children under five suffered from chronic malnutrition (Chart 1). This rate had not changed much for over a decade. Particularly rural areas, remote areas and indigenous regions suffered very high levels of stunting. In rural areas stunting reached 47 percent, more than three times the rate in urban areas (14 percent). Stunting affected 54 percent of children younger than five in the poorest quintile, against only 4 percent in the richest one.

Chronic malnutrition in children has a life-long detrimental impact: a stunted brain being the most devastating

consequence (Chart 2). Malnutrition is not only responsible for nearly half of all deaths of children under five, it is estimated to reduce the world's GDP by \$1.4-\$2.1 trillion, equivalent to the entire economy of Sub-Saharan Africa (Shekar et al, 2016).

"Did the average Peruvian know about malnutrition or care about malnutrition? For many Peruvians, this was part of Peru. This was the way it was for a very long time," said Felipe Jaramillo, who was the World Bank's Country Director for Peru in 2007-2011.

Chart 2: Brain of a child with stunted brain development vs a healthy child



Note: This figure illustrates the effects of stunting on white matter tracts. Specifically, diffusion weighted imaging was used to examine a variety of white matter fibers in a single stunted infant (top frame) and a single non-stunted infant (bottom frame), at 2-3 months of age. As is apparent, the density and richness of this network of fibers is far more elaborate in the non-stunted infant than in the stunted infant. It is important to keep in mind that this is but a single (albeit representative) infant. Thus, until these findings are replicated at the group level, such findings should be considered preliminary. This data was collected as part of an ambitious program of research taking place in Dhaka, Bangladesh (Charles A. Nelson, Ph.D., Principle Investigator), supported by The Bill & Melinda Gates Foundation. The goal of this work is to examine the effects of biological and psychosocial adversity on early brain development. Nadine Gaab, Ph.D. and her colleagues are overseeing the MRI portion of this project.

Source: Nelson, 2016; Nelson, 2017.

Economic growth certainly helped free up resources for vital social spending in Peru, including rural roads and access to water. But Peru's success in reducing stunting rates was in stark contrast to other countries around the world which enjoyed similar rates of growth in the early 21st century but saw stunting rates remain unchanged (Box 3).

"You have a growing economy, with employment generation, right? All this automatically translates into a way out of poverty but social redistribution is required, which is not only to pump money into social programs but to generate jobs, improve education and health," said Jorge del Castillo, former Prime Minister of Peru.

"You have to have a pillar that is of economic development and another one is that of social development. The first cannot grow alone. It must grow in parallel with the other. If there is only economic development without social

development, you will lower poverty by one point. This is what was called 'trickle down,'" said del Castillo.

One can expect the demographic transition, with reduction in fertility rates and the rapid rise in urbanization, to have contributed to the secular trend (a non-cyclical trend over a longer period) of improvements in the nutrition status of the Peruvian population. Disentangling these effects is not easy as there are many factors that contribute to reducing stunting. Urbanization may have played a role. However, it happened gradually over six decades and does not explain the acceleration in stunting reduction. In addition, the largest urbanization shift happened years before improvements in stunting levels became visible.

Between 2007 and 2016 the number of children who were stunted fell by 49 percent in urban areas (from 310,000 to 157,000) and by 50 percent in rural areas (from 452,000 to

228,000). That is, between 2007 and 2016, 153,000 children under five in urban areas avoided stunting, while 224,000 in rural areas avoided the same fate. In other words, the

reduction in rural areas contributed 59 percent to the overall reduction nationally in the same period¹.

BOX 3: When economic growth is not enough

Was the country's strong economic growth part of the story of its success in combating stunting? Most certainly, but it was not the whole story.

A simple look at the relationship between poverty rates and chronic malnutrition within the country today indicates that income is only part of the story, especially in rural areas. Data from Peru's National Institute of Statistics (INEI) and Peru's Demographic and Family Health Survey (ENDES) shows that more than growth is needed to reduce chronic malnutrition. The correlation between poverty and chronic malnutrition in urban districts is only 0.4 and only half as high in rural districts (Annex).

In a different study, data from seven national health surveys from 2009 to 2015 shows how the use of Peru's Articulated Nutrition Budget Program (PAN) of nutrition and health services -- such as vaccinations and growth monitoring and promotion programs which were prioritized through the RBB by the MEF - are associated with lower stunting rates in children born after 2009, independently of income quintiles or mother's education (Cordero, forthcoming).

Recent work by Galasso and Wagstaff suggests that growth alone can explain up to 50 percent of the

reduction in stunting in Peru. The accelerated reduction in stunting rates is likely to be due to the systemic policy changes (Annex). The historical responsiveness of stunting to economic growth observed in Peru before 2006 (with a 10 percent increase in economic growth translating into a 6-percentage point reduction in stunting) is in line with cross-country estimates (Ruel, Alderman 2013).

Research by Mejia Acosta (2011) and by the Group for the Analysis for Development (GRADE) (2015) backs this up, stressing that Peru's success in tackling stunting has been driven more by good policies than by good growth².

Mejia Acosta highlighted that government success in reducing malnutrition was less related to structural factors, such as economic growth or the commodities boom, than to nutrition policy improvements. Those improvements are believed to be associated with: greater government efforts to create national coordination structures and mechanisms; increased targeted public (and private) spending on nutrition programs and alignment of social programs with the national nutrition strategy Crecer which focused on the highest risk groups.

¹ It is also worth noting that the absolute number of children age 0-5 remains constant over time in urban areas at around 2 million.

	Total number of children (0-5)	Urban children (0-5)	Rural children (0-5)	Number of stunted kids (urban areas)	Number of stunted kids (rural areas)	Number of Stunted Kids (total)
2007	2,976,799	1,988,574	988,574	310,163	451,779	761,942
2016	2,845,845	1,988,207	857,638	157,068	227,274	384,343
absolute change				153,095	224,504	377,599
% change				49%	50%	
Contribution to total reduction				51%	59%	

² The GRADE-model suggests that while mothers' education and height turned out to be important explanatory variables, some effects were also associated with vaccination and pre-natal controls. Little effect was associated with CRED (possibly because of the quality of the counseling). Access to water was also found to be significant and important while the strongest effect was related to household income and the community or the enabling environment. Mothers' height and education, as well as birth order were associated with a stronger effect among age sub-groups, similarly, vaccinations (during the first year) and CRED (during the first months of life) (GRADE, 2015).

Lack of vision, political will and a series of scattered and uncoordinated nutrition programs resulted in persistently high rates of stunting, which stagnated for most of a decade and then started to drop in 2008. Economic success was not trickling down to reduce stunting, jeopardizing the country's long-term growth prospects.

The government had been pumping an estimated \$250 million a year into food and nutrition programs by 2002 (Rogers et. al, 2002). Much of that expenditure, however, went to children older than two years of age, resulting in little movement in Peru's stunting rates. It was clear that other policies were needed.

Chronic malnutrition was rooted in poverty and lack of access to health, sanitation, water and other social services. An understanding of the multiple and reinforcing causes of stunting was growing in Peru in 2006. It has become scientific consensus today.

The remainder of this publication is about how Peru more than halved stunting in less than a decade by changing policies and mindsets.



3. PERU'S SOLUTION: MAKING STUNTING A NATIONAL PRIORITY

Peru showed unprecedented political commitment to the health of its children

Chapter Snapshot

- The Initiative against Chronic Infant Malnutrition put stunting on the political agenda in the 2006 election with all presidential candidates committing to reduce malnutrition in children under the age of five by five percentage points within five years.
- The Initiative successfully argued that Peru's most valuable resource was its people with a "window of opportunity" to tackle chronic malnutrition during the first 1,000 days of a child's development.

The 2006 election – campaign for change

A remarkable campaign to tackle chronic malnutrition in children succeeded in putting nutrition firmly on the political agenda in 2006, an election year.

The Initiative against Chronic Infant Malnutrition, a civil society group of 18 national and international NGOs and development partners spearheaded by UNICEF, CARE Peru and the Pan American Health Organization (PAHO), urged Peru to adopt goals and policies to harness its growing economic prosperity to reduce stunting.

The Initiative would not only analyze and publish reports on government efforts to fight malnutrition but would also call for elected officials to be held accountable for their commitments to tackle the problem. The reports were critical in making regional and local efforts public and creating an official benchmark. This together with RBB introduced by MEF created robust incentives for regional governments to act on nutrition.

A 2011 paper by Mejia Acosta highlighted the critical role played by civil society and international aid organizations in putting stunting on the national agenda.

"One of the salient features of the Peruvian success is the fundamental role played by the international aid system and civil society organizations in the formation in early 2006 of the Initiative against Chronic Infant Malnutrition, that recognized the multi-causal nature of the problem and effectively lobbied the government to prioritize the allocation of resources and formation of policy around proven tactics against chronic child malnutrition," the paper concluded.

Peru's recipe for accelerating the reduction of stunting rates undoubtedly had many ingredients, but changes in the political economy of Peru were pivotal in creating a recipe which made a sustained reduction in chronic malnutrition possible. The right mix of unique ingredients galvanized political commitment to the cause of reducing chronic malnutrition.

Communication was instrumental in making an "invisible problem" visible, in setting simple and easy to understand targets and in illustrating how to reach them. Videos and TV spots mobilized champions at the highest levels of government and helped parents understand what stunting was. Everyone at every level of Peruvian society was quickly convinced of the urgent need to deal with the problem, as well as the returns on investment.

There is a strong body of evidence that shows high economic returns from investing in nutrition: stunting reduction returns 11 dollars for each dollar invested (Shekar et al, 2016). Finally, international donors and lenders were ready to mobilize significant resources linked to achieving nutrition results and provided technical support for Peru to invest in nutrition.

The 5-by-5-in-5 Goal

The Initiative campaign helped to put malnutrition firmly on the political agenda in the 2006 election by initially getting 10 presidential candidates to sign a commitment to reduce malnutrition in children under the age of five by five percentage points within five years. Critically, the 5-by-5-in-5 Goal was rooted in successful experiments to reduce chronic malnutrition in Peru by organizations like UNICEF, CARE Peru and other NGOs, which had joined forces in the Initiative.

Simple and accessible targets and messages were critical in driving the campaign to reduce chronic malnutrition in children. Not only was there a clear focus on what was needed but on how to do it.

In addition to setting the 5-by-5-in-5 Goal, the Initiative convinced presidential candidates that they had a strategic blue-print for tackling chronic malnutrition that could work and offered them support in implementing a nationwide program³.

"We decided that if the government could reduce chronic malnutrition in children by five percentage points for children under five in five years that would be a tremendous advance because up until now it had been stagnating," said Milo Stanojevich, National Director of CARE Peru, an NGO working to reduce poverty.

"We went candidate by candidate and started talking to them. We got one candidate to sign a one-page pledge. Once we got one to sign others signed too!"

The campaign issued 10 recommendations for how the government could reduce child malnutrition in the first 100 days in office. It called for a concerted plan to start up investments and implement multi-sectoral nutritional programs under the authority of the Presidential Council of Ministers (PCM) and fully involve local governments⁴.

The Initiative was more than a catalyst for change. It offered vital support to the government – nationally and regionally – to live up to its pledges, offering technical support alongside the World Bank and other international organizations to ensure the effective and efficient implementation of the national strategy.

The following year, the drive to reduce chronic malnutrition gained momentum, with Peru determined to show results.

"If you ask me who is the Peruvian champion in the fight against nutrition problems, I would not be able to give you a name," said Carolina Trivelli, Minister of Development and Social Inclusion from 2011-2013. "There is no one national hero."

Internationally renowned nutrition and development expert Alan Berg famously identified the problem with nutrition globally. All too often it was perceived as "everybody's business but nobody's main responsibility" (Berg, 1973). Peru understood that, if it was to tackle stunting, it had to create incentives for everyone – from mothers, doctors, nurses and public officials to politicians and international organizations – to share in the success of lowering rates of chronic malnutrition.

³ The elected president Garcia then stepped up the challenge by increasing the goal to nine percentage points in five years.

⁴ The 10 recommendations included: the presidential ratification of the 5-by-5-in-5 goal; giving responsibility for the food security strategy to the PCM; reactivating the Food Security Commission; the Presidential commitment to present nutrition results annually; drawing up a clear and concerted plan to implement nutritional programs; the implementation of a national program to strengthen capacity of municipal governments; local and regional governments providing at least 30 percent of their budget to activities related to improvement in the nutritional status of children; MEF providing technical assistance to regional and local governments in the development of public investment projects; municipal governments establishing accountability mechanisms for actions undertaken to improve nutritional status; and the implementation of an incentive program for municipal governments to reward performance in activities to reduce chronic malnutrition.

4. PERU'S SOLUTION: A MULTI-PRONGED STRATEGY GEARED TOWARDS RESULTS

The launch of conditional cash transfer program Juntos and national nutrition strategy Crecer marked critical steps in Peru's fight against stunting between 2005 and 2007

Chapter Snapshot

- The launch in 2005 of the CCT program Juntos provided financial incentives to mothers to visit clinics with their children in rural areas for health checks.
- The program raised demand for preventive health and nutrition services, encouraging mothers to change health, nutrition and hygiene practices.
- The launch of Crecer⁵ in 2007, the national strategy for combating poverty and chronic malnutrition in children, focused on more cost-effective social spending by consolidating health and nutrition programs with an emphasis on maternal-child health, birth registration and access to social services.
- Spending focused on "key interventions:" vaccinations to reduce childhood infections, monitoring and promoting the growth of infants and young children, as well as feeding and hygiene practices in the family home.
- The government targeted the poorest areas with the highest rates of stunting, set clear targets and doubled spending to implement the strategy.



