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Indonesia's Ambition to Reduce Stunting

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What is this book about ?

In the 1980's Indonesia became an example for other countries concerned with reducing high levels of malnutrition. At the time, Indonesia had started nutrition programming and surveillance at the village level using the integrated weighing and child health posts, or *Posyandu*.

In the ensuing decades there have been successes: small scale and bigger scale interventions that reduced malnutrition.

At the same time, there have been set-backs, loss of attention, other priorities, decentralization, weak management and poor governance.

In August 2017, the Indonesian government unveiled a new strategy to accelerate reductions in rates of stunting.

This book looks at what will be required to turn that strategy - the *National Strategy to Accelerate Stunting Prevention (StraNas Stunting) 2017-2021* – from vision into reality. It looks at the country's ambitious reforms and goals to reduce stunting.

It examines the government's plans to boost awareness about the economic, social and personal cost of stunting, to ensure a truly national "multi-sectoral" effort to tackle the problem at scale in a coordinated and cohesive fashion in communities across Indonesia.

It chronicles past successes and setbacks, drawing lessons from them about the future.

We think Indonesia is on a path towards new success: this time at scale. It is a story worth telling.

FOREWORD I

H.E. Joko Widodo

President of the Republic of Indonesia

Indonesia is a country blessed with about 260 million people living on more than 17,000 islands. These people are our most important resource. Ensuring their prosperity and the quality of their lives is the key priority of our Government.

It is, therefore, vital that we invest in our people to improve their human capital. Investing in the Indonesian people will ensure that they will succeed and that our country continues to prosper. Human capital is crucial for welfare, for social cohesion, and economic success. It is through healthy and well-educated people that we will reach our potential of occupying our rightful place among the most prosperous nations in the world.

This book provides a key lesson for improving our human capital, namely that we must ensure that every Indonesian child gets a healthy start to life. The first 1,000 days of a person's life are particularly important. In Indonesia, however, one in three Indonesian children under the age of five were stunted in 2013 - which is unacceptable. Such high rates of stunting challenge their future success as individuals because children who are stunted will not be as productive and healthy as they deserve and our country needs.

Eliminating stunting is therefore a main priority for our Government. We will ensure that our children are well nourished and healthy and receive good quality early childhood education. Therefore, the Government is fully committed to do whatever it may take to achieve this goal.

Vice President Jusuf Kalla and I launched a National Strategy to Accelerate Stunting Prevention (StraNas Stunting) in August 2017. The Vice President and I have instructed the entire Cabinet to work together to achieve the ambitions we set out in the StraNas Stunting. Working hard and together is needed at all levels of government and across all of Indonesia's 75,000 villages. We will attack stunting together with local governments, teachers, health workers and parents until we reach our goal.

I am pleased that the World Bank partnered with us in the fight against stunting. This book provides important lessons to reduce stunting and accelerate our human capital investments. It shows the programs we already have and highlights how we can make them effective.

The successful implementation of StraNas Stunting can prevent two million children from becoming stunted among the children who will be born between now and 2021 and who are at risk of stunting. They will have a much higher chance of being healthy and productive individuals with a fair opportunity to succeed in life. We will do exactly that.

FOREWORD II

Jim Yong Kim
President of the World Bank Group

The most valuable resource that countries have is their people. A population that is healthy and well educated will not only contribute significantly to productivity, competitiveness and economic growth but will also experience a higher quality of life.

The early years of a person's life – starting from conception, through the first two years – are critical for the future success of both people and countries. Children's care and nutrition in the first two years will affect them for the rest of their lives. An unequal start to life means unequal opportunities.

Children who grow up healthy will be able to perform better in school, develop the skills they need to get a job, and provide for their family—ensuring that their children can grow up to be healthy too. In contrast, stunted children will be more susceptible to illness; have more problems performing – or even staying – in school; and will be less competitive in the labor market, if they can be competitive at all. Stunting deprives children of their right to grow, thrive, and prosper, and it jeopardizes an entire society's aspirations and dreams.

Without human capital, countries cannot sustain economic growth or compete in the global economy. They will struggle to prepare workforces for the jobs of the future, which will require specific and complex skills.

Creating equality of opportunity for everyone, everywhere on earth, is at the core of our mission at the World Bank Group. Together with governments all over the world, we're helping children begin their lives well-nourished, healthy, and able to learn, so they are able to participate fully in the economy of the future and live the lives they aspire to lead.

Countries cannot develop human capital and ensure equality of opportunity without addressing the crisis of stunting. President Widodo and Vice President Kalla have announced an ambitious new strategy to accelerate stunting prevention across Indonesia. This initiative marks a decisive step up in the ambitions of the world's fourth-most populous nation to tackle stunting as part of its commitment to sustained, inclusive economic growth.

Indonesia has the key ingredients to succeed: strong leadership and sustained commitment, financial and human resources at all levels of government, and perhaps most importantly ambitious targets—and a concrete plan to achieve them.

The government is rightly focusing on strategic spending for evidence-based interventions to improve nutrition and food security, sanitation, health care, and care-giving for mothers and children. The program has already started in 100 districts, and it will cover all of Indonesia's 514 districts by 2021.

Accelerating efforts to reduce stunting would give millions of Indonesian children the best possible start in life, and it could prove transformational in building the country's human capital for the future.

The World Bank Group is committed to supporting Indonesia in its quest to reduce stunting. We have worked closely with the Government to help develop its strategy and program, and we will continue to provide financial and technical support to implement it.

This book is an expression of our support. It describes the history of Indonesia's successes and set-backs in tackling stunting over the past several decades and details how the new strategy draws on these lessons and on international experience such as Peru's. I hope it will be a useful contribution to this critical mission, so that children in Indonesia, and all around the world, can reach their highest aspirations.

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ABBREVIATIONS AND ACRONYMS

AIN	*Atencion Integral a la Ninez*
ANC	Antenatal Care
Bappenas	*Kementerian Perencanaan Pembangunan Nasional/Badan Perencanaan Pembangunan Nasional* - The National Development Planning Agency
BAU	Business as usual
BCC	Behavior Change Communication
BCG	Bacille Calmette-Guerin vaccine
BDT	Basis Data *Terpadu* - Unified Database
BKKBN	*Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN)* – National Population and Family Planning Board
Bimtek	*Bimbingan teknis* - technical assistance
BMS	Breast Milk Substitutes
BPNT	*Bantuan Pangan Non-Tunai* - food vouchers, non-cash food assistance
BP-SPAMS	*Badan Pengelola Sarana Penyediaan Air Minum dan Sanitasi*,
B20	Bottom 20% poorly performing districts
Camat	Sub-district Head
CBGP	Community-based Growth Promotion Programs
CCTs	Conditional Cash Transfers
CHEF	Care, Health, Environment, and Food
DAK	Dana *Alokasi Khusus* - Special Allocation Fund
DFAT	Australian Department of Foreign Affairs and Trade
DHO	District Health Office
DBM	Double-burden of Malnutrition
DPRD	*Dewan Perwakilan Rakyat Daerah* - Regional House of Representatives
DPT-HiB-HepB	Pentavalent vaccine: diphtheria, tetanus, whooping cough, hepatitis B, Haemophilus influenzae type B
ECED	Early Childhood Education and Development
EEP	Environmental Enteropathy
FAO	The Food and Agriculture Organization
GDP	Gross Domestic Products
Generasi	*Program Nasional Pemberdayaan Masyarakat Generasi Sehat dan Cerdas* - National Community Empowerment Program Healthy and Smart Generation

GERMAS	*Gerakan Masyarakat Hidup Sehat* - Community Movement for Healthy Life
Gernas PPG	*Gerakan Nasional Percepatan Perbaikan Gizi* - National Movement for the Acceleration of Nutrition Improvement
GFF	Global Financing Facility
GOI	Government of Indonesia
G-20	Group of Twenty (international forum that brings together the world's 20 leading industrialised and emerging economies)
HAZ	Height-for-age z-scores
HCI	Human Capital Index
HDI	Human Development Index
HDWs	Human Development Workers - *Kader Pembangunan Manusia*
HIV/AIDS	Human immunodeficiency virus/acquired immunodeficiency syndrome
HKI	Hellen Keller International
HMIS	Health Management and Information System
IDHS	Indonesia Demographic and Health Survey
IEY	Investing in Early Years
IFA	Iron folic acid
IFLS	Indonesian Family Life Survey
IMF	International Monetary Fund
INEY	Investing in Nutrition and Early Years
Inpres	*Instruksi Presiden* – Presidential Instruction
IPC	Interpersonal communication
IUGR	Intra Uterine Growth Retardation
IYCF	Infant and Young Child Feeding
JKN	*Jaminan Kesehatan Nasional* - National Health Coverage
JMP	Joint Monitoring Program
Kadarzi	*Keluarga Sadar Gizi* – Family Nutrition Awareness Program
Kemenko-PMK	*Kementerian Koordinator Pembangunan Manusia dan Kebudayaan* - Coordinating Minister for Human Development and Culture
KMS	*Kartu Menuju Sehat* – Child Health Record Card
Labkesda	*Laboratorium Kesehatan Daerah* - Regional Health Laboratory
LBW	Low Birth Weight
LIPI	*Lembaga Ilmu Pengetahuan Indonesia* – Indonesian Institutes of Sciences
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals

MMS	Minimum Service Standards - *Standar Pelayanan Minimum (SPM)*
MNCH	Maternal, Newborn, and Child Health
MOF	Ministry of Finance
MOH	Ministry of Health
MOHA	Ministry of Home Affairs
MOSA	Ministry of Social Affairs
MOV	Ministry of Villages, Disadvantaged Regions and Transmigration
MP-ASI	*Makanan Pendamping ASI* - Complementary Feeding
MYCNSIA	Maternal and Young Child Nutrition Security Initiative in Asia
M60	Districts where the change in the stunting rate constituting the middle 60 percent of the distribution
NAS	National Academic of Science
NCDs	Non-Communicable Diseases
NGO	Non-Governmental Organisation
NIHRD	National Institute of Health Research and Development - *Badan Penelitian dan Pengembangan Kesehatan (Balitbangkes)*
ODF	Open Defecation Free
OPK	*Operasi Khusus Pasar* - special market operation
ORS	Oral Rehydration Solutions
Pamsimas	*Penyediaan Air Minum dan Sanitasi Berbasis Masyarakat* - Community Based Rural Water Supply and Sanitation Program
PAUD	*Pendidikan Anak Usia Dini* - Early Childhood Education and Development
Perda	*Peraturan Daerah* - Local Regulation
PGS	*Pedoman Gizi Seimbang* - Nutrition Guide for Balanced Diet,
PHBS	*Perilaku Hidup Bersih dan Sehat* - Clean and Healthy Lifestyle Program
PHO	Provincial Health Office
PIS-PK	*Program Indonesia Sehat dengan Pendekatan Keluarga* - Healthy Indonesia Program through Family Approach
PKH	*Program Keluarga Harapan* - Indonesian Conditional Cash Transfer Programme
PKH Prestasi	*PKH Progresif Pengentasan Masalah Gizi* – PKH aims to address childhood malnutrition by combining a conditional cash transfer
PKK	*Pembinaan Kesejahteraan Keluarga* – Family Welfare Movement
PMBA	*Pemberian Makan Bayi dan Anak* - Infant and Young Child Feeding
PMT	*Pemberian Makanan Tambahan* – supplementary feeding
PNPM	*Program Nasional Pemberdayaan Masyarakat* - The National Program for Community Empowerment
Pokja	*Kelompok Kerja* - working group

Pokjanal	*Kelompok Kerja Operasional* - Operational working group
Polindes	*Pondok Bersalin Desa* - village maternity post
Poskesdes	*Pos Kesehatan Desa* - village health post
Posyandu	*Pos Pelayanan Terpadu* - Integrated Health Post
PSG	*Pemantauan Status Gizi* - National Nutrition Surveillance
Puskesmas	*Pusat Kesehatan Masyarakat* - Primary Healthcare
Puskesmas BLUD	*Puskesmas Badan Layanan Umum Daerah* – *Puskemas* classified as Local Public Service Agency
Pusling	*Puskesmas Keliling* - mobile health unit
Pustu	*Puskesmas Pembantu* - auxiliary *Puskesmas*
QSDS	Quantitative Service Delivery Survey
Repelita	*Rencana Pembangunan Lima Tahun* - Five Year Development Plan of Indonesia
Riskesdas	*Riset Kesehatan Dasar* - Basic Health Survey
RADPG	*Rencana Aksi Daerah Pangan dan Gizi* - Local Nutrition Action Plans
Rastra	*Beras untuk keluarga pra-sejahtera* – Rice subsidy program
RDA	Recommended Dietary Allowance
RPJMN	*Rencana Pembangunan Jangka Menengah Nasional* - National Medium-Term Development Plans
SEECALINE	Second Surveillance and Education for Schools and Communities on Food and General Nutrition
SDGs	Sustainable Development Goals
SDIDTK	*Stimulasi, Deteksi dan Intervensi Dini Tumbuh Kembang* - Stimulation, Early Detection and Intervention for Growth and Development
SDO	*Subsidi Daerah Otonom* – Autonomous Region Subsidy
SHINE	Sanitation, Hygiene, Infant Nutrition Efficacy Project
SIP	*Sistem Informasi Posyandu* - Integrated Health Post Information System
Sirkesnas	*Survey Indikator Kesehatan Nasional* - National Health Indicator Survey
SKDN	Monthly measure for child weights. The SKDN is comprised of four indicators including the total number of children under five in the *Posyandu* catchment area (S), the number with growth charts (K), the number have attended a weighing session and been weighed in the last month (D) and the number who have gained weight (N)
SKPG	*Sistem Kewaspadaan Pangan dan Gizi* - Nutrition Surveillance
SMS	Short Message Service
SOP	Standard Operating Procedure
SoVP	Secretary Office of Vice President
STBM	*Sanitasi Total Berbasis Masyarakat* - Community-led Total Sanitation
StraNas Stunting	The National Strategy to Accelerate Stunting Prevention
SUN	Scaling Up Nutrition

Susenas	*Survei Sosial Ekonomi Nasional* - The National Socioeconomic Survey
TB	Tuberculosis
TMG	The Manoff Group
TNP2K	*Tim Nasional Percepatan Penanggulangan Kemiskinan* – The National Team for the Acceleration of Poverty Reduction
T20	Top 20% districts most successful in reducing stunting
UPGK	*Usaha Perbaikan Gizi Keluarga* - Family Nutrition Improvement Programme
UN	United Nations
US	United States
USAID	United States Agency for International Development
UNICEF	The United Nations Children's Fund
Walikota	Municipality Head
WASH	Water, Sanitation and Hygiene
WB	World Bank
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization
WHO SARA	World Health Organisation Service Availability and Readiness Assessment
1000 HPK	*1000 Hari Pertama Kehidupan* - first thousand days of life
100-0-100 program	100 percent availability of access to clean water, 0 percent of slum areas and 100 percent availability of healthy sanitation access

LIST OF CHARTS AND TEXT BOXES

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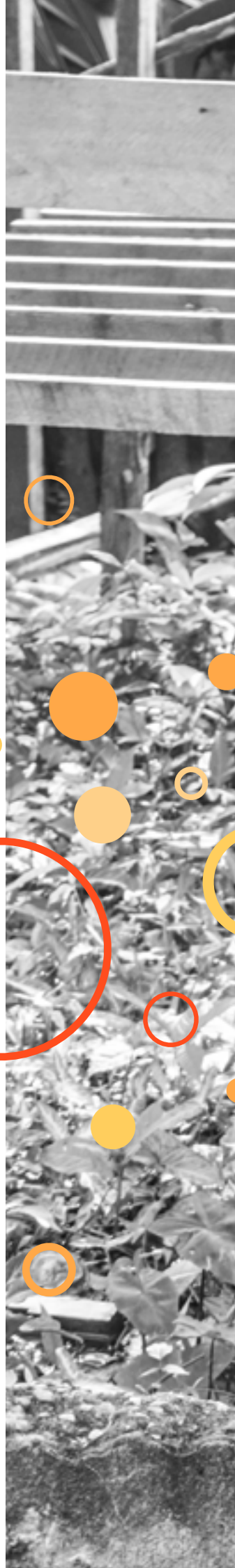
CHAPTER 1

TACKLING INDONESIA'S STUNTING CRISIS



Chapter Snapshot

- Indonesia's stunting rates stagnated at around 37 percent between 2007 and 2013.
- More than one in three Indonesian children under five (9 million children) suffered from chronic malnutrition in 2013 despite rising economic growth and declining poverty.
- The new 2017-2021 National Strategy to Accelerate Stunting Prevention (StraNas Stunting) aims to reduce these high stunting rates across Indonesia through better coordination and aligning incentives across national, regional, and local government.
- It plans to use resources efficiently for the highest burden areas and scale up successful interventions.
- The government will focus on evidence-driven and strategic spending to improve food security, sanitation, health care, and caring practices for mothers and children.
- If Indonesia's ambitious StraNas Stunting is implemented fully it could prevent an estimated two million young children from becoming stunted between 2018 and 2022.


AYAWAN

CHAPTER 1

Indonesia, the largest economy in Southeast Asia, is at a crossroads.

The country's rising prosperity and declining poverty have put the world's fourth most populous nation on track to seize the opportunity to give future generations the best start in life.

However, with one third of its children under five suffering from stunting in 2013, this will be difficult for Indonesia to achieve. Indonesia is among the five countries with the highest number of stunting cases in the world. The country has acknowledged that rates of stunting are at "crisis" levels.

Stunting (low height for age), or chronic malnutrition, is the result of poor nutrition and poor health in early childhood, starting in-utero. Children suffering from stunting may never grow to their full height and their brains may never develop to their full cognitive potential.

Stunting not only curbs the potential of individuals but also of the nation's human capital.

Therefore, Indonesia is striving to reduce stunting in children to ensure the nation thrives and prospers in the 21st century by boosting equality of opportunity for all the nation's children.

Indonesia launched a new national strategy on stunting in August 2017. The StraNas Stunting recognises that the root causes of stunting are complex and multi-sectoral and requires efforts across all levels of government.

Indonesia needs to do "business not as usual" to address the stunting crisis.

Led by Indonesia's President Joko Widodo and Vice President Jusuf Kalla, the strategy aims to ensure everyone works together to achieve the same goals: central, regional and local government, the public and private sectors, civil society, universities, experts, religious and professional organizations as well as international development partners like the United Nations, DFAT and the World Bank.

President Joko Widodo has instructed all relevant ministers to develop an integrated action plan to prevent stunting in Indonesia.

"Stunting poses a threat to the government's program on human capital development, given that children stunted in early life have poor cognitive abilities that would likely hamper their productivity and creativity," the President said.

"I want an integrated action plan that produces concrete outcomes, which includes intervention in dietary habits, parenting and sanitation," the President told ministers at a Cabinet meeting, according to the Jakarta Post on April 5, 2018.

The President said the government must consolidate efforts with the Community Movement for Healthy Life *(Gerakan Masyarakat Hidup Sehat/Germas*[1] *)* and revitalize integrated community health posts (*Posyandu*) in rural areas, while at the same time ensuring public access to proper sanitation and clean water facilities.

The new strategy, StraNas Stunting, aims to strengthen coordination of national, regional and community programs by adopting a multi-sectoral approach. The strategy has set its sights on improving the allocation of funding across programs, better coordination, convergence of evidence-based interventions, monitoring and performance. It strengthens governance and management capacity as well as results-based planning and budgeting.

The Minister of Health, Nila Moeloek, in an April 8, 2018 Cabinet meeting, stressed that stunting is the government's concern because those suffering from stunting will give birth to children who will also suffer from stunted growth, perpetuating a vicious cycle of stunting. Tackling stunting simply through health and food alone was not enough, according to the Minister (*Sekretariat Kabinet Republik Indonesia*, 2018).

Stunting has intergenerational effects. Maternal height or short stature (less than 145 centimetres) is associated with an increased risk of underweight and stunted offspring.

The StraNas Stunting aligns with the World Bank's recent initiative, the Human Capital project. This program of advocacy and analytical work aims to raise awareness about the importance of human capital and to increase demand for interventions to build human capital in client countries.

[1] Germas was launched nationally by Coordinating Human Development and Culture Minister Puan Maharani in Bandung, West Java, in November 2015. Germas aims to change people's behavior and encourage them to adopt a healthier lifestyle. President Jokowi issued Presidential Instruction (Inpres) No. 1/2017 on Germas. As the follow up Bappenas issued Regulation No. 11 of 2017 which details the specific activities of the program.

The Human Capital Index (HCI), which is being developed in tandem, includes stunting as one of the four indicators. The Index aims to create political space for national leaders to prioritize transformational human capital investments in their countries. Reducing and preventing stunting rates will help improve Indonesia's HCI ranking.

The renewed commitment

The StraNas Stunting commits 22 ministries and an estimated USD 3.9 billion per year to converge priority interventions in their availability and delivery for those mothers and children in need across health, water and sanitation, early childhood education, social protection and food security.

In August 2017, Vice President Jusuf Kalla launched the implementation of the StraNas Stunting with the identification of the first 100 priority districts: districts with high stunting prevalence and incidence and high poverty rates for 2018[2] . The 100 districts are part of the first wave where the acceleration process has begun interventions have begun and it will cover almost 22,000 villages across the country with around 3.1 million stunted children (TNP2K, 2017).

Following the first 100 districts, the StraNas Stunting proposes an ambitious increase in the scale of the program with a five-fold increase over the five years: 160 districts/cities in 2019; 390 districts/municipalities in 2020 and reaching full coverage with all 514 districts and municipalities in 2021.

The strategy supports the internationally agreed goals of the World Health Assembly (WHA), the Sustainable Development Goals (SDGs) and the Scaling Up Nutrition (SUN) movement's 2025 targets to cut the number of stunted children under five by 40 percent, maintain the number of wasted children under five to less than 5 percent, lower the number of low birth weight infants and to ensure there is no increase in the number of overweight children. In addition, it supports the aim to lower the number of women aged 15-49 suffering from anemia by 50 percent and to increase the percentage of mothers exclusively breastfeeding by at least 50 percent (WHO, 2017).

Recognizing the root causes of stunting are multisectoral, the StraNas Stunting focuses on health, early childhood education and development (ECED), water, sanitation and hygiene (WASH), food security, as well as social protection incentives for parents to get nutritional and health support through conditional cash transfers (CCTs) and non-cash food assistance *(Bantuan Pangan Non-Tunai/BPNT)* (TNP2K, 2017).

[2] The priority locations were selected by overlaying Ministry of Health (MoH)'s data with areas of high stunting prevalence, in addition to Ministry of Social Affairs (MoSA) and TNP2K data on poverty.

Stunting impact on children

Poor growth resulting in stunting (Box 1) is a consequence of poor nutrition and/or repeated infections in early life.

Stunted children's brains may never develop to their full cognitive potential.

Box 1: Definitions of malnutrition

Stunting: Stunted growth refers to low height for age, when a child is short for his/her age. It is an indicator of chronic malnutrition and carries long-term developmental risks.
Wasting: Wasting refers to low weight for height, the process by which acute food shortage and/or disease causes muscle and fat tissue to "waste" away. This is also known as **"acute malnutrition"** because wasting develops in a relatively short period of time in contrast to stunting.
Underweight: Underweight, or low 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.
Overweight and Obesity: A condition characterized by excessive body fat, defined as a BMI between 25 and 30 kg/m^2, obesity is defined as a BMI of 30 or more

Figure 1. Brain of a child with stunted brain development vs healthy child.

Source: Charles A. Nelson, Harvard Medical School, and others (2017). Picture © Nadine Gaab and Charles A. Nelson.

It is in the first 1,000 days of life, from conception to a child's second birthday, that action is most critical to address stunting (Black et al., 2008). The first 1,000 days represent a life window when growth rates and neuroplasticity of the brain (neural connections being made by the millions) are at their peak and where nutritional deficiencies can exert their most devastating impacts.

For individuals, stunting in early life is associated with impaired cognitive ability, lower educational attainment, reduced future productivity, earnings potential and greater risk of poverty (Alderman, Hoddinott and Kinsey, 2006).

An analysis of the Indonesian Family Life Survey (IFLS) data by Giles et al. in 2017, shows that Indonesians whose growth was stunted in childhood (IFLS Wave 1, 1993) were shorter (by 3.5 cm) and demonstrated lower cognitive function as young adults (IFLS Wave 5, 2014-15) and had spent fewer years (by 5 months) enrolled in formal education (Giles et al., forthcoming).

Lower adult stature and cognitive ability were in turn associated with lower adult earnings in Indonesia (Perkins et al., 2016).

[3] 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 (left frame) and a single non-stunted infant (right 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. Until these findings are replicated at the group level, such findings should be considered preliminary. These data were 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 and 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.

The economic and social cost of stunting

Childhood stunting imposes life-long penalties[4] on adults, who are likely to have a lower income if they have experienced nutritional deficiency as a child. The income of today's workforce reflects stunting rates going back 50 years.

Galasso and Wagstaff (2017) estimate that on average this per capita income penalty is around seven percent globally. In Asia and Africa, the penalty is even greater, at 9-10 percent.

And the calculation for Indonesia specifically shows that the stunting penalty – cost of childhood stunting among today's workforce for Indonesia - is 10.5 percent of GDP (Galasso and Wagstaff calculations, 2018).

With Indonesia setting its sights on moving from lower middle-income to upper middle-income status, conquering its high rates of stunting in children is vital for sustained and inclusive growth on the largest archipelago, and the fourth largest country, in the world.

Stunting linked to inequality

Inequalities of opportunity at birth and in early childhood have been identified as a key driver of rising inequality in Indonesia (World Bank, 2015).

Out of a population of 252 million, more than 28 million Indonesians (11 percent) live below the poverty line. Approximately 40 percent of the entire population remain vulnerable to falling into poverty, as their income hovers marginally above the national poverty line. And it is among the children of Indonesia's poorest communities that stunting is the biggest problem (NIHRD, 2013).

One third of consumption inequality in Indonesia, according to estimates, is caused by inequalities in just four circumstances of birth: 1) province of birth; 2) and birth in a rural or urban area; 3) gender of the head of household and 4) parental education (details in chapter 2) (World Bank, 2015).

"Stunting is the face of poverty," said nutrition scholar Professor Soekirman, a former Director General of the National Development Planning Agency (Bappenas). "Stunting should be used as an inequality index along with the Gini Index (used to measure inequality)".

"Personally, success in reducing rates of stunting would satisfy my professional pride as a public nutritionist. Politically, it is part of the government commitment to improve the welfare of people by prioritising human development," he said.

Investing in nutrition pays off

Nutrition interventions are widely recognized to be among the most cost-effective investments (Behrman, Alderman and Hoddinott, 2004).

Globally, every dollar invested in high-quality early childhood education programs can yield between $6-17 in return, while every dollar invested in proven maternal and child nutrition interventions can deliver returns of up to $16 (Shekar et al., 2017). Indonesia has one of the highest benefit-cost ratios for investment in stunting reduction: it is estimated that every dollar spent generates $48 in economic return (Hoddinott et al., 2013).

The 2016 Investment Framework for Nutrition estimates 65 million fewer children would be stunted in 2025 with a global investment of an additional $70 billion or $7 billion/year on well targeted nutrition-specific investments (Shekar et al., 2017).

[4] Using the so-called development accounting methodology, quantifying these penalties and finding the age distribution of workers who were stunted in childhood, one can calculate the penalty a country incurs from a legacy of stunting.

Stunting rates can be reduced

There is a growing body of experiences in other developing countries that a "convergence approach" – multisectoral interventions which are coordinated to jointly target priority geographic areas and beneficiaries – to tackle stunting, can be effective (Levinson and Balarajan, 2013). Different combinations of nutrition interventions, involving various sectors, has worked in a variety of countries in all regions of the world and provides excellent lessons learned about how it was achieved (Gillespie et al., 2016).

Regular surveys in Bangladesh demonstrated a steady decline in stunting rates of 55 percent over 15 years thanks to improvements in household income, parental education, sanitation coverage, demographic outcomes (decline in fertility rates) and improved utilization of health services (Headey et al., 2014).

Senegal drove down stunting from 33 percent to 19 percent in less than two decades with a very high level of sustained multisectoral commitment, a results-based approach and an excellent data monitoring system (Kampman et al., 2017).

Thailand lowered stunting to less than 20 percent from 50 percent with an 'army' of well-trained dedicated community volunteers visiting homes and providing interpersonal counselling, agriculture investments and local commitment (IFPRI, 2017).

Child stunting rates in Peru fell by almost half in less than a decade, from around 28 percent in 2008 to around 13 percent in 2016, in part due to a major multi-sectoral nutrition drive (Marini, Rokx and Gallagher, 2017).

Key factors in Peru's success included political will and commitment at the highest level, broad social participation, a coordinated multi-sectoral program, performance-based budgeting and alignment of incentives for households, health facilities and local government.