⁵ Crecer means "to grow" in Spanish.

The launch of Juntos changed mindsets

The Juntos program was established in 2005. It encouraged pregnant women and mothers with children of up to two years of age to visit clinics in rural areas for health checks by providing cash transfers of 200 Peruvian Soles every two months in return for attending health and nutrition services. This allowed parents, doctors and nurses to monitor the growth and development of Peru's poorest children. In addition, mothers were encouraged to enrol and keep their children aged six to 19 in school. Juntos was inspired by a similar successful CCT program in Mexico called Progresa/Oportunidades.

Thanks to an effective targeting system, the poorest received the vital support they needed. Juntos' targeting has been built on three stages: (i) Geographic targeting, which identified priority districts in the poorest parts of Peru, based on selection criteria that combined basic needs and estimates of the poverty gap, extreme poverty and malnutrition indices. It also considered the percentage of towns affected by political violence; (ii) Household targeting, which relied on a proxy means test⁶ administered by INEI; and (iii) Community validation of the list of selected households.

While it is not possible to attribute Peru's reduction in stunting to any single program, Peru's CCT was an important catalyst for rallying improvements in the supply of health and nutrition services across the country, both in terms of coverage and the quality of services⁷. Juntos fuelled demand for preventive health and nutrition services, creating the opportunity for health workers to encourage mothers to change health, nutrition and hygiene practices. This proved critical in reducing stunting nationwide.

The Juntos program had some initial start-up challenges related to coverage and linking to nutrition services, but with chronic malnutrition moving up the political agenda, early shortcomings would be addressed as Peru made stunting a national priority. The program placed a special emphasis on improving the registration of young children and the verification of their participation in health and nutrition services, given the importance of reaching children as early as possible, within the 1,000 days' window⁸.

By 2007 Juntos was reaching around 373,000 households. By 2016, this had more than doubled to 772,000 households in the poorest rural areas of Peru, or about one quarter of poor households in Peru.

Health insurance coverage widened to ensure health and nutrition services for most vulnerable children

Juntos put a strong value on preventive health services and capitalized on the successful health insurance program for poor households, SIS, established in 2002.

SIS was the first comprehensive public insurance scheme targeting the poor in Peru and increased coverage for the most vulnerable. SIS aimed to reduce economic barriers through the elimination of user fees for a package of services. The program financed part of the health provision by reimbursing the variable costs (i.e. not including salaries) incurred by service providers to national hospitals and regional governments. SIS represented, in practice, the first effort to plan budgets in line with demand for services.

Between 2005 and 2014, the percentage of the population covered by any health insurance increased from 38 percent to 70 percent. The increase was disproportionately

⁶ The term "proxy means test" is used to describe a situation where information on household or individual characteristics correlated with welfare levels is used in a formal algorithm to proxy household income, welfare or need (Grosch and Baker, 1995).

⁷ The evidence about the impact of the Juntos program on child stunting is mixed. Escobal and Benites (2012) cannot find conclusive evidence about the association between the decline in stunting and participation in the Juntos program. Sánchez and Jaramillo (2012) concluded that Juntos is associated with reductions in severe stunting among beneficiary children younger than five, and that the reduction of both moderate and severe stunting was most prevalent among children of more educated mothers. Similar conclusions were presented in a more recent paper by Sanchez, Melendez, and Behrman (2016) that found no effects on stunting overall, but large effects on severe stunting for siblings of children who were exposed to Juntos as children younger than three years old.

⁸ 1,000 days' window refers to the period between conception and a child's second birthday. This is approximately 1,000 days and is considered as a crucially important period for brain development and within which stunting is reversible. The 1,000 days are the most critical time for positive impact on a child's cognitive and physical development.

higher among the poor and vulnerable, whose coverage increased from 32 percent to 75 percent in that period, thanks to SIS.

Meanwhile, the intersectoral collaboration between the health sector and the National Registry for Identification and Civil Status Agency (RENIEC) resulted in increased registration and affiliation. The focus of Juntos on encouraging parents' demand for services, especially birth registration and participation in preventive health services was a marked success and the fruits of a combination of efforts by various sectors simultaneously.

National nutrition strategy Crecer focused on poorest areas and neediest children

The launch of Crecer in 2007 rallied national, regional and municipal governments to reduce poverty and boost development in cooperation with the private sector, international development agencies and grassroots organizations. That required the government to tie together loose strands from a host of disparate initiatives to reduce inefficiency in social spending. Some 82 public programs were consolidated into 26 initiatives focused on poverty and child health after a rigorous review of international evidence and their performance. Among the most important were initiatives to provide maternal-child health services, birth registration and increase access to other social services.

The significance of Crecer was reflected in the political clout behind it.

The PCM took charge of the strategy, ensuring cooperation between public and private organizations,

as well as across government ministries, regions and municipalities.

"When malnutrition is so high in your country and you were not informed about it, your soul rebels and you ask yourself: 'What can I do about it?'" said former Prime Minister Jorge del Castillo. "I could not accept that more than a quarter of Peruvian children were in that situation."

The PCM became a powerful hub for coordinating all of Peru's initiatives to combat poverty and malnutrition at the very heart of government.

Crecer had its own secretariat, underpinning the importance of the initiative.

Crecer did not just focus on the symptoms of malnutrition but its direct and underlying causes, drawing inspiration from UNICEF's Conceptual Framework for Malnutrition.

Initially, Crecer targeted one million children under five with a focus on the first 1,000 days of life. The program targeted the poorest parts of Peru first.

"The essence of Crecer, which was the strategy to fight against poverty and malnutrition, was to go to the poorest districts, to the 880 poorest districts (out of a total of 1,838 districts in Peru), because that is where we needed to start," said Ivan Hidalgo, a former coordinator of Crecer and Vice Minister of Social Development.

"The easiest thing is to work in urban areas but what about the rest of the country? Who are the ones who need it first? These districts had more than 50 percent poverty, more than 30 percent illiteracy and more than 30 percent malnutrition, well above the national average. It was



based on these criteria that these districts were targeted," Hidalgo said.

The strategy had three central elements.

Firstly, it stressed that nutrition was a much wider issue than just food distribution. Water, sanitation, access to health services, education and the empowerment of women in poor, remote and rural communities were critical to reducing stunting. It was impossible to effectively combat chronic malnutrition without regular child growth monitoring and promotion as well as fighting infectious diseases, improving sanitation and access to water.

Secondly, Crecer stressed the importance of coordination, horizontally across ministries and public bodies and vertically, between national, regional and municipal authorities.

Thirdly, and most crucial to actual implementation of the strategy, was the decision to give the power (and resources) for

tackling the problem to regional and municipal governments while holding them accountable.

Peru recognized that chronic malnutrition was about more than just insufficient food.

"The [old] idea of combating malnutrition was narrow because it was focusing only on food," said Nelly Huamani, Project Coordinator of the Public Budget National Directorate at the MEF. "The [new] idea was not to leave it aside because there was already a strong investment by the country in food. However, there was another part that was not considered in combating chronic malnutrition: reduction of childhood infections," she said. "So, for that we had to allocate the resources to do nutritional counseling and distribute the new vaccines to combat pneumonia and diarrhea."

Focus on growth monitoring and promotion

Crecer focused spending on "key interventions."



BOX 4: What happens during the growth monitoring and promotion program CRED?

While CRED protocols have been in place for a while, the reforms introduced between 2008 and 2010 by Results-Based Budgeting guaranteed that the minimum inputs needed for the provision of CRED services in the health center were available across the country and especially in areas with the highest malnutrition rates.

During her pregnancy, Maria Gonzales⁹, a 24-yearold from Santa Maria, paid more attention to healthy weight gain than previously. She was also given at least three months of iron/folic acid supplementation and advised on how and when to take the pills, which can have temporarily annoying, but avoidable, side effects. Iron folic acid supplementation was crucial for Maria to ensure her iron levels were adequate to prevent anemia which increases the risk of bleeding (and even possible risk of death) during delivery. During the last weeks of her pregnancy, Maria transferred iron to Isabella (her unborn child) to build up a sufficient reserve for the first six months after birth. This makes up for the low levels of iron in breastmilk during the six-month exclusive breastfeeding period. Maria and other mothers received precious information during their regular ante-natal care visits at the health centers about the benefits of exclusive breastfeeding as well as continued counseling and advice in the case of problems during the subsequent regular baby check-ups¹⁰ until the child's second birthday. Maria received critical information about personal hygiene and handwashing, and she was urged to register her new infant and enrol in the health insurance scheme SIS. The all-important complementary feeding period after six months, when the infant is introduced to solid foods, was also the subject of intensive counseling until Isabella was 24 months. By then she had been

monitored for her growth and seen by trained health workers almost 20 times. The health workers in her community were trained and were provided with educational materials that helped address any problem that Maria might have encountered. They would have helped to find tailored solutions.

During every health check-up visit, in addition to a regular well-baby check-up, specific attention was paid to record the child's weight but more importantly the child's height and age to allow close monitoring of adequate growth. Measuring height on a regular (monthly) basis and the attention on the increase in height was novel. Previously, and in most other Latin American and Caribbean countries, most growth monitoring and promotion programs still focused on weight gain. Depending on the progress, counseling is adapted to the particular issue. In the case of growth faltering, the child is checked for underlying disease and given treatment. Parents are also given nutrition advice. During the same visits to the health center Isabella was vaccinated according to the standard norms and given Vitamin A. Her parents were given advice on other micronutrients such as the use of iodized salt and the multiple micronutrient sprinkles (or *chispitas* in Spanish)¹¹ which can be added directly to her food.

The main purpose of the regular growth monitoring and promotion sessions, or CRED in Peru, is to prevent children from growth faltering and becoming stunted. It is a collaborative effort between the parents and the health workers, both at the community level and the health center, supported by the entire community.

⁹ Names are fictional.

¹⁰ Newborn check-up at seven and 15 days; infant one to 11 months of age check-up every month; toddler between 12-23 months check up every two months; children between 24-29 months of age have four check-ups every year.

¹¹ Sprinkles are multiple micronutrient powders in single-dose packets of vitamins and minerals in powder form that can be sprinkled onto any ready to eat semi-solid food consumed at home, school or any other point of use. The powders are used to increase the micronutrient content of a child's diet without changing their usual dietary habits (http://www.who.int/elena/titles/micronutrientpowder_infants/en/).

One priority was growth monitoring and promotion for infants and young children in health centers and smaller health posts, in addition to nutritional, care and hygiene advice given by health staff to pregnant women and mothers.

During those sessions children were being vaccinated against rotavirus, which can cause gastroenteritis, and against pneumococcus, the most common cause of bloodstream infections, pneumonia, meningitis, and middle ear infections in young children (Box 4).

Moreover, women were encouraged to exclusively breastfeed for the first six months as part of nutritional counseling. Mothers were also invited to attend food preparation classes. They were advised on complementary feeding for children aged 6-24 months, particularly the importance of protein and iron-rich foods in their diets.

But achieving targets set by the government in Lima required commitment, cooperation and coordination right across the country.

"A key fact that has favored progress in the reduction of chronic malnutrition has been to have objectives with clear goals and with very precise indicators. From these components, it is possible to generate commitments," one government official in Huánuco said in a series of focus group interviews in January 2017.

Commitment, cooperation and coordination across government

Given the complexity and scale of regional politics in Peru, the Initiative against Chronic Infant Malnutrition worked hard to persuade national, regional and municipal authorities that they needed to work closely together to achieve success in reducing malnutrition.

In 2007, the PCM, with support from the World Bank organized a conference with regional governors to persuade them to support the drive to combat chronic malnutrition.

"We made the case that this was going to be a success: would you like to be part of it?" said John Newman, a former World Bank Country Manager for Peru.

The government encouraged regions, districts and municipalities to take on responsibility for meeting nutrition targets. Initially, results were mixed. A few regions, including Ayacucho, were highly successful, reducing chronic malnutrition by six percentage points and poverty by more than 15 percentage points between 2005 and 2009. All results were made public, increasing the motivation to achieve the targets that were set.

"Taking quick actions that allowed for a reduction was important because when you have a lot to do and you make a good decision, the impact can be strong. And there was a strong impact," said Paola Bustamante, Minister of Development and Social Inclusion from 2014-2016.



5. PERU'S SOLUTION: ALIGNING RESOURCES WITH RESULTS

Result-Based Budgeting allowed for focus on results, value for money and ringfenced budgets from 2008

Chapter Snapshot

- Moving to Result-Based Budgeting (RBB) in 2008 was a watershed for investing in nutrition as it created a rigorous approach to allocating spending to achieve results in children's health, growth and development.
- Only the most cost-effective and globally proven ways of reducing stunting were allocated money.
- Real time individualized data, as well as regular household and demographic surveys and birth registration, played a critical role in evaluating priorities and progress.
- Regional health authorities were rewarded with an increase in their budgets if they achieved development targets, including on chronic malnutrition, sanitation and water.
- Stunting became a shared national responsibility and priority across government with public officials trained to understand how to tackle the problem.

MEF decided to start using RBB throughout the Peruvian government in 2008. RBB is the practice of developing budgets based on the relationship between program funding levels and expected results. The government's Articulated Nutrition Budget Program (PAN) was one of the first initiatives to benefit from this rigorous approach to achieving results. RBB worked as a tool for identifying and meeting the needs of the most vulnerable citizens and increasing their access to services.

PAN used a multi-cause logical framework that targeted several factors believed to be drivers of stunting based on the medical and social policy literature and on baseline data that identified gaps and constraints in Peru.

MEF took the lead in ensuring the country's money was well spent in the drive to curb chronic malnutrition and in tackling other social issues, taking an unusually prominent role in defining and implementing PAN. The new approach outlined the results the government wanted to achieve and allocated and protected the funds accordingly.

This meant, in practice, that systems were required to identify the number of children who needed to be reached, the amount of money needed to pay for key services, a system for tracking that spending and its impact relative to national and regional targets.

"The change to results-based management led not only to a better allocation of financial resources but also to a change in organizational culture not only within MEF but also in the entities that needed to understand that the goal of the resources we were assigning had a final purpose: that was to achieve changes in the lives of people," said Rodolfo Acuña, Director of Public Budget at MEF.

The PAN program received financial and technical support from the European Union (EU) and the World Bank. National commitment to reducing stunting was supported in parallel by international technical cooperation.

El sistema de PPR permite aumentar la oferta de servicios fundamentales de salud y nutrición

The RBB approach led to a tremendous change in the planning and delivery of health and nutrition services. By establishing "budgetary chains" for PAN "results," resources were ring-fenced for the different inputs needed to provide vital services. The budget was based on goals and what was needed to achieve those goals and not just on inertial expenditure in previous years.

For example, before the consolidation of RBB, inputs needed to vaccinate children in a village were planned and budgeted for every year based on historical trends. Say health personnel had received 1,000 Soles one year to buy syringes, they would request 1,200 Soles the following year (a small increase). In addition, if at some point, they were missing 300 Soles for buying utensils for a cookery class (a completely different activity), they could take that money from the 1,200 Soles allocated for syringes.

With the introduction of RBB, a formal result was introduced and called "children with full package of immunizations." This result was linked to different budgetary chains for each key input needed to deliver the service. To request the budget, health staff had to report the number of children they planned to vaccinate. In addition, they had to include all the inputs required to deliver the service for every child. Also, funds could not be arbitrarily used for any other purpose. RBB ensured the right "blend" of inputs needed to provide services. The system was designed to ensure that health workers had the right number of syringes for the right

number of vaccines. RBB aligned planning, allocation and accountability in a single cycle.

RBB promoted the use of a budget planning tool (Integrated Administrative Management System - Sistema Integrado de Gestion Administrativa (SIGA) by regional health authorities (DIREAS) in their nutrition programs, for analyzing the supply chain between budget executing units and health networks. In 2010, a SIGA analysis justified budget increments to PAN, which increased the per capita (child) budget for CRED and vaccination by 331 percent and 150 percent, respectively, to fund CRED services in remote locations (Sierra and Selva regions), and improve awareness campaigns and vaccinations against respiratory and diarrheic diseases.

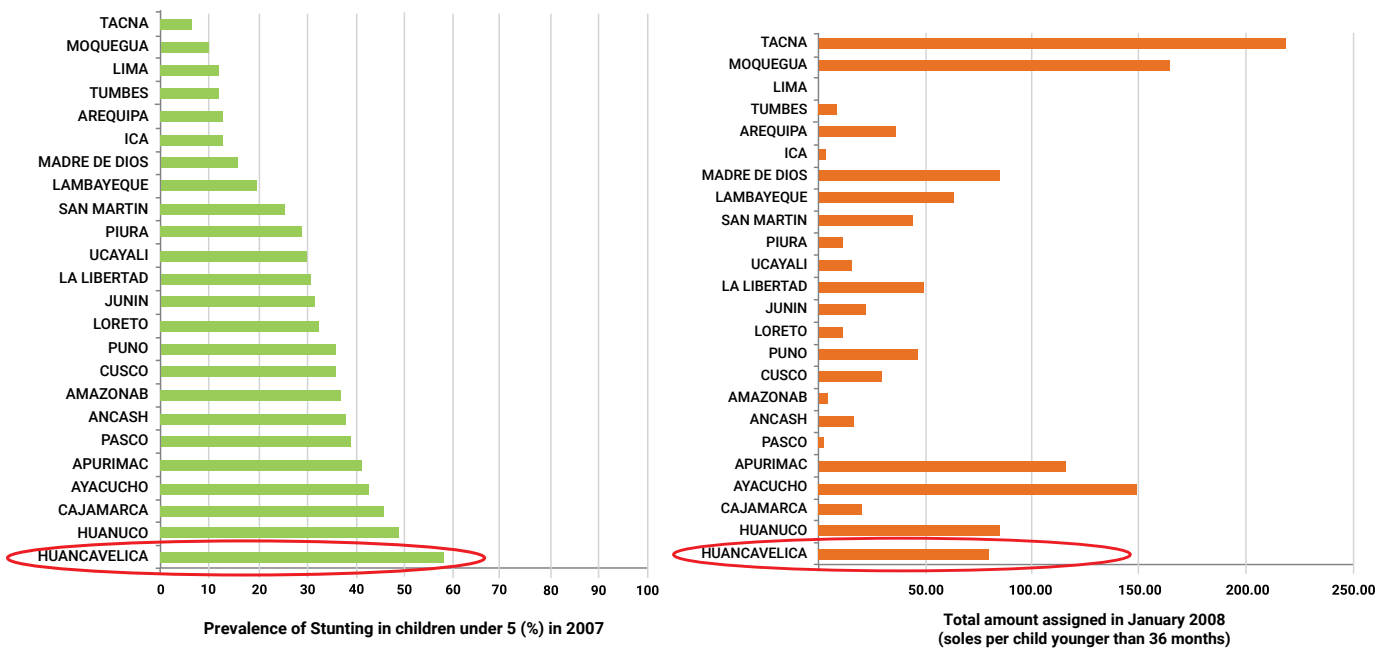
In 2010, PAN's additional budget for regional governments (12 percent of total PAN budget) was assigned based on malnutrition indicators, with bigger increases for regions with higher rates of chronic malnutrition (Chart 3, Panel B). As shown in Chart 3, Panel A, the previous allocation of the nutrition budget did not correspond well with the geographic distribution of chronic malnutrition.

From 2010 budgetary programming for nutrition improved and resources were channelled to the regions where malnutrition rates were the highest (Chart 3, Panel B). This was the result of improved awareness and agreements among decision makers, especially MEF, intentioned to reallocate the budget for nutrition related interventions (PAN) to those regions with the highest burden of malnutrition (World Bank, 2012).

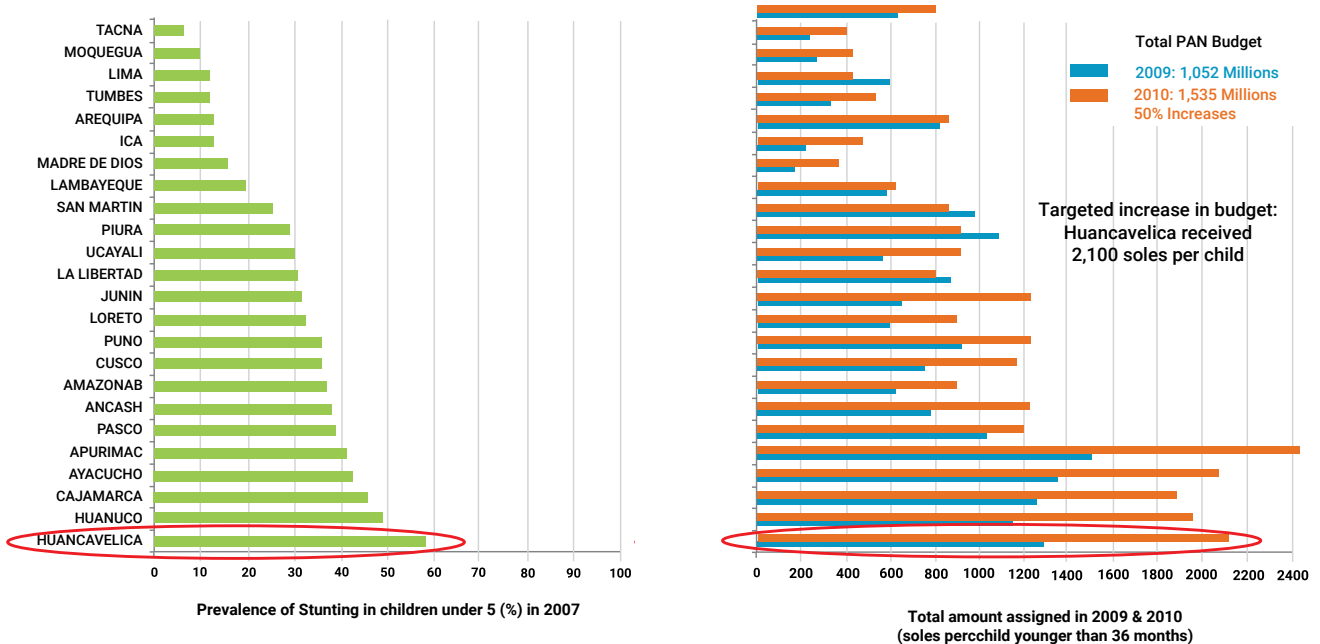


Chart 3: Aligning budget to areas in most need

Panel A: Comparison between stunting rates in 2007 (left) & 2008 budget allocation to PAN (right), by Regions.



Panel B: Comparison between stunting rates in 2007 (left) & 2009-10 budget allocation to PAN (right), by Regions.



Source: MEF and ENDES

Selectivity was critical

The PAN program gave the regions the green light to increase their budgets for nutrition by 50 percent if they met targets. MEF established Budget Support Agreements (Convenios de Apoyo Presupuestario)¹² in those regions with the highest stunting rates and the greatest gaps in coverage of prioritized services (immunization, CRED, iron and folic acid supplementation).

The Convenios defined disbursements to the regional governments based on expected results.

PAN focused on priority results in its drive to reduce stunting. Only the most cost-effective and globally proven interventions of reducing stunting were given money.

First, it made vaccination of children against pneumococcus and rotavirus a priority. Rather than choosing 20 vaccines, Peru chose to focus on just two. This was based on disease burden and international experience¹³, which showed that these two vaccines would have the biggest impact on reducing chronic malnutrition.

Secondly, it spent money on quality preventive health and nutrition services to ensure children grew properly.

Thirdly, it invested in reducing iron deficiency by providing supplements to families, both for children (through sprinkles) and pregnant women, based on an equity-driven preventive approach.

Crucially, it did so by shifting public spending to target regions where malnutrition rates were the highest, such as Huancavelica, located in the Andes (Chart 3).

Over time PAN spending also increased significantly, doubling from around 965 million Soles in 2008 to almost

1,980 million Soles in 2017. The budget was allocated to the sectors responsible for providing services through the Convenios de Apoyo Presupuestario. For example, in the case of CRED or immunization, regional health directorates were assigned additional resources based on the agreements and expected results.

Importantly, this went hand in hand with training in results-based budgeting for public officials in charge of social spending programs across Peru. It also was done in a budget neutral manner, as the resources were essentially re-allocated within the budget.

"Yes, there was more money but a good part of the resources in the programs came from a reassignment of their own budgets," said Nelly Huamani, Project Coordinator of the Public Budget Directorate at MEF. In addition, money for the programs was ring-fenced and budgets could not be changed in priority areas unless targets had been met.