Another key feature of Peru's success was convincing policy makers, public officials and parents of the importance of early childhood interventions to encourage them to tackle malnutrition and to make them aware of chronic malnutrition as a problem. Peru launched a successful nationwide communications campaign around stunting[5].

A credible data information system, clear and achievable targets and a monitoring and evaluation system were also critical to the success of the Peruvian nutrition program.

Community-based Growth Promotion Programs (CBGP) also played a key role in Peru, as they did in Senegal, Thailand and others, in supporting children's growth through regular growth measurement and individualized counselling to parents about good feeding practices. A common feature of the program is the measurement of healthy growth (weight and length).

Following in Peru's footsteps and building on earlier success

Indonesia sent a delegation to Peru, including officials from the Ministry of Health and the Ministry of Finance, in April 2017 to learn from the Peruvian example about how to accelerate stunting reduction.

Indonesia aims to emulate Peru by turning political commitment into good policies and good governance to ensure better health and social services for millions of children.

It will involve leadership and commitment from everyone, from the President to parents. Public awareness campaigns have already started and will play an important part in supporting policy makers, regional governments, community leaders and households.

"For me as a nutrition scholar, the Government of Indonesia's ambition to end stunting, is like a dream come true. Now, that high level support has to trickle down to the subnational level. We have to reach the households through improved services, to change behavior that will contribute to preventing and reducing stunting", said Fasli Jalal, nutrition scholar, Former Vice-Minister of National Education and former Chair of the BKKBN.

[5] The video available in http://www.worldbank.org/en/news/video/2017/12/11/standing-tall-perus-success-in-overcoming-its-stunting-crisis shows the story of how Peru more than halved its high rates of stunting among under-five in less than a decade: from 28% in 2008 to 13% in 2016.

Growth not enough: smarter spending vital to reduce stunting

Globally, there is consensus that economic growth alone is not enough to achieve a breakthrough in tackling stunting.

While more resources may be needed, more importantly, money needs to be well-spent in a coordinated way, from central government to communities. The right policies are critical to success.

"We have the resources. We have the programs in all key sectors. What we need now is to improve the quality and convergence of service delivery at the local level", said Bambang Widianto, Executive Secretary of TNP2K. He added "But we still have to learn a lot about how to converge".

Expenditures on nutrition interventions are significant in Indonesia (World Bank, 2018). However, there are large significant efficiency and effectiveness issues related to what the resources are spent on and where.

For example, the lack of service delivery is largely a management problem rather than a resource problem. The government already spends approximately 51.9 trillion Indonesian Rupiah (USD 3.9 billion) on nutrition interventions each year, which is comparable to other low-middle income countries. However, not all is spent on the most cost-effective interventions.

Despite recent efforts to push spending to districts and improve national and district coordination, the current arrangements for delivery of nutrition interventions suffer from fragmentation, delayed implementation, significant resource misallocations, poor data quality and use and ineffective multi-sectoral coordination.

In a decentralized country like Indonesia, coordination across government is crucial to overcome the problem. Around 50 percent of government money for services is spent, and allocated, locally (MoF, 2017a).

Indonesia is now determined to turn the tide against stunting by adopting a clear, coordinated and cohesive approach across the whole of government and society, including improvements in efficiency of spending through results-based approaches.

Strategic, at-scale and sustained

A strategic and sustained effort, at significant scale, is vital to drive down stunting rates.

To ensure that families have access to all vital inputs for healthy growth, convergence must reach households.

In Indonesia, as everywhere else, that means enlisting more sectors – beyond health – to prevent stunting. Those sectors include among others agriculture, education, social protection, water, sanitation and hygiene. It means ensuring they work together towards a single purpose: reducing the factors that underpin the country's high rates of stunting.

In practice, that means coordination between sectors, as well as between different levels of government, is needed. And it includes building the capacity of local government to diagnose and monitor drivers of stunting and solutions.

Coordinating Minister for Human Development and Culture Puan Maharani reminded the Cabinet in its April 5, 2018 meeting on stunting that the government has already drawn up a map of which ministries/institutions should be responsible for stunting interventions in the future (Sekretariat Kabinet Republik Indonesia, 2018b).

"What is needed is, of course, sanitation, toilets, and community movement for healthy living," Puan said, according to a report in the Jakarta Post.

Actions taken to improve the quality of nutrition for mothers and children can generally be defined as nutrition-specific interventions, such as an adequate, healthy and diverse diet (including breastfeeding), micronutrient supplementation and appropriate young child feeding practices.

Actions taken to improve an enabling environment that can have an impact on nutrition can be broadly categorised as nutrition-sensitive interventions, such as access to good healthy care for mothers and infants, food security and safety, agriculture, social safety nets, schooling, water, sanitation and hygiene (Lancet., 2013).

In 2013, the Lancet, identified 10 key interventions to reduce stunting, which if 90 percent of the target population was covered, would reduce stunting by 20 percent. Indonesia has long since implemented most of the recommended nutrition-specific and nutrition-sensitive interventions, but in a fragmented way and lacking in scale.

One of Indonesia's big challenges is now to achieve that scale and convergence.

Local level health-care crucial

Indonesia had successful elements of nutrition-specific interventions in its Family Nutrition Improvement program (UPGK) which started in the 1970s. It contributed to improvements in nutrition in the past century with the nutrition programming and surveillance program.

Indonesia has harnessed the power of the Posyandu – integrated community health posts – which were established in1986 in villages to improve the health of women and children. Starting out as community health posts, they included a focus on nutrition, immunization and growth monitoring and promotion. They gradually started applying a multisectoral approach and played a crucial role in the country's fight against malnutrition. Many still function today, but they need to be revitalized and modernized to make more of an impact.

"*UPGK*, started in the 1970s, was quite revolutionary for nutrition programs. It was a move away from food handouts to improving local feeding patterns and village conditions to promote better nutrition for women and young children," said Professor Soekirman, former Director General of the Indonesian Ministry of National Development Planning (Bappenas) and a prominent nutrition scholar. "To me, the *Posyandu*, established in 1986, should spearhead prevention of stunting in the later stages of the first 1,000 days," he said.

"Stunting has a negative impact not only on health but on economic growth and human development," said Subandi Sardjoko, the Deputy Minister for Human and Societal Development and Cultural Affairs at Bappenas. "We have the resources, but we don't (yet) have enough good delivery mechanisms."

Political commitment at the highest level, including the support of the President and Vice-President of Indonesia, multi-sectoral coordination to ensure the effectiveness of nutrition-specific and nutrition-sensitive interventions, a focus on encouraging behavior change through good communication and a focus on improving front-line community health care will be decisive in driving down stunting rates in Indonesia, he said.

"The lesson learned from the past is the need to reform the *Posyandu* so that community-based interventions can reduce rates of stunting," he said.

Tackling a national problem at local level

From its small tropical islands to fertile rice lands on Java and Bali, its luxuriant rainforests in Sumatra, Kalimantan and Sulawesi and the savannah grasslands of the Nusa Tenggara islands, to snow-capped peaks of West Papua, Indonesia's diverse geography and rich cultural heritages presents unique challenges for national, regional and local governments to tackle the problem cohesively.

The "Big Bang Decentralization" in 2001, decentralized much of the responsibility for public services in a short period of time, including most of the country's nutrition-specific and nutrition-sensitive interventions, to local governments, with mixed results. The country also implemented a new institutional set-up, intergovernmental fiscal framework, and accountability system.

Yet, all is far from perfect. The decentralization posed a challenge for nutrition-specific and nutrition-sensitive interventions. National government has the authority to set priorities which local governments should follow, programs which they should implement and minimum standard of services which they should deliver. But there are limited mechanisms to enforce compliance with national priorities and ensure adequate capacity to deliver services efficiently.

The role of districts and village leaders are even more important since the introduction of the Village Law in 2014[6]. Substantial financial resources are now channelled to villages from the central government, creating significant opportunities to raise efforts to improve the enabling environment for nutrition.

However, the quality of village expenditure on nutrition interventions is highly dependent on stronger legitimacy for the role of local leaders (PETS, forthcoming). It also hinges on political commitments and the quality of support and supervision which districts provide to villages. Other factors of importance are the planning and budgeting process, as well as strategic use of data to guide decision making at local level.

Much can be done in village and district practices that are needed to catalyse convergence and incentivize local governments to change their existing systems.

[6] Almost half of the Indonesian population still lives in rural areas and poverty remains concentrated there. In an attempt to alleviate poverty and develop rural and outer regions of Indonesia, the government enacted Village Law which provides substantial autonomy for village administrators. The budget envelope increases each year and in 2018 the Central Government will distribute roughly USD 4.3 billion to 74,958 villages. The Ministry of Finance claimed that the Village Fund contributed to the reduction of village Gini Coefficient from 0.34 (2014) to 0.32 (2017). See MoF (2017a and b) for more details.

Performance measurement, capacity support and conditional transfers are the three main mechanisms that will improve the efficiency and effectiveness of existing intervention delivery and ensure interventions are better targeted to the priority villages and sub-districts where stunting is most prevalent.

As Indonesia is now determined to turn the tide against stunting by adopting a clear, coordinated and convergent approach across the whole of government and society, the World Bank and its development partners will join them in the drive to reduce stunting in young children. Over the past five years, development partners have increased their support for programs to tackle stunting in Indonesia.

"We are delighted that Indonesia is taking action to eradicate stunting to give millions of children equal opportunity to be educated, compete in the labor market, and share in the country's prosperity. The World Bank stands ready to continue collaborating with Indonesia to achieve the crucial goals in the National Strategy to Accelerate Stunting Prevention. Our analysis indicates that more than two million Indonesian children under two years of age can be saved from stunting in the next three to four years - if the National Strategy is implemented effectively. The National Strategy is truly transformational public policy and evidence of the government's commitment to invest in people." said Rodrigo Chaves, World Bank Country Director For Indonesia and East Timor.

CHAPTER 2

NUTRITION TRENDS AND DRIVERS OF STUNTING

Chapter Snapshot

- Stunting is part of a wider nutrition crisis in Indonesia - anemia, wasting and double burden of malnutrition.
- The national prevalence of stunting remained virtually unchanged between 2007 and 2013.
- Poor children are almost twice as likely as rich children to suffer from stunting in Indonesia.
- Across Indonesia's 514 districts there have been declines and increases in stunting rates leading to so-called dynamic stagnation.
- The four drivers of undernutrition - access to adequate care, health, an enabling environment and food (CHEF) - explain a large part of these changes and offer guidance for renewed efforts.
- Good nutrition during the first 1,000 days of life is vital.
- Age-appropriate feeding practices remain an important challenge.
- Indonesians pay exceptionally high prices for food putting the poor at high risk of being unable to purchase a nutritionally balanced diet
- Indonesian children with poor access to unimproved WASH are at increased risk of stunting.

CHAPTER 2

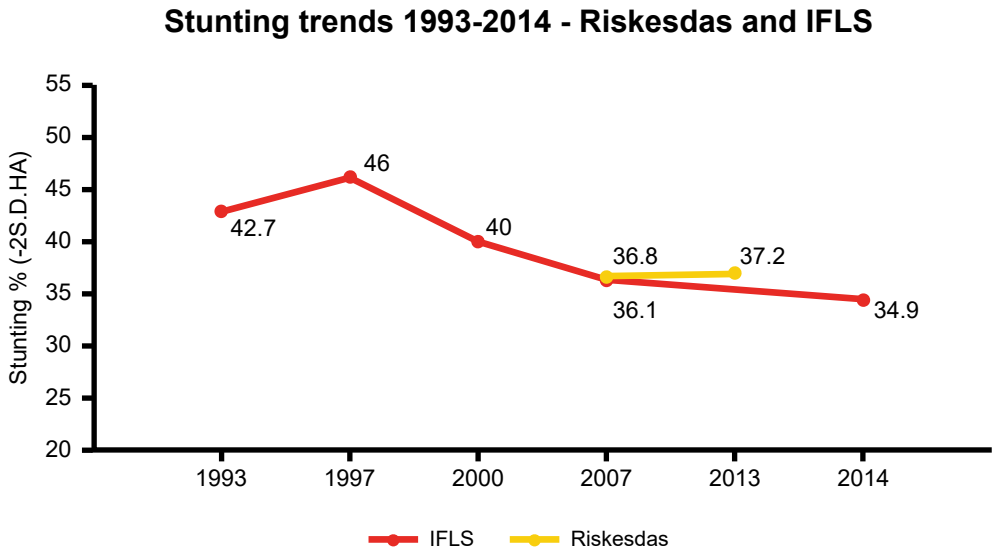
Stubbornly high stunting rates

Progress on reducing stunting rates has not been as good as on other social development indicators in Indonesia. Life expectancy increased from 67 in 2002 to 69 in 2015 and under-five mortality decreased to 27/1,000 life-births in 2015. The national stunting average for 2013 remained stagnant since 2007 at 37 percent (NIHRD, 2013[7]).

Indonesia's stunting rate is well above the 25.7 percent average for the Southeast Asia region (UNICEF/WHO/WB, 2018).

The results of the longitudinal Indonesia Family Life Survey (IFLS 1993, 1997, 2000, 2007, 2014) do show an improvement after the 1997 financial crisis. However, this survey is only representative of about 83 percent of Indonesian population.

Figure 2. Stunting trends 1993-2014



Source: Frankenberg and Karoly ,1995; Frankenberg and Thomas 2000; NIHRD 2007, 2013; Strauss et al., 2004b, 2009, 2016.

Increases in the purchasing power of Indonesian families, as well as improved access to basic services, such as education, health, water and sanitation, have not yet translated into significantly better nutritional outcomes for the most vulnerable children.

Stunting is part of a wider nutrition crisis in Indonesia with one in four Indonesian children between one and five years of age being anemic. One in eight children under five and one in four adults are overweight. In 2013, 12.1 percent of Indonesian children under five were wasted (NIHRD, 2013) which at these levels is considered a public health problem (WHO) (Box 2).

[7] Indonesia relies heavily on **Riskesdas surveys** as its main source of data on stunting, despite some quality issues explained in annex 2. The Riskesdas is a repeated cross-sectional study which includes 300,000 households residing in all 497 districts thus nationally representative, and is conducted by the National Institute of Health Research and Development (NIHRD) of the Ministry of Health every 5 years. The 2007 and 2013 surveys helped to highlight the scale of Indonesia's stunting crisis. **The Indonesian Family Life Surveys (IFLS)** is the longest on-going multi-purpose individual-, household and community-level longitudinal socioeconomic and health surveys that includes anthropometric data conducted by RAND. The sample is representative of about 83% of the Indonesian population and contains over 30,000 individuals living in 13 of the 27 provinces in the country. However, the statistical power of the IFLS does not offers the opportunity for researches to extend their inferences to the deprived and usually neglected islands of the archipelago, for example Maluku, Halmahera, Nusa Tenggara Timur and Papua.

Box 2 : Stunting is part of a wider nutrition crisis in Indonesia: Wasting, anemia, and double-burden of malnutrition

A child that is wasted faces double the risk of mortality associated with stunting. A child that is both stunted and wasted faces an even higher risk. Frequent episodes of wasting increase the risk of stunting. To tackle these health problems, it is vital to have a strategy which acknowledges and addresses these links.

There have been promising developments in promoting a shift to healthier diets and in driving down rates of acute severe malnutrition. As part of the StraNas Stunting, national, provincial, district, and municipal governments will focus on reductions in acute malnutrition as well.

In Indonesia, 37 percent of pregnant women and 28 percent of children under five suffer from iron-deficiency anemia, which according to the WHO is the most common, curable and preventable cause of anemia.

Anemia is estimated to contribute to 20 percent of maternal death (de Benoit, 2008). Maternal anemia is associated with low birth weight (Steer, 2000). Unless it is treated at some stage, the vicious cycle may remain unbroken for several generations.

Indonesia is tackling iron-deficiency anemia as part of the StraNas Stunting. Dietary diversification and increasing household access to micronutrient-rich diets all year round is vital. A nationwide program to distribute free iron tablets as part of routine maternity care and early interventions targeting adolescent girls is critical.

Water, sanitation and hygiene interventions should be integrated in nutrition counselling as well as health visits to reduce nutritional losses. Targeted point-of-use fortifications with micronutrient powders might be helpful while mass fortifications are scaled up.

The double burden of malnutrition (DBM) is characterized by the coexistence of undernutrition along with overweight and obesity. DBM is a reality and a rapidly growing problem in Indonesia.

There has been a rise in the prevalence of children and adults who are overweight and obese (Handanita and Tampubolon, 2015; NIHRD, 2013; Rachmi et al., 2016). Nationally, almost 29 percent of adult men and women in Indonesia are overweight or obese. Moreover, 11.9 percent of children below five are overweight or obese (NIHRD, 2013).

One of the concerns with stunting is that it increases the risk of noncommunicable diseases (NCDs) later in life. A third of the population that is stunted early in life, particularly the poor, are at increased risk of obesity in urban environments later in life (Shrimpton and Rokx, 2015).

An estimated 35 percent of food purchased by children comes from street vendors. Children watch at least four hours of television a day. Processed foods are widely advertised on TV and the ads target children.

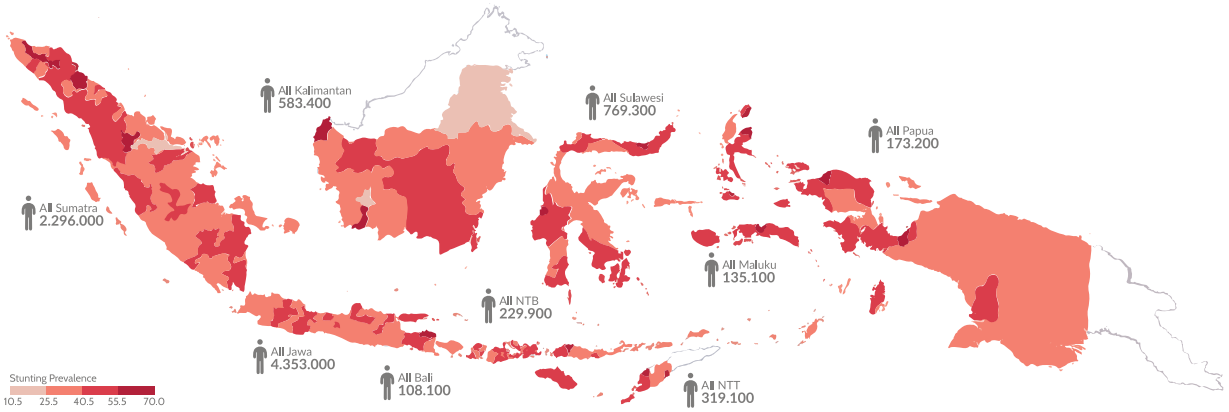
Existing national nutrition programs address both under- and over-nutrition through micronutrient supplementation programs, maternal and child health programs, as well as healthy lifestyle campaigns, such as *"Isi Piringku*[8]*"* and *"Gerakan Masyarakat Hidup Sehat".*

[8] *Isi Piringku* (My Plate) campaign features a plate with colored sections representing four food groups: fruits, vegetables, tubers, and protein sources. As secondary messages, it illustrates three areas related to nutrition: handwashing, physical activity, and drinking water. It also indicates the recommended portions of each of the food groups.

Poor children most at risk of stunting; the gap is widening

Stunting rates are high in nearly all provinces of Indonesia, affecting children from different family backgrounds and although poor children are worse off, even higher income quintiles have significant stunting levels.

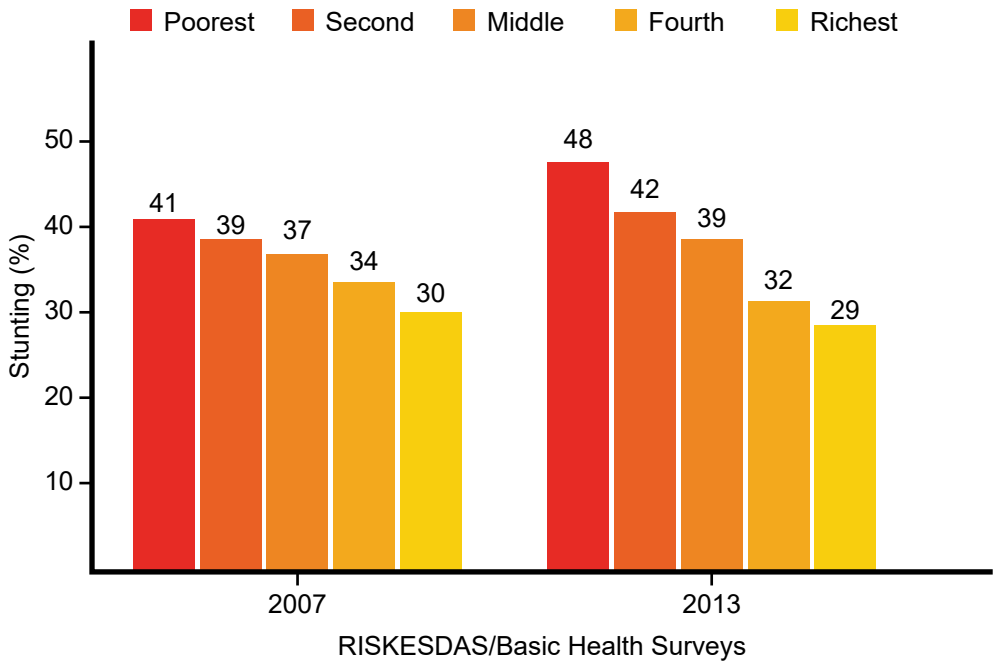
Figure 3: Prevalence and number of children under five stunted in Indonesia in 2013



Source: World Bank staff calculations, 2017

In 2013, 48 percent of children under five years of age in the poorest 20 percent of households were stunted, an increase from 41 percent in 2007, widening the inequality gap.

Figure 4: Stunting prevalence by income group



Source: Bappenas, 2014

These differences may be explained by substantial inequalities in access to health care between rural and urban areas, between districts with high and low stunting rates and between poorer and wealthier households according to a recent analysis of Riskesdas data (World Bank, 2017b) which examined the changes in drivers of nutrition.

In 2013, the use of health care facilities was in general greater by wealthier households than poorer households. In 2013, children living in rural areas were less likely to have access to an adequate environment than children living in urban areas.

In rural areas, 47 percent of the population had access to basic sanitation whereas in urban areas 74 percent had such access.

As a result of long-standing policies and underinvestment in agriculture and infrastructure, Indonesian consumers are paying exceptionally high prices for staple and high nutrient foods.

A 2017 "Cost of Diet Study" on the Indonesian diet, using Susenas[9] 2016 data, shows that only 62 percent of the national population can afford a staple-adjusted nutritious diet[10] . The same study shows that in one of the poorest parts of Indonesia, Nusa Tenggara Timur (NTT) only 32 percent of the population can afford a nutritious diet (WFP/Bappenas, 2017).

Trend of dynamic stagnation in stunting

The national stunting average hides a more complex picture of dynamic stagnation. Dynamic stagnation is the result of small to significant increases and decreases in stunting rates in various districts of the country. All told, this has led to no change in national stunting rates since 2000.

Already in 2006, Friedman et al. highlighted the district-level variance in prevalence of underweight among children under five which then ranged from 3 percent to 81 percent, while the national average was about 37 percent underweight in 2006 (Friedman et al., 2006).

The National Institute of Health Research and Development (NIHRD) of the Indonesian Ministry of Health and the World Bank took a closer look at the changes in height for age in an analysis of stunting rates between 2007 and 2013 at district level. This revealed an equally large variation not only in prevalence but also in successes and failures overtime.

Between 2007 and 2013, 73 successful districts, or best performing districts, reduced stunting between 6.21 and 16.8 percentage points, or between 0.89 and 2.8 percentage points annually. However, there were also 70 districts where stunting increased, in some cases with increases as high as 16 percentage points between 2007 and 2013 (World Bank, 2017b).

Between 2007 and 2013, the twenty best performing districts also saw more rapid improvements in their enabling environments, WASH and healthcare compared to the stagnating districts. Translated into drivers of nutrition (CHEF - explained below), the successful districts saw improvements in several drivers of nutrition, confirming the importance of convergence of interventions.

There was a 7.2 greater percentage point increase in children having their vaccinations up to date and a 2.8 percentage point increase in receiving vitamin A supplements (for children of six months and older).

In addition to the data-analysis, success stories from a variety of performing districts can shed light on what worked and how these districts achieved the positive changes. A spotlight on a district that provides inspiration to fight against the odds is included in chapter four.

Another lesson from the data-analysis is that it is crucial to maintain attention and monitoring at the district level. Many of those districts that did worse in 2013 and had not seen improvements in the drivers of nutrition did better in 2007. This warrants a much closer look at what is happening on a more regular basis. It confirms the need for continuity of attention and effort.

More importantly, this analysis underpins the justification for the focus of the StraNas Stunting: commitment, scale up, multisectoral implementation, and convergence to ensure adequacy in all drivers of nutrition.

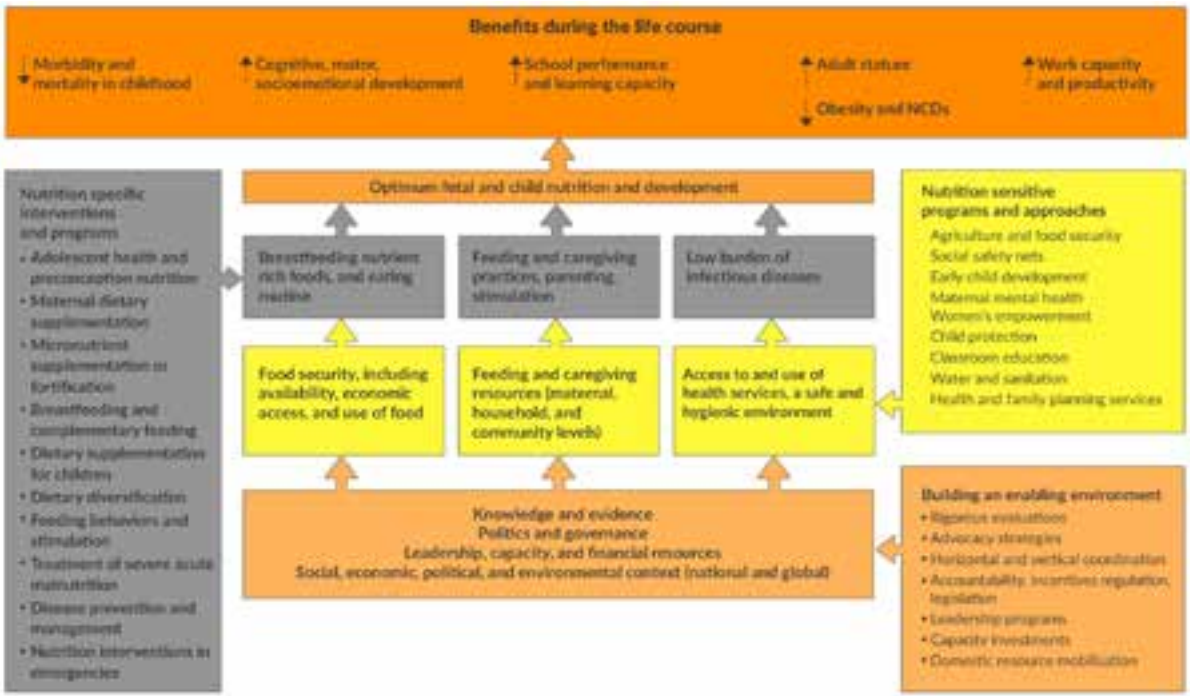
[9] The National Socioeconomic Survey (Susenas) is a series of large-scale multi-purpose socioeconomic surveys initiated in 1963-1964 and fielded every year or two since then. Since 1993, Susenas surveys cover a nationally representative sample typically composed of 200,000 households. Each survey contains a core questionnaire which consists of a household roster listing the sex, age, marital status, and educational attainment of all household members, supplemented by modules covering about 60,000 households that are rotated over time to collection additional information such as health care and nutrition, household income and expenditure, and labor force experience.
[10] This is the least expensive diet that meets the individual specific WHO/FAO recommended intakes of energy, protein, fat, 9 vitamins and 4 minerals. This diet also includes the preferred staple food, which is rice in the case of Indonesia. The diet assumes that the child aged 12-23 months is receiving the recommended portion of breast milk per day.

The direct drivers of chronic malnutrition in Indonesia

In the 1990s, UNICEF started, and has since adapted, the framework to tackle chronic malnutrition in its operations by dealing with its four main drivers: Adequate access to care and age-appropriate feeding practices (C), access to adequate health care services (H), environmental health, hygiene, sanitation and access to safe water (E) and access to a diverse diet consisting of safe food (F) – CHEF.

That model has been adapted and is used worldwide to tackle the problem (Lancet, 2013).