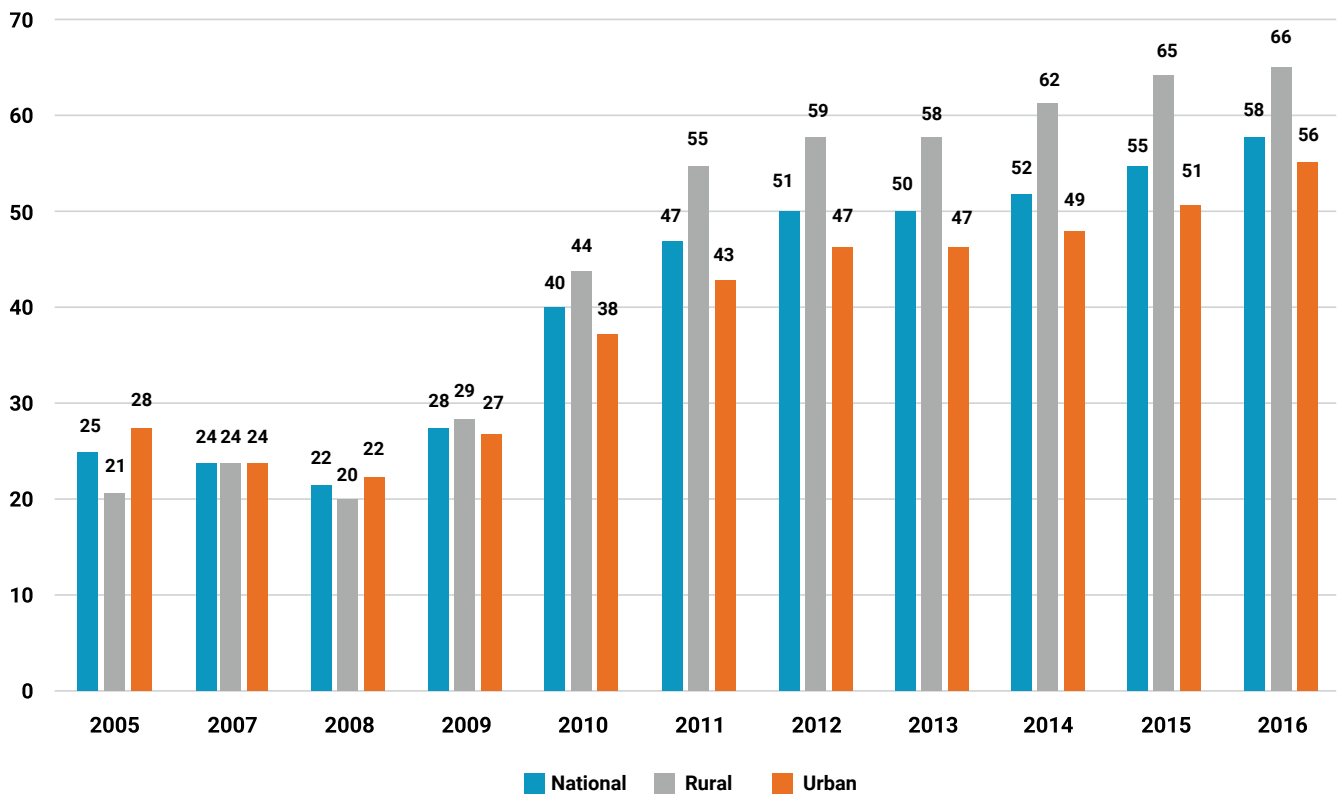
Immunization and growth monitoring and promotion check-up rates surge

The focus of PAN on improving access to critical health and nutrition services was reflected in a sharp rise in immunizations, growth checks and uptake of iron supplements, particularly in poor, remote and rural communities. The percentage of children under 12 months immunized against rotavirus and pneumococcus more than tripled from 25 percent in 2009 to around 79 percent in 2016, data from ENDES shows. The percentage of children younger than 36 months attending regular growth monitoring and promotion sessions (CREDs) in the health centers doubled from around 28 percent in 2009 to 58 percent in the same period, ENDES data reveals (Chart 4).

¹² The Convenios were supported by the EUROPAN project and established a fixed and a variable tranche. Fixed tranche disbursements were linked to fulfillment of administrative/logistical processes needed to implement the PAN (including strengthening operational capacities of budget units). Variable tranches were disbursed against achievements of pre-established targets in coverage (percentage of children with immunizations; percentage of children with CRED; percentage of children affiliated to SIS, etc.).

¹³ International evidence helped convince stakeholders to prioritize to 2 out of 20 vaccines.

Chart 4: Proportion of children younger than 36 months with complete CRED for their age



Source: ENDES.

This would not have been successful without the concurrent increase in health insurance coverage, facilitated by SIS, providing the supply of required services at the facility level. Health facility staff were provided with additional training and were required to report on the services provided to comply with the targets set for additional funds under the new RBB approach. Also, if targets were not reached, the information would have become public and regional health directorates would have not received additional resources linked to achieving results.

Behind the success of PAN

The success of PAN rested on three pillars.

The first pillar was the use of result-based budgeting.

The second pillar was a unified and coordinated approach. No one ministry or public body had "ownership" of nutrition.

It was a shared priority and a shared responsibility.

"They understood that PAN was not the monopoly of any sector but was a state-wide program," said Rodolfo Acuña, Director of Public Budget at MEF.

The third pillar was specialized training in both malnutrition and management of nutrition interventions for public servants, including in the local offices of MEF, to ensure understanding and knowledge to tackle chronic malnutrition.

"For the first time in history, the MINSA (Ministerio de Salud – Health Ministry) Health Planning and Budget and Health Promotion teams came together with MEF. We formed teams and covered all the country from Tumbes to Tacna and we realized that the workshops were crowded because people were very interested in this," said Ariela Luna, former Vice Minister of the Ministry of Development and Social Inclusion (MIDIS).

"In 2010, regional presidents and mayors were already talking about the brain, the logical framework, the use of vaccines and nutrition counseling. These themes were incorporated in their speech. It was no longer a health issue only," she said.

"Unlike other countries, where the methodological change (from inertial budget to RBB) was conducted under a crisis scenario, we were caught in a time of abundance. It became less painful but now that times of plenty are over, we should prioritize. And the best way to prioritize is through results-based management", said Rodolfo Acuña.

The Apurimac experience

In addition to cooperation between national, regional and local government, within and between ministries, Peru drew on international support to bolster its fight against poverty and chronic malnutrition.

The World Bank initially supported the government's efforts to reduce chronic malnutrition, at first with technical assistance in 2008-2009. This led to the creation of a multi-sectoral team (also known as "Grupo Apurimac") involved in an assessment and restructuring of Juntos to improve nutrition and healthcare for children. The aim was to ensure that cash transfers created demand among poor households for a basic health and nutrition package from the "supply side" of social services. This helped to identify institutional, legal and operational changes in Juntos and in health and nutrition services. This effort, initiated in 2008 with a pilot in the Apurimac region in southern central Peru, involved

the Ministry of Health, SIS, the National Food and Nutrition Center (Centro Nacional de Alimentación y Nutrición (CENAN), Juntos, CRECER, RENIEC, INEI, MEF and the WB. Officials worked to strengthen standards, accountability and skills to ensure more effective and efficient delivery of social services to rural, remote and poor families.

The Grupo Apurimac drew up a plan to restructure, relaunch, and consolidate Juntos, ensuring more efficient and effective spending on health and nutrition services by the health sector. The experience validated a series of changes needed at the local level in Apurimac to: (i) Guarantee the complete affiliation of Juntos' beneficiaries to SIS; (ii) Adjust the allocation of Juntos' beneficiaries to the health centers; (iii) Establish a planning system for health visits of pregnant women and young children and (iv) Enforce a strict verification of the health coresponsibilities. In addition, Juntos also piloted the transition from monthly to bi-monthly payment of transfers in Apurimac.

Clearing bottlenecks

The Grupo Apurimac identified critical bottlenecks in the link between the demand for services generated by Juntos and the supply of those services. Those bottlenecks included, for example, inadequate verification that mothers were bringing all their children for height and weight check-ups in return for benefiting from the CCT program. Another problem was a lack of clarity on what health services pregnant women and children should attend in return for cash payments. A further issue was lack of effective coordination across different



levels and sectors of government, as well as gaps in evaluation and monitoring. After identifying the bottlenecks, technical assistance set about introducing ways to clear them.

The World Bank then mobilized all its available instruments, such as development policy loans (budget support), analytical work and lending for results to strengthen standards and accountability around nutrition. It also provided financing and advice to the government while it put in place some of the recommendations that were identified through the Apurimac experience.

Money was spent on training local health center staff in child health and nutritional counseling and on improving the quality of information available for running the Juntos program effectively. Management, monitoring and evaluation were introduced or tightened up.

"What we must not forget is that these types of things do not happen spontaneously. Peru, like a lot of countries, had problems with inter-institutional cooperation, from the Ministry of Health to municipalities," said Livia Benavides, the World Bank's Human Development Program Leader for Bolivia, Chile, Ecuador, Peru and Venezuela.

Experts and decision makers in MEF, MINSA, Juntos, SIS, RENIEC and from the World Bank met regularly to find ways to ensure the strategy was working, to identify problems and solutions.

Fostering institutional cooperation and coordination

The main problems identified in the early days of Juntos and Crecer included ensuring that more births were registered, that all eligible children were vaccinated and that they had their weight and height recorded. Rules and procedures were tightened to ensure mothers received conditional cash transfers on the basis that not just one but each one of their children were visiting health centers regularly.

"They [the Grupo Apurimac] came together to think. That helped create rapport, a common purpose and a common approach: a united front," said Omar Arias, the World Bank's former sector leader for human development in Peru from 2008-2011.

The Apurimac experience – figuring out what worked well and what did not – became a role model for the rest of Peru.

When rolled out nationally, the government took a centralized and coordinated approach to spending money in health facilities in the country's districts. This was to ensure sufficient coverage and quality of health and nutrition services to meet increased demand for services promoted by Juntos. At the same time Juntos improved the way it registered young children, making payments conditional on families using health and nutrition services. And finally, the SIS increase in coverage of affiliated children contributed significantly to the increase in participation and use of services.

Recording births as a gateway to social services

Birth registration has been critical in Peru to ensure every family gains access to the health and child care services they need. Peru's Padron Nominado played a crucial role here.

It is an individualized list of children under six years of age. The list is on an electronic platform and contains the following data: names and surnames; identification numbers; names and surnames of the father and mother; address; affiliation to social programs; type of health insurance; among other information. It gets information from the register of SIS, Juntos and from other sectors, including the Ministry of Education. The data is used to measure coverage of health services and social programs at different levels by department, province, district and communities.

Having one platform to register children when they access social programs has allowed the state, through RENIEC, to fulfil the children's right to identity. Also, for the first time in the history of Peru, it has allowed every health center to know who its "final customers" were, contributing to a better service. It has allowed the early affiliation of children from poor families to health and nutrition services and to social programs. The Padron Nominado has served as a tool for effective institutional coordination and to ensure services reach the most isolated citizens.

The importance of parents registering the birth of their children to gain access to vital health services is echoed by local government officials.

"Now, they get an ID from day one. Before, these children simply didn't exist as far as the state was concerned," said 40-year-old Julio Palacios Chumpitaz, a doctor working in Huánuco. "We didn't have an accurate list. The first benefit the child receives is his or her packet of measures, like vaccinations, and the sachets of dietary supplements."

Because of several policy measures, all Peruvian children born after 2006 automatically received a unique identification number (National Identity Code or *Código Único de Identidad*, CUI in Spanish). Although there are no education, health, or nutrition results directly linked to the improvement of civil registration of children, there is evidence that increased identification contributed to improving targeting and the early detection of children at risk. The inclusion of the CUI in the birth certificate also became the first step towards the integration of the national civil registry by promoting information sharing across social programs (World Bank, 2012).

Monitoring and Measuring Success

Monitoring commitments was also critical. The Initiative provided the government with a yearly report on its progress in reducing chronic child malnutrition, a so-called Annual Balance of Actions to Reduce Chronic Child Malnutrition. The *Mesa de Concertación para la Lucha contra la Pobreza* provided similar monitoring at national and regional level.

Guidelines were created to help municipal governments reduce chronic malnutrition by working hand in hand with regional and national governments. Incentives were also provided to municipalities through "Planes de Incentivos" (local initiative plans) aimed at increasing the coverage of key services and to boost the registry of children in the *Padron Nominado*.

There was also a recognition that the government needed better data.

More detailed and frequent household and demographic surveys were recognized as key because they could provide an invaluable snapshot of the lives and health of ordinary Peruvians.

More resources were provided to Peru's National Institute of Statistics (INEI), allowing investment in more regular surveys. The country's Demographic and Family Health Survey (ENDES) provided vital data annually on the health of mothers and children. Peru is one of very few countries in transition that has annual demographic and health data at its disposal to inform decision making.

Critical to the long-term success of Peru's drive to reduce stunting has been a Social Monitoring tool: a process developed to gather, evaluate and assess information on the critical determinants of malnutrition at the grass-roots to ensure effective services and to develop a strong sense of local involvement.

Under the leadership of local governments, local authorities, civil society organizations and community leaders involved in combating stunting meet every six months. They monitor and share information about the coverage, quality and effectiveness of primary health and nutrition services as well as the impact they are having. In addition, they share their findings with local communities, creating downstream and upstream flows of information and accountability. Different information systems are used to monitor the data: The Integrated Financial Management System (*Sistema Integrado de Administración Financiera-SIAF*) for budget allocations; SIGA for inputs at the health facility level; and the *Padron Nominado* to monitor every child with services provided, including data on the affiliation to *Juntos* and SIS.

"In 2006, we were allocating resources on an historical basis and we did not see where the greatest gaps were. In part, this was because we were not used to working with statistics. At that time, we decided to strengthen the National Institute of Statistics so they could provide us with the information that we could use to improve the allocation of resources," said Rodolfo Acuña.

INEI successfully used ENDES to monitor and track the success of government initiatives to improve the health and nutrition of Peruvian children, including cross-referencing the data from the ENDES survey with the country's *Padron Nominado*, the national registry of children developed by the Ministry of Health in coordination with RENIEC and MEF.

6. PERU'S SOLUTION: CEMENTING BEHAVIORAL CHANGE BY EMPOWERING PARENTS

Communication about stunting empowered parents and deepened debate

Chapter Snapshot

- Peruvian parents often believed their children were growing normally when they were not or that their children's short height was hereditary.
- A video made public in 2007-2008 popularized simple-to-understand standards of what it means for a child to grow at a healthy rate. The video's focus on the impact on stunting on a child's brain shocked many across Peruvian society.
- Awareness-raising encouraged mothers to bring their children to clinics to have them weighed and measured, to have them vaccinated and to change family meals to introduce more nutritious foods.