Figure 5: Adapted Framework for actions to achieve optimum fetal and child nutrition and development



Source: Lancet, 2013

In Indonesia, the absence or poor quality of all four CHEF drivers have contributed directly to the country's high rates of stunting.

Firstly, food security can be patchy across the Indonesian archipelago.

Adequate amounts of quality food are not always available, particularly to the poor in rural areas. Moreover, high food prices, especially for nutritious foods such as fruits, vegetables and animal protein, make it difficult for poor families to purchase a diverse diet. This is exacerbated by limited awareness about the importance of a diverse diet.

For a middle-income country, Indonesia has an exceptionally low consumption of fruit and vegetables (Susenas, 2011), in part due to trade restrictions (Jaffee, 2016).

Secondly, take-up of health-care also tends to be lower among poor and rural women, including pregnant women and mothers.

Even when women attend their pre-natal visits regularly, the quality of the services is not always optimal, resulting in low impact from such visits. For example, even though the availability of iron folic acid supplements is very good (94 percent availability at the *Puskesmas* level), counselling around how and when to take iron folic acid supplements and especially how to avoid secondary effects is often poor, resulting in low compliance. Only 33 percent of pregnant women take the recommended 90 days of iron folic acid supplements, and 37 percent suffer from anemia in pregnancy (NIHRD, 2013).

Access to health services is also measured by immunization rates. Indonesia has made progress in increasing immunization coverage rates. Complete immunization among children aged 12 to 23 months increased from 41.6 percent in 2007 to 59.2 percent in 2013 (NIHRD, 2007, 2013). However, it remains below the target RPJMN target of 93 percent in 2019. Large regional variation exists, as well as inequalities across economic status (Ajay et al., 2016).

The *Posyandu* plays an important role in immunization, as more than three-quarters of all vaccinated children in Indonesia, receive their immunization at the *Posyandu* (World Bank, 2016c). Since decentralization, the central government is responsible for procuring vaccines and district governments for service delivery (including funding a *Posyandu*'s immunization operational costs).

Thirdly, feeding practices are also not always what they should be to ensure the healthy growth and development of children.

Exclusive breastfeeding can still be improved. Current rates are 52 percent of infants being breastfed exclusively in 2017 (BPS et al., 2017).

There remain many obstacles and constraints to exclusive breastfeeding practices ranging from lack of enforcement of laws and regulations regarding marketing of breastmilk substitutes, insufficient attention to cultural barriers and more women entering the workforce without adequate baby-friendly policies in place.

Complementary feeding practices are also crucial to prevent stunting. Many children are vulnerable to stunting after the age of six months. Lack of knowledge and information often leads to poor feeding practices. This means that children are often not fed a diverse age-appropriate diet, food is of wrong consistency and meals are given too infrequently.

Fourthly, poor sanitation, lack of access to safe water and unhygienic feeding practices also contribute to stunting.

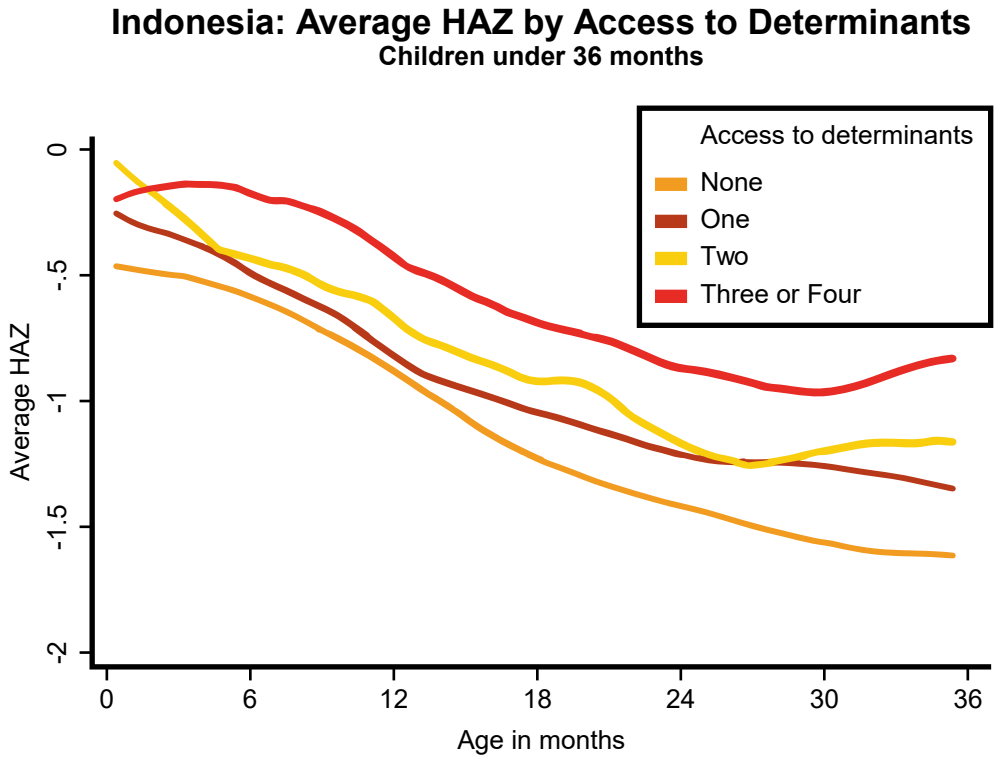
Especially at a very young age, children are very susceptible to infections resulting from poor water quality and unhygienic behavior. And children who start exploring their environments at eight to nine months, still come into contact too easily with an unsafe environment and risk falling ill.


BENDERA
BENDERA
BENDERA
PAUD TODE BALONG
MANTANG - BATUKLIANG
LOMBOK TENGAH

Research shows the importance of having adequate access to as many of the four nutrition drivers as possible. The likelihood that children between zero and three years of age will be stunted is lower when they have access to adequate levels of two drivers (CHEF). The risk is lower still when they have access to three and all four or when all drivers of good nutrition converge (figure 6). This holds true for both urban and rural households and all income levels (World Bank, 2017b).

In 2013, some 23 percent of children between zero and three years of age did not have access to adequate levels in any of the four drivers of nutrition in Indonesia.

Figure 6: Average height for age Z-scores and access to drivers



Source: NIHRD/World Bank, 2017b

Nutrition during the first 1,000 days of life

Nutrition in pregnancy

A child's risk of developing chronic malnutrition starts in the womb.

Over 10 percent of infants in Indonesia are born with Low Birth Weight (LBW), many of whom suffer growth faltering already in utero (BPS, 2012), others due to being born pre-term. These infants have a higher risk of serious illness, stunting and death in their very first year of life.

A poor maternal diet not only can lead to inadequate weight gain for mothers during pregnancy but it can impact the growth of the foetus. Nutritional needs are increased during pregnancy and the dietary requirements are higher. Assuming an average desirable weight gain of 12 kilograms, it is estimated a pregnant woman requires around 75,000 calories[11] extra during the pregnancy and requires increased intake of iron, zinc and calcium (Karakochuk et al., 2018).

Knowledge of a healthy diet during pregnancy is often limited and cultural habits encouraging mothers not to eat certain foods during pregnancy can have a negative impact. During antenatal visits, the focus on preventing maternal mortality may mean maternal nutrition and counselling do not get the attention they need.

[11] Not taking into account needs increase progressively, this translates into an average of 260 kilocalories a day, about 10-15 percent more than non-pregnant women.

Helping mothers to eat the right food and take the recommended supplements during pregnancy could make a big difference in reducing LBW among infants in Indonesia, as well as improving the health of the mothers and reducing the risk of maternal death due to anemia.

Breastfeeding critical

It is without doubt best for infants to be exclusively breastfed for the first six months of their lives. Nutritionally adequate semi-solid and solid foods are introduced at six months of age together with continued breastfeeding until 24 months and beyond. When infants under six months are not exclusively breastfed or are introduced to solid foods too early the risk of stunting increases.

Low levels of exclusive breastfeeding contribute to Indonesia's high levels of chronic malnutrition in young children. In 2017, still only half of Indonesian children up to six months of age were exclusively breastfed. While this is an increase from 2007 (42 percent) it is still only half (BPS et al., 2007, 2017). At the root of this are poor practices related to the initiation of breastfeeding and the continuous pressure to bottle feed/use breastmilk substitute (BMS).

In Indonesia, 60 percent of women still engage in pre-lacteal feeding (feeding non-breastmilk substances before a mother starts to lactate). Often this cultural practice of pre-lacteal feeding increases an infant's risk of infection and may disrupt early initiation and exclusive breastfeeding.

Only 49.3 percent of infants started breastfeeding within an hour of birth (BPS et al., 2012). About one-third of infants aged zero to one month of age were already bottle-fed (26.3 percent) and given infant formula (19.5 percent) (BPS et al., 2017).

Allowing companies to market BMS and, until recently, allowing health workers to actively engage in promoting the use of BMS to mothers has also had a negative impact on rates of exclusive breastfeeding in Indonesia.

Aggressive marketing of formula to mothers is also an issue. With one million babies born every year in Indonesia, the country is an attractive market for companies selling breastmilk substitutes.

Research shows that most women know that breastmilk is best for their babies, however there is a confidence gap in their own ability to produce the right quality and quantity.

Working mothers face additional barriers to breastfeeding. Around 55 percent of women aged 15-49 are employed in Indonesia (BPS et al., 2012). In 2009 it became mandatory for employers to provide a breastfeeding room in the workplace for mothers. But by 2011 only 11 percent of government, public and private offices had such a space, according to a report by Save the Children in 2013.

Complementary feeding problems

The transition from exclusive breastfeeding to solids plus continued breastfeeding is a crucial period in a child's development. It is often during this period that children's growth starts to falter.

Only about one third of children 6-23 months were fed according to all IYCF (Infant and Young Child Feeding) recommendations[12] (BPS et al., 2012). A higher proportion (45 percent) of infants between 6-8 months and 18-23 months were fed according to the guidelines (BPS et al., 2012).

Not only do infants in Indonesia often switch too early to solids and semi-solids, they also consume too few food groups and are often fed far too infrequently once exclusive breastfeeding ends. Some are fed only twice a day, while at least six meals/snacks are required for their needs at those young ages.

[12] IYCF recommendation: continued breastfeeding; a minimum of two feedings of solid or semi-solid foods per day for infants age 6-8 months and three feedings for children age 9- 23 months; and consumption of solid or semi-solid foods from a minimum of four food groups per day.

Lack of access to safe drinking water, poor sanitation and hygiene leads to high rates of infectious diseases

Infectious diseases, including diarrhea and dysentery and the disorder caused by inflammation of the intestine called environmental enteropathy (EEP), also contribute to chronic malnutrition.

Between 2007 and 2013, the proportion of households in Indonesia with access to an "improved" source of drinking water increased from 62.0 percent to 66.8 percent. And the proportion of households with access to an "improved" sanitary facility increased from 40.3 percent to 59.8 percent (NIHRD, 2013).

However, 20 percent of households still defecate in the open and this rises to 29 percent for rural areas (WHO/UNICEF, 2015). The number of poor people who still defecate in the open in rural areas is double that of those in urban areas.

There are wide geographic and wealth differences in access to sanitary facilities. These may help to explain geographic variations in stunting. There is substantial global evidence suggesting a strong link between poor sanitation and stunting.

In Indonesia, there is growing evidence of the link between safe drinking water, improved sanitation and stunting. Research shows that the combination of unimproved latrines and untreated drinking water was associated with increased likelihood of stunting in Indonesia compared with improved conditions (Torlesse et al., 2016)

At the same time, more operational research is needed to determine how best to converge and integrate water, sanitation and hygiene interventions into a broader multisectoral approach to reduce stunting in Indonesia (Torlesse et al., 2016).

Another recent analysis in Indonesia found that children living in communities with higher levels of improved sanitation and lower levels of open defecation in their first two years of life were less likely to be stunted and underweight[13]. In addition, they scored 1.3 points higher on cognitive tests later in life (Cameron et al., 2017a).

Early marriage and early pregnancy

Early marriage and pregnancy, especially adolescent pregnancy, also contribute to Indonesia's high rate of stunting. Early marriage and pregnancy not only increase the risk of maternal mortality but also increase the risk of child undernutrition and poor health.

Adolescent girls are more likely to give birth to babies with low birth weight than women in their 20s and early 30s (10.3 versus 6.8 percent) (BPS, 2012). That's because the nutritional needs of the foetus compete with the mother's own growth during pregnancy.

One in eight (13.1 percent) adolescent girls aged 15-19 years are married, divorced or separated (BPS et al., 2012). Eight percent of adolescent girls are already mothers or pregnant with their first child (BPS et al., 2017).

[13] It is important to note that other recent research, the 2017 SHINE study in Zimbabwe, Kenya and Bangladesh, failed to find a link between improved sanitation to reductions in rates of stunting resulting in a continued need to review all pathways between sanitation, infectious disease and child growth.

Early Childhood Stimulation

Although not a direct determinant of stunting, psychosocial stimulation or early childhood stimulation and good nutrition together ensure optimum child development.

Early childhood stimulation programs have been implemented in Indonesia since 2007. A 2014 regulation[14] paved the way for early stimulation, detection and intervention of child growth and development programs to be implemented in primary care facilities. It also allowed for the integration of early stimulation programs in early childhood education centres.

One such program is the Early Stimulation, Detection and Intervention of Growth *(SDIDTK)* Program where trained personnel carry out early stimulation and detection activities at *Puskesmas*, early childhood education centres and *Posyandu*. SDIDTK Kits consisting of among others, stacking blocks, rattles, dolls and feeding utensils are provided to centres running the *SDIDTK* program.

Little information is available nationally regarding the coverage and implementation of the SDIDTK program. But information from sub-districts and anecdotal evidence points to relatively low awareness of the SDIDTK program among carers and family members, poor training coverage among health personnel and difficulties in ensuring sustainability of program at primary care facilities due to poor commitment, and lack of resources.

Tobacco and stunting in Indonesia

High rate of smoking is also linked to stunting in Indonesia.

Block and Webb in their 2009 found evidence that household expenditure on tobacco displaced expenditure on nutritious foods for children.

Tobacco expenditure in Indonesia is very high: it is the second highest expenditure in the household budget (BPS, 2015). Semba et al. in 2007 found 22 percent of weekly per capita household expenditure were spent on tobacco in households where the father was a smoker, with less money spent on food.

[14] Ministry of Health Regulation No. 66 of the year 2014 on *Pemantauan Pertumbuhan, Perkembangan, dan Gangguan Tumbuh Kembang Anak*.

BPS estimated that the bottom 40 percent of income quintiles do not achieve minimum required calories and yet these same households are spending a significant share on tobacco.

Indonesia has one of the highest rates of cigarette consumption in the world; 68.1 percent of adult males smoked. Indonesia has about 85 million smokers (World Bank, 2018f).

Household heads in rural areas or in a high-stunted rate districts were more likely to smoke than those in urban areas or in low-stunted districts (World bank, 2017b).

And the 2016 Sirkesnas[15] found smoking prevalence among youth (under 18) is increasing from 7.2 percent (2013) to 8.8 percent (2016).

Using the longitudinal IFLS dataset Dartanto et al. (forthcoming) evaluated the impact of parental smoking on stunting. The study found that children living in households with a chronic smoker, as well as with transient smokers, tend to put on less weight and grow more slowly than children living in households with non-smokers. Children living with parents who do not smoke were 1.5 kg heavier than those living with a chronic smoking parent.

[15] *Survei Indikator Kesehatan Nasional (Sirkesnas)* is an inter-Riskesdas survey conducted periodically by NIHRD every year to monitor the achievement of 36 Ministry of Health's performance indicator listed in RPJMN and *Rencana Strategis (Renstra) Kementerian Kesehatan* (MOH Strategic Plan) 2015-2019. Sirkesnas is conducted simultaneously in 34 provinces with a total of 261 districts/municipalities surveyed (30,000 households).

CHAPTER 3

LEARNING FROM PAST SUCCESS AND SETBACKS

Chapter Snapshot

- Indonesia has been internationally recognized for successful steps forward in public health nutrition. It was an early adopter of a universal salt iodization law and received the Hellen Keller Award for significantly decreasing the prevalence of xeropthalmia.
- The *Posyandu* (integrated community health post) were formally established in 1986 as a village weighing program with a strategy to ensure consistent monthly weight gain in healthy children under five.
- Still at the heart of Indonesian village life today, these sessions allow mothers and caregivers to meet to find how well their babies, toddlers and young children have grown.
- However, past success has not yet translated into sustained success. Much more needs to be done.
- In addition to significant setbacks due to the 1997/8 financial crisis, Indonesia has faced recent challenges in three main areas: governance, resources and implementation capacity.


4,8
JADI TUNGGU
APA LAGI?

CHAPTER 3

Past successes have shown Indonesia's commitment to addressing malnutrition and have paved the way for future achievements.

At the same time, smaller successes have yet not translated into big achievements due to the many challenges Indonesia faces.

Much of the focus of the past nutrition programs has been on improving underweight and micronutrient deficiencies. Only very recently has stunting been recognized as a serious development problem for the country.

Indonesia developed a national health care system in the 1970s to widen access to services, to reduce infant and maternal mortality and to lower the number of pregnancies (Neelakantan, 2014). The government worked closely with the Nutrition Food Institute, established in 1950. The institute helped to shape the country's nutrition policies, including the development of the widely-known *"Empat Sehat Lima Sempurna"*[16] campaign (Nutritious Diet – 4 is Healthy, 5 is Perfect) (Soekirman, 2011).

It has since implemented many of the nutrition-specific interventions, often as part of the overall primary care program, such as provision of iron folic acid to pregnant women, routine vitamin A supplements for children, deworming programs, as well as through ante- and post-natal care.

Indonesia was internationally recognized in 1994 for the early adoption of a universal salt iodization law and received the Hellen Keller Award for significantly decreasing the prevalence of xeropthalmia (which causes blindness) and reducing overall vitamin A deficiency.

The health sector, together with the nutrition institute, and the *Pembinaan Kesejahteraan Keluarga (PKK*) or Family Welfare Movement, came together in the Family Nutrition Improvement Program *(UPGK)* to promote grass-roots nutrition services in the community.

In 1986, the *Posyandu* were officially established, as integrated community health posts in villages to improve the health of women and children with a focus on nutrition, immunization, growth monitoring and promotion and micronutrient distribution.

Indonesia in the 1980s also introduced the *Sistem Kewaspadaan Pangan Gizi (SKPG)* or Food and Nutrition Surveillance program. The SKPG monitored not only nutrition status at the *Posyandu*, but also looked at climate and economic changes at all levels (sub-district, district, province and national). It raised alerts to prevent severe malnutrition and involved multiple sectors. Despite its earlier success it is no longer active.

[16] The socialisation of nutrition messages started in the 1950s when Prof Poorwo Soedarmo, known as the father of nutrition in Indonesia, introduced the term "Healthy Four Perfect Five". The slogan was developed to educate people about the importance of nutrition. The message is a modification of the US's "Basic Seven and Basic Four". This slogan is depicted in a circle form, with staple (carbohydrate source), side dish (protein and fat sources), vegetables, and fruits (vitamin and mineral sources) on the outside and milk in the middle. *Empat Sehat Lima Sempurna* became a favorite in nutrition education and was nationally known, especially in school-age children. Its values are inherited among the public even until today.

Snapshot Indonesia Nutrition History

1950

The People's Food Institute (*Lembaga Makanan Rakyat*) began the Nutrition program under the leadership of Prof. Poorwo Soedarmo (Nutrition Father of Indonesia)

1952

Introduction of "*Empat Sehat Lima Sempurna*" (Healthy Four Perfect Five) as a famous nutrition slogan for healthy eating guidelines

1963

Recommended Dietary Allowances (RDA) for Indonesia was firstly developed by the Department of National Research and the revision of RDA was done in NAS (US National Academic of Sciences)-LIPI (*Lembaga Ilmu Pengetahuan Indonesia*)

1968

First Workshop on Food in Jakarta which gave inputs about Food policy to Bappenas and included in Five Years Development Plan 1 (*Repelita 1*)

1970s-1980s

Nutrition Research and Survey conducted and published internationally for national policy such as: Anemia and productivity among the workers (1972-1973), High dosage of Vitamin A supplementation to decrease underfive mortality in Aceh (1975-1979)

1979

The Family Nutrition Improvement program (UPGK) launched

1980s

SKPG (Nutrition Surveillance) launched and incorporated in the National Food and Nutrition Program

1986

Integrated Community Health Post – *Posyandu* – were officially established in 1986 by the then Suharto government

1993

Introduction of PGS (*Pedoman Gizi Seimbang*) – 13 principle messages, Nutrition Balance Guidelines to replace the Healthy Four Perfect Five

1994

- President of Indonesia General Suharto received the "Helen Keller International Award" after Indonesia successfully decreased the prevalence of Xerophtalmia and Vitamin A Deficiency (VAD) below the WHO cut-off level
- Issue of President Decree No 69/1994 on iodization salt at the national level

1997/8

The global financial crisis hits Indonesia hard with a 3 to 4-fold currency drop which negatively affected food prices and nutrition

1999/2001

Passing and implementation of two ground-breaking decentralization laws (Law 22/1999 and Law 25/1999)

2001

Ministry of Industry makes flour fortification – with iron, folic acid and other nutrients – mandatory to support the program to eliminate the prevalence of anemia

2007

- Ministry of Health issued the regulation of No 747/MENKES/SK/VI/2007 about the Operational Guidelines of *KADARZI (Keluarga Sadar Gizi)* – Family Nutrition Awareness
- First National Health Survey, RISKESDAS. This was the first time stunting was measured at the national level.

2010-2014

Evaluation of the Nutrition Guidelines and coverage of 4 main messages – which is currently called "*Tumpeng Gizi Seimbang*" (2014)

2011

Indonesia signs up to the global Scaling Up Nutrition (SUN) movement and begins the First 1,000 Days Movement, launched by four ministries

2013

- Indonesia's 2013 National Health Survey (RISKESDAS) showed 37.2 percent of Indonesian children under 5 years of age (almost 9 million children) were stunted. The national stunting rate had remained stagnant since 2007.
- The government launches a National Movement on Accelerating Nutrition Improvement (*Gernas* PPG) with a strong focus on the first 1,000 days of life

2015

Indonesia's government includes targets to reduce stunting in its Medium-Term Development Plan (RPJMN) for 2015-2019

2016

During a WB-IMF annual meeting, Indonesia's Minister of Finance commits to the World Bank's "Investing in Early Years (INEY)" agenda to boost investments in maternal and child health, underlining the importance of good early child development on economic productivity and national development

April 2017

Indonesian government delegation visits Peru to learn how it successfully halved stunting rates in less than a decade

August 2017

Indonesia launches a national strategy to accelerate the prevention and reduction of stunting rates. The National Strategy to Accelerate Stunting Prevention (StraNas Stunting) is approved in a ministerial cabinet meeting chaired by the Vice President in August 2017. It acknowledges that stunting is at crisis levels and recognizes the need for an ambitious multi-sectoral response

Past successes

Still at the heart of Indonesian village life today, *Posyandu* events allow mothers and caregivers to meet to find how well their babies, toddlers and young children have grown.

Posyandu today provide health and nutrition care in communities in Indonesia. They remain the first point of contact for health services for pregnant women and young children in most provinces. In 2014, about 289,635[17] *Posyandu* served 82,190 villages in Indonesia, or approximately 3.52 *Posyandu* per village[18].

The *Posyandu* are still highly regarded. They are recognized throughout government as vital to the country's drive to improve maternal and child health and to reduce stunting. They form a key part of the jigsaw in a community-based approach that must be expanded to have a multisectoral focus.

The StraNas Stunting and the overall government convergence approach calls for a 'revamping' and modernization of the *Posyandu* as a key part of their strategy (Chapter 5: The Way Forward).

When Indonesia's "nutrition star" shone brightly

In the past, other countries looked to Indonesia for inspiration about how to improve nutrition.

Indonesia was setting the international standard for national nutrition programs. As countries now look to programming in Peru for inspiration, earlier it was Indonesia. In the 1980's the nutrition star shone brightly for Indonesia. Although many factors have changed in Indonesia between the 1980's and now, the principles for successful nutrition programming that Indonesia taught the world remain the same.

The focus on healthy child growth, and not only nutritional status or weight gain, and its community focus, were successfully replicated in other countries. In Madagascar, for example, the so-called SEECALINE program started a community-based nutrition program working with trained volunteers. In Honduras some of the original ideas were applied in the well-known community nutrition project AIN *(Atencion Integral a la Ninez)*.

At an estimated annual cost of $2 to $11 per child (Rohde, 1993; Mason et al., 2006), this cost-effective program enjoyed early success. Children who participated in a child health and nutrition program delivered by *Posyandu* village health posts in the 1980s and 1990s were 19-25 percent less likely to be stunted or underweight (Wai-Poi, 2011).

The village midwife *(Bidan Desa)* program, that ran, and continues to run, in Indonesia during the 1990s, was also shown to reduce stunting and to raise the future incomes of children who benefited from the program (Giles and Satriawan, forthcoming).

Village midwives play a crucial role in the village. One of these roles is to help the functioning of *Posyandu*. Village midwives, overseen by a midwife coordinator, are the link between the *Puskesmas* and the *Posyandu*. *Puskesmas* staff together with the *Bidan* train and supervise the *Posyandu*'s community-based health workers *(Kader)*.

Indonesia's health sector successes with regards to nutrition-specific focus has been mixed.

Indonesia did well reducing child mortality and morbidity with improved vaccination programs and increased access to primary care. Stunting outcomes however are not improving fast enough and depend on more than the health sector. Bhutta et al. in 2013 state that stunting can be reduced by about 20 percent with a 90 percent coverage of a set of nutrition-specific interventions.

After decentralization the results have been less than satisfactory and service readiness, a lack of attention to the community-based interventions and many governance and management issues are at the root of the problem.

One large missing element has always been the lack of attention paid to interpersonal communication and counselling, which is recognized as crucially important to supporting families to improve child care and feeding practices important for stunting reduction.

[17] Pusdatin, 2017.
[18] Staff own calculations, based on Statistik Indonesia (Statistical Yearbook of Indonesia) data (BPS, 2015). *Statistik Potensi Desa Indonesia* (Village Potential Statistics of Indonesia) shows a different figure (77, 245 *Posyandu*).

Currently exciting new health programs, building on existing platforms and including nutrition-specific interventions, are being put in place. One example is the new Healthy Indonesia Program through Family Approach (PIS-PK) which complement an already strong emphasis on exclusive breastfeeding and growth monitoring and promotion, the Infant and Young Child Feeding through *Pemberian Makan Bayi dan Anak* (PMBA) Program. However, these programs are for the most part not financed by the central government, which has developed them, and rely on district government to both embrace their ambition and support them with adequate financing.

More recently, UNICEF's Maternal and Young Child Nutrition Security Initiative in Asia (MYCNSIA) demonstrated in Indonesia that intensive community-based behavior change interventions can improve care practices (including feeding and hygiene practices) and reduce stunting rates (Box 3).

Box 3: Community IYCF Counselling in Indonesia in the Maternal Young Child and Nutrition Security in Asia (MYCNSIA) Project shows positive impact on stunting reduction

Indonesia's vast network of community-based health workers *(Kader)* attached to community-based integrated health posts *(Posyandu)* is an effective mechanism to reach mothers of young children with information and counselling on maternal nutrition and infant and young child feeding (IYCF), particularly in underserved communities that live far from health centers. UNICEF's global Community IYCF Counselling package uses an interactive adult learning approach to build the knowledge and skills of community-based workers on counselling, problem solving, negotiation and communication, as well as recommended breastfeeding and complementary feeding practices.

In 2011, UNICEF supported the Ministry of Health to adapt the global UNICEF Community IYCF Counselling package to the Indonesia context, and to establish mechanisms for large-scale roll-out in Indonesia (UNICEF, 2017). In addition to the standard content of the package, the Indonesia version emphasizes maternal nutrition and the father's role in supporting good feeding practices. It also strengthens growth monitoring and health services. A cascade training model was developed and rolled out in three districts of Klaten, Sikka and Jayawijaya. Supportive supervision tools were designed to assist facilitators at the health center in assessing the performance of village midwife and *Kader* in their counselling skills and to identify areas where they require additional support and mentoring.

In Klaten, the focus was on breastfeeding promotion. UNICEF supported intensive Infant and Young Child Feeding (IYCF) training and equipped the so-called Baby-Café *Posyandu* with materials and equipment. In addition to counselling, they helped produce a nutritious porridge made from local ingredients, which mothers, fathers and grandparents could purchase for US$ 25 cents (or US$ 20 cents if they brought their own container). The local *Kader* saw the growth of children had improved in the monthly weighing sessions.

Baseline and endline surveys were conducted in 2011 and 2014 in the three districts. Within three years it showed a 23 percent reduction in stunting in children less than three years (30 percent to 24 percent), while the proportion of infants aged less than six months who were exclusively breastfed increased from 52 percent to 72 percent. Complementary feeding practices overall did not change, but there was significant improvement among the poorest families. Specifically: comparing the children in the lowest quintile to all children, the reduction of stunting was 1.6 times greater. Improvements in minimum dietary diversity, minimum acceptable diet, and consumption of animal products were significant. The improvement in animal product consumption was 9.5 times greater and the improvement in reported handwashing behavior was 4.2 times greater.

These results provide evidence that the program delivery reached the poorest and most marginalized families, and the approach was effective in helping them to improve these critical practices. Analysis of the key factors contributing to the positive nutrition outcomes in these districts highlighted the importance of enhanced knowledge and counselling skills of the community workforce, supported by strong quality assurance measure taken, including follow-on supportive supervision. In addition, effective planning and budgeting at national and sub-national levels and an enabling legislative environment which protects exclusive breastfeeding are crucial.

On the other hand, the results suggest that counselling alone on complementary feeding can only improve dietary diversity to a limited extent. Counselling may need to be complemented by other multi-sectoral services, e.g. cash transfers, provision of multiple micronutrient, homestead gardening and animal husbandry, as applicable to context. Full institutionalization of nutrition counselling and its monitoring in health services is also needed to ensure sustainability and scale of the services and to potentially increase the value and attention given to these services by the providers.

The counselling services have been scaled up in more than 130 districts with government, UN agencies, NGOs and Millennium Challenge Cooperation funding. With the government budget of approximately USD3.9 billion, the essential nutrition interventions including the enhanced maternal nutrition and IYCF counselling services will be scaled up in 100 districts in 2018, and in all districts in 2020 and beyond.

Ongoing nutrition-sensitive programs to build on

Indonesia has a multitude of nutrition-sensitive programs that have been proven to improve early childhood outcomes, including stunting. Much more can be done to improve scale and synergies for enhanced impact.

Community development

The community-driven development program PNPM Generasi (Healthy and Smart Generation, GSC), launched in 2007, has helped reduce rates of severe stunting by providing grants to poor communities to improve health and nutrition.

The program entered into agreements with the health and education sectors to strengthen the demand side by making the grants conditional on improved demand/utilization of health and education services. At the same time, the health and education sectors improved the supply side to respond adequately to increased demand.

The Ministry of Home Affairs and later the Ministry of Villages have provided grants to poor communities. Members of the community, with support from trained program facilitators, decide how to spend the money to reach 12 health, nutrition and education targets.

Operating in more than 5,000 villages across about a third of Indonesia's 34 provinces, around 4.7 million women and children have benefitted from the program.

An impact evaluation assessed PNPM Generasi's long-term impact and demonstrates significant improvements. School participation has risen as have household incomes. And up to recently, malnutrition rates in PNPM Generasi areas have improved.

The final evaluation did not show further improvements due to the lack of inclusion and convergence of other crucial activities such as water and hygiene (Olken and Sacks, 2018). And lastly the program suffered issues and delays with the parenting classes, decreased size of block grants and did not focus on interpersonal counselling.

Crucially PNPM Generasi helped mobilize community members to attend the *Posyandu*. Participation in weight checks and parenting and pre-natal classes improved and were sustained even eight years after implementation. PNPM Generasi incentivised community participation through provision of nutritional supplements, subsidies for pre-and post-natal care and remunerating *Posyandu* volunteers.

Between 2014 and 2018 the Millennium Corporation Challenge (MCC) supported by the US government has supported supply side intervention to improve the coverage and quality of nutrition services in all PNPM Generasi areas.

Conditional cash transfers and social safety nets

"The government's conditional cash transfer program, *Program Keluarga Harapan* (PKH, Family Hope Program), has reduced stunting rates by 26 percent and severe stunting by 58 percent after six years of implementation", said Elan Satriawan, Head of Policy Working Group of TNP2K during the presentation of the evaluation of the PKG program (Cahyadi et.al., 2018) at the J-PAL SEA Stunting Conference in Jakarta on May 9, 2018.

The PKH provides incentives, about 12 USD every month, to households in return for pregnant and breastfeeding women and children under five using health services and children attending school. Run by the Ministry of Social Affairs, it has not yet directly influenced the choice of food families eat but a pilot program, PKH *Prestasi*, in two districts is targeting interventions to improve child nutrition.

Maintaining food security for poor households has been a priority for Indonesia's government since the late 1990s. In the wake of the Asian Financial Crisis, the government sought to reduce regressive subsidies for food, fuel and electricity, opting to redirect spending through a mix of targeted social safety net programs. In 1998 the OPK *(Operasi Khusus Pasar)*, a special market operation for rice, mandated the sale of subsidized rice to poor families.

In the first phase of the program's operation, around 40 percent of Indonesia's 50 million households had purchased OPK rice. However, leakage due to benefit sharing at the village level was high, which reduced the programs ability to increase food security. Despite some reforms and name changes overtime, this trend has continued. The current program, called *Rastra*, is an in-kind rice subsidy program that has targeted the poorest 25 percent of the population and provides 15 kilograms of medium quality rice to each family a month. Recognizing these lingering implementation issues, the government launched an e-voucher program called BPNT (*Bantuan Pangan Non-Tunai* or non-cash food assistance) to replace *Rastra*.

The 2017 roll-out of BPNT included 44 cities and involved 1.28 million poor families based on the Unified Database (BDT), which is a national social registry of poor and vulnerable households ranked as the bottom 40 percent of the population. BPNT will gradually take over *Rastra* beneficiaries as it is being rolled out nationally. During its rollout it is continually being monitored and further improved to reach its objective - improving food security (focused on quality and quantity of diet) for the poor.

Water, sanitation and hygiene

WASH programs have also contributed to stunting reduction. The National Rural Water Supply and Sanitation Program (Pamsimas) provided about eight million people with access to improved water facilities and more than seven million people with access to improved sanitation in over 10,000 villages in 2008-2015. More than half of target communities eradicated defecation in the open and more than two-thirds adopted hand washing programs. Around 85 percent of targeted schools improved their sanitation facilities and hygiene programs. In addition, 78 percent of targeted villages created an efficiently managed and financed water supply.

An evaluation of another government and World Bank/WSP WASH program - Total Sanitation and Sanitation Marketing (STBM, *Sanitasi Total Berbasis Masyarakat* - CLTS Community Led Total Sanitation) - in rural East Java, found that children in successful ODF communities not only had lower parasitic infection rates but showed greater height and weight gains than other children living elsewhere (Cameron et al., 2017b). These findings were in line with other research in Indonesia showing the importance of water, sanitation and hygiene in reducing stunting rates.

Box 4: Water and sanitation and stunting

Indonesia has made considerable progress in the Water, Sanitation and Hygiene (WASH) sector over the past decade with access to improved water supply reaching 87 percent and access to sanitation 61 percent. Progress was particularly good in rural areas, even though the gap between urban and rural remains large.

The achievements on the WASH sector were supported by strengthened social, political and economic growth.

Starting in 2015, the Government of Indonesia (GOI) implemented the '100-0-100' program to achieve 100 percent access to safe water, 0 percent urban slums and 100 percent access to improved sanitation by 2019. The World Bank facilitated the Community-Based Rural Water Supply and Sanitation Program (Pamsimas) and the Community-Based Total Sanitation (STBM), two key programs applying new approaches that have been contributing robustly to that goal.

A framework, curriculum and modules, and a monitoring system were developed to improve capacity and have been adopted widely. Improved capacity of local authorities and service providers by advocating adoption of the STBM approach to reach the poorest 40 percent, especially through the integration of the STBM-Stunting approach, has been successful. Online training has been developed and integrated into the courses' and curriculum of the Ministry of Health School of Polytechnics for the environmental health and nutrition departments and budgets have been allocated.

A Smart Phone Application to strengthen the STBM Real Time Monitoring System was developed in 2012. As of June 2017, the SMS and web-based STBM monitoring system was being used in 509 of 514 districts and cities in 34 provinces in Indonesia, and data from 76,277 of 80,300 villages (95 percent) has already been stored. Data updating is done in real-time by sanitarians who have a special account to update data in their working villages. Of 11,190 sanitarians working in 9,090 primary health centers across Indonesia, 70.6 percent are actively updating data.

Ease of access to data, communication and learning products is essential to increasing the engagement of multiple stakeholders and to achieving common targets.

The collaboration with other programs concerned with health, nutrition for prevention and elimination of stunting have improved by using the behavior change STBM triggering intervention that has been integrated with nutrition component to enhance the sector's effort to empower communities to reduce stunting.

Past Setbacks

Indonesia's successes in countering malnutrition have been offset by setbacks.

First, the 1997/8 financial and economic crisis which hit the entire world and Indonesia in particular very hard, resulted in a serious set-back for nutrition. The currency devaluated three- to four-fold, prices of foods and basic commodities increased markedly, and many people lost their jobs. Indonesia suffered the consequences of an economic crisis. Access to food in households was reduced in almost every part of society, affecting both the quality as well as the quantity of the diet.

The GOI/HKI Nutrition Surveillance System documented that a large reduction of purchasing power due to the crises severely affected the nutrition and health of Indonesians, particularly women and children under five (de Pee, et. al., 2000; Bloem and Darnton-Hill, 2000).

Mean weight-for-height declined by over one-third of a standard deviation. Furthermore, blood hemoglobin concentration – an even more responsive indicator, and one that provides insight into the quality, as well as the quantity of the diet – also declined sharply during the crisis. While both indicators improved again during late 1998, neither had recovered to its pre-crisis level by January 2001. The crisis thus significantly reversed what had previously been a ten-year period of improving nutritional status in Indonesia (Block, et. al., 2003).

External factors alone are not enough to explain declines or stagnation in nutrition. Indonesia also faced significant challenges in three main areas: governance, resources and implementation capacity.

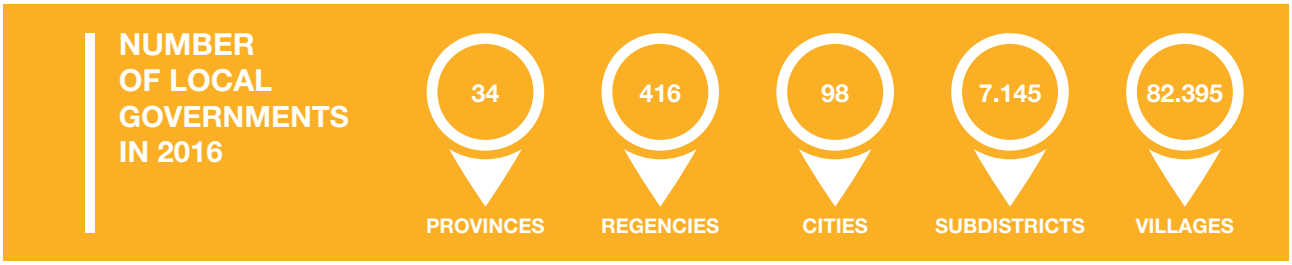
Governance: Unintended effect of decentralization on service delivery

Throughout the 1990s, economic progress and demand for greater political autonomy across Indonesia saw pressure mount for greater democratization and decentralization.

In August 1999, two ground-breaking decentralization laws (Law 22/1999 and Law 25/1999) were passed and implemented in the so-called Big Bang Decentralization in 2001. These laws, in effect, transferred the bulk of basic service delivery to around 300 district governments (as opposed to provinces and governors).

Indonesia is today made up of 34 provinces, which in turn are divided into regions, cities or municipalities, sub-districts and villages.

Figure 7: Number of local governments in 2016



Source: BPS. 2017

On one hand, decentralization has created the opportunity to make public spending more responsive to local needs and conditions.

On the other hand, it has also led to big discrepancies across the country in terms of planning, available resources, and progress.

Local governments are responsible for delivering almost all the nutrition interventions, throughout Indonesia. At the time of decentralization in 2001, districts had responsibility for budgeting only conditional grants (*Subsidi Daerah Otonom* – SDO/Autonomous Region Subsidy and *Instruksi Presiden* transfers), over which they had little discretion.[19]

After decentralization they were given much more autonomy as the majority of their funding was not conditional. However, there was little preparation and capacity building to help districts learn how to prioritize, set targets and monitor progress in budgeting their much larger unconditional resources. A 2006 World Bank report highlighted shortcomings in improving nutrition for Indonesia's children in the wake of decentralization (Friedman et al., 2006).

"There is a tension between the need for nutrition programs to address increasing regional disparities and the possibility that local governments may not have adequate capacities or resources to recognize and address their local nutritional issues," the World Bank said in its 2006 report "Health Sector Decentralization and Indonesia's Nutrition Programs: Opportunities and Challenges."

[19] The core concept behind the SDO was that central government would fully support the costs of local government employees. Two-thirds of the SDO was allocated to provincial governments, and the rest was for the district government. Aside from SDO, local governments also received *Instruksi Presiden*, or *Inpres* transfers, which were earmarked for local development activities. An important objective of the *Inpres* system was to reduce regional disparities, and its allocation was based on several criteria such as population, local own revenue (PAD), a minimum transfer for local government, area, previous transfers, and so on.

Governance: Lack of cohesion and convergence

Delivering a cohesive nationwide approach to tackle stunting and converge multiple sectors in a large and diversified country with decentralized governments is a major challenge, especially given the significant differences in the nature and scope of stunting across the provinces.

After 2001, the Ministry of Health retained its responsibility for formulating health policy and overseeing its implementation. However, local district governments were given responsibility for delivering health and nutrition services with guidance, support and supervision by central government

This led to highly varied resources being allocated to health and nutrition across districts[20] . Intergovernmental transfers are the main instrument central government can use to influence district choices, but the majority of funding comes with few conditions attached and conditional transfers have a weak results focus. They have not helped translate national priorities into local action as effectively as they could.

In addition, the fiscal capacity of districts varies a great deal. Districts that are well-resourced have more than 30 times the per capita revenues of those which are least well resourced ((World Bank, 2017c). Since the costs of health service delivery are driven largely by the population being served, this has a large impact on the capacity of different districts to support health programs.

Decentralization led to highly varied levels of attention and efforts. This is reflected in dynamic stagnation of stunting prevalence with major differences in stunting rates between districts and provinces. While stunting rates halved in five years in some districts, in other districts they doubled.

Poor coordination and governance was not only an issue at the district, sub-district and province level but also at village level, where spending power increased significantly with the enactment of Village Law 2014.

“Existing initiatives should be consolidated under a national priority program, while fiscal transfer instruments could be used to direct more district and village spending toward early childhood interventions,” according to the Indonesia Economic Quarterly in June 2017 (World Bank 2017d).

“Better aligning incentives across key ministries, local governments, service providers, communities and households would help to improve service coverage, quality, and utilization. Additionally, annual tracking of key early childhood outcomes like stunting would help to sustain public awareness and enable ongoing progress monitoring and program adjustment (World Bank, 2017b).”

Governance: Weak regulations and failure to enforce

Weak regulations and a failure to enforce regulations have also hampered efforts to drive down rates of stunting.

Weakness in the monitoring of laws and regulations related to breastmilk substitutes (BMS) and food fortification, for example, contribute to holding back the country’s drive to lower rates of stunting.

To encourage breastfeeding, Indonesia put regulations in place in 2012 to protect exclusive breastfeeding in health facilities, workplaces and other public places, following the WHO code[21].

Health facilities and health workers support mothers to breastfeed. The Code prohibits them from marketing the sale of infant formula to parents with a baby under one year-old. However, there are still concerns that midwives in rural areas are being targeted by companies to promote breastmilk substitutes. While the release of Government Regulation 33/2012 to protect exclusive breastfeeding has been a major step forward, the marketing and labelling of BMS, processed complementary foods and other processed foods still do not comply with the resolutions of the World Health Assembly (WHA) and subsequent resolutions (WHA 34.22 for the marketing of breast milk substitutes and WHA 63.14 for processed foods), due to weak enforcement. Advertisements for processed foods are common place throughout Indonesia on billboards, in newspapers, magazines and on television. They often target children. There are also gaps and loop-holes in the laws, regulations and standards for mandatory fortified foods, including iodized salt and enriched wheat flour.

[20] See annex with details on characteristics of top and bottom performing districts.
[21] The World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) have for many years emphasized the importance of maintaining the practice of breastfeeding—and of reviving the practice where it is in decline— to improve the health and nutrition of infants and young children. In 1981, WHO released a code to restrict the marketing of breastmilk substitute and to protect breastfeeding.

The monitoring and enforcement of food fortification legislation is hampered due to unclear and overlapping institutional roles, as well as inadequate coordination. For example, local governments adhere to MOHA regulations, while flour fortification is a Ministry of Health decree with limited enforcement to implement. Moreover, lobbying efforts are growing in Indonesia and are often mostly not in favor of good feeding practices.

Decentralization led to the need for local regulations for controlling mandatory fortification of iodized salt among other foods. However, inadequate and even non-iodized salt distributions cannot be banned due to lack of local regulations *(Peraturan Daerah)*.

Governance: Lack of common standards

Common standards in delivering health and nutrition services to women and children are also key in efforts to reduce stunting.

With decentralization, Indonesia aimed to give significant autonomy to local government. However, it also wanted to maintain the collaboration of local government in pursuing national objectives, such as the delivery of key public services, including nutrition.

This was done through the introduction of agreements to achieve Minimum Service Standards (MSS). The MSS allows the Ministry of Health (MOH) to ensure the quality of health service delivery and provides a focus for the Ministry of Finance (MOF) to move towards performance-based budgeting for local government as part of wider financial management reforms.

The MMS 2016 lists the minimum essential care in “packages.”

However, it has several shortcomings. While aiming for a convergence approach the current MMS do not have sufficiently explicit references to the role of nutrition in combating stunting. They also do not pay sufficient attention to the role of WASH.

Updating these standards to reflect a new focus on nutrition-specific and nutrition-sensitive interventions could be a crucial component in the fight against high rates of stunting in Indonesia.

More recently in May 2017, technical briefs of the Minimum Service Standards for Health focusing on nutrition-specific and nutrition-sensitive interventions aimed at providing more nutrition focused information to head of districts and health personnel were released by the MOH. However, despite the efforts to update the MSS standards to be more nutrition-centric, little traction has been gained in improving standards of nutrition care.

Governance: Fragmented behavioural change communications

Without a doubt, accelerating stunting prevention and reduction will require improving the uptake of caring and nurturing practices of caregivers, families and communities. This means eliciting behavioral change in individuals, families and communities, taking into account the socio-cultural context and local practices.

One way to achieve this is by strengthening Behavior Change Communication (BCC). This includes interpersonal communication (IPC), mass communications, advocacy and community mobilization. Coupled with strategic use of data, this can have a positive impact on behavior such as exclusive breastfeeding and complementary feeding. This has been shown by studies conducted most recently by Alive & Thrive in 2018 and from earlier assessments on the World Bank financed Nutrition Improvement project which was implemented in the 1980s.

A clearer and more coherent approach to communicating with the public and other stakeholders is also vital to improve the country’s chances of reducing rates of stunting.

In Peru, for example, it was crucial to convince parents that there was nothing inevitable about stunting. A campaign to educate parents about the irreversible damage of stunting and what they could do to prevent it was a crucial ingredient in Peru’s recipe for success in dealing with its stunting crisis (Marini, Rokx and Gallagher, 2017).

In Indonesia, communications campaigns have tended to be sporadic with stakeholders developing competing and sometimes inaccurate messages (Alive and Thrive, 2018).

Behavioral change communication through the "Clean and Healthy Lifestyle" program (PHBS)[22] and the National Nutrition Campaign to Reduce Stunting have not yet successfully reached their target audience.

One of the missing elements in the campaign was an attempt to target key-influencers: people in the local community and in families. This was a missed opportunity to get role models involved in helping to change behavior.

In the 2016/2017 mass media campaign on stunting, all materials and messages were clear and concise. However, they did not explain stunting. The campaign also did not explain the "1,000 days" concept, which is crucial to tackle stunting successfully (Alive and Thrive, 2018).

Consequently, stunting remains an "invisible epidemic" as most Indonesian citizens do not know understand stunting and think that children are small because of hereditary factors (as was the case in Peru and other countries).

There is no direct translation of the word 'stunting' in Bahasa Indonesia. Different terms have been used, creating confusion.

New opportunities are emerging to communicate more effectively about stunting. Those opportunities include raising awareness about what stunting is and its impact on children's health and development, as well as the importance of exclusive breastfeeding for the first six months of an infant's life.

Even more important, is raising awareness about stunting in communities. The length mat is one new tool being tested to aid communication about adequate child growth to parents. (Box 5)

[22] The PHBS program promotes 10 key behaviors in three locations: the home, school and workplace. The behavioral changes promoted by the program include exclusive breastfeeding for the first six months, daily consumption of fruit and vegetables and monthly weighing of children under five.

The vital role of interpersonal communication

The campaigns do not replace the need for interpersonal counselling for behavior change. The messages and information need to be coordinated and complement each other.

IPC involves face-to-face conversations and activities between frontline workers (e.g. *Kader*, midwives, nutritionists) and mothers and family members. It allows the frontline workers to personalize messages (age-appropriate and issue-specific), demonstrate skills, provide encouragement and agree on targets for behavior change. It is often delivered through, but not limited to, home visits.

Tailored personal counselling, home visits, and making time for 'trouble shooting' are more influential in persuading caregivers to adopt good behaviour.

IPC must be delivered at the right intensity to achieve results. IPC needs to be provided in a way that allows mothers concerns and questions to be expressed and answered and for caregivers to be supported and encouraged for good practices.

At present, although various platforms to provide IPC exist (ANC/PNC, *Posyandu*, PIK-PK) a review of the current MOH health programs indicate insufficient focus on IPC, the lack of clear strategies and scale and poor-quality IPC implementation.

Women are rarely counselled to encourage adherence with iron folic acid supplements, nor are they provided with adequate information and one-to-one counselling on their diet and appropriate breastfeeding and complementary feeding practices.

There is no effective incentive system to enable at-scale, intensive IPC via home visits due to competing priorities and lack of operational resources. The status quo is to conduct reactive home visits, but a change is needed to shift the focus towards preventive home visits.

Governance: Lack of frequent and comparable data and reporting

In addition to campaigns and advocacy, the effective use of data is crucial at all levels, including sub-district and below. One of the key success factors in Peru was the availability of data on coverage and results. Peru instituted an annual health and nutrition survey, making the results public during the same month each year. This data was used to track progress at decentralized levels against national targets.

Indonesia has had regular information on stunting. However, the frequency of data collection and its comparability are insufficient to influence policies. The nationally representative surveys that collected stunting data only started in 2007 and have not allowed for timely policy adjustment. The Riskesdas 2007 and 2013 surveys are at present the only national stunting data source. IFLS goes back further but is not (yet) nationally representative[23].

The health sector's information system does not have more frequent, credible and reliable data on stunting either. Height data is collected administratively once or twice a year during *Bulan Penimbangan Balita*, but issues of data validity and a general lack of awareness regarding stunting means that stunting data is not put to practical use. Data from the monthly Health Management and Information System (HMIS) is complex with at least 11 different reporting mechanisms, often incomplete and usually delayed (World Bank 2018c).

And while the Ministry of Health, under the Nutrition Surveillance Activity of the Directorate of Nutrition, routinely collects data on six indicators to assess the progress of nutrition programmes, only 65 percent of health centres reported this data in 2013. The ministry 'revamped' the system with the National Nutrition Surveillance (PSG) which monitors the development of the nutrition status of children annually. It is important to bear in mind, however, that the PSG is primarily a monitoring tool of the MOH and does not replace independent surveys.

To benefit from more regular, or even annual, collection and publication of district-level stunting rates, the option currently being explored is to integrate a mini-anthropometric module in the government's semi-annual socio-economic survey (Susenas).

Governance: Accountability mechanism

Getting the accountability formula right is the key to improvement of quality service delivery.

Existing formal accountability up to central government should be complemented with downwards accountability to citizens and communities. The key to improving service delivery often starts with the direct feedback from the primary consumers to the frontline agency staff – the demand for better service identified by the users. This means harnessing the comparative advantage of the communities, and translating that information into improved service delivery, using social accountability tools such as community scorecards.

Social accountability and demand-side governance is all but lacking and will be one of the priorities under the StraNas Stunting. The nation-wide roll-out of a Village Convergence Scorecard tracks simultaneous utilization of the priority interventions, coordinates the PKH, STBM and Generasi program delivery arrangements down at the village levels. This plays an important role in social mapping mechanisms that informs village planning.

The scorecards allow for constructive dialogue between service providers and citizen-users based on defined expectations and measurable outputs and outcomes. This provides incentives and purpose for village accountability forums and strengthen the impact of participatory planning. Accountability incentives operate on two levels: those who have an incentive to monitor (those directly affected) should have the information and capacity to do so, and service providers have the incentives to react positively to the result of the monitoring.

By linking data from surveys to data from their communities, policy makers can address many important questions regarding the impact of policies on the lives of the children, as well as document the impact of social, economic, and environmental change on the population. In fact, this builds on the UPGK surveillance system implemented in the 1970s and 1980s. It also helps minimize issues that may arise from allocation of public resources and sharing the information and data provide opportunities for cross-learning.

This data-triangulation will empower village and local leaders to better understand the relationship between interventions, coverage, resources and stunting.

[23] IFLS added the outer provinces in their data collection in 2014, but the sampling framework does not allow a comparison with Riskesdas 2013.

Resources: Inefficiencies in spending

While the overall level of resourcing is important, increasing resources will not have much effect if they are not spent well. Efficiency in spending on the right policies, using the right mix of inputs, and the effectiveness in the management of programs are all important determinants of how quickly prevention of stunting can be accelerated.

In some cases, improving service delivery means spending more money, but first it is important to spend *right*.

Adequate resources are important, not only directly for nutrition, but also for nutrition-sensitive sectors. The World Bank (2017b) study shows that the same top performing 20 districts that had improved stunting rates and better drivers of nutrition, also spent more on agriculture, education and social protection, among others.

The data on spending at district and village level are not detailed enough to calculate exactly what is being spent on nutrition interventions. Districts and villages classify expenditures in non-standard ways, which mean that aggregating spending data at the national level is not possible.

However, based on estimations, it is likely that in total Indonesia is spending around 51.9 trillion Rupiah (USD 3.9 billion) on nutrition interventions each year[24]. This is broadly comparable, on a per capita basis, to other low-middle income countries (World Bank 2018e).

However, analysis suggests the money is not well spent. At the national level, the majority of resources are allocated to food supplements for a small percentage of the population affected by acute malnutrition, rather than focused on preventing stunting. In 2017, over 90 percent of the Ministry of Health's nutrition budget was spent on *Pemberian Makanan Tambahan* (PMT), food supplements for undernourished pregnant women and children under-five.

Central government resources should be concentrated on: providing high quality and regular re-training for front line health workers to reinforce the quality of program delivery; program evaluation to inform ongoing refinement of programs based on what works and where; setting standards which provide a benchmark to measure program performance; managing conditional intergovernmental transfers (BOK) to stimulate the right focus on results by districts and frontline staff; and supporting production of high quality data to help frontline workers, District Health officials, and central government monitor progress and focus more attention on areas where prevention of stunting is stagnating.

And at district level, far too little is spent on supporting counselling during the first 1,000 days of a child's life and the promotion of exclusive breastfeeding and adequate complementary feeding (World Bank, 2018c).

Resources: Shift to local spending

Despite recent efforts to push spending downwards to districts and villages and improve national and district coordination, there are several major management challenges in the current decentralized arrangements for delivery of nutrition intervention: financial fragmentation; delayed implementation; significant resource misallocation; service delivery data is of low quality and poorly utilized for decision-making; weak performance-orientation; ineffective multi-sectoral coordination frameworks.

Village law involved the transfer of significant resources from both central government and districts to villages. In 2017, it is estimated that villages spent almost 9 percent of all subnational spending. Villages received on average about 1.3 billion Rupiah or $100,000 dollars each, 70 percent of which they were required to spend on village development and community empowerment. The remainder is spent on village administrative functions (MOF, 2017b).

Village law also required districts to give up ten percent of their non-earmarked revenues in a mandatory, complementary transfer to villages, the *Alokasi Dana Desa*. It is logical that districts would have cut funding to some programs so that they could redirect this funding to villages. But it is not clear in many districts that villages took on these funding responsibilities, especially where they involve supporting the ongoing operational costs of service delivery. In many districts the overall result may have been to cut funding—especially for programs that are delivered at village level, like the *Posyandu*.

[24] including the very large nutrition-sensitive social protection programs, PKH and *Rastra*/BPNT.