For decades, many Peruvian parents in poor households in remote communities were simply unaware that their children were chronically malnourished. Awareness raising had a crucial role to play in encouraging mothers to bring their children to health centers and smaller health posts to have them weighed and measured, to have them vaccinated, to change family practices and meals to introduce more protein and iron-rich foods.

"The passive attitude of citizens changed over time to become an attitude of greater participation and involvement. Now there are people who take the commitment to work for their community. We saw this beforehand and it was very unusual. Today it is becoming more frequent and they do it with greater authority, with a greater level of knowledge and greater acceptance by their peers. This has led to more progress on issues such as the use of safe water, the recognition of the importance of preventive checks for children and pregnant women. These things have become daily practices for people," said an official from the regional health office in Huánuco.

The World Bank, in addition to lending financial and technical support to Peru in its fight against stunting, produced and presented a seminal video in December 2007 that popularized simple-to-understand standards of what it means for a child to grow at a healthy rate: approximately 24 centimeters in the first year of life and 12 more in the second year. The video was validated by the teams of MEF and MINSA, the Initiative and other organizations.

"My Future in my First Centimeters" ("Mi Futuro en Mis Primeros Centímetros") presented success stories spearheaded by the UNICEF program Buen Inicio (Good Start) in the fight against stunting in rural communities in Peru and inspired parents to take their children to clinics to be weighed and measured and to receive counseling. TV and radio spots of this video still run today. (Video link: <https://www.youtube.com/watch?v=mJieb2Xgt9U>).

The story of two rural communities

The video told the story of two poor and remote farming communities in the Apurimac region. Less than an hour apart, there were big differences in how well children were growing between Nueva Esperanza and Lliupapuquio. In Nueva Esperanza, the children were growing normally. In Lliupapuquio, their growth was lagging. Eight out of every 10 children were suffering from chronic malnutrition. Less than a decade earlier, Nueva Esperanza had suffered a similar problem. But it had successfully changed its fate, with only two out of 10 children stunted at the time the video was filmed.

A video that opened eyes

The video pointed out that any child anywhere in the world under 80 cm tall on their second birthday was suffering from chronic malnutrition. Neither race nor ethnic origin has anything to do with a child's growth potential at this age.

"They [people from Nueva Esperanza] have reduced malnutrition to a quarter of the previous level and they have given lie to a myth which has doomed generations of Peru's poor, rural children to suffer the lifelong consequences of chronic malnutrition," the video told its viewers.

That reversal was thanks to pregnant women and mothers going for regular check-ups at health centers and health posts, having their children weighed and measured monthly to make sure they were growing properly and to address the problem if they were not. Women were told about the benefits of exclusively breast feeding their babies for the first six months and of making sure children got the complementary foods they needed after that. There was also a focus on hygiene and vaccinating children against illnesses. "It was an eye-opening video. Back then I had been a TV reporter for 15 years. The way we saw malnutrition was the typical picture of an emaciated child from Africa. We were absolutely clueless about what chronic malnutrition in children was," said Bibiana Melzi, who produced "My Future in my First Centimeters".

The video -- which was made available in Spanish, English and Quechua (the indigenous language of the Inca empire)

-- was so successful that the government distributed it to every health center targeted by Crecer to educate and inform public officials about the scale of the problem. It was shown in community centers in the Andes, reaching the most remote and impoverished areas.

"The video showed so clearly what was happening in the country's hinterland and what it meant for the development of the children there. I think those of us who were in that session (video screening) thought a great deal about what it would be like if our own children were in that situation. And we thought, well, why can't we help them?" said Rodolfo Acuña, recalling the first time he and other government officials watched the video.

"The videos showed so clearly what was happening in the country's hinterland and what it meant for the development of the children there." - Rodolfo Acuña, Director of Public Budget at MEF

The video not only stimulated national debate about the scourge of stunting but became a major media story, particularly because of its hard-hitting images of the irreversible impact of chronic malnutrition on a child's brain development.

"What caught the attention of the Minister of Economy, Luis Carranza, was to see, in an image that we showed him, the difference between how a neuron of a malnourished child looks compared to that of a child that is not. When he read the scientific papers, and heard other arguments, he said: 'We must prioritize this,'" said health expert Lucho Cordero.

Newspapers, radio and television were awash with reports about the country's chronic malnutrition crisis for the first time.

The success of the video inspired other Latin American countries to emulate Peru's example by producing similar

films on chronic malnutrition, including Guatemala, Ecuador, Honduras, Mexico and Nicaragua. In Peru, the video was converted into radio spots played freely on Radio Programas Del Peru (RPP), a broadcaster which covers almost the entire country.

Cooking up recipes for success

Peru has not only spent the last decade successfully striving to reduce stunting. It has become the culinary capital of South America thanks to celebrity chefs such as Gastón Acurio, who, together with other chefs and the Peruvian Gastronomy Association (Asociación Peruana de Gastronomía - Apega), has helped to make the country's cuisine one of its proudest exports.

But lack of diversity in the diet of rural and remote communities, particularly inadequate access to meat, dairy and eggs was a persistent problem when the government set out to tackle chronic malnutrition. In 2009, the Ministry of Health, Juntos and the World Bank invited some of Peru's top chefs to promote healthy eating with cookery lessons, cookery competitions and educational sessions in communities and schools.

Chefs and trained nutritionists worked with poor women in remote areas to inspire them to find new ways to prepare food for children from six to 24 months of age. Nutritionists, Apega and Cordon Bleu, the world's largest network of culinary and hospitality schools, teamed up to

help develop guidebooks on healthy nutrition for pregnant women and infants. Juntos mothers, who were winners of a nutrition and gastronomy competition focusing on food for children from six to 24 months of age, took part in the national gastronomical fair in Lima.

**"It was an eye-opening video."
- TV producer Bibiana Melzi**

Peru's National Food and Nutrition Centre (CENAN) initiated a weekly campaign publishing nutritious recipes that used inexpensive foods available in the local markets of the poorest districts of Peru. "The campaign provided affordable and nutritious meal alternatives for poor families, ensuring the right mix of foods and critical nutrients. In parallel, parents were given cookery lessons alongside counseling in health facilities. The cookery lessons promoted culinary hygiene as well as providing tips to families on how to combine different ingredients to ensure the right mix of nutrients in meals for different age groups", said Maria Ines Sanchez Grinan, advisor to the Minister of Health and former Director of CENAN. This activity was included in PAN with every health center in the country allocating sufficient money to implement it regularly.



7. PERU'S SOLUTION: INSTITUTIONALIZING SUCCESSFUL POLICIES

The campaign to conquer chronic malnutrition did not lose momentum in 2011-2016: MIDIS and a new institutional home for coordinated policies to tackle stunting.

Chapter Snapshot

- Political continuity in the fight against malnutrition was vital in lowering stunting rates with the issue on the political agenda in three successive elections: 2006, 2011 and 2016.
- From 2011, the Ministry of Development and Social Inclusion (MIDIS) took charge of coordinating the national campaign to curb chronic malnutrition.
- The Ministry launched a new early child development program and closed an inefficient government agency responsible for food distribution.
- A new Performance Incentive Fund was created to reward the delivery of a complete package of services to children.

When Ollanta Humala was elected President of Peru in the 2011 election he pledged to further reduce chronic malnutrition and anemia.

His government set up MIDIS and put it in charge of tackling chronic malnutrition. A National Plan for the Reduction of Chronic Malnutrition and Child Anemia was adopted, setting the tone for national, regional and local government.

The Ministry's main job was to ensure Peru's poor shared in the country's economic growth. As part of that drive, a national "Inclusion for Growth Strategy" was unveiled to revamp the Crecer strategy. It set out to improve the lives of Peru's poor through national, regional and local government. The new ministry had responsibility for social development and protection, inclusion, equality and nutrition. Five key social programs were also moved

under the responsibility of MIDIS, including Juntos. While different sectors contributed to the drive to reduce chronic malnutrition, the initiatives were directed by the ministry. To ensure continuity the new ministry was staffed with officials who had earlier held senior positions in the finance and health ministries. It also worked closely with MEF and the Ministry of Health.

At the end of 2013, MIDIS was made responsible for coordinating a multi-sectoral commission in charge of the "Early Childhood" strategy and its action plan for 2014-2016.

The strategy included Crecer, which then was renamed Incluir para Crecer¹⁴ (Inclusion for Growth). An ambitious target was set to reduce stunting further by 13 percentage points in five years. Part of the ministry was responsible for targeting, coordination and evaluation to ensure coherent and consistent nutrition policies across government.

¹⁴ Incluir para Crecer was designed to follow a life-cycle approach and targeted five outcomes including the reduction of malnutrition and improvement of early childhood development to foster opportunities and provide early stimulation for those same children.

Incluir para Crecer was designed to follow a life-cycle approach and targeted five outcomes including the reduction of malnutrition and improvement of early childhood development to foster opportunities and provide early stimulation.

"Personally, it's a touching issue. We are a diverse and increasingly rich country. We cannot allow our kids not to take advantage of that," Carolina Trivelli, the first Minister of MIDIS said. "You realize there is a change in the country, especially when parents talk to you with pride about how big their kids are today, how they are growing, how strong they are, how tall they are. That sense of pride shows they value the interventions, that there is a transformation in the lives of these families," she said. "This country has done amazingly well in translating a good economic situation into a better social situation for the poorest people. It's not just about economic growth but about making the right choices," she said.

Setting goals for social transformation

The Ministry also launched the Cuna Mas early childhood development program for children under 36 months living in poverty, providing day care and home visiting services.

Cuna Mas was created in 2012 to provide comprehensive childcare to vulnerable children below three years of age, in poor urban and rural districts. These regular childcare services included growth monitoring and home visits to families with children at risk of suffering malnutrition. In addition, the Ministry set up a school nutrition program called Qali Warma and closed the government agency responsible for food distribution program known as PRONAA¹⁵. Peru's ambitions to increase the quality of children's nutrition and reduce stunting rates remained firmly at the top of the political agenda, irrespective of which party was in power in Lima.

MIDIS and the MEF also created the FED (Fondo Estimulo al Desempeno), seeking to improve the delivery of priority services to reduce stunting and promote early childhood development. In 2014, FED had a budget of 100 million Soles - about \$30 million at today's exchange rate - to be allocated to regional governments based on their compliance with commitments to provide services to pregnant women or children up to five years of age. FED took an innovative approach by broadening the focus on early child development and by recognising the importance of delivering a complete package of services to "the same person".



¹⁵ PRONAA was created in 1992 to provide food assistance to rural and isolated areas. PRONAA typically distributed a food package that included rice, soup, cereals and vegetable oil (Alcazar, 2007). In 2012 PRONAA was closed due to significant deficiencies that pointed to problems of low coverage and high inclusion errors, sub-optimal planning, purchasing, delivery and storage processes causing delays and incomplete rations, and a big difference between the amount of food delivered and the amount effectively consumed by the beneficiaries (MIDIS, 2013). A new program, Qali Warma, was created immediately to replace feeding programs for school-aged children. It worked in collaboration with local communities and promoted local food diversity. These programs do not benefit children during the window of opportunity of the first 1,000 days to prevent stunting but they can be helpful in providing implicit transfers to poor families, encouraging school attendance and providing a vehicle for nutrition for school children.

8. A RENEWED COMMITMENT - CRITICAL TO ADDRESS FUTURE CHALLENGES

Stunting has not been eradicated and other nutrition challenges have emerged

Chapter Snapshot

- More than one in 10 children under five years of age still suffered from stunting in Peru in 2016.
- Disparities in rates of stunting still exist across Peru between rural and urban areas, between indigenous and nonindigenous communities.
- New nutrition challenges have emerged, such as obesity. High levels of anemia in children and adults continue to persist.

Despite Peru's remarkable progress in tackling chronic malnutrition, it still faces serious nutritional challenges that must be addressed in the years ahead.

Firstly, stunting has not been eradicated. More than one in 10 children (13 percent) suffered that fate in 2016. Disparities across the country and between rural and urban areas remain high. In 2016, stunting rates were still 26.5 percent in rural areas compared to just 7.9 percent in urban areas. In the same year, stunting rates for children speaking Quechua or Amazonian languages were, respectively, three and four times higher than the rates for Spanish speaking children.

Although urban areas have lower stunting rates than rural areas, urban malnutrition has stagnated over the past five years. This has highlighted the need for different strategies to tackle malnutrition in such a diverse country. One size does not fit all, with urban areas and rural areas with a significant indigenous population needing their own tailored approaches to reduce stunting.

"In the Amazon, there are 400,000 indigenous people living hours or days away from the capital of their own district. It's another world. So, the big challenge now is to get to Amazonian communities where child malnutrition is

around 60 percent," said Ariela Luna, former Vice Minister at MIDIS.

Peru is also facing the growing problem of people who are overweight and obese, as well as persistently high levels of iron-deficiency anemia among children under five.

Peru also has a growing number of people suffering from so-called Double Burden Malnutrition (DBM), a combination of under and overnutrition (stunting, micronutrient deficiencies and obesity) within communities and families with overweight mothers and underweight or stunted children. DBM is a major problem because stunting in early life increases the risk of over-nutrition and chronic diseases, such as diabetes and cardiovascular disease, in adulthood. According to the most recent estimates, the prevalence of overweight children under five in Peru is 7.2 percent (> 2 S.D, GNR, 2016).

Peru is not alone in the fight against the problem of adults who are overweight and obese and the growing challenge of overweight and obese children. Worldwide, 41 million children are overweight. Development, economic growth and increases in household income contribute to changes in diets that are not necessarily healthier. Over the past decade, Peru has experienced an increase in consumption

of processed foods, high in sugar and salt (Rigolini, 2017). As in other countries, this often goes hand in hand with a reduction in physical activity with children spending more time in front of the television and using social media. (Shrimpton and Rokx, 2012). Food technology, food safety, food systems policy and agricultural producers need to be included in the debate on preventing people becoming overweight or suffering from obesity.

The very rapid urbanization in Peru is likely to have contributed to the rise of this DBM problem, as it has in other countries in Latin America, the Caribbean and beyond. It is not a new problem. In 2005, 43 percent of women of reproductive age were overweight (body mass index $<25 \text{ kg/m}^2$) or obese (body mass index $<30 \text{ kg/m}^2$) (CENAN 2013). This increased to 58 percent of women who were overweight or obese in 2014 (ENDES 2005, 2010, 2014). Peru is conscious of this growing problem and is developing campaigns to curb the increasing use of processed foods which are high in calories and often low in quality. It is also promoting physical exercise and regular health check-ups for all ages.

Tackling anemia

For all Peru's successes in reducing stunting, there is another mountain still to climb.

Anemia remains a major concern across Peru. Around 59 percent of children between six and 11 months of age suffer from anemia and 44 percent of children between six and 36 months do. Despite the impressive reduction in stunting, the prevalence of anemia has remained unchanged. There is no direct correlation between being stunted and being anemic and prevention of stunting does not have direct implications for tackling anemia.

That said, it remains to be explained why efforts to reduce anemia have not been as successful as the drive to lower stunting rates, even when preventing anemia was one of the goals of PAN. Dietary diversity has improved while there has also been a significant reduction in infectious

disease. Both these successes should have had a positive impact on anemia levels. Recent food-consumption data analysis shows low levels of consumption of animal source and other iron-rich food (Sanchez-Grinan 2015).

To reduce anemia, the problem needs to be understood and recognized. But measuring anemia is harder than measuring stunting because blood samples and tests are needed. It also requires understanding of underlying diseases which may cause anemia, such as infectious gastro-intestinal disease. Regular supplements are needed to correct and maintain blood iron levels if consumption of iron rich foods is low, especially among young children (Shekar et al., 2017). There have been shortages in iron supplements in Peru in the past which partly explains the lack of success. The persistent high levels of anemia among children also indicates a likely high prevalence of helminth and other parasitic infections and among young children tropical enteropathy¹⁶, which diminishes nutrient absorption, contributing to anemia (Korpe and Petri 2012).

However, an assessment of what did not work is still ongoing. Attention to food fortification with iron is needed given that the provision of iron-fortified food is among the most cost-effective interventions to address anemia among children and their mothers and currently there is no mandatory fortification in Peru.

Peru is the South American country that suffers most from anemia (matching only Guyana), Lorena Alcazar said in a report: "It affects more than 50 percent of preschool children, 42 percent of pregnant women and 40 percent of non-pregnant women of reproductive age. These prevalence levels put Peru in a similar situation to most African countries."

"The biggest problem we have with expectant mothers is anemia. Women here, when they're pregnant, have difficulty getting enough iron in their diet. And there are even lots of myths and misconceptions around, that we're trying to counter, about how pregnant women can't absorb iron," said nutritionist Brenda Infantes Yucra.

¹⁶ Tropical enteropathy or environmental enteropathy is a condition or subclinical disorder believed to be due to frequent intestinal infections. There are often minimal acute symptoms but there may be chronic problems with absorbing nutrients which may result in malnutrition in children. Environmental enteropathy results in changes in the intestines, including increased permeability and inflammatory cell build-up within the intestines. These changes result in poor absorption of food, vitamins and minerals.

"Many women don't know anything about anemia. They look at a child with anemia and they say: 'He looks normal, so what's the problem?' So, we explain to them that if they suffer from anemia during pregnancy, it will have an impact on how their child's brain develops inside the womb. And that's when they take the issue seriously: as soon as you mention the brain. They say: 'I want my child to be intelligent.' So, they assume the responsibility... to get a good dose of iron while they're pregnant but also to make sure their child takes their dietary supplements once they're born," she said.

Reducing anemia is now a major priority for several government ministries, led by the Health Ministry and with an important coordination role in the Presidency of the Council of Ministers. A new strategy to fight childhood anemia has been approved with a major focus on a campaign to raise widespread awareness about the magnitude of anemia and its consequences. Promotion of dietary diversity and improved intake of iron-rich foods is part of this campaign. Ways to improve iron stores in new-borns are being included in clinical guidelines¹⁷. The ministries encourage alignment of policies geared towards anemia reduction as well as improvements in data-gathering (among the very young) and analysis to better understand who and when to target and provide supplementation. An ambitious target of reducing anemia by 20 percentage points by 2021 has been set. Regular measurement mechanisms to monitor progress are being established (Sanchez-Grinan, 2015).

For MIDIS, reducing anemia is a priority. It is working with MINSA and development partners on a strategy to increase the attention paid to anemia in its current programs. One specific aim is to boost counseling in local communities with the help of staff working for programs administered by MIDIS. A more general aim is to widen the availability of iron-supplements, such as so-called sprinkles (chispitas in Spanish). Fortification of foods with iron continues to be discussed at the national level.

Closing the indigenous gaps

An increasing awareness of the nutrition gaps between indigenous and non-indigenous children has gradually also led the different institutions involved in providing services to develop specific strategies to achieve results in Quechua, Aymara and Amazonian communities. Understanding the traditions and beliefs surrounding child breastfeeding practices, and illnesses has been key.

Speaking Quechua, Aymara, Awajun or Ashaninka during birth registering campaigns, or during early affiliation drives and using indigenous languages in educational or promotional radio spots and in soap operas has become part of the way regional health networks, Juntos, SIS officials, and civil-registry officials work.

The Peruvian government has progressively understood the need to approve special legislation and protocols, and increase the budget to ensure the adequate provision of basic services to distant communities.

"There are health centers that can only reach a distant village by river. Therefore, they need to have a canoe or a motor boat. The health network has to assign them extra budget to buy gasoline, otherwise they would have to pay for transportation and that's even more expensive", said a health technician from Nuevo Seasmé, in Condorcanqui, referring to the need to allocate extra budget to reach out to distant communities.

The stunting gap between Quechua and Spanish speaking households fell from 29.7 percent in 2009 to 21.6 percent in 2015. Yet, the gap between households speaking Amazonian languages and Spanish is still very high at 35.7 percent, indicating the need to redouble efforts in the Selva.

¹⁷ Such as delayed umbilical cord clamping during the third stage of labor.

9. SPOTLIGHT - BIG CHANGES IN SMALL COMMUNITIES

Huánuco, a region around 380 km north-west of Lima, is full of remote villages where health workers are helping families to raise stronger children

Its villages and hamlets have seen big changes thanks to Peru's efforts to reduce stunting. Since 2007, the percentage of children in the province with chronic malnutrition has more than halved from almost 50 percent to around 24 percent.

It is in isolated rural communities like San Isidro de Visag, a 90-minute drive from Huánuco's capital up a rutted, mountainous dirt road, that the success of programs like Juntos is visible.

Tomasa Sacramento Soto, a 35-year old mother of three, lives with her husband and children. Thanks to a Belgian NGO their village now has chlorinated water, reducing the threat of cholera and diarrhea to their children. She is also a recipient of Peru's successful conditional cash transfer program Juntos. In addition, the family breeds guinea pigs to sell and to eat them, increasing the family's protein intake.

"I get my payments every two months. I go to Huánuco to receive them. It's very welcome, although since I've started selling the guinea pigs it's become a smaller part of my overall income," she said.

Throughout the locality, the lives of women, children and families have been transformed.

Reaching out to remote communities

In the small, rural community of Sogobamba, programs like Juntos have helped women like 29-year-old mother of two, Elizabeth de la Cruz. Her son Yhersin is 18 months old. She also has a 12-year-old daughter. Elizabeth de

la Cruz lives with her mother in a house with a small garden in front. They grow onions, beetroot, lettuce and parsley. She does not have a regular job but sometimes works picking fruit for a local farmer. Her only other income is the money she receives from Juntos.

It is in isolated rural communities like San Isidro de Visag, a 90-minute drive from Huánuco up a rutted, mountainous dirt road, that the success of programs like Juntos is visible.

"The Juntos money is really important for me so I always make sure Yhersin is up to date with his vaccinations and his weight-check tests because if he misses the tests then I lose the money," she said. "And I go to the meetings at the health center in Acomayo because if you don't go you don't learn. I've learnt a lot from the staff there about diet, and what not to eat, and the importance of hygiene, and lots about how to recognize illnesses like hepatitis or measles. Things have changed a lot since I had my daughter 12 years ago. I didn't give her supplements back then. They weren't available."

In the district of Santa Maria del Valle, just outside the city of Huánuco, the government runs a health center where women from rural and remote communities come to give birth. Ten other health posts serve smaller and more inaccessible communities but women travel to Santa Maria del Valle to give birth.¹⁸

¹⁸ In Huanuco, Future Generations supported between 2010-2014 the districts of Santa Maria del Valle and Acomayo, who were implementing the community strategy for child and maternal health, in partnership with the Regional Government, DIRESA, Health Network, District Municipalities, and four health catchment areas (microredes), to strengthen the capacities of health personnel and community agents. These communities established a joint-management model using the "Asociación Comunidad Local de Administración de Salud (CLAS)".

"The local government gave us more money so we could employ more people at the other health centers (the 10 in the rural areas). That's allowed us to monitor the growth of the children, make sure they're being given their nutrients, check to see if they're suffering from anemia and give advice on things like diet and what to do during pregnancy. That's all been, absolutely, key to reducing chronic child malnutrition," said one of the health center's doctors, 40-year-old Julio Palacios Chumpitaz.

Support and services at the grass-roots

Collaboration between the Ministry of Health, programs like Juntos and NGOs has made a real difference to the lives of remote communities. Doctors, nurses and health workers receive both classroom and on-the-job training to ensure they have a better understanding of growth charts, weighing and measuring children and correct counseling about nutrition, including in the Quechua language, a key aspect of communicating with many indigenous families.

"To reduce child malnutrition, we promote regular home visits. Within the structure of the visit, care practices are strongly promoted. These include, for example, hand-washing, good use of micronutrients and the reinforcement of messages so that mothers go in a timely manner to their check-ups at the health posts," one official said.

NGOs have also played a vital role in making mothers aware of the threat of chronic malnutrition and anemia to their children and in getting local women involved in communicating with families about steps they can take to ensure their children grow up healthy.

"They've persuaded the communities to choose one woman from within the community to be responsible for health issues. And that woman can help the nurses and doctors when they go out to the communities, because they speak the same language as their neighbors," said

Dr Palacios Chumpitaz. "Because I can go out as a doctor and say: 'I want to reduce chronic child malnutrition in your child.' They might not understand. But if their neighbor says: 'Look, I want your child to grow as quickly as mine,' they're more likely to get it," he said. "Some of the first babies I delivered are now reaching adulthood."

Understanding local communities is critical for health officials to deliver services to families.

"Knowledge of the local reality by health personnel is key. A clear example is vaccination. I was one of those who went out to knock on doors. The first thing they did was not open the door but let the dogs go. Now people are coming to ask for the vaccination and for their Control of Growth and Development (CRED)," one official in Huánuco told the World Bank in a series of focus group interviews in January 2017. This reflects an important change in attitude. The level of commitment of local field staff was extremely important in the process.

It is mothers like 25-year-old Edith Zambrano Reyes and her 17-month old son Yharif who have benefitted directly from Peru's drive to give children the best start in life.

"He's up to date with all his checks-ups. He had a few problems with being underweight in the first few months of life but not now. The nurses are very good at explaining how to look out for possible illnesses, like measles, or tuberculosis or flu," she said. "During my pregnancy, I got a lot of advice from the nutritionist about what to eat and what to avoid – like trying to eat meat and vegetables and avoid fizzy drinks," she said.

In addition to growth monitoring and promotion, nutritional advice to parents has been central to Peru's success in reducing stunting rates. Part of the nutritionist's role working in remote communities is to advise mothers on healthy eating and to challenge dietary traditions which reduce iron intake.

Brenda Infantes Yucra, a nutritionist at a healthcare center for mothers and their children in the town of Acomayo, gives monthly nutrition classes at the health center to mothers on what kind of food they should give their children at different ages. This is welcomed by parents. "A lot of people in this area breed and eat their own animals, their chickens, their guinea pigs, but they drain off all the blood, until you explain to them it's a good source of iron. Likewise, with the liver. They often discard the liver, but we tell them not to," said the nutritionist.