The Village Law creates huge opportunities for improved service delivery through increased spending on nutrition if awareness is raised and the right policies are put in place. Village law gives village leaders a great deal of discretion to decide how to use funds. So far they have chosen to spend only a tiny proportion of village funds on supporting health and education. More awareness and clarity about how villages can best contribute to better health and education services will help increase effective village support for stunting.

Implementation capacity

A closer look at the health sector, which is responsible for a large part of nutrition-specific interventions, shows that implementation suffers from various management issues: fragmentation, lack of coordination, competing responsibilities and duplicate roles, and lack of skilled health personnel in the field.

Districts generally lack the information and basic skills to identify target beneficiaries, assess service delivery bottlenecks, and systematically improve delivery. Village governments in general lack the basic tools and skills to identify target beneficiaries, map their needs to deal with malnutrition and stunting and design, budget for and implement appropriate activities.

Multisectoral coordination mechanisms across ministries and different levels of government to promote convergence also need to be improved.

Several coordination mechanisms have been established to address stunting but they are not yet effective despite recent improvements. Local Nutrition Action Plans have not been costed or integrated with local budgets.

Midwives (including village midwives), nutrition staff, and health *Kader* deliver most nutrition and MCH services in *Puskemas* and *Posyandu*. Although Indonesia is moving away from traditional human resource policies that focus mainly on getting doctors and midwives to local communities, there remain significant challenges in getting promotive and preventive health personnel, including nutritionist and sanitarians, to remote and rural parts of Indonesia[25].

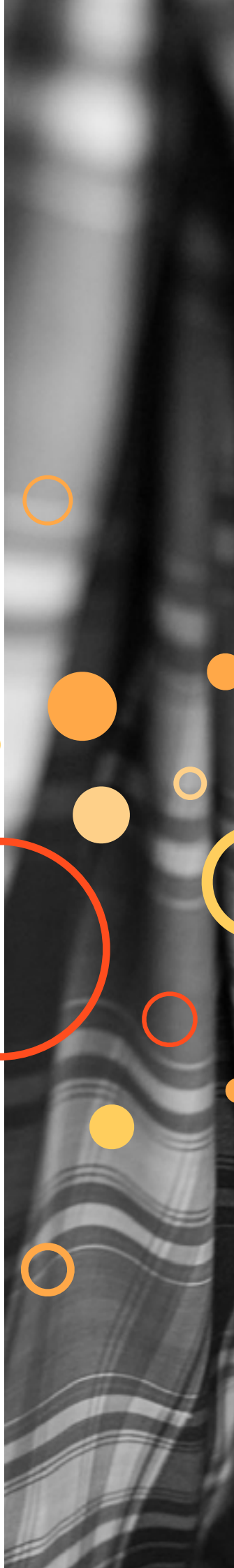
With the *Posyandu* and *Puskesmas* forming the backbone of Indonesia's community-led health care for pregnant women, mothers and children, the next chapter looks at what is holding back Indonesia's progress in reducing stunting, from a village perspective[26].

The final chapter looks at the road ahead and what Indonesia can do – at national, regional and local level – to reduce stunting through a clear, coordinated and cohesive approach.

[25] Starting May 2015 the Health Ministry launched the *Nusantara Sehat* (Healthy Archipelago) program, which deploys health workers, including sanitarians and nutritionist, to peripheral areas in Indonesia (Meilissa, 2016).
[26] For supply side readiness of *Puskesmas*, please refer to World Bank's "Is Indonesia Ready to Serve? An Analysis of Indonesia's Primary Healthcare Supply Side Readiness" (World Bank, 2016c).

CHAPTER 4

WHAT IS HOLDING BACK PROGRESS IN VILLAGES? WHAT WILL MAKE THEM SUCCEED?



Chapter Snapshot

- A revamp of the integrated community health post, the *Posyandu*, has become crucial for achieving the government's ambitions to drive down stunting rates.
- The impact of *Posyandu* actions has waned due to shortages of money and staff and a lack of accountability for results.
- Focusing on the frontline is the only way to address inequitable access to service delivery – achieving convergence of interventions by using Human Development Workers to reach every woman and every child.
- Weak service readiness is at the root of poor service availability.
- Capacity and limited support from the next level up, *Puskesmas*, worsen the quality of services delivered.
- Kota Bima, where stunting declined, provides lessons on how to succeed.

CHAPTER 4

It is in Indonesia's villages that the battle to overcome the country's chronically high rates of child stunting must be won. Most nutrition-specific and nutrition-sensitive interventions are the responsibility of local governments, and almost all are delivered at village level.

The StraNas Stunting now provides a platform for efforts to converge around the same goals locally and nationally.

Decentralization has given more power to local governments and the Village Law ensures more resources in villages.

However, a decentralized service delivery model requires strong local capacity to plan, implement and monitor multi-sectoral nutrition programs to avoid decentralization being an impediment to stunting reduction.

At present there is limited capacity, weak systems and there are limited mechanisms to encourage compliance with national priorities. The StraNas Stunting plans to address this.

The implementation of a convergence approach in Indonesia requires fixing management and accountability problems to ensure better value for money from spending on stunting reduction programs.

A coordinated, multi-sectoral approach is vital on the ground, at the frontline.

Frontline institutions have the nimbleness and flexibility needed to make service delivery models more responsive to meet local needs and address inequities by reaching every woman and every child. They are also incubators for innovations in service delivery – from task-shifting, to mobilization of new *Kader* of community workers, to IT-based communication tools and information systems.

Learning from the past, key-systemic issues that need attention include ensuring sustained support from the community, primary health care system and local government. Service readiness, referral systems and supervision, are also critical to long-term success. From the demand side, addressing low awareness about stunting – as parents do not always recognize their children are faltering in their growth – is crucial.

Bridging the Gap

The *Posyandu* are in an ideal position to assess the scale of stunting in communities, as well as to address many of the most immediate determinants of stunting: maternal and child diets and caring practices, both preventive and curative. The *Posyandu* services and outreach build the bridge between family and community and the more formal government health services at the next level up, the *Puskemas*.

As the first point of contact, the health community volunteers in the *Posyandu* also provide important referral for critical care and more complicated health services. The presence and quality of these bridges are critical to long-term success.

The *Posyandu* Model

The country's long-standing integrated community health program monthly events – the *Posyandu* – is the backbone of Indonesia's primary health care for pregnant women, mothers and children.

Since its start in the 1980s, the program expanded nationally until it was hit by constraints due to an economic crisis in the late 1990s. A very steep drop in children participating at the *Posyandu* was seen right after the financial crisis which hit Indonesia very hard in 1998. Participation dropped from close to 50 percent to 27 percent in one year (Mize, 2012). Decentralization further reduced the effectiveness of *Posyandu*.

Not surprisingly over the past decade, these village health events have waned in terms of their impact on child health and nutrition due to shortages of money, staff and an environment less conducive to achieving results.

Key factors in regular operation of effective *Posyandu* are: availability of adequate premises (such as a community hall), availability of regular funding to pay incentives for the *Kader*, for midwives' travel from the *Puskemas* to supervise and record data, periodic funding for purchase of equipment for measuring and weighing children, to deliver counselling information, for periodic training of *Kader*, and to maintain *Posyandu* data systems.

The *Posyandu* had a track-record of early success. Children that regularly participated in *Posyandu* were 19 to 25 percent less likely to be stunted (Wai-Poi 2011).

After showing early promise, Indonesia's *Posyandu* model has struggled to reach its full potential in driving down rates of stunting in Indonesia. In part, too much pressure from different sectors and priorities challenged the functioning of a primarily community-led and owned effort. Lack of a conducive regulatory framework on the oversight function further exacerbated this problem.

Its activities included monthly growth monitoring and promotion, tracking weight gain, counselling, micronutrient supplementation and cooking demonstrations, in combination with other health interventions, immunization and provision of oral rehydration solution (ORS) through weighing posts managed by community leaders and volunteers.

Posyandu are run by a *Kader* of health volunteers recruited from the community and trained in basic disease prevention and primary care. In many *Posyandu*, the *Kader* are also members of the Family Welfare Movement, or PKK. Midwife from nearby *Puskemas* typically provide the technical support and supportive supervision necessary for smooth functioning of the *Posyandu*.

The model was established to provide nutrition services quickly followed by basic maternal and child health care in villages, from family planning and immunization to control of diarrhea.

The distinctive hallmark of the *Posyandu* is the 5-tables system, where the tables represent the main activities carried out during a *Posyandu* session.

During a typical *Posyandu* session, the *Kader* at Table 1 registers the mother/child.

The *Kader* at Table 2 weighs and monitors the child's growth.

The *Kader* at Table 3 records the child's growth in a health record book.

The *Kader* at Table 4 counsels and educates mothers and caretakers on issues such as child growth, nutrition, breastfeeding, complementary feeding and hygiene.

At Table 5, health workers from the *Puskemas* (usually a village midwife) provide health services such as antenatal and postnatal care, immunization and family planning. Vitamin A is provided in February and September.

In recent years, *Posyandu* are increasingly implementing programs and activities beyond the 5-tables system, including parenting class, and health services for adolescents and the elderly.

Despite being well-established, challenges persist with the 5-tables system. These challenges include dealing with women and children without health record books (KMS, *Buku KIA*). Other challenges include inconsistent data collection because health record books are held by the *Kader*.

In cases of frontline worker shortages, data registration at Table 3 gets delayed and counselling and education services are often forsaken (Mize, 2012). In addition, privacy proves difficult in such a setting making it difficult to provide intensive personal counselling.

The management of the *Posyandu* is also a complex and fragmented affair. Well over 20 laws govern the operation and purpose of the *Posyandu*. At least five ministries are involved in its management. This complexity translates into weak monitoring and reporting and sub-optimal performance of the *Posyandu*.

The MoH is responsible for technical support and health-related training received by the *Kader*, for providing guidelines and Standard Operating Procedures (SOPs) for health activities and providing support for basic inputs such anthropometric tools, iron folic acid supplements, vitamin A and vaccines via the District Health Office (World Bank, 2018c).

The Ministry of Religious Affairs, Ministry of Home Affairs, Ministry of Village and the National Family Planning Coordination Board, as well as sub-national governments play a role in supporting *Posyandu* functions by managing PKK volunteers (as *Kader*) and ensuring operational funds for *Posyandu* activities.

With so many agencies responsible, some things risk falling through the cracks.

Posyandu can be financed from a variety of sources—including local government budgets, village budgets, and community donations.

Since 2015 when village funding increased dramatically, and districts were mandated to give 10 percent of their non-earmarked revenues to villages, it is likely that some districts stopped providing operational funding for Posyandu, and expected villages to take over this responsibility.

Some clarity about the power and authority of villages to provide this financing would help to remove any uncertainty which some village heads have. Because the previous village funding (PNPM) was mainly intended to finance small scale infrastructure, some villages are uncertain whether they are allowed to finance operational costs of health and education services.

Working groups (Pokjanal/Pokja) are formed at the national, provincial, district, and sub-district levels to help with *Posyandu* programs, institutional and human resource management.

Posyandu service availability and readiness

A 2016 comprehensive survey of the *Posyandu* system – the Quantitative Service Delivery Survey (QSDS) – helps to explain the decline in its effectiveness (World Bank, 2016c).

The survey was conducted in 22 districts and is nationally-representative. The most detailed nationally-representative survey of its kind, it provides vital evidence for how the system can be revamped to achieve success (See for a detailed analysis Annex 3).

Staffing and operations

The survey found most *Posyandu* opened every month and the majority (85 percent) held an average of one session per month. Close to half of *Posyandu* surveyed (49 percent) were staffed by the required minimum of five *Kader* during the last session. Most volunteers worked less than five hours per month.

Posyandu sessions were held in varied locations. Most sessions (30 percent) were held in a *Kader's* house. Nearly all reported providing services according to the typical 5-tables system, namely registration, weighing and recording, and health services (such as immunization) information and group counselling on proper pregnancy diet and care, as well as information on breastfeeding.

While information on a healthy diet and exclusive breastfeeding at the *Posyandu* was available, the pregnancy class *(Kelas Ibu Hamil)* activity was only held in 30 percent, losing a major opportunity to provide targeted information.

Only about 50 percent of *Posyandu* offered hygiene and sanitation counselling.

The survey found only one in two *Posyandu* able to provide Bacille Calmette Guerin (BCG), Polio, and Measles vaccinations. As little as one in three *Posyandu* were able to provide DPT-HiB-HepB vaccines. This is a major concern as eight out of ten *Kader* reported *Posyandu* as the main point of vaccination services for children in their catchment area and immunization provides excellent opportunities to monitor growth and provide counselling.

All *Posyandu* surveyed provided child weighing services, but only 74 percent measure height.

Also, key nutrition-specific interventions, such as Vitamin A supplementation, and deworming are reported as being available (90 percent and above) but only 63 percent of *Posyandu* provide psychosocial stimulation.

Kader spent very little time conducting the all-important child nutrition-focused home visits. Only 35 percent of *Kader* reported conducting any kind of home visit. For those that did conduct home visits the majority only saw between one to five households in the last month for less than 10 minutes per household. *Kader* reported difficulties in getting mothers and caregivers to understand the message being delivered. They also reported struggling to gain support from other family members during home visits.

One weakness of the *Posyandu Kader* is the ability to elicit behavior change for caring and nurturing practices through effective interpersonal communication (IPC), which includes personal and group counselling.

As detailed in annex 3, 76 percent of *Posyandu* were able to deliver counselling on IYCF and 71 percent on infant health and child health. Only 39 percent of *Posyandu* provided group counselling for mothers of children under five.

Weak service readiness at root of poor service availability

There is a shortage of equipment and supplies. While most have traditional hanging scales, also known as steelyards, only 59 percent of *Posyandu* have infant scales. And only half calibrated the scales. Length measurements such as the length board and measurement tape were only available at 30 percent and 67 percent of *Posyandu*. Most *Posyandu* rely on health staff to bring along the equipment.

When it comes to tools and aids for monitoring and counselling activities, booklets and cards were largely available but flip charts were available in less than half of the *Posyandu*.

Posyandu Kader often lacked supervision, training and resources, according to the survey. A majority also felt the small cash incentives they received for volunteering were insufficient. Typically, less than 50,000 Indonesian Rupiah ($3.7) per village meeting is paid to the *Kader*. That fee included travel expenses.

Just over one in ten *Kader* received any training before starting work at their local *Posyandu*. About half received training after starting their work. In the year preceding the survey, roughly half of the *Kader* interviewed received technical training for nutrition and maternal child health services. But only two out of ten *Kader* were trained in behavior change communication including counselling and home visit methods.

While many donors and local governments invest in *Kader* skills development through training, there remains an issue with retention of skills once the training is done (Mize, 2012). Reports from the field suggest inefficient transfer of skills from trained *Kader* or head *Kader* to their peers.

Support and supervision has often been fragmented. *Puskemas* have been hampered by lack of manpower to provide support visits. There is no universal standard for the frequency and type of support provided by such visits to grass-roots staff.

The survey found monitoring visits from *Puskemas* to *Posyandu* to be a regular affair, mostly meeting the once-a-month requirement. Such visits commonly focused on recording and reporting systems, but less frequently on providing consistent written feedback (World Bank, 2016c).

However, since the adoption of a national strategy to accelerate the reduction in stunting rates (StraNas Stunting), the Ministry of Health has started "*Bimtek* stunting" visits, technical assistance visits with a focus on preventing stunting. Initially, the program will focus on 100 priority districts with the highest stunting rates.

Capacity is a big issue

Decentralization meant that staff who had once followed central government instructions were for the first time expected to plan, implement and evaluate nutrition programs without adequate experience or training.

Only a limited number of staff in health centres have traditionally received training in nutrition. Nutritionists are also unevenly distributed across the country. About one in three health centres do not have trained nutritionists. There are far too few nutritionists to reach the community effectively and provide adequate supervision for the many *Posyandu* in Indonesia.

The quality of nutrition training for nutritionists is not consistent in all academies and training curriculums need to be updated to reflect the focus on the first 1,000 days of life as well as the double burden of malnutrition.

There is a lack of clear nutrition service standards or job descriptions for health workers. It is likely that the lack of a clear job descriptions leads to nutritionists having difficulties in interpreting their job or prioritising their responsibilities, which include an important task of supportive supervision at the *Posyandu* level. In many health centres, nutritionists are also tasked with administrative jobs due to shortage of administration staff, further reducing the amount of supportive supervision provided to *Posyandu*.

Posyandu lacked available guidelines on Infant and Young Child Feeding (IYCF) and just over half of *Posyandu* had Guidelines for Complementary Feeding (MP-ASI) available in the last *Posyandu* session.

Sub-optimal *Posyandu* data usage

Posyandu Kader still rely largely on the traditional, offline method of reporting administrative and coverage data to midwives who compile and report on or offline to *Puskemas*. The Sistem Information *Posyandu* (SIP), a reporting system used to collect information about *Posyandu* activities and child health outcomes, was present in 68 percent of *Posyandu*, while SKDN - a record of whether the child gained sufficient weight in the past month - was reported by 86 percent. In addition, issues with data validity, data timeliness and *Kader*'s ability to interpret, internalize and utilize the data remains.

Despite issues of ambiguous ownership and chain of command, *Posyandu* continue to provide data to *Puskemas* (97 percent – midwife and other *Puskemas* staff). Only one percent provided child health data to the head of the village. Perhaps more telling is the manner in which *Posyandu* used data that had been collected during monthly health posts. About 66 percent of *Posyandu* report receiving feedback on their data collection activities, which most often were used to track beneficiaries and monitor their own performance. Far fewer *Posyandu* (24 percent) used recorded data for planning or budgeting or for local advocacy.

Operationalizing Convergence

Except for the close collaboration with the village midwives *(Bidan Desa)* there was little to no convergence or collaboration between *Posyandu* and other related maternal and child-focused interventions delivered at the village level. Only 13 percent of *Posyandu* reported any overlap of nutrition activities with those conducted by the early childhood education centers. And less than five percent of *Kader* reported convergence with food diversification, sanitation, adolescent reproductive health or savings groups.

Highlights: New Actions and Learnings Pave the Way for Rapid Implementation of the National Stunting Strategy

A new *Kader* of workers: the Ministry of Village's Generasi program, together with StraNas Stunting, has started a community-based Human Development Workers (HDWs) pilot to support convergence of the priority interventions in villages.

The focus is to work across sectors, to converge, and to increase and improve village delivery, monitoring and uptake of key nutrition-specific and nutrition-sensitive interventions in the health, ECED, social protection, water and sanitation sectors (See box 5 on HDW).

Learnings from Kota Bima: the importance of local commitment, leadership and a multisectoral approach.

A new tool: the child length mat (Box 6), is also addressing a lack of awareness about stunting in communities. It offers a way to monitor and discuss child development in communities.

Box 5: Human Development Workers

Over the past decade, Indonesia has launched multiple national programs to expand access to basic services on maternal and child health, parenting and nutrition counselling, water and sanitation, early childhood development, as well as social protection. Each has its own community worker at the village level and facilitator at the district and sub-district.

Still, at the household level, most mothers and children lack simultaneous access to these priority services[27].

Recognizing the importance of fixing management and accountability problems, getting better value for money and the need to coordinate the nutrition-specific and sensitive interventions facilitated by all the different programs and facilitators, the Ministry of Village's Generasi Program together with StraNas Stunting, started a community based Human Development Workers (HDWs) pilot to support convergence of the priority interventions and volunteers and facilitators at the village level.

Starting in 2018, 3,105 trained HDWs will gradually spread out in Indonesia in five districts. They are mainly former facilitators or volunteers from other programs. Using adapted materials from the Generasi program, they focus on three core skills: 1) social mapping and stunting diagnostics to map target beneficiaries, diagnose gaps and develop an action plan; 2) community growth monitoring and promotion using length mat packages (including cue cards and growth monitoring pocket books) and 3) monitoring and reporting on simultaneous utilisation of priority nutrition interventions using village convergence scorecards.

The HDW will support villages to conduct a social mapping of all 1,000-day households in their assigned village and identify their current access to and use of the StraNas Stunting priority interventions.

In collaboration with *Puskemas* midwives and *Posyandu*, the HDW will support all *Posyandu* to implement height-based community growth monitoring and promotion and visualization activities using length mats and ensure this information is available to all village-level institutions that deliver nutrition-sensitive interventions (e.g., PAUD, BP SPAM and PKH and BPNT facilitators).

The selection and recognition of HDW is critical to ensure they have the legitimacy and authority to support villages in relation to nutrition interventions. The HDW selection process involves three parts: community selection, Village Head approval, and authorization under formal contracts with the *Camat* (Sub-district Head). This approach was effective in ensuring the right community members were selected (i.e. generally *Posyandu Kader*, Generasi, ECED as well as village development *Kader*) and that their role in village planning and budgeting processes are legitimate. Although some districts suggested that villages could directly contract HDW, the assessment concluded that it was critical that *Camat* contract HDW and assess their performance to undertake key tasks relating to aligning village spending and the introduction of new information and tools.

The pilot also provides operational funds to support HDWs activities, such as 'Bootcamp/*Rembuk* stunting' activities at the village and sub-district level, as well as increasing capacity building activities for village apparatus. These operational funds, the guidelines for which are based on Generasi, were used for a range of activities that have helped women's groups and *Posyandu* prepare proposals for village plans and budgets, increase information and awareness about stunting and facilitation of knowledge transfer.

[27] World Bank analysis of Susenas 2017 data found that less than 0.1 percent of 0-24 months-old children had adequate access all eight basic nutrition-sensitive and nutrition-specific interventions . The highest convergence rate is on the access to any four services—which mostly includes those with birth certificates, access to drinking water and sanitation, and exclusive breastfeeding— which is only 28 percent.

Box 6: Child Length Mat: *Aku tumbuh tinggi dan cerdas*/I will grow tall and smart

Why a "Child Length Mat"?

Adequate linear growth in the first two years of a child's life is a sign of overall well-being and healthy development. Failure to achieve adequate linear growth is stunting.

To prevent stunting, health providers, community leaders and caregivers need to recognize it. And they need to address the problem. However, inadequate growth is difficult to recognize among a population where most of the children are stunted.

Currently, child growth is monitored in the community *Posyandu* by looking at monthly weight gain and only periodically by measuring gains in length/height. This is due in part to the difficulty of measuring length and the lack of tools for community programs.

The Child Length Mat fills this gap. Professionals from The Manoff Group (TMG) developed the Child Length Mat in response to the call for more attention on linear growth that followed the release of the 2006 WHO international growth standards.

Early Prototypes

The portable Child Length Mat, first developed for community programs in Bolivia, is an easy-to-use tool that provides a visual marker of adequate growth at specific ages.

It enables families and community workers to see and understand to what extent a child is on target for normal height/length-for-age. The mat shows boys' and girls' measurements side-by-side on a durable plastic mat. Markings on each half denote the cut-off lengths for children 6, 12 and 18 months of age to indicate if a child is stunted, defined as <-2SD of the current WHO standard. The pre-identified cut-off demarcation for the specific age omits the need for the worker to look up each child's measurements on a growth table.

Moreover, this tangible visualization allows actions to be taken to support healthy growth or address problems in time to promote optimal child growth.

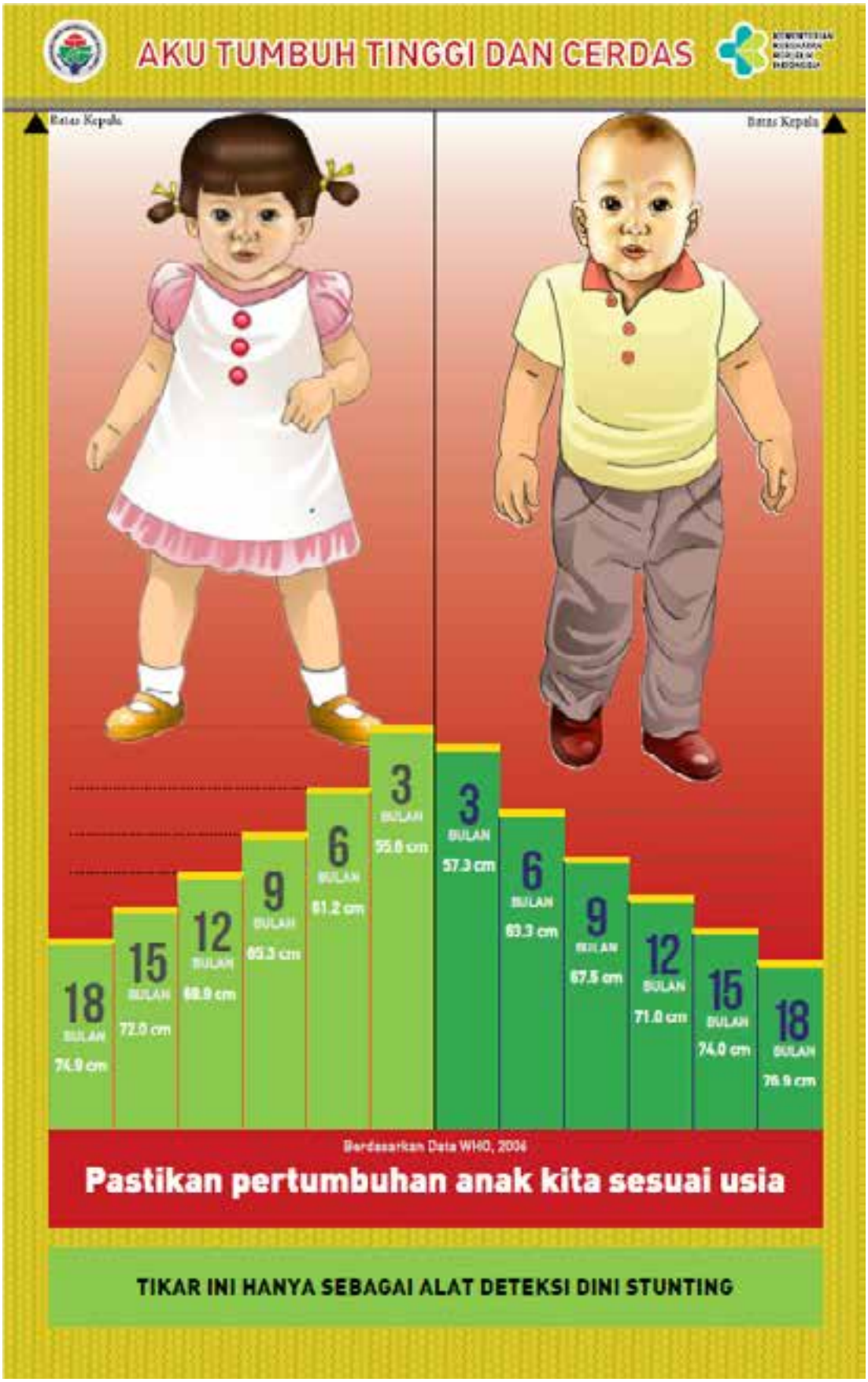
Based on the positive reception by community workers and families in Bolivia, TMG introduced the mat to stunting reduction programs in Cambodia and Guatemala.

In January 2018, as part of the World Bank's preparations for the Investing Nutrition in the Early Years (INEY) program with the Indonesian government, TMG introduced the MOH and Bappenas to the Child Length Mat. They saw the mat as a perfect tool for the *Posyandu* to familiarize community health workers and families with the concept of stunting in tangible terms by making linear growth visible and providing a goal for healthy growth.

An INEY task team quickly designed and tested a prototype mat in communities in different parts of the country to gauge acceptability by *Kader*, midwives, community leaders and caregivers. The results were good and acceptability was high among the users. Following trials, the government made a few adjustments and printed the first batch for the pilot work in thirty-one Generasi program districts.

Although the Child Length Mat can be used to detect stunting, this information is of little value without knowing what to do with the assessment data. Before the mat was launched, TMG and the World Bank developed a Child Length Mat package with a brief training guide and Cue Cards to guide community workers' decisions. This includes, for example, praising the caregiver if the child shows healthy growth. It also includes reminders for feeding, referrals for children with poor growth or who are ill and age-appropriate feeding recommendations when a child is just shy of his or her adequate growth goal.

"Almost all midwives and *Kader* asked us to leave the mat with them, since they find it very simple, attractive and easy to understand. And it becomes such a great tool to explain about stunting," said Doddy Izwardy, Director of Community Nutrition, MoH.


AKU TUMBUH TINGGI DAN CERDAS
Batas Kepala
Batas Kepala
3 BULAN 55.6 cm
6 BULAN 61.2 cm
9 BULAN 65.3 cm
12 BULAN 68.9 cm
15 BULAN 72.0 cm
18 BULAN 74.9 cm
3 BULAN 57.3 cm
6 BULAN 63.3 cm
9 BULAN 67.5 cm
12 BULAN 71.0 cm
15 BULAN 74.0 cm
18 BULAN 76.9 cm
Berdasarkan Data WHO, 2006
Pastikan pertumbuhan anak kita sesuai usia
TIKAR INI HANYA SEBAGAI ALAT DETEKSI DINI STUNTING

Spotlight on Kota Bima

Community hit by floods bounces back in fight against stunting

Flash floods in December 2016 wreaked havoc in Kota Bima, a municipality on a bay on the eastern coast of Sumbawa Island, West Nusa Tenggara province.