One mother, 28-year-old Liliana Pinzas Villar, attended a nutrition class with her six-year-old daughter Helen.

She has two other children, aged three years and six months.

"When Helen was born, I used to give her pretty much the same food that we ate, but with the younger ones I'm more careful," she said. "I always remember when one of the nutritionists said that what I ate when I was pregnant could have an impact on the development of my child's brain, and that really made me think. And they say that what a child eats during the first five years of their life is so important. So, with my second and third child I've been more careful, always making sure I give them the right nutrients."

10. CONCLUSION – LESSONS LEARNT

Where Peru has led, others can follow

For a country to more than halve its stunting rate in less than a decade is proof, if proof were needed, that chronic child malnutrition can be conquered.

Today Peru stands out globally for its success in tackling stunting. The country receives regular delegations from foreign governments to learn about how Peru did it. "Peru's experience in this area is also a unique asset for the World Bank, and allows it to better serve our clients through sharing its example. Peru is hosting and has hosted high-level officials and their technical teams from Cameroon, Ecuador, Guatemala, Indonesia, Madagascar, Mozambique and Tanzania and is welcoming others to come and see for themselves how Peru managed to reduce stunting rates," says Alberto Rodriguez, the current World Bank Country Director for Peru.

"It's definitely something that can be replicated elsewhere," said Felipe Jaramillo, the World Bank's former Country

Director for Peru. "I have been frustrated by other cases where the level of malnutrition is the same or worse than in Peru. You must have commitment. Ultimately, it's in a nation's hands, that of the government and its people," he said.

Given the unacceptably high toll chronic malnutrition takes on individuals, families, communities and countries, eradicating stunting is central to the World Bank's goal of ending extreme poverty and increasing shared prosperity.

"The question is not whether a country can afford to end chronic malnutrition in children. The question is whether a country can afford not to end it," said World Bank President Dr Jim Yong Kim.

Peru offers us an exceptional example of how a nation can turn political commitment, good policies and good governance into better health and social services for the poorest communities.

Peru's recipe for success had many ingredients, which were adapted and revised over time. But some key ingredients stand out. Establishing political commitment, getting the right policies in place and changing behavior sowed the seeds for Peru's success.

Establishing political commitment, coordination and cooperation

What is remarkable about Peru is the fact that four successive governments under Presidents Alejandro Toledo, Alan Garcia, Ollanta Humala and now Pedro Pablo Kuczynski have ensured continuity and commitment in the push to reduce stunting.

"Continuity is really critical between governments," said Milo Stanojevich of CARE Peru. "International engagement is critical because that helps you put pressure on the government," he said.

Pedro Pablo Kuczynski, elected President in 2016, has expressed the ambition for Peru to eradicate chronic child malnutrition. The government's current targets are to reduce Peru's chronic malnutrition rate in children to around six percent by 2021 and anemia rates to 19 percent.

"It got a lot of political and social attention. It was a social goal for all of us. We all need to be there at the same time and in the same place," said Carolina Trivelli, who is now an economist working on rural finance and financial inclusion in Peru. The secret of Peru's success, in her view, boiled down to political will and coherent policies with clear goals and incentives.

Smarter policies: focusing on evidence, incentives and results

Consolidation was a critical component as Peru embraced tried-and-tested methods and efficiency in its health, nutrition and social programs and made sure that its health

personnel had all the necessary means and training to delivery high quality services.

Cash, in the form of CCTs, incentivized parents to bring their children to clinics for growth monitoring and promotion check-ups on a phenomenal scale. But cash incentives to parents alone were not the answer. It was the combination of the CCT program and improvements in the availability and use of health services, increased health insurance coverage for the poor, the rigor of RBB and the strategic focus of the nutrition strategy Crecer on selected interventions and on the neediest areas which forged a convergence in the government's approach to reducing stunting.

Credible systems, data, targets, incentives, monitoring and evaluation ensured a results-based approach to public spending to reduce stunting.

Peru's winning formula for reducing chronic malnutrition had three key elements, said Ivan Hidalgo, a former President of Juntos. "First, political decisions at the highest level. Without these, it is better not to get involved. Second, have a budget assured. Third, have a technical team that can implement what has been agreed." he said.

Changing Behavior

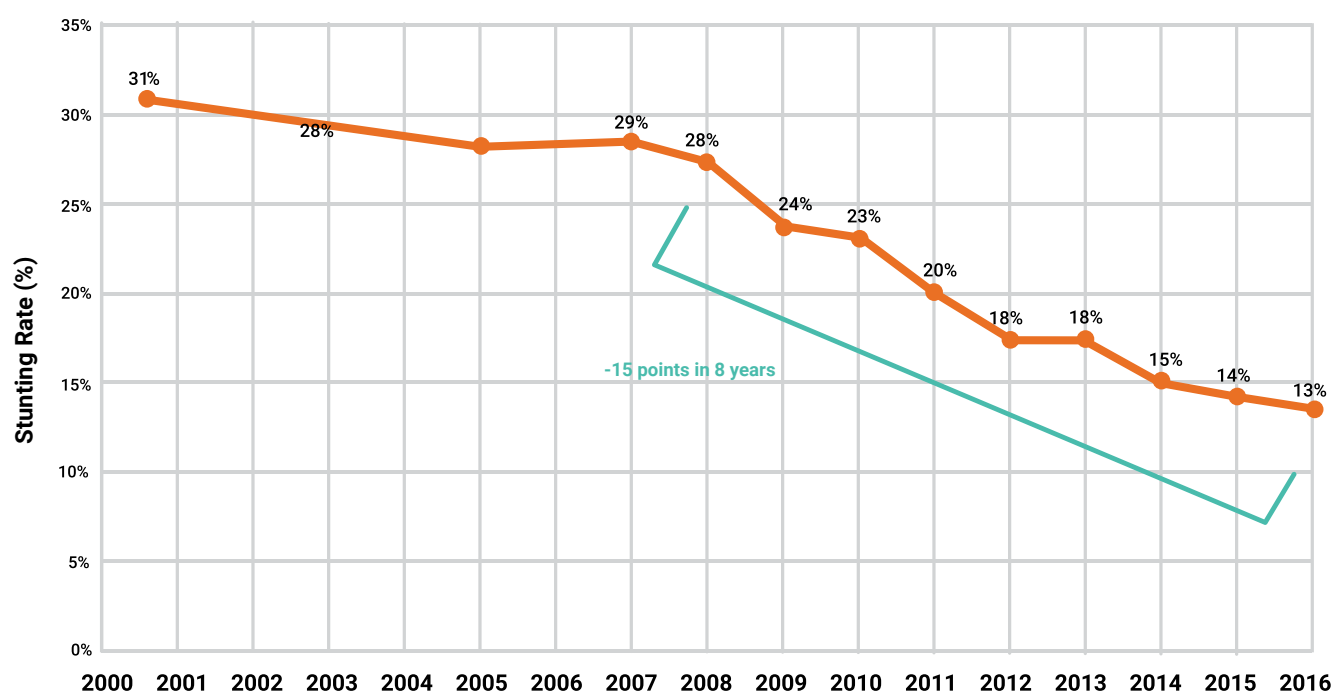
Communication was critical in persuading parents, public officials and policy makers to unite in turning the tide against stunting. Effective communication changed how people thought and behaved in response to a pervasive economic and social problem which manifested itself in the poor health of children.

Peru stands out not just for its success but the nature in achieving that success: the coherence with which it turned a multi-faceted problem into a single strategy with a single goal: to make stunting a thing of the past. Peru is not there yet. But it is close, much closer than many other countries. Peru can stand tall.

ANNEX: NO SILVER BULLET BEHIND PERU'S REDUCTION IN STUNTING

Stunting rate dropped precipitously in less than a decade

Chart A1: Stunting rates fell by 15 percentage points between 2008 and 2016 from 28 percent to 13 percent



Note: The ENDES survey began in 1986 and collected demographic and health data, including anthropometrics, every five years until 2000. In 2004, ENDES moved to a continuous survey scheme, collecting data every year. However, the sample was not initially designed to estimate the prevalence of malnutrition. In 2007, with the launch of Results-Based Budgeting, the sample size of the continuous survey was increased to be sufficient to estimate the prevalence of malnutrition by department starting in 2008. Given the sample design, estimates of malnutrition were available for 2005 and 2007 and on a yearly basis after 2008.

Source: ENDES

Between 1991 and 2005 the decline in rates of stunting in Peru was eight percentage points in 14 years. Between 2008 and 2015 the decline was two percentage points per year. It is this acceleration in the reduction of stunting rates that we are trying to understand.

Several studies and publications have tried to explain Peru's success in reducing chronic malnutrition so rapidly. There is sufficient evidence that the reduction in stunting was not purely part of a secular change and that there was no single bullet solution.

Secular trends, steady economic growth, increased spending, focus on results, and pro-poor, well-targeted social programs and increased access to health services all appear to have contributed to the accelerated reduction in stunting levels in Peru. The fact that they all happened in the same decade certainly increased the combined effect. Disentangling the relative effects of all possible factors in the reduction of stunting is an almost impossible task.

It was not only that all these actions took place during the same decade but, in fact, at the same time and in the same territory. At the end of the day, Peru's success story in reducing stunting is a story about the convergence of government actions. Disentangling the effects is not the issue, promoting convergence is. Malnutrition is an excellent example of a multi-causal problem that does not respond to a silver bullet solution. But there is no question that a nutrition-focused program played a consequential role in the dramatic improvements in Peru.

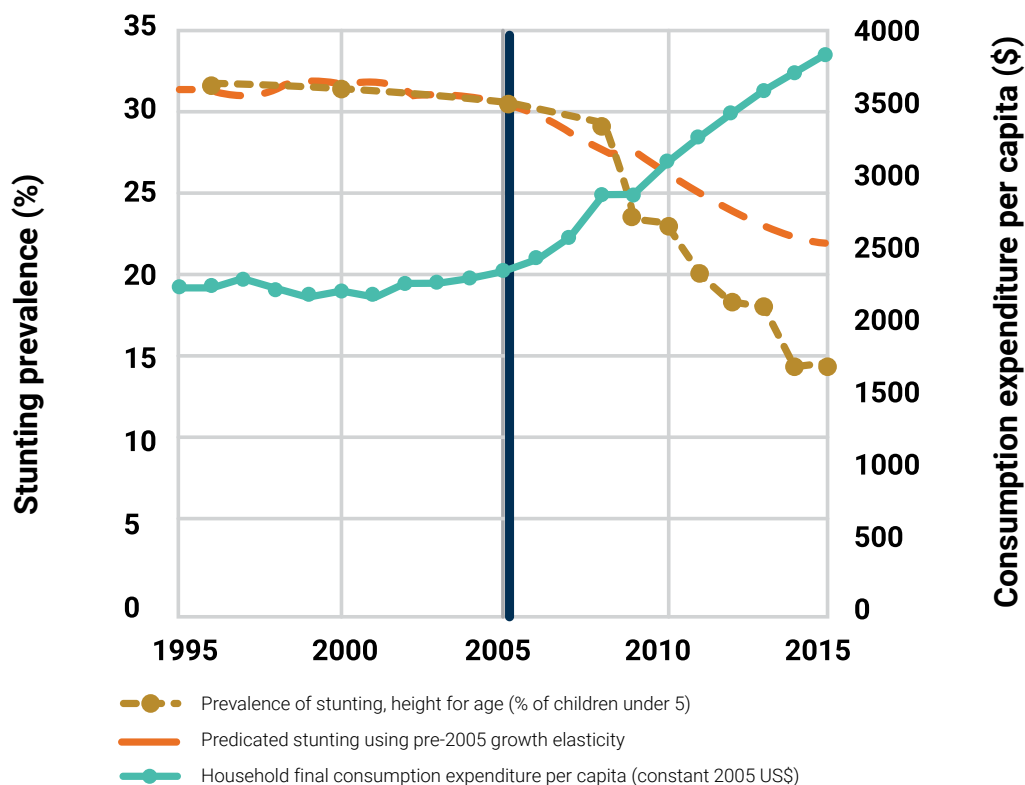
This annex complements the story told in this publication by reviewing the evidence from the most recent analytical studies of the determinants of the reduction of stunting in Peru.

Was the fall in stunting part of a secular trend?

A secular trend seems to be only part of the story. Escobal and Benites (2012) analyzed data from the Young Lives project¹⁹ and found that stunting rates fell at a rapid pace in all areas of Peru even for the control group of non-Juntos beneficiaries. However, Sanchez, Melendez and Behrman (2016), using the same data but a different methodology, found some indication of the impact of interventions, including the conditional cash transfer program Juntos, on the reduction of stunting. These estimates are based on propensity score matches to build credible counterfactuals. It therefore seems that a secular trend only explains the reduction in part and that policies directed at reducing malnutrition played a role. Recent work by Galasso and Wagstaff suggests that economic growth alone can explain up to 50 percent of the reduction in stunting in Peru. The acceleration observed is likely to be due to the systemic policy changes. The yellow line plots the evolution of stunting prevalence (yellow line, left y-axis), and of average consumption expenditure per capita (green line, right x-axis) over time. The dashed orange line represents the predicted reduction of stunting in response to economic growth, assuming the same elasticity of stunting to economic growth observed before 2006. The historical responsiveness of stunting to economic growth observed in Peru before 2006 (with a 10 percent increase in economic growth translating into a six-percentage point reduction in stunting) is in line with cross-country estimates (Ruel, Alderman 2013). The graph shows how income growth after-2006 could account for up to half of the observed stunting decline (Chart A2).