More than 100,000 people were forced to flee their homes. Many health facilities, including birth clinics, community centres and laboratories suffered catastrophic damage. All city documents were swept away by the flood. The flood destroyed 77 acres of farmland, raising concern about food security and child malnutrition.

In 2007, rates of stunting among children under five in Kota Bima were as high as 49.5 percent, well above the national average of 36.8 percent at the time. By 2013, the percentage of stunting had dropped by almost 14 percentage points to 35.6 percent: an annual reduction of 2 percent. And although not comparable to the Riskesdas survey, survey data[28] collected a few months before the flood, showed that the stunting prevalence had fallen as low as 22.8 percent[29].

Riskesdas data analysis shows that between 2007 and 2013 the percentage of children with adequate access to health and sanitation more than doubled in Kota Bima. And the percentage children with adequate access to care, tripled. Adequate access to food decreased slightly, which warrants a more in-depth look and future attention.

Most importantly, more children gained access to 2 and 3 determinants of the key drivers of nutrition to prevent stunting (CHEF) at the same time, benefitting from convergence of efforts.

According to Kota Bima government officials, the progress was linked to improved community health interventions and rapid improvement in sanitation and hygiene. It was a result of sustained efforts to deliver key priority interventions. The factors behind their success: strong leadership and optimal capacity of local government at every level; cross-sectoral coordination, collaboration and convergence and a strategic innovation program with donor support.

Continuous knowledge transfer played an important role in stunting reduction among children in Kota Bima. Best practices and lessons learnt from technical assistance provided by previous donor-assisted maternal and child health programs[30] as well as national health programs helped put in place the right technical know-how to improve health, nutrition, sanitation and caring practices.

Municipality officials cited the presence of strong local leadership and commitment that enabled the uptake of best practices across all sectors. For example, the implementation of programs is backed by local decrees.

The commitment and strong coordination among head of departments in the municipality is also echoed by the head of the Municipality Development Planning Board, Tafsir. “Working groups formed by the local government provided a platform for close coordination,” the local official said. “Once a request to meet is sent out, even if in the form of text messages, the members of the working group are sure to attend,” he said.

As floods swept away government services, the stunting rate among children under five increased – from just 22.8 percent in 2016 to 36.3 percent in 2017[31] . This was a major setback for Kota Bima. But Kota Bima is determined to recover from this setback caused by the floods. To do so it is sticking to the approach that brought it success before disaster struck in December 2016.

The earlier success factors are expected to help the municipality restore its track-record including the innovative programs and practices from non-health sectors. Kota Bima’s coastal setting, for example, provides the municipality with access to plentiful fish.

Kota Bima holds a yearly fish-baking activity on the coast where residents are invited to eat for free during the municipality’s anniversary celebration. There has been a drive to increase fish consumption among children to improve their animal protein intake.

[28] The Ministry of Health collects nutrition surveillance data annually to monitor changes. These data however are not comparable to Riskesdas (NIHRD 2013) as it uses a different sampling framework.
[29] NIHRD 2016.
[30] Between 1990-1999, Kota Bima received technical assistance for maternal and child health programs, including immunization, from the Child Survival – Plus Two (CS-P2) Program, and the Healthy Start for Child Survival Program. These programs were implemented in collaboration with the MoH and Program for Appropriate Technology in Health (PATH)
[31] PSG 2017.

Another example of the municipality's ability to utilize locally-available nutritious food is the yearly mothers' recipe competition. "The aim is to come up with nutritious new recipes that are also delicious and appealing to children," said Hajah Zainab, the head of Kota Bima's Department of Marine and Fishery.

Where other municipalities and districts face waning interest among women to join the Family Welfare Movement (PKK), it remains strong in Kota Bima. Entirely funded by donations, the PKK in Kota Bima has won numerous competitions, including cooking and menu competitions, and 'Clean Healthy Lifestyle' contents at the provincial level.

"We help provide the necessary information to the community, from exclusive breastfeeding and complementary feeding to sanitation awareness," according to one member of the PKK group who, like many other PKK members, holds a position at the municipality government.

The cohesion of the PKK members also extends to collaboration in schools. The PKK helps to organize food workshops while local fish is distributed to school children for free.

Kota Bima has taken remarkable strides in addressing early marriages – one of the risk factors for early childhood development and stunting. Strong local commitment and a culture that prioritizes education has supported provincial government efforts[32] to curb early marriages. The minimum age for marriage is set at 21 in Kota Bima, explained Mukhtar, the Secretary of Kota Bima.

Local regulations are also being put in place to ensure mandatory early childhood education. Children up to five are offered crucial early stimulation before progressing to formalized education.

The integration of *Posyandu* and early childhood education has also taken root in at least one urban ward. "We provide Early Stimulation, Detection and Intervention of the Growth program here at the *Posyandu*," said a midwife at *Posyandu Kelurahan* Sambinae. She is encouraging a two-year old girl to stack blocks using an Early Stimulation, Detection, and Intervention of Growth Program kit, also known as a SDIDTK *Posyandu* kit.

Collaboration between different sectors of municipal government is increasingly the norm. The Health Department and the Public Works Department, aided by the Municipality Development Planning Board, work closely to share data on access to clean water and sanitation. By converging on the same community, they can ensure the availability of water and sanitation and generate demand.

Understanding local communities is crucial for health officials to deliver health services. Frontline workers such as midwives and *Kader* help bridge the gap.

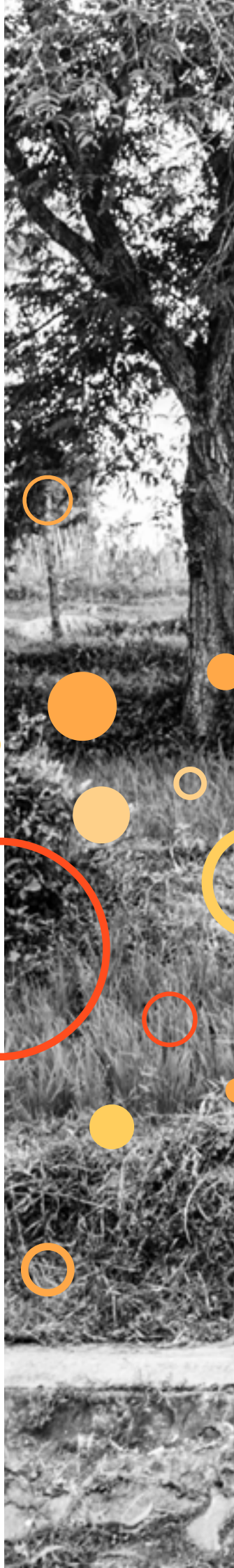
"We provide the young children with these fish balls, made from locally available foods. Not only is this an effective way of drawing the community to *Posyandu* events, the mothers learn about how to feed their children nutritious food sourced locally," said a health *Kader*, whose prize-winning recipe was used to create the fish balls served that day.

Midwives and health *Kader* can be empowered to better educate the community, by ensuring technical competency and the availability of adequate performance support, such as job aides and supportive supervision. More importantly, behavior change communication strategies adapted to the local context can serve to increase the uptake of health, sanitation and caring practices in the community.

[32] Surat edaran nomor 180/1153/Kum tentang pendewasaan usia perkawinan.

CHAPTER 5

THE WAY FORWARD FOR INDONESIA



Chapter Snapshot

- Given Indonesia's highly decentralized system, coordination and collaboration across all sectors and levels of government will be key to future success.
- Indonesia's decision to launch a national strategy in August 2017 to accelerate the reduction of stunting rates marks a watershed. It recognizes that the root causes of stunting are complex and multi-sectoral.
- The national strategy to accelerate the reduction in stunting has set its sights on improving the allocation of funding across programs, better coordination, monitoring and performance.
- The StraNas Stunting and the overall government convergence approach calls for a 'revamping' and modernization of the Posyandu as a key part of their strategy.
- It focuses on "convergence instruments."
- Indonesia can do it!

CHAPTER 5

The challenge facing Indonesia as it seeks to reduce chronic malnutrition is significant but not insurmountable.

Indonesia's ambition to dramatically reduce stunting in children under five is underpinned by everyone in government and society understanding their role in helping to turn the tide: from the government in Jakarta to far flung rural villages.

Indonesia's highly decentralized system offers many pluses for local programming, however, coordination and collaboration across all sectors and between levels of government, in addition to guaranteeing capacity to implement, will be key to future success.

The recent lack of progress means a doubling down, a re-focussing on a large-scale, results-based, well-coordinated movement that will ensure the convergence of the key elements required to prevent chronic malnutrition in young children.

Past successes and setbacks have provided invaluable lessons for a new national strategy to tackle stunting.

The road to a new national strategy

The Indonesian government's commitment to reduce stunting, as detailed today in StraNas Stunting, had its beginnings when Indonesia joined the global Scaling Up Nutrition (SUN) Movement. The movement is based on the basic principle that all citizens have the right to gain access to sufficient and nutritious food. Indonesia joined the SUN Movement in December 2011.

The government launched a National Movement on Accelerating Nutrition Improvement (Gernas PPG 1000 HPK) in 2013 with a strong focus on the first 1,000 days of life, coordinated by the National Development Planning Agency (Bappenas).

Crucially, the government's initiatives since then have recognised the multiple causes of stunting and set out a multi-sectoral approach.

By 2015 Indonesia's government had included targets to reduce stunting to 28 percent in 2019 in its Medium-Term Development Plan (RPJMN) for 2015-2019.

The following year (October 2016), Indonesia's Minister of Finance committed to the World Bank's "Investing in Early Years (IEY)" agenda to boost investments in maternal and child health, underlining the importance of good early child development on economic productivity and national development (World Bank, 2016b).

More recently (April 2017), Indonesia, drawing on international best-practice, has been inspired by the success of other countries in tackling stunting.

An Indonesian delegation made up of high level representatives of Bappenas, MOH, MOF, and Kemenko PMK, visited Peru in April 2017. During the visit they learnt about what Peru put in place to halve stunting rates in less than a decade. The delegation reported back in Indonesia and many of those success factors are being applied in Indonesia's new national strategy on stunting.

New strategy for Indonesia: addressing the management and accountability system problems

The StraNas Stunting establishes a high-level commitment with a management and accountability system to ensure the convergence of supply- and demand side interventions for mothers and children in the first 1,000 days of life.

On the supply side, it focuses on strengthening the delivery of a core package of high-impact nutrition-specific and nutrition-sensitive interventions in health and nutrition, early childhood development, water and sanitation and food assistance.

On the demand side, it promotes demand for nutrition services through a conditional cash transfer program, awareness campaigns and intensified community outreach by Human Development Workers (HDW). The strategy also establishes a conducive enabling environment to support the implementation at local level.

More specifically, the strategy will strengthen the management and accountability system at all levels, from central government to communities, very much in line with the approaches that made Peru a success.

The district leaders will be incentivized to understand the local drivers of stunting, monitor stunting and services coverage more regularly, adjust budgeting to align with what is working and create the conditions for villages to do their part. It also recognizes the importance of citizen engagement and community empowerment to hold the government and service providers accountable.

In addition to the committed resources (USD 3.9 billion per year) to converge priority multisector interventions across health, water and sanitation, early childhood education, social protection and food security, the strategy proposes closing important sector programming gaps such as behavioral change through interpersonal communication, ECD services for 1,000-day households and enhanced nutrition benefits from the food assistance program.

The strategy consists of five pillars: pillar 1 - national leadership and commitment; pillar 2 – national public awareness campaign; pillar 3 – national, regional and community program convergence; pillar 4 – nutritional food security; and pillar 5 – monitoring and evaluation. The government will use these pillars to raise public awareness about stunting, sustain high level commitments, promote results-based planning and budgeting and implement policy innovations and instruments to drive convergence.

The new strategy demonstrates the government's determination to operationalize the commitment it made when joining the global Scaling Up Nutrition (SUN) movement. Indonesia will also benefit from the additional resources provided by the Global Financing Facility (GFF). The GFF supports Indonesia to undertake important reforms that will improve the efficiency and transparency of spending by focusing on results and systems strengthening.

Key components of the strategy:

1. **Sustaining Public Commitment to Accelerate Stunting Reduction**

   The central government will convene annual leadership summits to ensure political leaders at all levels – from ministers to village heads – make a commitment to reducing stunting. In addition, the heads of relevant agencies will be asked to make commitments to achieve the national targets.

   The stunting summits will also recognize districts that successfully reduce stunting and showcase best practices.

2. **Results-based Convergence Planning and Budgeting**

   The purpose of results-based convergence planning and budgeting is to enable Bappenas and the Ministry of Finance (MOF) to ensure the annual development plans and budgets of sector line agencies align with StraNas priorities.

   The government will improve tracking and performance evaluation of national spending on priority nutrition interventions, to create a firm foundation to base future allocation of funding on evidence of program performance. This will strengthen the efficiency and effectiveness of central ministry spending, and provide a joined-up view of central ministry and subnational spending.

   International experience has shown how results-based budgeting, performance-based inter-governmental fiscal transfers, conditional cash transfers and social accountability mechanisms can be used to align the incentives of key ministries, local governments, service providers, communities and households.

   Indonesia's central government already has tools at its disposal that it could use to incentivize improvement in the coverage, quality and coordination of early childhood development interventions.

   By targeting the poorest households in areas most prone to food insecurity and undernutrition, Indonesia could use social assistance programs (i.e. BPNT) to influence the dietary habits of families, for the distribution of fortified foods, micronutrient supplements and to encourage take-up of nutrition and health services.

3. **Aligning Incentives for District to Deliver Better**

   Districts are key to delivering more effective nutrition interventions.

   Through a "programmatic approach" to the allocation of special fiscal transfers (DAK), Bappenas and the Ministry of Finance will incentivize districts to align their development plans and budgets with StraNas Stunting objectives and will help overcome the fragmentation of district financing for nutrition interventions. DAK transfers have always been managed on a sector-by-sector basis.

   This is the first time that government is approaching DAK on a multi-sectoral basis. Menus for spending of the transfers are also being revised to ensure that they cover all the inputs needed to deliver nutrition interventions properly.

   Districts will be provided with program guidelines to make sure they understand the management changes that are needed to deliver the interventions in a more convergent way. An annual performance assessment will incentivize districts to put in place enabling regulations and capacity support for villages, and make more use of data in planning and implementing interventions.

   Over time, Indonesia may want to consider using financial incentives to reinforce the incentives created by the performance assessment. Financial incentives worked effectively in Peru to ensure local governments were rewarded for meeting their targets on reducing stunting rates.

4. **Districts Implementation Capacity**

   Building on the multi-sectoral stunting "boot camps" for district governments that the Secretariat of Vice President (SoVP), Bappenas and Kemenko PMK, held in 2017, MOHA will establish provincial multi-sectoral technical support pools. These will strengthen the capacity of districts to collect local data on stunting and nutrition interventions, diagnose local drivers of stunting, including local social and cultural norms that constrain stunting reduction. It will be used to develop local action plans, including local behaviour change communication strategies.

5. **Multisectoral Human Development Workers (HDW)**

Building on a Ministry of Villages (MOV's) facilitator network and the Generasi Project, the StraNas Stunting will deploy HDWs to support village governments to identify, implement and monitor priority nutrition interventions to "first 1,000-day households."

HDWs will apply a results-based approach and work across multiple sectors to converge frontline service delivery at the village level through a Village Convergence Scorecard (see below). The HDWs will also work with the village head to increase Dana Desa (Village Fund) spending on priority nutrition interventions (see box on HDW) and use HDWs to support the Posyandu to implement height-based growth monitoring and promotion.

6. **Nutritional Food Security**

The strategy would focus on food policy reforms and investments to enable improved access to quality and affordable nutritious food. The reform may include the following areas: food policy, food fortification, food safety, and food market investment.

Conducive trade and logistical policies to ensure affordability of nutritious food, including animal protein, fruits and vegetables will be emphasized.

Citizen Engagement and Community Empowerment.

The StraNas Stunting is set to strengthen citizen engagement and empower villages and citizens to hold sector line ministries and district departments accountable for the delivery of nutrition interventions. The StraNas Stunting will provide the incentives to roll out innovative tools such as the Village Convergence Scorecard to track frontline delivery of the priority interventions, Child Length Mats to empower communities and parents to monitor and visualize linear growth and social mapping.

7. **Monitoring and Evaluation System**

The StraNas Stunting envisions improving the collection and use of budget data, intervention delivery data and stunting outcome data to improve intervention convergence and quality. It proposes two specific innovations: annual collection and publication of district-level stunting rates via integration of a mini-anthropometric module in the government's semi-annual socio-economic survey (Susenas) and the nation-wide roll-out of a Village Convergence Scorecard to track frontline delivery of the priority interventions.

The much stronger focus on results will ensure the demand for quality data. It will also allow for faster and more robust learning and feedback loops and will facilitate course corrections during implementation.

Indonesia can do it!

Accelerating the reduction of high levels of stunting among the most vulnerable is possible. If Peru can do it, so can Indonesia.

Indonesia has launched an ambitious new stunting reduction strategy which not only aims to achieve national coverage by 2021 but commits the country to implement all the key elements required for success.

The StraNas Stunting recognizes stunting reduction involves a multi-pronged approach because of the interplay of several factors: quality and quantity of food, recurrent disease and infections, antenatal nutrition and birth outcomes. It also recognizes and focuses on creating an enabling environment through access to health care, water and sanitation infrastructure and the ability of households to purchase nutritious foods. These measures are expected to contribute to success.

The StraNas Stunting includes a very strong monitoring system with yearly surveys measuring progress and reporting at annual summits. The projection of estimated outcomes will also allow better planning and budgeting, as well as underpinning national commitments to drive down rates of stunting.

Taking the proposed activities together with the increase in coverage, Indonesia could see its stunting rate reduction accelerated.

Using a theoretical model[33] to project the number of cases of stunting to be averted, Indonesia could construct a target to be achieved with the implementation of StraNas Stunting. Annex 1 lays out the detailed theoretical model and the assumptions applied in the three scenarios of what could happen to rates of stunting in Indonesia between 2018-2022.

Until more current data is available the model assumes there is no change in stunting levels from 2013 in all three scenarios[34]. The model used the stunting rates for children under two, in line with the focus on the first 1,000 days. The rate for children under two in 2013 was 32.9 percent[35].

Using a model applying a very conservative baseline and business as usual assumption, Indonesia can expect to reduce stunting, albeit at a continued low pace (figure 8).

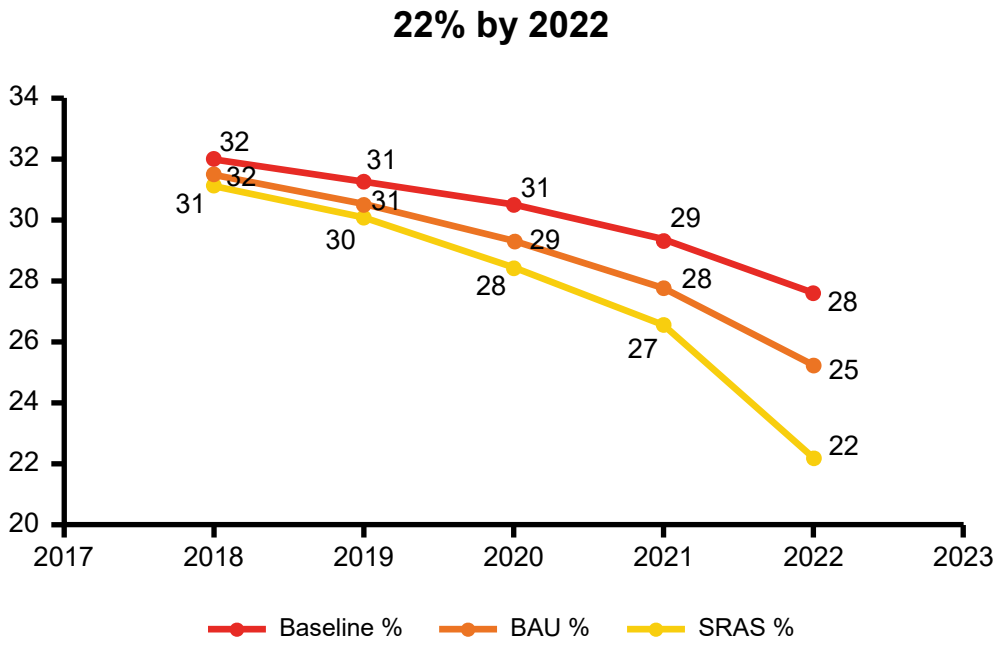
If we apply a more optimistic business as usual assumption, in other words to allow for a more optimistic scenario, we assume a slightly accelerated pace and close to one million children would be spared the fate of being stunted.

If we plot the expected increased acceleration applying the StraNas Stunting, the expected impact of coverage and increased efforts to improve the supply-, as well as demand-side and addressing the management and governance issues found to impede progress, we expect over two million children under two to be saved from stunting over the StraNas Stunting implementation period.

[33] The model is developed by the World Bank Indonesia nutrition team, with the help of international consultants and adapts existing models. Annex 1 provides the detailed model and justification.
[34] Not to be confused with the 28% RPJMN target which is for under five year old children. In 2013, the rate for under fives is 37.3%
[35] Once the new 2018 RISKESDAS results are available the model will be updated.

22 percent by 2022 for under 2s

Figure 8: Projections of stunting in Indonesia, 2018-2022.



Baseline refers to a conservative baseline scenario; BAU represents Business as usual or a more realistic scenario; StraNas Sttunting represents a more optimistic or accelerated scenario representing the Government's Stunting Reduction Acceleration Strategy.

This rate of decline in stunting was seen in successful countries like Peru when they implemented similar measures.

This translates into a significant number of children, over two million children, who could avoid stunting thanks to these new commitment and efforts.

Indonesia can do it!

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AIMING HIGH

Indonesia's Ambition to Reduce Stunting

ANNEX 1
MODELLING PROJECTIONS OF STUNTING IN INDONESIA: 2018-2022[36]

Stunting reduction involves a multi-pronged approach, being caused by the interplay of a multitude of factors: quality and quantity of food, recurrent disease, antenatal nutrition and birth outcomes. The extent of success in attacking these immediate causes of stunting through nutrition-specific interventions (Table 1) depends on the enabling or complementary environment, including access to health care, water and sanitation, as well as the ability of households to purchase nutritious foods. Such an enabling environment can be created or enhanced by nutrition-sensitive interventions (see, for example, Black *et al*. 2013).[37]

Even though the importance of nutrition-sensitive interventions is well recognized, the evidence on their impact remains weak (Ruel *et al*. 2013). On the other hand, nutrition-specific interventions, affecting stunting or chronic malnutrition directly or indirectly, are backed up by strong evidence. Therefore, for the current projections we base our model on nutrition-specific interventions following Shekar *et al*. 2017.

This note makes projections of stunting in Indonesia from 2018 until 2022. Such an exercise enables better planning to attain an outcome projected. The projections also support the commitment of the Indonesian government to reduce chronic malnutrition; the National Medium-Term Development Plan (RPJMN) 2015-19 called for a reduction in stunting from 37 percent in 2013 to 28 percent in[38] 2019 among children under five.

Progress, however, has been slow with rates of stunting stagnating since 2013. In order to redress this, the government has launched StraNas Stunting to quicken progress. This involves a multi-sectoral approach with coordination nationally, regionally and at community level. Moreover, the program prioritizes 100 districts with high stunting rates in its first phase in 2017. In 2018 the number of districts involved has been increased to 160. This will be more than doubled to 390 districts by 2019, reaching national coverage of 514 districts by 2021.

The rest of this technical annex is organized as follows: Section 2 explains the underlying model assumptions and methodology to project stunting rates. It is focused on the first two years of life and under three different scenarios. Section 3 discusses the results and ends with a conclusion.

Model assumptions and methodology

The model assumes a stunting percentage of 32.9 percent among the under twos, following RISKESDAS (2013).[39] The projections span the period 2018 to 2022. The stunting decline estimates over this period are assumed to be attributed to four nutrition-specific interventions proven to reduce chronic malnutrition: antenatal micronutrient supplementation, aiming at -9 to 0 months or *in utero*; breastfeeding counselling; and Vitamin A and zinc supplementation post gestation (see, for example, Shekar *et al*. 2017). Three scenarios are considered: (a) conservative baseline, where we apply restrictive assumptions; (b) business as usual, incorporating more realistic Indonesia-specific assumptions and (c) accelerated stunting reduction reflecting the enhanced government program with more optimistic assumptions.

In utero intervention

Antenatal micronutrient supplementation includes iron, folic acid, and Vitamin A administered during pregnancy. According to a Cochrane Review by Haider and Bhutta (2015) antenatal micronutrients given *in utero* can improve small for gestational age and low birthweight by 11-13 percent. We apply an 11 percent reduction in the baseline conservative scenario, 12 percent or the midpoint in the realistic BAU scenario, and assume 13 percent for the new national strategy on stunting. Following Black *et al*. (2013) we assume that 20 percent of all stunting is attributed to intra-uterine growth

[36] This technical note accompanies an excel file with the model for projections of stunting in Indonesia, available upon request. The modelling and write up was done by Lubina Qureshy (economist, World Bank consultant) under the guidance of Claudia Rokx (World Bank lead health specialist).
[37] The Indonesia program includes the following nutrition-sensitive interventions: access to clean water, sanitation and hygiene facilities, access to materials to pen animals, access to family planning services, delivery of JKN (Social Health Insurance) and the delivery of *Jampersal* (Pregnancy Insurance), provision of parent counselling, provision of universal ECED services, provision of youth sexual and reproductive counselling, provision of social assistance to poor households, and increased nutritious food security.
[38] The equivalent percentage stunted among the under twos is 32.9%.
[39] The stunting percentage will be updated when RISKESDAS (2018) is available by the end of the year.

retardation, resulting in low birthweight or small for gestational age babies. This is the proportion of babies that will be stunted pre-intervention. We apply the benefit from antenatal micronutrient supplementation to this percentage, resulting in a 2.2 percent decline in stunting in the conservative scenario, 2.4 percent under more realistic assumptions and 3 percent for the accelerated scenario. Table 1 presents the results for the conservative scenario, yielding a cumulative decline in stunting of 2.07 percentage points over 2018-2022. This final stunting decline has been adjusted to include the non-target population.

Postnatal intervention

All three interventions post gestation up to the age of two (breastfeeding counselling, Vitamin A, and zinc supplementation) decrease stunting indirectly by reducing diarrhea incidence.

The average incidence of diarrhea in Indonesia reported by Aitken *et al*. (2007) based on a survey of selected districts is 1.3 episodes per child per year among children under five. However, the Demographic and Health Survey (IDHS) 2012 (Statistics Indonesia *et al*. 2013) indicates an average of 3.6 episodes[40] per child per year. The latter is closer to the estimate of 3.2 in a study of diarrhea incidence in developing countries by Kosek *et al*. (2007). Given the variation in estimates, for all three scenarios we use an average of 3.6 and 1.3 episodes per child per year or an incidence of 2.5 episodes per child per year.[41] Black *et al*. (2013) attribute 25 percent of stunting to previous five episodes of diarrhea. Applying this to the assumed diarrhea incidence for Indonesia of 2.5 episodes will contribute 25 percent/5 * 2.5 = 12 percent reduction in stunting. We use this as the pre-intervention stunting percentage attributed to diarrhea and then calculate the stunting decline due to breastfeeding and Vitamin A and zinc supplementation.

Table 1. Projected stunting decline due to antenatal micronutrient supplementation, conservative, 2018-2022

	2018	***2019***	***2020***	***2021***	***2022***
Total pregnancies	5,291,143	5,256,483	5,206,721	5,149,278	5,090,165
% stunted	32.9%	32.9%	32.9%	32.9%	32.9%
Target population					
No. of pregnant mothers	1,647,048	1,636,259	3,950,625	5,149,278	5,149,278
No. stunted preintervention = % stunting * No. of pregnant mothers	541,879	538,329	1,299,756	1,694,112	1,694,112
% reduction in stunting due to antenatal micronutrient supplementation	2.2%	2.2%	2.2%	2.2%	2.2%
No. stunted cases averted = % reduction in stunting * No. stunted pre-intervention	11,921	11,843	28,595	37,270	37,270
No. stunted post intervention = No. stunted preintervention - No. stunted averted	529,958	526,486	1,271,161	1,656,842	1,656,842
Non-target population					
No. pregnant mothers not targeted = Total pregnancies - No. targeted	3,644,095	3,620,224	1,256,096	-	-
No. stunted = No. not targeted * % stunted	1,198,907	1,191,054	413,256	-	-
Target + non-target population					
Total stunted after intervention = No. stunted in target + No. stunted in non-target	1,728,865	1,717,540	1,684,417	1,656,842	1,656,842
% stunted at end of gestation = Total stunted/Total pregnant population	32.7%	32.7%	32.4%	32.2%	32.5%
% point decline in stunting due to antenatal interventions	0.23	0.23	0.55	0.72	0.35

[40] In 2012, 14% children under five reported diarrhea in the last 2 weeks. In 52 weeks or a year, this is 3.6 episodes per child. The incidence has not changed since 2007.
[41] Using a lower estimate than the 3.6 reported presents a conservative scenario.

Exclusive Breastfeeding

According to Lamberti *et al*. (2011), the relative risk of diarrhea in those under six months is 26 percent higher if they are predominantly breastfed rather than exclusively breastfed and as much as 68 percent higher among those partially breastfed relative to exclusive breastfeeding. We assume a cautious 26 percent reduction in risk due to a switch from current practice to exclusive breastfeeding in all three scenarios. RISKESDAS and DHS (2013, 2012) reports an exclusive breastfeeding rate of 41.7 percent among infants under six months, implying that the remaining 58.3 percent are partially, predominantly, or not breastfed at all. In a study in Bangladesh, Khan *et al*. (2017) estimate the median duration of breastfeeding among women given the usual health message at 75 days relative to those given counselling at 135 days, a gain of 60 days or a 44 percent increase.[42] Beatty *et al*. (2017) report a 50 percent gap between knowledge and practice of breastfeeding in Indonesia.[43] For the conservative scenario we, therefore, assume half of the gain and for the realistic and accelerated scenarios we assume the full benefit reported by Khan *et al*. at 44 percent.

Under the conservative scenario, assuming a 22 percent increase in exclusive breastfeeding would result in exclusive breastfeeding rising from 41.7 percent to 54.7 percent (22 percent*58.3 percent + 41.7 percent = 54.7 percent). The percentage that switched to exclusive is 54.7 percent minus 41.7 percent = 13 percent. The reduced risk of diarrhea from switching is then 13 percent*26 percent=3.4 percent. This entails a reduction of 0.08 diarrhea episodes, with the final incidence at 2.37. Percentage stunting attributed to this post-intervention incidence is then 11.8 percent.[44] The percentage point decline in stunting due to breastfeeding counselling intervention is 12 percent less 11.8 percent or 0.4 percentage points.

Vitamin A

Vitamin A supplementation in two annual doses for children under two reduces diarrhea incidence by 15 percent [RR 0.85, 95 percent CI 0.82-0.87] (Shekar *et al*. 2017). For the conservative scenario we assume a reduction in diarrhea incidence by 13 percent, using the upper limit of the confidence interval. We use 15 percent for the realistic scenario and 18 percent for the accelerated scenario.

Starting with diarrhea incidence of 2.45 episodes/child/year, under the conservative scenario, Vitamin A supplementation will reduce incidence by 13 percent, resulting in 2.13 episodes/child/year. Stunting attributed to diarrhea after intervention would be 10.7 percent and the stunting percentage decline is 1.6.

Zinc

Yakoob *et al*. (2011) find zinc supplementation reduces diarrhea incidence by 13 percent [RR 0.87, 95 percent CI: 0.81-0.94]. We apply a conservative reduction of 6 percent in diarrhea incidence for the conservative scenario, 13 percent for the realistic and 19 percent for the accelerated scenario. Using the same method as in Vitamin A, the stunting percentage decline under the conservative scenario is 0.7 percentage points.

Adding the decline in stunting attributed to interventions at the 0-24 month stage, we get a total decline of 2.7 percentage points under the conservative scenario, 5.4 under accelerated and 4.3 for the realistic scenario. Under the conservative scenario the resulting stunting percentage is 32.9 – 2.7 = 30.2 percent. This indicates an 8 percent decline in stunting due to the intervention in 2018. This decline is then applied to the number of stunted among the 0-2 year olds targeted.[45] The resulting stunting percentage, adjusting for the non-targeted population (see Table 2) is 32 percent.

As noted above, in 2019, the target number of districts is the same. We, therefore, use 32 percent stunting to arrive at estimates for 2019. But at the same time, we assume a lower benefit from diarrhea reduction at half or 2.7/2 = 1.4 percentage points due to the overlap in the population benefiting. This results in a 4 percent decline in stunting and a much lower estimate of stunted cases averted in 2019 at 59,670 as compared to 121,022 in 2018 (see Table 2). In 2020 and 2021, the scale of intervention is increased substantially. We, therefore, revert to the baseline stunting percentage of 32.9 percent as the starting point and the full diarrhea benefit of 2.7 percentage points. In 2022, where the target population overlaps with the previous year, as in 2019, we use the stunting percentage at the end of the previous year and half the stunting decline benefit for the conservative and realistic scenarios. Note, however, that for the accelerated scenario, we assume 75 percent of the benefit rather than half since we believe that the enhanced program is likely to be able to reap higher benefits.

[42] Counselling constituted eight one on one sessions with a trained counselor during pregnancy lasting up to six months of infancy.
[43] 40% of the mothers had knowledge of exclusive breastfeeding but only 20% practiced it.
[44] Since previous 5 diarrhea episodes contribute to 25% of stunting, as calculated earlier, we get 25%/5 * 2.37 = 11.8%.
[45] In 2018, the first year of intervention, we obtain the total stunted cases in the target 0-2 year olds by multiplying the target population by 32.9% (stunting percentage). We do not subtract the number of stunted cases saved due to in utero interventions from the total since this benefit is realized in the next year at the end of gestation. However, for 2019-2022 we adjust for stunting averted at the antenatal stage to avoid double counting.

Table 2. Projected stunting decline due to 0-2 year old interventions, conservative scenario (2018-2022)[46].

	2018	***2019***	***2020***	***2021***	***2022***
Total 0-2 year olds	14,188,458	14,110,850	14,024,374	13,918,218	13,808,537
% stunted	32.9%	32.0%[a]	32.9%	32.9%	30.0%[a]
Target population					
No. 0-2 year old	4,416,641	4,392,482	10,641,062	13,918,218	13,808,537
No. stunted pre-intervention = No. targeted * % stunted (- stunting averted at gestation in previous year for 2019-2022)	1,453,075	1,395,739	3,489,066	4,550,499	4,101,359
% reduction in stunting due to 0-2 yr interventions	8%	4%[b]	8%	8%	4%[b]
No. stunted cases averted = % reduction in stunting * No. stunted pre-intervention	121,022	59,670	290,593	378,996	175,340
No. stunted post intervention = No. stunted preintervention - No. stunted averted	1,332,053	1,336,069	3,198,473	4,171,503	3,926,019
Non-target population					
No. 0-2 years not targeted = Total 0-2 years - No. targeted	9,771,817	9,718,368	3,383,312	-	-
No. stunted = No. not targeted * % stunted	3,214,928	3,114,449	1,113,110	-	-
Target + non-target population					
Total stunted after intervention = No. stunted in target + No. stunted in non-target	4,546,981	4,450,518	4,311,583	4,171,503	3,926,019
% stunted at end of gestation = Total stunted/ Total 0-2 year population	32%	32%	30.7%	30%	28%
% point decline in stunting due to 0-2 year interventions	0.85	0.43	1.79	2.45	1.39

[a] Lower estimate used from end of previous year stunting percentage since the target population is the same; [b] Half of the benefit assumed to accrue this year due to an overlap in target population implying that some benefits have been reaped already.

Results and conclusion

We employ a model with three scenarios to arrive at stunting projections for Indonesia over the period 2018-2022. The baseline conservative scenario uses the strictest assumptions, based on evidence in the literature on the use of the most proven nutrition-specific interventions in enabling a stunting decline. For example, for Vitamin A supplementation, we use a lower bound of 6 percent decline in diarrhea incidence under the conservative baseline scenario, 13 percent in the realistic BAU scenario and 19 percent in the accelerated new national strategy.

The accelerated scenario obtains a stunting reduction of 22 percent by 2022. This is the target the current program could aim to achieve given the emphasis and priority given to accelerating the decline in stunting. We believe that an accelerated decline is, in fact, possible as in the past a significant decline has occurred due to a health post initiative of the government. In fact, over 1980-2000, Wai-Poi (2011) attributes a 19 percent reduction in stunting in children under two years of age due to Indonesia's *Posyandu*, a community-based health post initiative serviced by health workers

[46] The lower estimate of stunting cases averted in 2019 is explained by a number of reasons (1) The target area in 2019 overlaps with 2018. There is no scale-up and the target population overlaps, except for those born in 2019. We, therefore, use a lower starting stunting percentage for the 0-2 year category, equal to that obtained at the end of 2018 due to interventions undertaken in that year benefiting the same group of children who were -9-0 months and 0-1 year in 2018; (2) In 2019 we also subtract from the number of stunted cases pre-intervention, the number of stunted averted among the -9-0 month old in 2018, who are now 0-1 year old in order to not double count the benefit; (3) We also assume half the benefit from diarrhea interventions in the 0-2 year age group because they have already benefited from stunting interventions in the previous year as the -9-0 month and 0-1 year groups, now 0-1 year and 1-2 year, respectively. As a result of these collective reasons, the final percentage decline in stunting in 2019 is half that in 2018 at 4%.

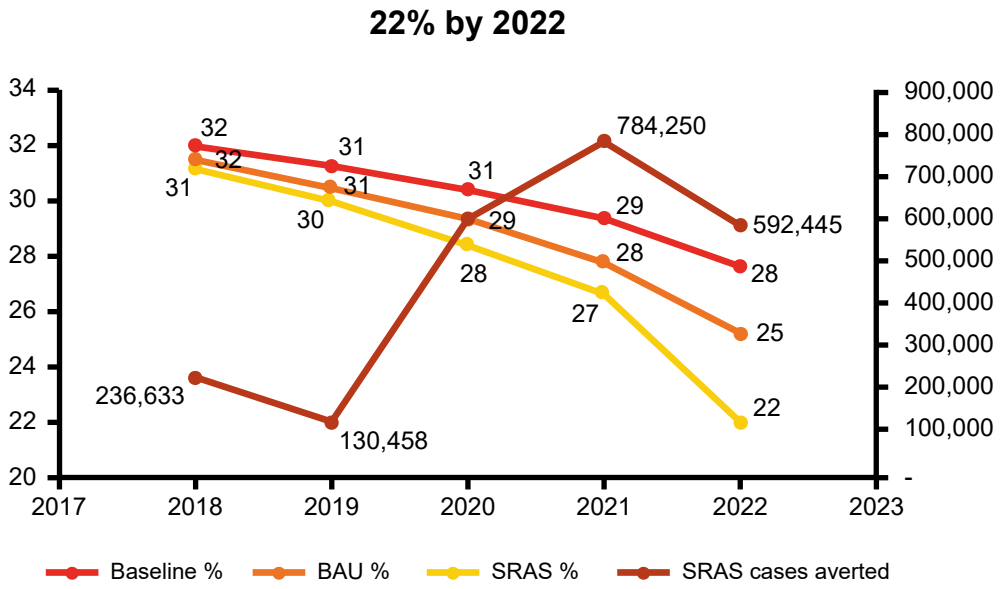
The program was implemented on a national scale in the 1980s and 1990s and reached nearly every village, allowing easy access for users. Interventions under the *Posyandu* included fetal and maternal growth monitoring, micronutrient supplements (particularly iron folic acid), and immunizations. Interventions from birth until age two included weighting, immunizations, basic breastfeeding counselling, and micronutrient supplementation (vitamin A, zinc, and iron) as well as using oral rehydration salts (ORS) for treating diarrhea.

However, the effectiveness of the *Posyandu* since then is dubious with reports of understaffing, poor training, low motivation, high health worker dropout rates, low utilization rates, and resource constraints (see, for example, Strauss *et al*. 2004 and Khomsan *et al*. 2007).

The new strategy aims to not only redress these failures but also employ a multi-sectoral approach and coordination across different administrative levels to ensure success. The new strategy also prioritizes action in districts with highest stunting rates. We, therefore expect greater reduction in stunting due to this approach.

The projections show a decline in stunting ranging from 28 percent using the conservative scenario to 25 percent for the realistic and as much as 22 percent in 2022. The number of stunted cases averted ranges from a conservative 1.2 million to a maximum of 2.3 million in the accelerated government strategy. Figure 1 and Table 3 summarize these results.

Figure 1. Projections of stunting in Indonesia, 2018-2022.



Baseline refers to a conservative scenario; BAU represents Business as usual or a more realistic scenario; StraNas Stunting represents a more optimistic or accelerated scenario representing the Government's Stunting Reduction Acceleration Strategy.

Table 3. Assumptions and results of modelling to project stunting in Indonesia, 2018-2022.

Assumptions	***Baseline conservative***	***Realistic BAU****	***Accelerated NatStrat***
Stunting % in Indonesia (RISKESDAS 2013)	33%	33%	33%
Stunting reduction due to in utero intervention			
Stunting % due to IUGR/LBW (Black *et al*. 2013)	20%	20%	20%
Decline in stunting due to antenatal micronutrient supplementation (Haider and Bhutta 2013)	11%	12%	13%
Stunting reduction due to 0-2 year old interventions (through diarrhea reduction)			
No. diarrhea episodes/child/year (average of RISKESDAS 2013 and Aitken *et al*. 2007)	2.45	2.45	2.45
Stunting % due to previous 5 diarrhea episodes (Black *et al*. 2013)	25%	25%	25%
Decline in diarrhea incidence due to zinc (Yakoob *et al*. 2011)	6%	13%	19%
Decline in diarrhea incidence due to Vit A (Shekar *et al*. 2017)	13%	15%	18%
Decline in diarhea incidence due to exclusive breastfeeding (Lamberti *et al*. 2011)			
% 0-6 mths exclusively breastfed (RISKESDAS 2013)	42%	42%	42%
% increase in exclusive breastfeeding due to counseling (Khan *et al*. 2017)	22%	22%	44%
Results			
% stunted in 2022	28	25	22
% point reduction from 2018 to 2022	5	8	11
% decline	-16%	-23%	-32%
No. stunting cases averted	1,152,743	1,736,063	2,345,423

*BAU: Business As Usual; StraNas Stunting: The National Strategy to Accelerate Stunting Prevention

ANNEX 2
TOP AND BOTTOM PERFORMING DISTRICTS – AN ANALYSIS BASED ON RISKESDAS

Indonesia's national stunting trend demonstrates stagnation since the early 2000, however this masks a very dynamic picture of changes at the district level.

For the analysis the 20 percent of districts that were most successful in reducing stunting (T20) between 2007 and 2013 are identified based on the district level stunting rates reported by the MoH in their official publications[47].

Those districts with the highest increases in stunting are classified as poorly performing districts (B20).

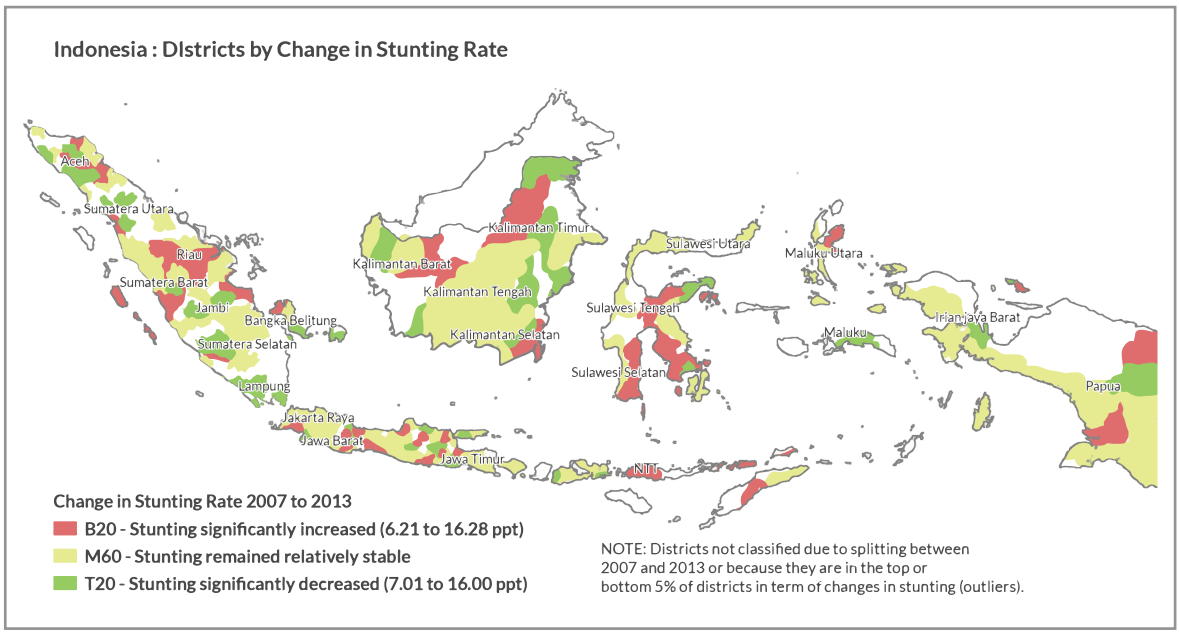
Districts which split into two or more districts between 2007 and 2013 are excluded from the analyses.

To exclude extreme outliers, the districts with the highest reductions (top 5% of the districts) and the highest increases in stunting (bottom 5% of the districts) are removed from the sample of possible districts before determining the top and bottom preforming districts.

With these adjustments, the 73 successful districts reduced stunting between 6.21 and 16.8 percentage points, or between 0.89 and 2.8 percentage points annually. The 70 districts where stunting increased the most ranged from 7.01 to 16.0 percentage point increases in stunting between 2007 and 2013. We also considered a comparison group of districts where the change in the stunting rate constituting the middle 60 percent of the distribution (M60).

The map below shows the geographic location of the three groups of districts. Both the successful and poorly performing districts are distributed across the archipelago. Many districts which saw the greatest reductions in stunting border districts with the highest increases in stunting. That is, the successful and non-successful districts are not concentrated in one geographic location. Although, in Sulawesi a greater share of the districts saw an increase in stunting than on the other islands (Table 1).

Figure 1. Indonesia: Districts by change in stunting rate



[47] The quality of the anthropometric data collected by the 2013 Riskesdas survey is known to vary significantly across regions. For example, it is well known that the anthropometric measures in the eastern provinces of Indonesia (Nusa Tenggara, Maluku and Papua) are of lower reliability than the anthropometric data collected in other provinces. Authorities in the MoH (NIHRD) attribute this to the financial and time constraints encountered in providing adequate training to field staff with very heterogeneous skills and experience, hired on a temporary basis, solely for the purpose of the Riskesdas survey carried out every five years.

Table 1. Composition of districts

Province	Province name	Number of districts			Percentage of districts	
		Total	B20	T20	B20	T20
11	Aceh	21	3	8	14%	38%
12	Sumatera Utara	25	4	5	16%	20%
13	Sumatera Barat	19	4	4	21%	21%
14	Riau	11	3	1	27%	9%
15	Jambi	10	1	2	10%	20%
16	Sumatera Selatan	14	0	4	0%	29%
17	Bengkulu	9	1	2	11%	22%
18	Lampung	10	0	3	0%	30%
19	Kepulauan Bangka Belitung	7	1	2	14%	29%
21	Kepulauan Riau	6	0	2	0%	33%
31	DKI Jakarta	6	1	1	17%	17%
32	Jawa Barat	25	3	3	12%	12%
33	Jawa Tengah	35	4	5	11%	14%
34	Yogyakarta	5	0	0	0%	0%
35	Jawa Timur	38	7	7	18%	18%
36	Banten	6	1	0	17%	0%
51	Bali	9	2	1	22%	11%
52	Nusa Tenggara Barat	9	0	2	0%	22%
53	Nusa Tenggara Timur	16	4	2	25%	13%
61	Kalimantan Barat	12	1	2	8%	17%
62	Kalimantan Tengah	14	0	3	0%	21%
63	Kalimantan Selatan	13	3	0	23%	0%
64	Kalimantan Timur	13	1	5	8%	38%
71	Sulawesi Utara	9	0	0	0%	0%
72	Sulawesi Tengah	10	3	1	30%	10%
73	Sulawesi Selatan	23	13	0	57%	0%
74	Sulawesi Tenggara	10	4	1	40%	10%
75	Gorontalo	5	1	0	20%	0%
76	Sulawesi Barat	5	0	1	0%	20%
81	Maluku	8	0	1	0%	13%
82	Maluku Utara	8	1	1	13%	13%
91	Papua Barat	9	0	1	0%	11%
94	Papua	20	4	3	20%	15%

To start understanding the differences in circumstances for young children in those well performing and worsening districts, the changes in access to the drivers of nutrition were analyzed. Table 2 below summarizes the access to the drivers of nutrition in 2007 and the change in access to nutrition drivers between 2007 and 2013 (2013-2007). In 2007, a child in a district with large decrease in stunting rate between 2007 and 2013 was shorter and more likely to have access to none of the determinants than a child in a district where stunting increased or remained constant. That is, districts where there were larger improvements in height-for-age tended to be districts where HAZ was initially lower. Similarly, these districts had a higher percentage of children who had access to none of the nutrition drivers

Table 2. Access and changes in access to drivers of nutrition

	Districts with Decreased Stunting (T20)		**Districts with Increased Stunting (B20)**		**Districts with Minimal Change in Stunting (M60)**	
	Average in 2007	**Change (2013-2007)**	**Average in 2007**	**Change**	**Average in 2007**	**Change (2013-2007)**
HAZ	-1.540***	**0.479*** **	-0.811***	-0.538***	-1.222***	0.014
Access to 0 (none) drivers	**0.562*** **	**-0.290*** **	0.541***	-0.231***	0.516***	-0.237***
Access to 1 driver	0.322***	**0.099*** **	0.330***	0.065***	**0.348*** **	0.060***
Access to 2 drivers	0.098***	**0.139*** **	0.107***	0.113***	**0.114*** **	0.128***
Access to 3+ drivers	0.019***	0.052***	**0.022*** **	**0.053*** **	0.022***	0.049***
Access to food	0.112***	0.021***	0.103***	**0.024*** **	**0.119*** **	0.014***
Access to care	0.056***	0.051***	**0.060*** **	0.050***	0.055***	**0.060*** **
Access to WASH^	0.151***	**0.174*** **	0.141***	0.166***	**0.172*** **	0.146***
Access to health	0.231***	**0.316*** **	0.256***	0.258***	**0.282*** **	0.254***

Source: Author calculations based on 2007 and 2013 RISKESDAS.
Notes: ^ Definition is not consistent across the two years as the surveys did not collect similar information.
Statistical Significance: *** p<0.01, ** p<0.05, * p<0.1.

Table 3 shows the differences in the characteristics of the districts where stunting improved the most (T20) in comparison with those districts where stunting remained relatively stable (M60). The table underlines that the two sets of districts (T20 and B20) were very different in 2007. The districts where stunting decreased (T20) significantly had a lower mean height-for-age Z score (HAZ) and thus a higher stunting rate in 2007, a higher share of children with access to none of the four determinants, a lower share of children with access to one or two determinants, lower share of children with access to adequate environment and healthcare. Furthermore, the districts were more likely to be rural, the mother was more likely to have at least a primary education, and she was taller. The size of the household was slightly larger. The mother was less likely to wash her hands and the children were less likely to have their vaccinations up to date or have received a vitamin A supplement.

By 2013, the T20 districts had caught up (and in some cases surpassed) the M60 districts in access to the same nutrition drivers. The improvement in the mean HAZ was larger in the T20 districts than in the M60 districts by 0.456 standard deviations. Similarly, the stunting rate reduced by 9.1 percentage points more in the T20 districts than in the M60 districts. The share of children with access to none of the determinants decreased 5 percentage points more in the T20 districts than in the M60 districts also resulting in an additional 4 percentage point increase in share of children with access to one determinant. The determinants to which the children in T20 gained access at a greater pace were access to adequate environment and adequate healthcare. Both components of healthcare (the two measures available for both 2007 and 2013) improved more in the T20 districts than in M60 districts. That is, there was a 7.2 greater percentage point increase in children having their vaccinations up to date and a 2.8 percentage point increase in receiving vitamin A supplementation (for children 8 months and older.)

Table 3. Differences between T20 and M60

	Average in 2007 in M60	**Difference between T20 and M60 in 2007 (T20-M60)**	**Difference in M60 between 2007 and 2013 (2013-2007)**	**Difference between the change in T20 and M60**
HAZ	-1.222***	-0.318***	0.014	0.465***
Stunting Rate	0.403***	0.063***	-0.038***	-0.091***
Access to 0 drivers	0.516***	0.045***	-0.237***	-0.053***
Access to 1 driver	0.348***	-0.026***	0.060***	0.039***
Access to 2 drivers	0.114***	-0.016***	0.128***	0.011
Access to 3+ drivers	0.022***	-0.004	0.049***	0.003
Rural area	0.581***	0.042***	-0.093***	-0.012
Girl	0.488***	-0.006	0.004	-0.006
Mother's education	0.532***	0.018*	0.094***	0.038***
Mother's height	152.220***	0.383***	-0.227***	-0.125
Mother's age (yrs)	30.202***	-0.005	0.318***	0.118
Number of children	1.294***	0.014	-0.043***	0.006
Household size	4.650***	0.082***	0.230***	-0.073*
Exclusive breastfeeding under 6 mo of age	0.405***	-0.018	0.220***	0.017
Early initiation of breastfeeding	0.249***	0.004	0.424***	-0.012
Mother Hand washing	0.301***	-0.024***	0.139***	-0.011
Nonsmoking household head	0.266***	0.004	0.052***	-0.021*
Fraction of children with up to date vaccinations	0.319***	-0.051***	0.294***	0.072***
Fraction of children receiving Vitamin A supplements.	0.700***	-0.043***	0.060***	0.028**

Similar analyses can be carried out between the B20 and the M60 (Table 4). There are far fewer characteristics where the change between 2007 and 2013 differs between these two groups. The only potential policy variable that evolved differently is early initiation of breastfeeding. The increase in the B20 was 10 percentage points lower than in the M60. In 2007 the B20 districts had a 11 percentage point higher rate of early initiation of breastfeeding, so that by 2013 there was no difference.

Table 4. Differences between B20 and M60

	Average in 2007 in M60	Difference between B20 and M60 in 2007 (B20-M60)	Difference in M60 between 2007 and 2013 (2013-2007)	Difference between the change in B20 and M60
HAZ	-1.222***	0.411***	0.014	-0.552***
Stunting Rate	0.403***	-0.058***	-0.038***	0.107***
Access to 0 drivers	0.516***	0.025**	-0.237***	0.005
Access to 1 driver	0.348***	-0.018*	0.060***	0.006
Access to 2 drivers	0.114***	-0.007	0.128***	-0.015
Access to 3+ drivers	0.022***	-0.000	0.049***	0.004
Rural area	0.581***	0.118***	-0.093***	-0.042**
Girl	0.488***	0.005	0.004	0.002
Mother's education	0.532***	-0.020**	0.094***	0.009
Mother's height	152.220***	0.024	-0.227***	0.016
Mother's age (yrs)	30.202***	0.217**	0.318***	-0.124
Number of children	1.294***	0.045***	-0.043***	0.006
Household size	4.650***	0.152***	0.230***	-0.064
Exclusive breastfeeding under 6 mo of age	0.405***	0.096***	0.220***	-0.039
Early initiation of breastfeeding	0.249***	0.111***	0.424***	-0.101***
Mother Hand washing	0.301***	-0.015	0.139***	0.001
Nonsmoking household head	0.266***	-0.008	0.052***	-0.004
Fraction of children with up to date vaccinations	0.319***	-0.028***	0.294***	0.002
Fraction of children receiving Vitamin A supplements.	0.700***	-0.017*	0.060***	0.005

The graphs below show the growth faltering curves. What is evident is that the districts with greater increases in stunting were the ones that in 2007 had taller children. In 2013 the position of the B20 and T20 curves has switched such that children in the T20 districts are taller than children in the B20 districts at all ages. It must be noted that these are based on the individual child data. The district level stunting rates based on these data do not match the official MoH district stunting rates. The discrepancies may be due to different weighting factors being used, different criteria for inclusion/ exclusion of observations, and differences between the release data sample and those used for the official calculations.