Chart A2: Stunting rate and per capita consumption in Peru (1995-2015)



Date sources: World Development Indicators. stunting prevalence from the Global Database on Child Growth and Malnutrition (World Health Organization), and the Household final expenditure per capita from the World Bank national accounts data, and OECD National Accounts data files.

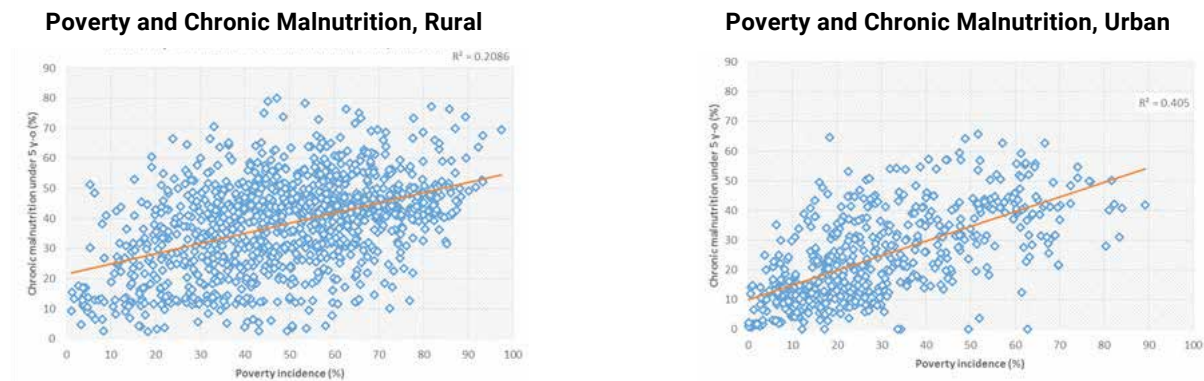
Economic growth played a role, but not enough

A country's development and economic growth certainly contribute to reductions in stunting, however, it is not enough to explain the accelerated trend seen in Peru. GDP grew steadily for several decades with an annual percentage increase of about six percent in 2011, 2012 and 2013 and 2.4 percent and 3.3 percent in 2014 and 2015. A close look at the relationship between poverty

rates and chronic malnutrition indicates that income is only part of the story, especially in rural areas. Data from Peru's National Institute of Statistics (INEI) shows that the correlation between poverty and chronic malnutrition in urban districts is only about 0.4, where other studies claimed the effects of growth to be larger. The correlation between poverty and stunting is only half as high among rural districts, showing that economic growth accounts for only a small part of the accelerated reduction.

¹⁹ Young Lives is an international study of childhood poverty following the lives of 12,000 children in Ethiopia, India (in the states of Andhra Pradesh and Telangana), Peru and Vietnam over 15 years. More information can be found at: <http://www.younglives.org.uk/>.

Chart A3: The relationship between poverty and stunting in Peru by area



Source: INEI

A combination of improvements in the underlying determinants was critical

The long recognized causal model of the determinants of malnutrition (UNICEF 1990) identified political will, broad participation, public spending levels, pro-poor programs and financing as key underlying factors behind the reduction in stunting rates. Based on qualitative and quantitative approaches, the Lancet 2015 Country Case Study (Lancet 2016) identified the trends in these determinants as critical contributors to the reductions in child mortality and chronic malnutrition in Peru over the past decade.

Analysis shows the remarkable reduction in stunting was multifactorial, encompassing improvements in social determinants, poverty reduction programs as well as major investments in programs within and outside the health sector (Lancet 2016).

The health insurance program SIS contributed to increased access to health services for the poor. Thanks to these investments, increased access to health services, improved caring and feeding habits (exclusive breastfeeding and appropriate complementary feeding practices), stunting fell at unprecedented rates.

Changes in social determinants were important

Genoni et al analyzed changes in social determinants using the synergy model (Genoni et al, forthcoming)

to study the role of Crecer. The authors analyzed the adequacy of three critical variables from the UNICEF model (access to care, health or environment and food security) and show that only the combination of at least two adequacy variables such as access to health services and a healthy environment are significantly associated with better nutritional status (increased height). The analysis does not allow for clear conclusions, but clearly points out that the reduction in stunting is highest in those districts prioritized by Crecer: 21.4 points reduction from 54.7 percent to 33.3 percent, whereas in other rural areas stunting fell 13.8 points from 45.7 percent to 31.9 percent.

Another recent study conducted by GRADE for the Peru Ministry of Health analyzed the impact of changes in budget allocation and household income on stunting rates. The GRADE-model explains 35-40 percent of the total variation in stunting and is not able to draw any clear conclusion. While mothers' education and height turned out to be important explanatory variables, some effects were also associated with vaccination and prenatal controls. Very little effect was associated with CRED (possibly because of the quality of the counseling). Access to water is a significant and important variable while the strongest effect is seen in household income and community or enabling environment. Mothers' height and education, as well as birth order were associated with a stronger effect among age sub-groups, similarly, vaccinations (during the first year) and CRED (during the first months of life).

The contribution of the conditional cash transfer program Juntos

The Juntos CCT program was created at the same time as the acceleration in stunting reduction began. The program was designed as a safety net program to tackle chronic poverty and contribute to the accumulation of human capital. Over time, it included the reduction of chronic malnutrition as an explicit objective. While Peru's CCT was certainly an important catalytic force for improvements in the supply of health/nutrition services across the country, like for other interventions, there seems to be no rigorous evidence to attribute the impact of the reduction of stunting solely to Juntos.

Using data from the Young Lives project and propensity score matching to compare the height of beneficiaries with constructed control groups, Escobal and Benites (2012) cannot find conclusive evidence about the association between the decline in stunting and participation in the Juntos program. The work by Sánchez Jaramillo (2012) concluded that while on average it is not possible to attribute an impact to the Juntos program, a positive association is found for those beneficiaries suffering from severe stunting and for beneficiary children with relatively more educated mothers. Similar conclusions were presented in a more recent paper by Sanchez, Melendez, and Behrman (2016) that used Young Lives data, pooling Ordinary Least Squares (OLS) with child fixed effects. That found no effects on stunting overall, but large effects on severe stunting for siblings of children who were exposed to Juntos as children younger than three years old. In previous work, Perova and Vakis (2009) found that the program was associated with an increase in the use of health and nutrition services for mothers and young children but did not find a correlation with final nutrition outcomes.

The Result-Based Budgeting program PAN undoubtedly played a role

The strategic nutrition program PAN was introduced in 2008 as one of the Results-Based Budgeting (RBB) pilots of MEF. The purpose of RBB was to increase the efficiency and effectiveness of public spending, including social programs. It led to much improved targeting and reallocation of funds where the need was highest.

Investments in cost-effective programs prioritized under PAN were directed to those regions where child malnutrition was most severe.

PAN offered the opportunity to break the institutional budgetary inertia: resources were assigned to achieve nutrition goals rather than on an historical basis. Additionally, various government agencies, including regional health directorates and the Juntos CCT program, were held accountable by MEF for improving specific outcomes. Extra budgetary allocation was granted, for instance, based on an increase in the number of poor children enrolled in the Juntos CCT, or the number of child-growth check-ups and nutrition counseling sessions to poor families in targeted communities

To understand the role of PAN in the reduction of stunting, Cordero compiled data from seven national health and demographic surveys, ENDES 2009-2015 and built a representative sample of households with children under five, allowing comparisons at the regional and departmental level, as well as between income quintiles. Cordero constructed different cohorts of children and looked at the association between stunting rates and participation in PAN interventions (Cordero, forthcoming).

After documenting the increase in the use of the PAN-related interventions (pneumococcus and rotavirus immunizations and CRED), Cordero compares children born in 2009, who were exposed to PAN interventions, with children born in 2006, 2007, 2008, who were not exposed to the same interventions. He shows lower stunting rates among participating children independent of income quintile or mothers' education.

Increased awareness and attention to stunting locally played a part

As part of this publication, focus group discussions were held in early 2017 with local government representatives, program managers and health providers. Participants highlighted the increase in trust in government services, as well as a renewed awareness about the importance of preventing chronic malnutrition. The participation of parents in health and nutrition services encouraged important changes in behavior. Social service providers responded with more attention and motivation. Awareness

and outreach campaigns by local governments promoted registration of new-born babies and increases in prenatal check-ups.

As reported by local government authorities in Santa María del Valle, Huánuco: "Everything is related. Now the population knows that the National Identity Document (or CUI in Spanish) is critical for their children. Mothers know that within 10 days of birth, a child should have his CUI. She knows that it will make her life easier. In 2013 there were mothers with three-year-old children who were not identified and mothers were wondering: 'What do

I earn with the CUI? It is just an expense.' The work done by Participatory Budgeting and the awareness campaigns helped mothers understand the benefits. Today they understand that logic and know that to continue accessing the benefits, it is very important that they attend regular check-ups in the health center."

"Cookery lessons and counseling on hand-washing led to behavioral changes in the population. Mothers have become aware about the consequences of malnutrition in their children. That work has not only been done in the health center but on the spot."

PERU TIMELINE

2000-2010

- Peru's public budget nearly doubles.

2002-2010

- Peru is one of the fastest growing economies in Latin America with its growth rate averaging 6.4 percent. Growth is fueled by a mining and resource boom.

2002

- Peru is spending \$250 million a year on food and nutrition programs but stunting rates remain high. Nutrition was selected as one of the 31 strategic policies prioritized by a national forum convened by President Toledo, known as the National Agreement, signed by high level representatives from the government, the political parties and civil society.

2005

- Chronic malnutrition rates in children under five stands at 28 percent.
- Conditional cash transfer (CCT) program Juntos is set up to reduce poverty and improve nutrition and health in the last year of Toledo's government, following the examples of Brazil and Mexico.
- Juntos pilot program runs in 110 districts of Peru and the National Health Insurance Program (SIS) is introduced to provide support to the poorest households.

2006

- Formation of the Initiative against Chronic Infant Malnutrition, an alliance promoting a better start for children across Peru.
- The Initiative succeeds in getting 10 Presidential candidates to sign a commitment to reduce chronic child malnutrition in children under five by five percentage points in five years in the so-called 5-by-5-in5 pledge.
- Alan Garcia Perez elected President for a second-term.
- Garcia government creates the Integrated Nutrition Program (PIN) to consolidate six different food distribution programs.

2007

- Introduction of an article in the Ley de Presupuesto Publico that protected the resources to be allocated for 11 priorities for childhood, paving the way for result-based budgeting.
- The Garcia government launches a national poverty reduction strategy called "Crecer". His government introduces reforms to focus efforts on combating poverty and child malnutrition. There are 26 initiatives, including maternal-child health, nutrition, early learning, birth registration and access to basic services.

- The World Bank launches the video "My Future in my First Centimeters," highlighting scale of chronic malnutrition in children in Peru.

2007-2011

- The World Bank supports Peru's efforts in promoting standards for nutrition through budget-support financing for reforms (DPL Series REACT) and through analytical and work on communication (RECURSO series).

2008

- The Summit of the heads of State of Latin America, the Caribbean and the European Union (EU) make a declaration that the fight against child malnutrition is central to the fight against poverty and inequality.
- The Ministry of Finance introduces performance based budgeting and creates the Articulated Nutrition Budget Program (PAN) as one of the first pilots of result-based budgeting.

2008-2009

- The World Bank supports Peru through a Non-Lending Technical Assistance program, aimed at enhancing the efficiency and effectiveness of Juntos in reducing chronic malnutrition.

2009

- The Ministry of Economy and Finance (MEF) starts to allocate money to hardest hit regions to tackle chronic child malnutrition.

2011

- Ollanta Humala elected President. The Ministry of Development and Social Inclusion (MIDIS) is created.

2012

- MIDIS put in charge of Juntos. The inefficient food distribution program PRONAA is closed.

2014

- Introduction of Incentive Fund for the Performance and Achievement of Social Results - Fondo de Estímulo al Desempeño y Logro de Resultados Sociales (FED).

2016

- Pedro Pablo Kuczynski elected President.

2017

- The government announces targets to reduce Peru's chronic malnutrition rate in children to around six percent by 2021 and anemia rates to 19 percent.

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Political Commitment

"When malnutrition is so high in your country and you were not informed about it, your soul rebels and you ask yourself: 'What can I do about it?'" said former Prime Minister Jorge del Castillo. "I could not accept that more than a quarter of Peruvian children were in that situation."

Smarter Policies

"The change to result-based management led not only to a better allocation of financial resources but also to a change in organizational culture not only within MEF but also in the entities that needed to understand that the goal of the resources we were assigning had a final purpose: that was to achieve changes in the lives of people," said Rodolfo Acuña, Director of Public Budget at the Ministry of Economy and Finance.

Changing behaviors

"You realize there is a change in the country, especially when parents talk to you with pride about how big their kids are today, how they are growing, how strong they are, how tall they are. That sense of pride shows they value the interventions, that there is a transformation in the lives of these families," said Carolina Trivelli, the first Minister of MIDIS.