Figure 2. Indonesia: Average HAZ by district in 2007

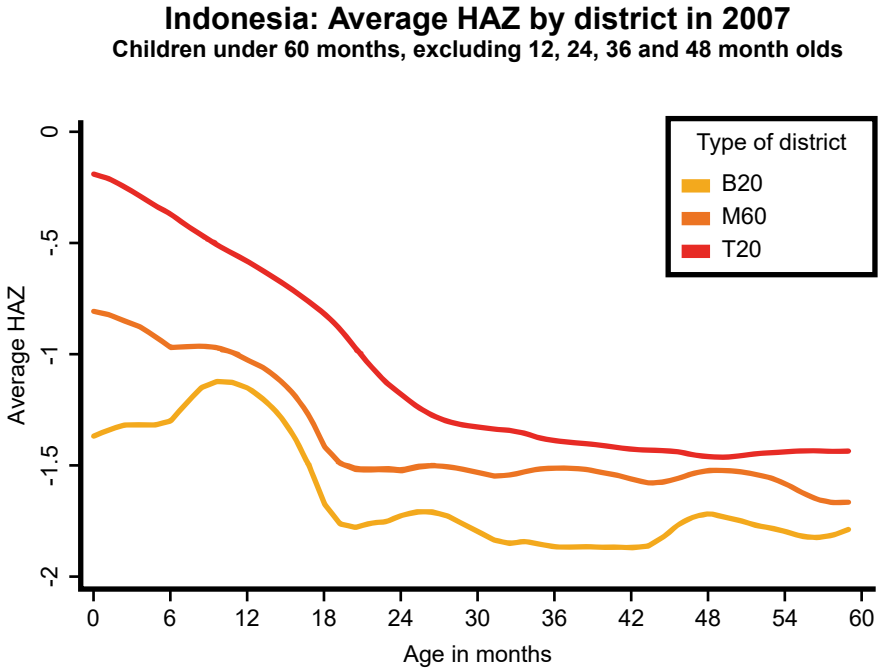
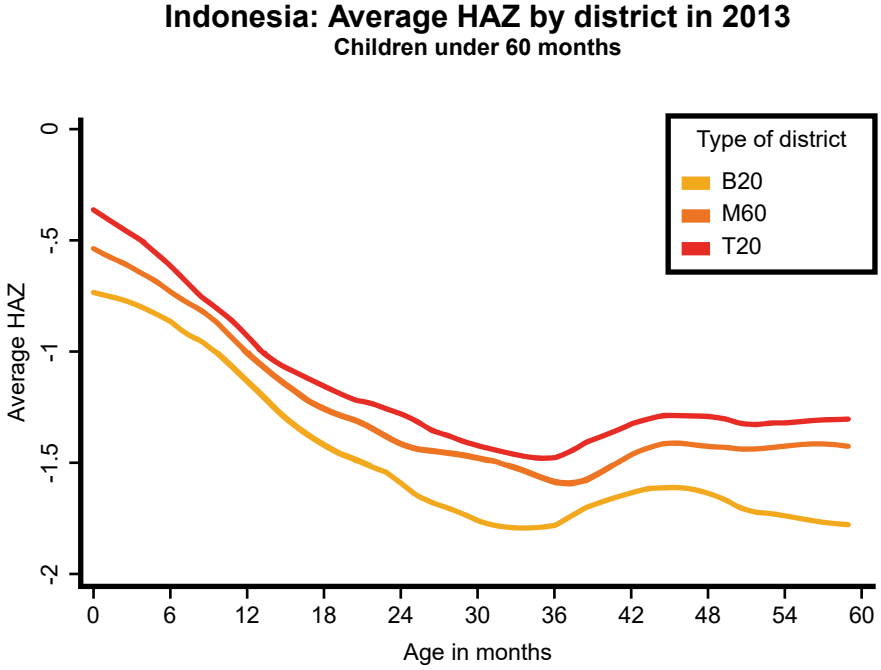


Figure 3. Indonesia: Average HAZ by district in 2013



ANNEX 3
INDONESIA QUANTITATIVE SERVICE DELIVERY SURVEY (QSDS) 2016 – BACKGROUND, OBJECTIVES AND RESULTS SUMMARY FROM *POSYANDU* SAMPLING

Background and Objectives

Indonesia QSDS 2016 was envisioned as a primary health care facility and services survey in Indonesia, with specific focus on nutrition, maternal and child health (MCH), HIV/AIDS, tuberculosis, and malaria, as well as noncommunicable diseases (NCDs). The survey captured information based on WHO's Service Availability and Readiness Assessment (SARA) conceptual framework, adjusted according to national guidelines, but also included modules on governance, health indicators, health financing (but not costing information), provider ability, and patient satisfaction.

Instruments were developed to survey district health offices, various primary health care facilities (*Puskesmas*, *polindes/ poskesdes*, private maternal health (MH) providers, and private clinics), health workers, and conduct patient exit interviews in DKI Jakarta. In addition, a small number of hospitals were also sampled while at the community level. *Posyandu* were sampled–especially for nutrition-related indicators. Facilities established in 2014 or later were excluded from the survey. For the purposes of this publication, only instruments used to sample *Posyandu* were used in the analysis.

The QSDS sampling methodology provided facility-level indicators estimates representative at the national; DKI Jakarta; maternal and child health priority districts (64 high-priority districts); HIV/AIDS and TB priority districts (75 high-priority districts); and malaria priority districts (132 priority districts) level. The same estimates were also obtained for MCH, HIV/ AIDS and TB counterfactual districts. In addition, the survey provided estimates at health care worker level for primary care facilities (public and private), maternal health facilities (public and private) and also patient user-level indicators (through patient exit surveys for DKI Jakarta samples).

Field work for this survey was conducted from May 30 to October 31, 2016.

For more information on methodology and list of sampled districts, please refer to the World Bank, Center for Health Policy and Management Faculty of Medicine Universitas Gadjah Madah, and Survey Meter (2016) Final Completion Report: Assessing Public Expenditure and Service Delivery for Universal Health Coverage at the Primary Care Level in Indonesia.

Results Summary

At the heart of the village is the once-a-month *Posyandu* session, where mothers and caregivers converge to find how whether their babies, toddlers and young children have achieved healthy growth. The following sub-sections provide information on service availability and service readiness of *Posyandu* obtained from the QSDS.

Staffing and Operations

The QSDS found that as was the norm, most *Posyandu* were open every month and the majority (85 percent) of *Posyandu* hold an average of 1 session per month. Close to half of *Posyandu* surveyed (49 percent) were staffed by 5 *Kader*, the minimum amount of staffing specified by *Posyandu* guidelines[48]. However, 36 percent of *Posyandu* were staffed by less than 5 *Kader*.

Posyandu sessions were held in varied locations, as shown in Table 1 below, but most sessions (30 percent) were held in *Kader*'s house. Between 96 to 98 percent of *Posyandu* surveyed reported providing registration, weighing, recording and health services during *Posyandu* sessions. In comparison, only 90 percent reported having a table for counselling services, supporting previous findings that counselling was the weakest link in the array of services provided by the *Posyandu*.

[48] Pedoman Umum *Posyandu*, 2011

Table 1. *Posyandu* Operation Details

	N	%
Number of *posyandu* open every month	330	97.5%
Number of *posyandu* sessions in last 12 months		
< 12 times	48	14%
12 times	290	85%
> 12 times	1	0.3%
Number of *kaders* present in last *posyandu* session		
< 5 kaders	123	36%
5 kaders	165	49%
> 5 kaders	51	15%
Location of *Posyandu*		
Posyandu kader's house	102	30%
Village official's house	48	14%
Community house	38	11%
Multipurpose building/village hall/Poskamling/RT/RW's office/PKK building/school	36	11%
PAUD building	32	9%
Village Post	25	7%
Posyandu building	23	7%
Polindes	23	7%
Other health facilities/Pustu/village midwife/midwifery clinic	6	2%
Place of worship (e.g. mosque, church, etc)	4	1%
Availability of services (according to 5-tables system) at *posyandu*		
Registration (Table 1)	327	97%
Weighing (Table 2)	316	96%
Recording (Table 3)	308	97%
Counselling (Table 4)	275	90%
Health services (e.g. immunization, family planning, vitamin A) (Table 5)	271	98%

The survey found that, of the available and active *Kader*, 28 percent had never attended school or some of a primary education, 68 percent had attended secondary school and 4 percent reported having been exposed to tertiary-level education. Of this same group 33 percent had worked as a *Kader* for three years or less, 41 percent for 4 to 10 years as a *Kader* and 27 percent for 11 years or more. Very few *Kader* reported living in the village in which they serve less than 15 years – the majority (84 percent) had lived in their village for more than 16 years.

For most *Kader* the pathway for becoming a *Kader* was through an appointment either by the head of the village, hamlet, PKK or *Posyandu* itself (57 percent). Far fewer reported volunteering to become a *Kader* or being invited to join. Under half of all *Kader*, 44 percent, were self-employed in another position. Over half of all *Kader* worked between 3 and 4.5 hours per month (52 percent). Only 22 percent of *Kader* report working more than five hours.

Service Availability of Key Nutrition-Specific Interventions

The coverage of nutrition-specific interventions at the village level is sub-optimal, as evidenced by findings from QSDS, with most services providing well-below the recommended 90 percent coverage (Table 2).

Antenatal Care

At the villages, pregnant women seek antenatal care from village delivery posts (polindes), village health posts (poskesdes) or *Posyandu*. Data from QSDS indicate the availability of ANC services at *Posyandu* to be disappointingly low – below 50 percent for services such as iron folic acid supplementation and nutrition status monitoring. *Posyandu* are not traditionally regarded as a point of prenatal and obstetric care, possibly explaining the the low availability of ANC services at *Posyandu*. In contrast, facilities where a village midwife is staffed, such as polindes and poskesdes, had high availability of ANC services (close to 100 percent) (data not shown).

Counselling on healthy diet during pregnancy and exclusive breastfeeding was recorded to be highly available at *Posyandu* (90 percent and above), but counselling on early initiation of breastfeeding and availability of pregnant women class (*Kelas Ibu Hamil*) was reported to be 3 percent and 30 percent respectively. *Kelas Ibu Hamil* represents an important platform for the village midwife, nutrition staff and *Kader* to provide information and group counselling on proper pregnancy diet and care, as well as information on breastfeeding. Anecdotal evidence points to the sub-optimal implementation of *Kelas Ibu Hamil* at *Posyandu* and *Puskesmas*, and QSDS data supported this observation. While availability of counselling on early breastfeeding initiation was at a dismal 3 percent, this is in some ways, expected, as *Posyandu* do not offer obstetric services.

Postnatal Care

Coverage of postnatal care at *Posyandu* was also sub-optimal. The availability of postnatal care services at *Posyandu* ranged between 40 percent and 50 percent, with counselling on exclusive breastfeeding available in only 53 percent of sampled *Posyandu*. Postpartum Vitamin A service was available in only 45 percent of *Posyandu*.

Immunization

Mothers and carers are motivated to bring their children to the *Posyandu* mainly because of the immunization service available at the facility, but recent findings indicate that *Posyandu* are half as likely to be able to provide the immunizations. The majority of *Posyandu Kader* (83 percent) reported that children in their catchment area received vaccination at *Posyandu*, followed by the *Puskesmas*, *polindes/poskesdes*, and private facilities (data not shown). This finding corroborated observations from previous surveys[49]. Despite this, the QSDS found the availability of some basic child immunization services at *Posyandu* to be close to, or below 50 percent. At the time of the survey, the MoH was switching to pentavalent vaccine (DPT-HiB-HB), which could explain the lower than average availability of the pentavalent vaccine at sampled sites.

Among recent changes to the routine immunization schedule include the introduction of the Measles-Rubella (MR) vaccine in 2017 (after QSDS data collection). The MoH aims to include the MR as a routine vaccination by 2018, and Japanese Encephalitis, Pneumococcal, Rotavirus and Human Papilloma Virus in the next few years. While the introduction of new vaccines is important to ensure Indonesia is better equipt to address vaccine-preventable diseases, at the same time, Indonesia needs to ensure access and adequate coverage of existing vaccines to prevent illnesses and deaths due to vaccine-preventable diseases.

Under Five Services

There is a big variation in the availability of health services and nutrition services for children under age of 5 at the *Posyandu*. For instance, all *Posyandu* surveyed provided child weighing services, but only 74 percent of the facilities have length or height measurement services available. At 34 percent reported availability, head circumference is even less likely to be measured. Key nutrition-specific interventions, such as Vitamin A supplementation and deworming are reported to be highly available at *Posyandu* (90 percent and above) but only 63 percent of *Posyandu* provide psychosocial stimulation. Although not a national program, multiple micronutrient powder (Taburia) is reported to be available in 3 percent of *Posyandu*, most likely supported by donors and NGOs. *Kader* are more likely to advise carers of underweight children to increase food intake (89 percent) as opposed to referring them to midwives (21 percent) or *Puskesmas* (20 percent) for further care.

[49] National Immunization Coverage Survey 2007; Riskesdas 2010

Counselling and Home Visits

One particular weakness of the *Posyandu* is the ability to elicit behavior change for caring and nurturing practices through effective interpersonal communication (IPC), which includes personal and group counselling. As detailed in Table 2, 76 percent of *Posyandu* were able to deliver counselling on IYCF, 71 percent on infant health and child health, 50 percent on Clean and Healthy Lifestyle (PHBS), but only a disappointingly low 39 percent of *Posyandu* were able to provide group counselling for mothers of children under five.

At the time of the survey, only 35 percent of *Kader* report conducting any kind of home visit, for those that did conduct home visits the majority only saw between 1-5 households in the last month for less than 10 minutes per household (62 percent of *Kader* actually report spending 10 or fewer minutes with a single family). In general, most counselling was provided in a group setting and, for the few *Kader* that noted challenges providing counselling, they cited the key obstacle being mothers and caregivers not understanding key messages.

Table 2. *Posyandu* Service Availability

	N	%
Antenatal Care		
Weight measurement (every visit)	205	61%
Height measurement (not part of routine monitoring)	128	38%
Iron folic acid supplementation	157	46%
Nutritional status monitoring (upper arm circumference measurement)	156	46%
Class for pregnant women (Kelas Ibu Hamil)	101	30%
Counselling on healthy diet during pregnancy	305	90%
Counselling on exclusive breastfeeding	314	93%
Counselling on early breastfeeding initiation (IMD)	9	3%
At least one not available	295	87%
Postnatal Care		
Post-natal Vitamin A supplementation	152	45%
Counselling on family planning after delivery	160	47%
Counselling on neonatal care	138	41%
Counselling on exclusive breastfeeding	181	53%
At least one not available	170	71%
Basic Child Immunization		
BCG	174	51%
Polio	182	54%
DTP-HepB	118	35%
DTP-HepB-HiB	104	31%
Measles	158	47%
Under Five Child Health and Nutrition		
Vitamin A supplementation	314	93%
Weight measurement	339	100%
Length/height measurement	252	74%
Head circumference measurement	114	34%

Growth status check	266	78%
Counseling on Infant Young Child Feeding	259	76%
Class for mothers of children under five (Kelas Ibu Balita)	131	39%
Education and counseling on infant and child health	241	71%
Provision on multiple micronutrient powder (Taburia)	9	3%
Early stimulation, detection and intervention of growth and development	214	63%
Provision of deworming medicine	305	90%
Counselling on Perilaku Hidup Bersih dan Sehat (PHBS)	171	50%
***Kader* conducted home visits in last month**	115	35%
Number of homes visited by *kader* in the last month		
1-5 homes	74	47%
6-10 homes	32	21%
> 10 homes	50	32%
Amount of time spent in home for home visit		
< 10 minutes	97	62%
10-15 minutes	43	27%
20-30 minutes	16	10%

Nutrition-Specific and Nutrition-Sensitive Service Convergence

The convergence approach capitalizes on the synergy between combined nutrition-specific and nutrition-sensitive interventions working together in the same selected geographical areas and targeting to the most vulnerable low income population are critical to achieving tangible results. However, results from QSDS confirm that at present the majority of *Posyandu* surveyed do not typically sequence services with other community-level efforts to support improved health outcomes. *Posyandu* were more likely to offer Elderly *Posyandu* (*Posyandu* Lansia) and Early Child Education and Development (PAUD) services. Although other services, such as adolescent reproductive health, WASH, and food diversification and plant cultivation programs have been reported in *Posyandu*, in general, the percentages of *Posyandu* delivering such services is low (5 percent or less). This indicated weak convergence of nutrition-specific and nutrition-sensitive interventions at the village level.

Table 3. *Posyandu* Collaboration with Other Community Services in Last 12 Months

	N	**%**
Elderly Posyandu (Posyandu Lansia)	144	42%
Early Child Education and Development (PAUD)	43	13%
Food diversification and medicinal plant herbs cultivation (TOGA)	17	5%
Community saving (Tabumas)	16	5%
Maternal saving (Tabulin)	11	3%
Clean water and environment sanitation development (PAB-PLP)	11	3%
Adolescent reproductive health (KRR/BKR)	18	5%
Others	14	4%
No other services	152	45%

Availability and Status of Key Equipment at *Posyandu*

Only 59 percent of *Posyandu* reported having a functional infant (<1 year old) scale. In most cases where an infant scale was not available *Posyandu* reported replacing the scale with another item, presumably an adult scale. In the case that *Posyandu* did have an infant scale available 40 percent of health posts reported never having it calibrated either because it was brand-new or *Kader* felt it did not need calibration. Availability of child scales for those 1-5 years of age were more prevalent among *Posyandu* – 92 percent of *Posyandu* reported having a functioning child scale available to community participants. However, child scales had never been calibrated in over 50 percent of surveyed *Posyandu*.

By comparison height measurement tape was only available in 67 percent of *Posyandu*, and length taking board in 30 percent. In the instance that it was not available *Posyandu Kader* most often substituted with a midline or similar instrumentation. Only 50 percent of *Posyandu* said that they had a Mid-upper Arm Circumference (MUAC) measuring tape, although only 1 percent of *Posyandu Kader* report having it available during the last *Posyandu* session – the most common explanation for the unavailability of MUAC was that *Kader* felt the item was not needed.

KMS cards were available in 93 percent of *Posyandu* that month, and KIA books in 88 percent of *Posyandu* that month. Flip charts were less present, as only 45 percent of *Posyandu* had one available to facilitate child nutrition messaging and counselling during the month's *Posyandu* session.

Posyandu remain largely supported by *Puskesmas* for equipment, vitamins and medicine supplies.

Table 4. *Posyandu* Key Equipment Availability and Functional Status

	Available		Functioning	
	N	**%**	**N**	**%**
Adult weighting scale	312	92%	286	95%
Infant weighing scale	200	59%	195	91%
Child weighing scale	312	92%	313	100%
Height measurement tape	227	67%	213	100%
Length measurement board	102	30%	114	100%
MUAC measurement tape	170	50%	196	100%
KMS (during last Posyandu session)	315	93%	NA	NA
Buku KIA (during last Posyandu session)	298	88%	NA	NA
Flip chart (during last Posyandu session)	153	45%	NA	NA

Guidelines Availability

Guidelines for *Posyandu Kader* were also not available in most health posts. Seventy-three percent of *Posyandu* reported having guidelines for *Kader* available, while just 46 percent reported having guidelines governing the management of *Posyandu* present at the last session. Also troubling was the lack of available guidelines on IYCF reported present at the last *Posyandu* session. Just over half of *Posyandu* had guidelines for complementary feeding (MP-ASI) available at last *Posyandu* session. When pressed on why guidelines on IYCF and *Posyandu* management were not available most *Posyandu Kader* reported not knowing that the document existed (44 percent) or cited distribution problems from the *Puskesmas*.

Table 5. Guidelines Availability at Last *Posyandu* Session

	N	**%**
Guidelines for Posyandu kader	247	73%
Guidelines for Posyandu management	155	46%
Guidelines for complementary feeding (MP-ASI)	183	54%

Capacity Building

Just 13 percent of *Kader* received any training before starting work at their local *Posyandu*. About half (51 percent) received training after starting their work. In the year preceding the survey, about 190 *Kader* received training. About 50 percent of the *Kader* interviewed received technical training for nutrition and maternal child health services, as detailed in Table 6. Training for behaviour change communication methods including counselling, home visits, and community mobilization was sorely lacking, with only 26 percent, 20 percent and 26 percent of *Kader* reported receiving such training respectively.

Table 6. Training Received by *Posyandu Kader*

	N	%
Training received before starting work at *Posyandu*	229	13%
Training received after starting work at *Posyandu*	900	51%
Types of training received in the last 12 months		
Early initiation of breastfeeding	89	47%
Exclusive breastfeeding	125	66%
Locally-based complementary feeding	89	47%
Message on active feeding	93	49%
Proper growth measurement technique	89	47%
Analysis of growth chart	89	47%
Identification of malnourished children through general management & referral	82	43%
Community based Integrated Management of Childhood Ilnesses (IMCI)	11	6%
Immunization training	95	50%
Personal hygiene and sanitation	99	52%
Family balanced diet	80	42%
Counselling method	49	26%
Home visit methods	38	20%
Family planning counseling	87	46%
Community mobilization	49	26%
Kartu Menuju Sehat (KMS) completion	105	55%
Sistem informasi posyandu (SIP)	89	47%

Kader Financial Incentives

Kader are more likely to receive compensation in the form of honorium (45 percent) or reimbursement for transportation expenses (49 percent). About 62 percent reported receiving incentives regularly. Incentive amounts were typically less than Rp. 50,000 per *Posyandu* meeting. Most *Kader*, 61 percent, felt that the cash incentives they received from the *Posyandu* were insufficient.

Table 7. Incentives Received by *Kader*

	N	%
Types of incentives received by *Posyandu kader*		
Food basket	24	7%

Transport/allowance	149	45%
Health compensation	11	3%
Honorarium	161	49%
Recreation	23	7%
Clothes	4	1%
Others	6	2%
None received	28	8%
Frequency of incentive		
Regular	195	62%
Irregular	118	38%
Total amount of incentive provided to *kader*		
< Rp10,000	53	16%
Rp10,000-50,000	193	57%
Rp50,000-100,000	54	16%
Rp100,001-Rp500,000	18	5%
Not given	20	6%
Incentive sufficiency according to *kader*		
Very sufficient	0	0%
Sufficient	122	39%
Insufficient	191	61%

Posyandu Governance, Accountability, and Reporting Systems

At the village level, the *Posyandu* Working Group (*Pokjanal Posyandu*) provides management support to the *Posyandu*. The *Pokjanal Posyandu* is a village-level structure charged with improving the function of community *Posyandu*. Specifically, this group is charged with three areas of *Posyandu* management including: programmatic content, institutional and human resource management. *Pokjanal Posyandu* are also charged with the critical role of relating information about village *Posyandu* and its outcomes back to the leadership of the subdistrict, district, mayor and governor of a province.

Kader reflections on the ways in which the *Pokjanal Posyandu* had contributed back to the *Posyandu* were consistent with the main functional areas of the working group. Ninety-one percent of *Kader* reported that *Pokjanal Posyandu* managed data related to the *Posyandu*, taking a lead role in relating this information back to the head of the village and to the sub-district level *Pokjanal Posyandu*. Another 89 percent said the working group played a role in mobilizing the community to support and establish new and existing *Posyandu*. Somewhat fewer *Kader* report that the *Pokjanal Posyandu* were effective in creating annual plans or fundraising for *Posyandu* – 71 percent of *Kader* report that the *Pokjanal* set annual activities and 57 percent report that the *Pokjanal Posyandu* played a role in raising needed financing for *Posyandu*.

The overwhelming majority of *Kader* felt that village government was supportive of them and the activities of the *Posyandu*. They also felt that village-level government contributed to the *Posyandu* through policies and coordination of *Posyandu* staff, *Unit Pengelola Kegiatan* (UPK) and community leaders. Eighty-one percent also felt that the village-level government was effective in providing the *Posyandu* with needed financial inputs. *Kader* felt that to a lesser extent local government was successful in providing in-kind donations—for which only 54 percent of *Kader* agreed. *Kader* felt shortages of budget resources and lack of dedicated staff were main reasons for the lack of village government support to *Posyandu*.

Posyandu Kader still rely largely on the traditional, offline method of reporting administrative and coverage data to midwives. Midwives then collect the data for the entire village and submit the data to *Puskesmas* where data are compiled for the sub-district level, which could be done online or offline. The *Sistem Information Posyandu* (SIP), a reporting system used to collect information about *Posyandu* activities and child health outcomes is largely used for this purpose and was present in 68 percent of *Posyandu* reporting. More common was the use of SKDN data. The SKDN is information

collected, typically in hard-copy form, and recorded in each child's KMS book. This indicator records whether or not a child has gained sufficient weight in the past month. Eighty-six percent of *Posyandu* reporting collected SKDN data. Despite a standardized manner of reporting, issues with data validity, data timeliness and *Kader*'s ability to interpret, internalize and utilize the data remains.

Despite issues of ambigous ownership and chain of command, *Posyandu* continue to provide data to *Puskesmas* (97 percent – midwife and other *Puskesmas* staff). Only one percent provided child health data to the head of the village. Perhaps more telling is the ways in which *Posyandu* used data that had been collected during monthly health posts. Sixty-six percent of *Posyandu* reported receiving feedback on their data collection activities, which most often were used to track beneficiaries and monitor their own performance. Far fewer *Posyandu*, only 24 percent, used recorded data to do any planning or budgeting for coming years or to strengthen local advocacy efforts with local government. Among those *Posyandu* that reported doing limited or no management information system (MIS) they often cited lack of *Kader* knowledge that certain forms were required by *Puskesmas*. The village *Pokjanal Posyandu* played a significant role in managing data and information related to the *Posyandu*, as reported by 91 percent of respondents.

Table 8. *Posyandu* Reporting System and Management Functions

	N	%
Sistem Information Posyandu (SIP) exists in Posyandu	230	68%
Posyandu has SKDN information	292	86%
Parties given Posyandu data		
Village-midwife	277	82%
Puskesmas staff other than village mid-wife	50	15%
Pokjanal Posyandu/Pokja IV	1	0%
Head of village	3	1%
Others	7	2%
Posyandu received feedback on data collection activities	224	66%
Use of Posyandu data record		
Beneficiaries tracking	236	70%
Planning and budgeting	80	24%
Considered for advocacy by local government	35	10%
Monitoring Posyandu's performance	143	42%
Only for reporting requirements	65	19%
Others	32	9%
Village Pokjanal Posyandu functions		
Manage data/info related to Posyandu	194	91%
Make annual activity plan	152	71%
Mobilize fund sources to support Posyandu	123	57%
Guide Posyandu activities and kader performance	176	82%
Mobilize community participation in developing Posyandu	190	89%
Report Posyandu activity result to Kepala Desa and Pokjanal Posyandu Kecamatan	182	85%
Village government support to Posyandu		
Provide policy guidance to Posyandu activities	281	83%
Provide funding for Posyandu activities	274	81%

Provide in-kind contribution for Posyandu activities	181	54%
Mobilize community to attend Posyandu	289	85%
Coordinate Posyandu kader, UPK, and community leaders	294	87%
Follow-up on Posyandu results fo improving health and nutrition issues	251	74%

Posyandu Financing

The majority of *Posyandu* received donations in the form of either direct cash subsidies, or in-kind donations, such as a venue to conduct monthly activities. Slightly more than 90 percent of *Posyandu* reported receiving cash contributions in the last 12 months, of which 54 percent were more likely to receive cash contribution from *Puskesmas*. Secondary sources of cash contributions to *Posyandu* were from village funds and village budgets. *Posyandu* were also 20 percent more likely to receive cash contribution from the users of the *Posyandu* i.e. mothers and carers. Thirty-four percent of *Posyandu* also received contributions in the form of a venue. Another significant source of inputs into the *Posyandu* was through work performed by the *Kader* themselves – 70 percent of *Posyandu* report receiving contributions from *Kader* in the form of crafts or *Taman Obat Keluarga*.

Community Mobilization and Engagement

Posyandu, is at its very essence, a community effort - established by, managed by, and created for the community. *Kader* play a very important role in empowering the community and generating demand for accessible and quality health services in the villages.

Posyandu Kader are tasked to mobilize the community, for example, in cases of non-participation for mothers, carers, and children. According to the QSDS, the most common way of reaching out to the community was through home visits (39 percent), followed by announcements of *Posyandu* sessions at religious meetings (18 percent), and routine announcements at neighbourhood or community meetings (17 percent). About 13 percent carried out announcements at PKK sessions and 10 percent utilized mobile phones to contact the mothers and carers (e.g. text, call, chat).

To mobilize the community, close to 60 percent of *Posyandu* conducted sweepings for non-attending mothers, carers and children, with the majority (38 percent) of *Posyandu* conducting 1 to 2 sweeping sessions in the past year. Surprisingly, a similar number (35 percent) of *Posyandu* conducted 12 sweeping sessions in the last year, which averages on 1 to 2 sessions per month.

Larger community forums that bring together *Posyandu* personnel and community members were only conducted about half (56 percent) of the villages reporting. Of those who held meetings, very few—20 percent, used it as an opportunity to discuss data from the *Posyandu*. The majority of attendees at community forums were not community members, but rather village-level leadership including PKK members, *Pokjanal* officials and other officials. Community members were present at forums in only 11 percent of respondents' villages.

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